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Foreword

This volume contains quotations from internationally peer-reviewed suicide research published during the semester November 2014 – April 2015; it is the thirteenth of a series produced biannually by our Institute with the aim of assisting the Commonwealth Department of Health in being constantly updated on new evidences from the scientific community.

As usual, the initial section of the volume collects a number of publications that could have particular relevance for the Australian people in terms of potential applicability. These publications are accompanied by a short comment from us, and an explanation of the motives that justify why we have considered of interest the implementation of studies’ findings in the Australian context. An introductory part provides the rationale and the methodology followed in the identification of papers.

The central part of the volume represents a selection of research articles of particular significance; their abstracts are reported in extenso, underlining our invitation at reading those papers in full text: they represent a remarkable advancement of suicide research knowledge.

The last section reports all items retrievable from major electronic databases. We have catalogued them on the basis of their prevailing reference to fatal and non-fatal suicidal behaviours, with various sub-headings (e.g. epidemiology, risk factors, etc). The deriving list guarantees a level of completeness superior to any individual system; it can constitute a useful tool for all those interested in a quick update of what is most recently published on the topic.

Our intent was to make suicide research more approachable to non-specialists, and in the meantime provide an opportunity for a vademecum of quotations credible also at the professional level. A compilation such as the one that we provide here is not easily obtainable from usual sources and can save a considerable amount of time to readers. We believe that our effort in this direction may be an appropriate interpretation of one of the technical support roles to the Government that the status of National Centre of Excellence in Suicide Prevention — which has deeply honoured our commitment — entails for us.

The significant growth of our centre, the Australian Institute for Suicide Research and Prevention, and its influential function, both nationally and internationally, in the fight against suicide, could not happen without the constant support of Queensland Health and Griffith University. We hope that our passionate dedication to the cause of suicide prevention may compensate their continuing trust in our work.

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Introduction

Context

Suicide places a substantial burden on individuals, communities and society in terms of emotional, economic and health care costs. In Australia, about 2000 people die from suicide every year, a death rate well in excess of transport-related mortality. At the time of preparing this volume, the latest available statistics released by the Australian Bureau of Statistics\(^1\) indicated that, in 2013, 2,522 deaths by suicide were registered in Australia, representing an age-standardised rate of 10.7 per 100,000.

Despite the estimated mortality, the prevalence of suicide and self-harming behaviour in particular remains difficult to gauge due to the often secretive nature of these acts. Without a clear understanding of the scope of suicidal behaviours and the range of interventions available, the opportunity to implement effective initiatives is reduced. Further, it is important that suicide prevention policies are developed on the foundation of evidence-based empirical research, especially as the quality and validity of the available information may be misleading or inaccurate. Additionally, the social and economic impact of suicide underlines the importance of appropriate research-based prevention strategies, addressing not only significant direct costs on health system and lost productivity, but also the emotional suffering for families and communities.

The Australian Institute for Suicide Research and Prevention (AISRAP) has, through the years, gained an international reputation as one of the leading research institutions in the field of suicide prevention. The most important recognition came via the designation as a World Health Organization (WHO) Collaborating Centre in 2005. In 2008, the Commonwealth Department of Health (DoH) appointed AISRAP as the National Centre of Excellence in Suicide Prevention. This latter recognition awards not only many years of high quality research, but also of fruitful cooperation between the Institute and several different governmental agencies.

As part of this mandate, AISRAP is committed to the creation of a databank of the recent scientific literature documenting the nature and extent of suicidal and self-harming behaviour and recommended practices in preventing and responding to these behaviours. The key output for the project is a critical bi-annual review of the national and international literature outlining recent advances and promising developments in research in suicide prevention, particularly where this can help to inform national activities. This task is not aimed at providing a critique of new researches, but rather at drawing attention to investigations that may have particular relevance to the Australian context. In doing so, we are committed to a user-friendly language,
in order to render research outcomes and their interpretation accessible also to a non-expert audience.

In summary, these reviews serve three primary purposes:
1. To inform future State and Commonwealth suicide prevention policies;
2. To assist in the improvement of existing initiatives, and the development of new and innovative Australian projects for the prevention of suicidal and self-harming behaviours within the context of the Living is for Everyone (LIFE) Framework (2008);
3. To provide directions for Australian research priorities in suicidology.

The review is presented in three sections. The first contains a selection of the best articles published in the last six months internationally. For each article identified by us (see the method of choosing articles described below), the original abstract is accompanied by a brief comment explaining why we thought the study was providing an important contribution to research and why we considered its possible applicability to Australia. The second section presents the abstracts of the most relevant literature — following our criteria — collected between November 2014 and April 2015; while the final section presents a list of citations of all literature published over this time-period.

**Methodology**

The literature search was conducted in four phases.

**Phase 1**

Phase one consisted of weekly searches of the academic literature performed from November 2014 to April 2015. To ensure thorough coverage of the available published research, the literature was sourced using several scientific electronic databases including: PubMed, ProQuest, Scopus, Safetylit and Web of Science, using the following key words: *suicide OR suicidal OR self-harm OR self-injury OR parasuicide*.

Results from the weekly searches were downloaded and combined into one database (deleting duplicates).

Specific inclusion criteria for Phase 1 included:

- **Timeliness**: the article was published (either electronically or in hard-copy) between November 2014 to April 2015;
- **Relevance**: the article explicitly referred to fatal and/or non-fatal suicidal behaviour and related issues and/or interventions directly targeted at preventing/treating these behaviours.
- The article was written in English.

Articles about euthanasia, assisted suicide, suicide terrorist attacks, and/or book reviews, abstracts and conference presentations were excluded.
Also, articles that have been published in electronic versions (ahead of print) and therefore included in the previous volume (Volumes 1 to 12 of Suicide Research: Selected Readings) were excluded to avoid duplication.

**Phase 2**

Following an initial reading of the abstracts (retrieved in Phase 1), the list of articles was refined down to the most relevant literature. In Phase 2 articles were only included if they were published in an international, peer-reviewed journal.

In Phase 2, articles were excluded when they:

- were not particularly instructive or original
- were of a descriptive nature (e.g. a case-report)
- consisted of historical/philosophical content
- were a description of surgical reconstruction/treatment of self-inflicted injuries
- concerned biological and/or genetic interpretations of suicidal behaviour, the results of which could not be easily adoptable in the context of the LIFE Framework.

In order to minimise the potential for biased evaluations, two researchers working independently read through the full text of all articles selected to create a list of most relevant papers. This process was then duplicated by a third researcher for any articles on which consensus could not be reached.

The strength and quality of the research evidence was evaluated, based on the Critical Appraisal Skills Programme (CASP) Appraisal Tools published by the Public Health Resource Unit, England (2006). These tools, publically available online, consist of checklists for critically appraising systematic reviews, randomized controlled trials (RCT), qualitative research, economic evaluation studies, cohort studies, diagnostic test studies and case control studies.

**Phase 3**

One of the aims of this review was to identify research that is both evidence-based and of potential relevance to the Australian context. Thus, the final stage of applied methodology focused on research conducted in countries with populations or health systems sufficiently comparable to Australia. Only articles in which the full-text was available were considered. It is important to note that failure of an article to be selected for inclusion in Phase 3 does not entail any negative judgment on its ‘objective’ quality.

Specific inclusion criteria for Phase 3 included:

- applicability to Australia
- the paper met all criteria for scientificity (i.e., the methodology was considered sound)
- the paper represented a particularly compelling addition to the literature, which would be likely to stimulate suicide prevention initiatives and research
- inevitably, an important aspect was the importance of the journal in which the paper was published (because of the high standards that have to be met in order
to obtain publication in that specific journal); priority was given to papers published in high impact factor journals

- particular attention has been paid to widen the literature horizon to include sociological and anthropological research that may have particular relevance to the Australian context.

After a thorough reading of these articles (‘Key articles’ for the considered time frame), a written comment was produced for each article detailing:

- methodological strengths and weaknesses (e.g., sample size, validity of measurement instruments, appropriateness of analysis performed)
- practical implications of the research results to the Australian context
- suggestions for integrating research findings within the domains of the LIFE framework suicide prevention activities.

Figure 1 — Flowchart of process.
Phase 4

In the final phase of the search procedure all articles were divided into the following classifications:

- *Fatal suicidal behaviour* (epidemiology, risk and protective factors, prevention, postvention and bereavement)
- *Non-fatal suicidal/self-harming behaviours* (epidemiology, risk and protective factors, prevention, care and support)
- *Case reports* include reports of fatal and non-fatal suicidal behaviours
- *Miscellaneous* includes all research articles that could not be classified into any other category.

Allocation to these categories was not always straightforward, and where papers spanned more than one area, consensus of the research team determined which domain the article would be placed in. Within each section of the report (i.e., Key articles, Recommended readings, Citation list) articles are presented in alphabetical order by author.

References

Key Articles
Suicide around anniversary times
Barker E, O’Gorman J, De Leo D (Australia)
Omega 69, 305-310, 2014

The anniversary of the loss of a loved one is known to induce negative emotions, which for some can be significant. The present study examined the incidence of suicide around the time of such anniversaries using data from the Queensland Suicide Register for the years 1998 to 2008. There were statistically significant increases in suicide events immediately after the loss of a loved one and around the anniversary of the loss. Limitations of the study are noted.

Comment

Main Findings: Limited research has been conducted on the incidence of suicides on or around the anniversary of a loved one’s death. As bereavement of a loved one can be enduring, eliciting psychiatric and physiological reactions surrounding the anniversary, this study aimed to evaluate the anniversary of a loved one’s death as a potential risk factor for suicide. Cases from the Queensland Suicide Register (QSR) during 1998 until 2008 were examined to identify suicides that occurred around the anniversary of a loved one’s death. A total of 137 cases had bereavement listed as a possible trigger for suicide, and the exact date of death of their respective loved one was recorded in the available documents. The number of days between the anniversary of a loved one’s death and suicide was calculated and subsequently analysed. Of 137 cases, 94 suicides (68.6%) occurred before the first anniversary of a loved one’s death, with the average number of days from death to suicide equating to 220.5 days, 97 (70.8%) were males and 40.8 years was the average age at time of death. Twenty-four suicides (17.5%) of the 137 cases were bereaved by the loss of a spouse whereas 56.2% were bereaved by a family member. For 34.3% of cases, the loved one died by suicide whilst in 51.8% of cases, the loved one died by other causes. Seventy-nine (57.7%) occurred within the first six months of the death of a loved one and of these, 25.3% occurred within the first five days and 49.4% occurred within the first 30 days. Of the remaining 58 (42.3%) suicides that occurred more than six months after the death, 22.4% occurred within five days of an anniversary of the death and 29.3% occurred within 30 days. Of those suicides occurring within 30 days of an anniversary, 88.2% involved the death of a family member whilst no deaths involved the anniversary of the death of a spouse.

Implications: Although the authors attempted to ensure recording was comprehensive and systematic, there is no guarantee that all cases, in which bereavement was a potential trigger, were included. Furthermore, whilst 137 cases were selected for analysis based on provision of exact dates of the loved one’s death, this sample represents a sub-sample of a larger collection of people who suffered loss and subsequently died by suicide. Despite such limitations, this study highlights the significant life event of losing a loved one as being a possible etiological factor for suicide. A remarkable number of suicides in the days following loss, and a lower
but still relevant incidence of suicides within 30 days of the anniversary, were identified in the study. The anniversary of the death is likely to engender memories of a loved one and associated emotions, as suggested by other studies of anniversary reactions\(^1\). In light of these findings, there is a need for increased vigilance by those people in the bereaved person’s social environment. Particular organisations in Australia, such as Lifeline, aim to provide useful information for helping someone who is grieving and offer services such as face-to-face interviews for those dealing with grief and loss\(^2\).

**Endnotes**

Association of poor subjective sleep quality with risk for death by suicide during a 10-year period: A longitudinal, population-based study of late life


Importance: Older adults have high rates of sleep disturbance, die by suicide at disproportionately higher rates compared with other age groups, and tend to visit their physician in the weeks preceding suicide death. To our knowledge, to date, no study has examined disturbed sleep as an independent risk factor for late-life suicide.

Objective: To examine the relative independent risk for suicide associated with poor subjective sleep quality in a population-based study of older adults during a 10-year observation period.

Design, Setting, and Participants: A longitudinal case-control cohort study of late-life suicide among a multisite, population-based community sample of older adults participating in the Established Populations for Epidemiologic Studies of the Elderly. Of 14,456 community older adults sampled, 400 control subjects were matched (on age, sex, and study site) to 20 suicide decedents.

Main Outcomes and Measures: Primary measures included the Sleep Quality Index, the Center for Epidemiologic Studies-Depression Scale, and vital statistics.

Results: Hierarchical logistic regressions revealed that poor sleep quality at baseline was significantly associated with increased risk for suicide (odds ratio [OR], 1.39; 95% CI, 1.14-1.69; P < .001) by 10 follow-up years. In addition, 2 sleep items were individually associated with elevated risk for suicide at 10-year follow-up: difficulty falling asleep (OR, 2.24; 95% CI, 1.27-3.93; P < .01) and nonrestorative sleep (OR, 2.17; 95% CI, 1.28-3.67; P < .01). Controlling for depressive symptoms, baseline self-reported sleep quality was associated with increased risk for death by suicide (OR, 1.30; 95% CI, 1.04-1.63; P < .05).

Conclusions and Relevance: Our results indicate that poor subjective sleep quality is associated with increased risk for death by suicide 10 years later, even after adjustment for depressive symptoms. Disturbed sleep appears to confer considerable risk, independent of depressed mood, for the most severe suicidal behaviors and may warrant inclusion in suicide risk assessment frameworks to enhance detection of risk and intervention opportunity in late life.

Comment

Main Findings: Research has indicated a link between sleep disturbances such as nightmares, insomnia and poor sleep quality with an increased risk for suicidal ideation, suicide attempts and death by suicide. Considering that depression is one of the important predictors of suicide, much past research has failed to account for depression’s confounding presence and thus has been unsuccessful in determining whether sleep disturbance is an independent risk factor for suicide. This cohort study explored whether subjective sleep disturbance conferred inde-
pendent risk for suicide compared with control subjects in older adults across a 10-year time span. It was hypothesised that disturbed sleep would predict increased suicide risk and this effect would hold true after adjusting for concomitant mood symptoms. An exploratory evaluation of individual sleep items was conducted in regard to their prediction of suicide risk. Participants were recruited between 1981 and 1991. Data was collected from 14,456 older adults aged 65 years and older, as sleep difficulties are especially common in late life\(^3\). Complete data files were available for 20 out of the 21 suicide decedents, and they were subsequently matched with controls by age, sex and location. As a result, the final sample consisted of 400 controls and 20 suicide decedents.

Participants ranged from 66 to 90 years of age. Suicide decedents’ deaths occurred, on average, within two years from baseline. Ninety-five percent of suicide decedents were males. The most common method of suicide was firearms (62%) followed by hanging (9.5%), cutting (9.5%), poisoning, drowning, lethal jump and suffocation (all 4.8%). Poor subjective sleep quality at baseline was associated with increased suicide risk at 10 year follow-up (p< .001), with those reporting poorer sleep quality showing a 1.4 times increased risk of suicide. This effect remained statistically significant (p<.05), after controlling the effect of depressed mood, showing those with poor sleep quality at baseline at a 1.2 times increased risk of suicide death during the 10 year period. When individual items measuring sleep quality were analysed, two were significantly associated with increased risk of suicide at 10 year follow-up: non-restorative sleep (p<.01) and difficulty falling asleep (p<.01). However, after adjusting for the influence of depressed mood, this effect was only significant for non-restorative sleep (p<.05).

**Implications:** Several limitations were present in this study. Firstly, the subjective nature of measuring sleep quality using a self-report questionnaire may have impacted on the results, as participants potentially presented with underlying sleep disorders (i.e. chronic insomnia). Moreover, other important covariates (i.e. medical conditions) that may have impacted sleep quality were not included in this study. Despite limitations, findings prove valuable, demonstrating the importance of assessing sleep quality in the presence of other well renowned risk factors for suicide. This study also identifies sleep as a potential intervention tool and a novel therapeutic target for evidence-based suicide risk assessment frameworks, suicide prevention strategies and clinical practice guidelines for those in late life. Overall findings give rise to potential future research that may identify possible explanatory mechanisms for the relationship between poor sleep quality and suicide risk. As the sample for this study consisted of mostly white older males from the United States, additional research should be conducted with a more generalisable sample. The majority of the research regarding the link between sleep quality and risk of suicide has come from the United States and there is no known research on this topic in Australia. Australian research is therefore encouraged. Furthermore, as suicides occurred within approximately two years of the study commencing, further efforts into whether there is indication that disturbed sleep may confer risk within a relatively acute timeframe is viable.
Endnotes


Gender differences in mental disorders and suicidality in Europe: Results from a large cross-sectional population-based study

Journal of Affective Disorders 173, 245-254, 2015

Introduction: When evaluating gender differences in mental disorders and suicidality, specifically between European countries, studies are sparse and frequently hindered by methodological issues, such as the limited items evaluated and inconsistent sampling designs.

Methods: In ten European countries participating in the World Mental Health Survey Initiative, lifetime internalizing and externalizing disorders and suicidality were assessed among 37,289 respondents. Disorders were classified using DMS-IV criteria. Odds ratios (OR) for gender differences were calculated using logistic regression, while trends across age-groups were tested via gender × age interaction.

Results: Within countries, prevalence of any lifetime internalizing disorder ranged from 10.8% to 44.5% among women and 5.9% to 26.5% among men, with women having consistently higher odds than men (OR range: 1.52-2.73). Prevalence of any lifetime externalizing disorders ranged from 0.2% to 6.6% among women and 2.2% to 22.4% among men, with women having consistently lower odds than men (OR range: 0.05-0.35). Any lifetime suicide attempt was found in 0.8-5.4% of women and 0.3-2.4% of men, showing inconsistent relative gender-differences across countries (OR range: 0.77-4.72). Significant effects in gender OR across age-groups were not observed for any internalizing disorder or suicide attempt, yet were present for any externalizing disorder in France (p=0.01), the Netherlands (p=0.05), and Spain (p=0.02).

Limitations: Mental disorders were assessed with the CIDI 3.0 and not psychiatric evaluations. Suicidality does not fully represent more important clinical events, such as suicide mortality.

Conclusions: Consistent across European countries, internalizing disorders are more common among women and externalizing disorders among men, whereas gender differences in suicidality varied.

Comment

Main Findings: Research has proposed a notable difference between women and men in how mental disorders manifest¹, indicating women are twice as likely to have mood and anxiety disorders whereas men are four times more likely to have impulsive and substance-use disorders². The main aim of this study was to compare the prevalence of mental disorders and suicidality between genders in a variety of European counties (Belgium, France, Germany, Italy, the Netherlands, Spain, Bulgaria, Romania, Northern Ireland and Portugal). Trends across different age groups were also analysed. Data was obtained via the World Mental Health Survey Initiative during the period of 2001 to 2009 from a total of 37,289 respon-
dents across the ten different countries. Questions were administered by interviewers using a computer-assisted face-to-face interview. Mental disorders were categorised into two groups, internalising disorders (mood and anxiety disorders) and externalising disorders (including attention-deficit, conduct, alcohol and drug-use disorder). In addition, specific questions were asked regarding suicidal thoughts, suicide plans and suicide attempts.

Results showed disparity in the prevalence of internalising disorders between women and men, with women having a significantly higher prevalence than men across all ten European countries. Romania presented with the lowest prevalence for both men and women (5.9% and 10.8% respectively) whereas France presented with the highest prevalence of internalising disorders (26.5% and 44.5% respectively). Conversely, a variation was also found regarding the prevalence of externalising disorders between women and men, with men having significantly higher incidences than women in all ten counties. Italy presented with the lowest prevalence of externalising disorders for both women and men (0.2% and 2.2% respectively) whereas Northern Ireland presented with the highest (6.6% and 22.4% respectively). All countries in this study showed a trend in lower prevalence of internalising and externalising disorders with increasing age-categories for both men and women. Suicide attempts varied between women (0.8% in Bulgaria to 5.4% in France) and men (0.3% in Bulgaria to 2.4% in Northern Ireland) with women exceeding or equalling those of men across all ten countries, with statistically significantly higher prevalence in six countries (Belgium, France, Germany, Bulgaria, Italy and Portugal). Severity of suicide attempt was measured when participants were asked to describe their attempt as either high, moderate or low, ranging from “I made a serious attempt to kill myself and it was only luck that I did not succeed” to “My attempt was a cry for help, I did not intend to die”. No significant differences were found between genders across all countries except for men in Bulgaria who were less likely to report severe attempts than women (53% vs 63.6% out of all suicide attempts respectively). In general, most countries showed lower prevalence of suicidal thoughts (except Germany, Bulgaria and Romania), plans (except Bulgaria, Romania and Portugal), and attempts (except Romania) in older age-groups. Women had a lower median age of onset for suicidal attempts than men, with a statistically significant difference only in France (21 years vs 29 years) for women and men respectively (p=0.02).

Implications: Several limitations were addressed by the authors. Firstly, the way in which mental disorders and suicidality were measured was from self-reported responses, making the subjective nature of the data vulnerable to recall bias. In addition, lower response rates for certain countries may have impacted on their overall representativeness with France having the lowest response rate of 45.9% and Spain having the highest of 78.6%. The between-gender odds ratios for certain countries may have been inflated due to the low occurrence of externalising disorders and suicide attempts. Previous research has shown that women are more likely to meet the criteria for depressive disorder as they tend to report more
traditional symptoms of depression than males\(^3\), possibly contributing to the higher prevalence of internalising disorders in this study. This study found that both genders have similar prevalence of mental health problems; however the way in which these mental health problems are expressed differs considerably between men and women. Nevertheless, women were two times more likely to have internalising disorders than men and the inverse occurred for externalising disorders. However, an association between higher rates of suicidal behaviour in women, and their increased risk of developing an internalising disorder, has been also shown in an Australian mental health survey\(^4\). In addition, higher suicide fatalities have been associated with life-threatening behaviours, including alcohol abuse, which are more prevalent in males\(^5\). In conclusion, gender-distinct prevalence of mental disorders is clinically vital in guiding mental health professionals to understand the need to assess certain disorders, especially for men as they are less likely to seek help for their suicidality and mental health problems\(^6\). Differences between genders, regarding onset of both mental disorders and suicide attempts, need to be considered to help initiate better gender-specific interventions.

**Endnotes**

Familial pathways to early-onset suicide attempt: A 5.6-year prospective study


Importance: Suicide attempts are strong predictors of suicide, a leading cause of adolescent mortality. Suicide attempts are highly familial, although the mechanisms of familial transmission are not understood. Better delineation of these mechanisms could help frame potential targets for prevention.

Objective: To examine the mechanisms and pathways by which suicidal behavior is transmitted from parent to child.

Design, Setting, and Participants: In this prospective study conducted from July 15, 1997, through June 21, 2012, a total of 701 offspring aged 10 to 50 years (mean age, 17.7 years) of 334 clinically referred probands with mood disorders, 191 (57.2%) of whom had also made a suicide attempt, were followed up for a mean of 5.6 years.

Main Outcomes and Measures: The primary outcome was a suicide attempt. Variables were examined at baseline, intermediate time points, and the time point proximal to the attempt. Participants were assessed by structured psychiatric assessments and self-report and by interview measures of domains hypothesized to be related to familial transmission (eg, mood disorder and impulsive aggression).

Results: Among the 701 offspring, 44 (6.3%) had made a suicide attempt before participating in the study, and 29 (4.1%) made an attempt during study follow-up. Multivariate logistic regression revealed that proband suicide attempt was a predictor of offspring suicide attempt (odds ratio [OR], 4.79; 95% CI, 1.75-13.07), even controlling for other salient offspring variables: baseline history of mood disorder (OR, 4.20; 95% CI, 1.37-12.86), baseline history of suicide attempt (OR, 5.69; 95% CI, 1.94-16.74), and mood disorder at the time point before the attempt (OR, 11.32; 95% CI, 2.29-56.00). Path analyses were consistent with these findings, revealing a direct effect of proband attempt on offspring suicide attempt, a strong effect of offspring mood disorder at each time point, and impulsive aggression as a precursor of mood disorder.

Conclusions and Relevance: Parental history of a suicide attempt conveys a nearly 5-fold increased odds of suicide attempt in offspring at risk for mood disorder, even after adjusting for the familial transmission of mood disorder. Interventions that target mood disorder and impulsive aggression in high-risk offspring may attenuate the familial transmission of suicidal behavior.

Comment

Main findings: Several studies have suggested the familial transmission of suicidal behaviours; however, few have examined the pathways by which this phenomenon occurs. Previous research has indicated that children of suicide attempters have a four to six times greater risk of a suicide attempt and that familial trans-
mission of mood disorders, impulsive aggression and childhood maltreatment may mediate this relationship. This study followed up the offspring of parents with mood disorders, with half of parents having had a previous suicide attempt. The authors hypothesised that parental attempted suicides would predict children's suicide attempts and this effect would stand true after controlling for the familial transmission of mood disorders. Furthermore, the familial transmission of suicidal behaviour was expected to be mediated by familial transmission of mood disorders, physical or sexual abuse and childhood and impulsive-aggressive traits. Data were collected from 701 offspring of 334 parents with mood disorders, with 57.2% having made a suicide attempt during the period spanning from July 1997 through to June 2012. Offspring were followed up from baseline for a mean of 5.6 years. Per proband, there was an average of 2.1 offspring siblings. Data were collected at three time points: 1) baseline; 2) intermediate time points, which were all time points between baseline and proximal time point; and, 3) a proximal time point, which was the point immediately before the onset of an attempt (or, for non-attempters, a maximum time point).

Offspring whose parent had a suicide attempt displayed a five times greater risk of suicide attempts, with a mean age of 20.1 years. At baseline, proband suicide attempts were significantly related to risk of offspring suicide attempt (p=.005). This effect also held constant after controlling for the significant direct effects of other significant variables: history of mood disorders in offspring at baseline (p<.001), mood disorders at the proximal time point (p<.001) and, finally, history of offspring suicide attempts at baseline (p<.001). Furthermore, the relationship also remained significant after accounting for familial transmission of mood disorders. No support was found for the prediction that familial transmission of mood disorders, physical or sexual abuse in childhood and impulsive aggressive traits would mediate the pathway between proband suicide attempts and offspring attempts. An important variable that contributed to an increased risk of offspring suicide attempt was impulsive aggression, which increased the likelihood of the development of a mood disorder, and then increased the risk of a suicide attempt. This was evident as the pathway between offspring suicide attempt at baseline and attempt at the proximal time point was mediated by offspring impulsive aggression (p=.03) and mood disorder (p=.05).

Implications: Overall, this study indicated that parental suicide attempts conveyed an almost five-fold increase in the likelihood of suicide attempts in their offspring, which was also evident when the effect of familial transmission of mood disorder was accounted for. Despite the fact that familial transmission of suicide attempts occurred independently from the transmission of a mood disorder, the variable (transmission of a mood disorder) was a significant pathway to early onset of suicidal behavior. Clinical implications include the need for assessment and early intervention in families with parents who have a mood disorder or a history of suicide attempts. Prevention and treatment strategies would prove useful by targeting mood disorders in youth in order to reduce incidence of suicide attempts. Impulsive aggression was an important precursor of mood dis-
orders and could be targeted in interventions designed to prevent those youth at high familial risk of making a suicide attempt. Such interventions need to focus on assisting young individuals with impulsive aggression to maintain better emotion regulation, which subsequently may reduce likelihood of suicide by reducing the risk of acting on suicidal impulses and developing a mood disorder. Further research should be conducted by examining bio-behavioural phenotypes to explain mechanisms by which suicidal behavior is transmitted from parent to child.

Endnotes


Background: Research suggests that people suffering from chronic pain have elevated rates of suicidality. With an ageing population, more research is essential to gain a better understanding of this association.

Aims: To document the prevalence and correlates of chronic pain and suicide, and estimate the contribution of chronic pain to suicidality.

Method: Data from the 2007 Australian National Survey of Mental Health and Wellbeing, a nationally representative household survey on 8,841 people, aged 16-85 years, was analysed.

Results: The odds of lifetime and past 12-month suicidality were two to three times greater in people with chronic pain. Sixty-five percent of people who attempted suicide in the past 12 months had a history of chronic pain. Chronic pain was independently associated with lifetime suicidality after controlling for demographic, mental health and substance use disorders.

Conclusions: Health care professionals need to be aware of the risk of suicidality in patients with chronic pain, even in the absence of mental health problems.

Comment

Main findings: While suicidality amongst people with chronic pain is still under-investigated, emerging research suggests that people with chronic pain have almost double the risk of death by suicide¹. This study used data from 8,841 participants in the 2007 Australian National Survey of Mental Health and Wellbeing, based on the World Mental Health Survey Initiative version of the Composite International Diagnostic Interview². To ensure data were representative of the Australian population, person and replicate weights generated by the Australian Bureau of Statistics were applied. Results indicated that more than 6 million people (more than one-fourth of the Australian population) were likely to suffer from chronic pain conditions. Logistic regression analyses revealed that compared to people without chronic pain, people with chronic pain had: 2.3 times greater odds of lifetime suicidal thoughts, 2.5 times greater odds of having made a suicide plan at some point, and 2.7 times the odds of a lifetime suicide attempt. Just over 50% of those with lifetime suicidal thoughts had a history of chronic pain, and two-thirds of those had attempted suicide in the previous 12 months, equating to 42,000 people out of the estimated 64,000 who had attempted suicide nationally. After adjustment for socio-demographic characteristics, all specific pain conditions (arthritis, migraines, and back/neck problems) and an ‘any pain’ condition (any one chronic pain condition) were significantly associated with life-time suicidality. After adjusting for socio-demographic factors and mental health disor-
ders (including substance disorders), most chronic pain conditions were independently associated with lifetime suicidality (suicide ideation, plans and attempts), other than associations between suicide plans for migraine pain, and suicide attempts for arthritis and migraine pain. The study found substantial variation in the levels of the different types of suicidal behaviours across different pain conditions. These conditions are usually highly comorbid, and more focussed research may be necessary to help clarify the effect that specific pain conditions have on suicidality.

**Implications:** There appears to have been little formal recognition in Australia of people with chronic pain as a high risk group for suicidal behaviour. Past studies investigating the association between suicidality and chronic pain have generally been based on small samples; it is unknown if a similar pattern exists in the general population of those with chronic pain. This study is believed to be among the first to estimate the contribution of chronic pain to suicidality in the general population, and to specifically examine its impact on an Australian population. The prevalence of chronic pain in Australia found by this study was higher than found previously, although an ageing population may explain some of the difference. The study supports recent epidemiological research findings that chronic pain is independently associated with suicidality, after controlling for demographic and mental health factors. While the link between depression and chronic pain is generally well known, these findings suggest that clinicians should be aware of this increased risk amongst clients presenting with chronic pain, regardless of their mental health status.

**Endnotes**

Background: Self-harm is a common reason for hospital presentation; however, evidence to guide clinical management of these patients to reduce their risk of repeat self-harm and suicide is lacking.

Methods: We undertook a systematic review to investigate whether between study differences in reported clinical management of self-harm patients were associated with the risk of repeat self-harm and suicide.

Results: Altogether 64 prospective studies were identified that described the clinical care of self-harm patients and the incidence of repeat self-harm and suicide. The proportion of a cohort psychosocially assessed was not associated with the recorded incidence of repeat self-harm or suicide; the incidence of repeat self-harm was 16.7% (95% CI 13.8-20.1) in studies in the lowest tertile of assessment levels and 19.0% (95% CI 15.7-23.0) in the highest tertile. There was no association of repeat self-harm with differing levels of hospital admission (n=47 studies) or receiving specialist follow-up (n=12 studies). In studies reporting on levels of hospital admission and suicide (n=5), cohorts where a higher proportion of patients were admitted to a hospital bed reported a lower incidence of subsequent suicide (0.6%, 95% CI 0.5-0.8) compared to cohorts with lower levels of admission (1.9%, 95% CI 1.1-3.2).

Limitations: In some analyses power was limited due to the small number of studies reporting the exposures of interest. Case mix and aspects of care are likely to vary between studies.

Discussion: There is little clear evidence to suggest routine aspects of self-harm patient care, including psychosocial assessment, reduce the risk of subsequent suicide and repeat self-harm.

Comment

Main Findings: There is sparse and conflicting research regarding the association between routine aspects of managing patients with self-harm and the risk of subsequent fatal and non-fatal self-harm. For instance, whilst some evidence suggests that patients receiving a psychosocial assessment are at a reduced risk of subsequent self-harm, the evidence is feeble and lacks consistency. Furthermore, there is a great amount of variation in the use of management protocols across health care settings. This systematic review examined aspects of self-harm patient care that impact on risk of subsequent fatal and non-fatal self-harm. Specifically, the authors investigated whether the estimations of risk of subsequent self-harm are associated with psychosocial assessment, admission to hospital beds, and outpatient follow-up in different studies. Of the 64 articles that were included in the analysis, the majority were from Europe (82.8%), followed by Asia (7.8%).
Australia and New Zealand (6.3%), and lastly, North America (3.1%). Forty-two studies had recorded one-year repetition rates alongside psychosocial assessment, and found no association between psychosocial assessment and reduced risk of subsequent non-fatal self-harm \((p>0.05)\). Of these 42 studies, 20 measured suicide after one year and found no association between psychosocial assessment and suicide \((p>0.05)\). In addition, results showed no association between the proportion of patients admitted to hospital (46 studies) with a reduced risk of subsequent self-harm \((p>0.05)\) and no evidence to suggest that there was a relationship between admission to hospital and suicide in the year after presenting with self-harm \((p>0.05)\). However, a small sub-group of studies \((n=5)\) provided an indication of the latter, as a 10% increase in the proportion of patients admitted was associated with a decline in the mean odds of repetition by 27.4% \((p=0.03)\). Lastly, of the 11 studies that reported the proportion of patients who received outpatient follow-up and six studies that recorded the proportion of patients who were discharged home without any specific after-care, there was no evidence to suggest a link between patient management (either receiving after-care or not) and subsequent non-fatal self-harm or suicide one year after presentation.

**Implications:** The findings from this systematic review and meta-analysis provided limited indication of the association between psychosocial assessment, outpatient follow-up for patients who self-harm and subsequent fatal and non-fatal self-harm. There was some evidence to suggest that admission to hospital was associated with a reduced risk in subsequent suicide a year after presenting with self-harm, which requires further investigation. The difficulty in finding consistent results is likely a reflection of the heterogeneity in self-harm populations, the interventions they receive and difficulties in evaluating the effects of treatment in observational data\(^2,5\). Future research aiming to identify the most effective interventions for this high risk population should focus on randomised controlled trials and causal analysis. A report on Australian and New Zealand clinical practice guidelines for the management of adult deliberate self-harm concluded that, in Australia, recommended psychological treatments are not widely available to patients who self-harm and those interventions that are available are not known to reduce repetition of self-harm\(^1\). Furthermore, the effect of follow-up in Australian psychiatric hospitals is poorly understood\(^1,5\) and the need to develop and evaluate interventions that aim to reduce subsequent non-fatal self-harm and suicide should be a priority.

**Endnotes**


Antidepressant use and risk of suicide and attempted suicide or self harm in people aged 20 to 64: Cohort study using a primary care database

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Objective: To assess the associations between different antidepressant treatments and the rates of suicide and attempted suicide or self harm in people with depression.

Design: Cohort study.

Setting: Patients registered with UK general practices contributing data to the QResearch database.

Participants: 238,963 patients aged 20 to 64 years with a first diagnosis of depression between 1 January 2000 and 31 July 2011, followed up until 1 August 2012.

Exposures: Antidepressant class (tricyclic and related antidepressants, selective serotonin reuptake inhibitors, other antidepressants), dose, and duration of use, and commonly prescribed individual antidepressant drugs. Cox proportional hazards models were used to calculate hazard ratios adjusting for potential confounding variables.

Main outcome measures: Suicide and attempted suicide or self harm during follow-up.

Results: During follow-up, 87.7% (n=209,476) of the cohort received one or more prescriptions for antidepressants. The median duration of treatment was 221 days (interquartile range 79-590 days). During the first five years of follow-up 198 cases of suicide and 5,243 cases of attempted suicide or self harm occurred. The difference in suicide rates during periods of treatment with tricyclic and related antidepressants compared with selective serotonin reuptake inhibitors was not significant (adjusted hazard ratio 0.84, 95% confidence interval 0.47 to 1.50), but the suicide rate was significantly increased during periods of treatment with other antidepressants (2.64, 1.74 to 3.99). The hazard ratio for suicide was significantly increased for mirtazapine compared with citalopram (3.70, 2.00 to 6.84). Absolute risks of suicide over one year ranged from 0.02% for amitriptyline to 0.19% for mirtazapine. There was no significant difference in the rate of attempted suicide or self harm with tricyclic antidepressants (0.96, 0.87 to 1.08) compared with selective serotonin reuptake inhibitors, but the rate of attempted suicide or self harm was significantly higher for other antidepressants (1.80, 1.61 to 2.00). The adjusted hazard ratios for attempted suicide or self harm were significantly increased for three of the most commonly prescribed drugs compared with citalopram: venlafaxine (1.85, 1.61 to 2.13), trazodone (1.73, 1.26 to 2.37), and mirtazapine (1.70, 1.44 to 2.02), and significantly reduced for amitriptyline (0.71, 0.59 to 0.85). The absolute risks of attempted suicide or self harm over one year ranged from 1.02% for amitriptyline to 2.96% for venlafaxine. Rates were highest in the first 28 days after starting treatment and remained increased in the first 28 days after stopping treatment.
**Conclusion:** Rates of suicide and attempted suicide or self-harm were similar during periods of treatment with selective serotonin reuptake inhibitors and tricyclic and related antidepressants. Mirtazapine, venlafaxine, and trazodone were associated with the highest rates of suicide and attempted suicide or self-harm, but the number of suicide events was small leading to imprecise estimates. As this is an observational study the findings may reflect indication biases and residual confounding from severity of depression and differing characteristics of patients prescribed these drugs. The increased rates in the first 28 days of starting and stopping antidepressants emphasise the need for careful monitoring of patients during these periods.

**Comment**

**Main findings:** Rates of suicide and self-harm have been found to be greatly increased in people with depression. While antidepressants have been found to be effective in reducing depressive symptoms, concerns have been expressed that they may contribute to risk of suicide and self-harm. Various studies to date have suggested that particular antidepressants may result in higher levels of risk than others, but findings have been inconsistent. This large-scale cohort study from the UK sought to quantify associations between antidepressant types and suicide, attempted suicide and self-harm during five years of general practice follow-up with people diagnosed with depression. The most commonly prescribed antidepressant, citalopram, was used as a reference category for comparison. Findings provided support for previous studies indicating that venlafaxine may be associated with greater risks of suicide and self-harm at a population level; fewer studies have reported increased risks for mirtazapine or trazodone. No significant differences were found in suicide risks associated with individual SSRIs, or between SSRIs and tricyclic antidepressants (TCAs). However compared to SSRIs, adjusted hazard ratios for suicide, attempted suicide and self-harm increased significantly in treatment with “other” antidepressants – these were mainly venlafaxine and mirtazapine, usually classed as a serotonin–norepinephrine reuptake inhibitor (SNRI) and a noradrenergic and specific serotonergic antidepressant (NaSSA) respectively. Amongst individual antidepressants, when compared to citalopram, the adjusted hazard ratio for suicide was significantly increased for mirtazapine (p<0.001, 3.7, 95% CI: 2.0-6.84), and for venlafaxine (p<0.02, 2.23, 95% CI: 1.14-4.39). In the case of attempted suicide or self-harm, hazard ratios were significantly higher for venlafaxine, mirtazapine, and the TCAs trazodone and amitriptyline. The study also found an association of increased risk of attempted suicide or self-harm with combinations of antidepressants (eg simultaneous use of an SSRI and a TCA), compared to SSRIs alone (p<0.001, 2.00, 95% CI: 1.54-2.59). Increased hazard ratios for suicide, attempted suicide and self-harm were reported not only within the first 28 days after stopping treatment, but also within the first 28 days of beginning treatment.

As selection of an antidepressant may depend on patient characteristics, the researchers adjusted for a range of potential confounding factors which could influence the choice of antidepressant, including severity of depression. As patients were
prescribed drugs for a condition in itself associated with a risk of suicidality, only patients with a recorded diagnosis of depression were included to ensure all patients had the same rationale for treatment. The authors noted that higher hazard ratios for death from suicide associated with venlafaxine and mirtazapine, compared with attempted suicide and self-harm, could be due to higher lethality in overdose than with SSRIs; however, this would not explain the higher hazard ratios reported for SSRIs when compared to TCAs, which also have higher toxicity.

Implications: Past Australian studies have associated reductions in suicide rates with increasing rates of antidepressant use. Australian dispensing of antidepressant medication by dosage has been reported to have increased by 95% between 2000 and 2011, particularly due to an increase in dispensing of SSRIs; there has also been a marked increase in dispensing of SNRIs and NaSSAs, and a decline in dispensing of TCAs and MAOIs. Dispensing of venlafaxine increased threefold over this period, making up 13.9% of total antidepressant doses reported. Considerable focus has been placed on possible associations between antidepressants and suicidality in young people, particularly SSRIs. Confirmation of the current study may prompt review of Australian recommendations for prescribing of antidepressants across patient groups, such as consideration of venlafaxine in cases of severe and complicated depression resistant to initial treatment. Current Australian guidelines for medical practitioners recommend avoidance of antidepressants which can be toxic in overdose when prescribing for patients who are already suicidal, including TCAs, venlafaxine and combinations of antidepressants; mirtazapine has been noted to be relatively safe in overdose. Although simultaneous combination of antidepressants has been controversial in Australia, a survey of doctors working in psychiatry found that 79% of participants had prescribed combinations of antidepressants; SSRIs combined with TCAs were most common, followed by combinations of mirtazapine with venlafaxine and other antidepressants. Although Australian guidelines stress risks during discontinuation of medication, there is less focus on risks during the initial period of beginning an antidepressant treatment. Further research is necessary to confirm the results of the current study, and to identify the mechanism behind associations between specific antidepressants and increased suicidal behaviour, and why individual patients may respond differently. Antidepressants continue to be a valuable resource in treating depressed patients, but great care should be taken in selecting appropriate medication for each person, with careful monitoring of medication use, and disclosure of known risks to patients.

Endnotes


The effect of an e-learning supported train-the-trainer programme on implementation of suicide guidelines in mental health care


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Background: Randomized studies examining the effect of training of mental health professionals in suicide prevention guidelines are scarce. We assessed whether professionals benefited from an e-learning supported Train-the-Trainer programme aimed at the application of the Dutch multidisciplinary suicide prevention guideline.

Methods: 45 psychiatric departments from all over the Netherlands were clustered in pairs and randomized. In the experimental condition, all of the staff of psychiatric departments was trained by peers with an e-learning supported Train-the-Trainer programme. Guideline adherence of individual professionals was measured by means of the response to online video fragments. Multilevel analyses were used to establish whether variation between conditions was due to differences between individual professionals or departments.

Results: Multilevel analysis showed that the intervention resulted in an improvement of individual professionals. At the 3 month follow-up, professionals who received the intervention showed greater guideline adherence, improved self-perceived knowledge and improved confidence as providers of care than professionals who were only exposed to traditional guideline dissemination. Subgroup analyses showed that improved guideline adherence was found among nurses but not among psychiatrists and psychologists. No significant effect of the intervention on team performance was found.

Limitations: The ICT environment in departments was often technically inadequate when displaying the video clips of the survey. This may have caused considerable drop-out and possibly introduced selection bias, as professionals who were strongly affiliated to the theme of the study might have been more likely to finish the study.

Conclusions: Our results support the idea that an e-learning supported Train-the-Trainer programme is an effective strategy for implementing clinical guidelines and improving care for suicidal patients.

Comment

Main Findings: There have been concerns regarding mental health workers’ adherence to evidence-based guidelines. This is particularly alarming as they exist to inform professionals of diagnosis and treatment practices of patients with suicidality and mental health problems. Based on international guidelines, the Netherlands issued practice guidelines in May 2012 for the assessment and treatment of suicidal behaviour (PDSB). The PDSB describes suicidal behaviour as an
outcome of in interaction between biological, psychological, environmental and situational factors. A Chronological Assessment of Suicidal Events interview is conducted measuring protective and risk factors of suicide, concluding in a diagnosis, treatment strategy, as well as a safety plan to maintain consistent care and involvement of significant others in the treatment process. In order to implement these guidelines in the mental health care system, staff of psychiatric departments participated in a program entailing a face-to-face training session by peers and subsequent e-learning modules (TtT-e). PDSB guidelines were also disseminated via other means such as professional institution websites, which was considered as the implementation as usual (IAU). This study examined the effectiveness of the TtT-e program by comparing professionals who received TtT-e with professionals who only received IAU. Participants completed an online survey (T0) and conducted a follow-up assessment three months after baseline assessment (T1). The primary outcome measure of this study was guidance adherence, which was measured via five video clips that displayed psychiatrists, psychologists and nurses interacting with a suicidal patient. Twenty-five different responses that could be given to the patient were provided. Participants were required to rate from one to 100 their likelihood of using each response (i.e. ‘ask whether the patient thinks about suicide’). The authors also measured professionals’ self-evaluation regarding their knowledge about suicidal behaviour and their confidence in their ability to assess and treat suicidal patients.

A total of 199 from the TtT-e group (intervention) and 104 participants from the IAU (control) condition were analysed from 18 and 16 different health care departments respectively. The TtT-e group comprised of masters (experts in the field of suicide prevention), trainers (selected as role models in the team and acquired exceptional training skills) and trainees (mental health professions that made up the team). Trainers were taught by masters who then subsequently trained their team of trainees. Of the initial 567 participants who started at T0, 53% completed assessment at T1 for both groups. There were significantly higher scores regarding adherence of guidelines (p=.02), self-evaluation of knowledge (p<.001) and greater confidence (p<.001) in the intervention condition than the control groups. Of those in the intervention condition, 61% viewed the e-learning module. E-learning did not display a significant effect on adherence to guidelines beyond that of face-to-face training (p>.05). A multidisciplinary comparison showed that at follow-up nurses in the intervention group showed greater adherence to guidelines than controls (p<.001) but this was not evident in psychiatrists/psychologists (p>.05). However, both groups showed significantly improved self-evaluation of knowledge and confidence in the intervention condition compared with the control group (nurses, p<.001 and p=.009, respectively; psychiatrists/psychologists, p=.005 and p=.007, respectively).

**Implications:** The findings from this study have many implications for the implementation of suicide prevention guidelines in the mental health care system. Firstly, the authors showed that the TtT-e program provides high quality training
to health care professionals which has a more hands-on, systematic approach in addressing suicidality and can be directly applied to clinical practice. Such guidelines are important as they reflect everyday practice of professionals. When guidelines were disseminated via implementation as usual (IAU), mental health care professionals displayed limited adherence, reflecting the importance of implementing appropriate training programs such as TtT-e. Furthermore, nurses are more likely to benefit from the TtT-e training in relation to guideline adherence. This reflects the possibility that psychiatrists/psychologists are more often involved in assessment and treatment of suicidal patients, which suggests that nurses should be more involved in the assessment and treatment process also. In summary, this study suggested that TtT-e program was effective over at least a three month period. Additional research regarding the prolonged effect of this type of training would be useful in determining whether booster sessions are required. In order to determine the effectiveness of different elements of TtT-e programs, further research should involve randomised trials to make causal inferences regarding each element of TtT-e, so that targeted programs can be developed.

Endnotes


The relationship between cannabis involvement and suicidal thoughts and behaviors

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Drug and Alcohol Dependence 150, 98-104, 2015

Background: In the present study, we examined the relationship between cannabis involvement and suicidal ideation (SI), plan and attempt, differentiating the latter into planned and unplanned attempt, taking into account other substance involvement and psychopathology.

Methods: We used two community-based twin samples from the Australian Twin Registry, including 9583 individuals (58.5% female, aged between 27 and 40). The Semi-Structured Assessment of the Genetics of Alcoholism (SSAGA) was used to assess cannabis involvement which was categorized into: (0) no cannabis use (reference category); (1) cannabis use only; (2) 1-2 cannabis use disorder symptoms; (3) 3 or more symptoms. Separate multinomial logistic regression analyses were conducted for SI and suicide attempt with or without a plan. Twin analyses examined the genetic overlap between cannabis involvement and SI.

Results: All levels of cannabis involvement were related to SI, regardless of duration (odds ratios [ORs]=1.28-2.00, p<0.01). Cannabis use and endorsing ≥3 symptoms were associated with unplanned (SANP; ORs=1.95 and 2.51 respectively, p<0.05), but not planned suicide attempts (p>0.10). Associations persisted even after controlling for other psychiatric disorders and substance involvement. Overlapping genetic (rG=0.45) and environmental (rE=0.21) factors were responsible for the covariance between cannabis involvement and SI.

Conclusions: Cannabis involvement is associated, albeit modestly, with SI and unplanned suicide attempts. Such attempts are difficult to prevent and their association with cannabis use and cannabis use disorder symptoms requires further study, including in different samples and with additional attention to confounders.

Comment

Main Findings: Research has found a strong relation between substance use behaviours, including cannabis use and suicidal ideation (SI), suicide planning and attempts\(^1\). Some studies have suggested that the relationship between cannabis use and suicidal thoughts and behaviours (STB) may in fact be explained by shared risk influences, such as substance use\(^2\). Both SI and cannabis use have been shown to be influenced to a similar degree by genetic factors with evidence for non-additive genetic influences on SI. However, little is known regarding the magnitude of which shared genetic factors contribute to their comorbidity. Interestingly, a study from the USA found an association only between substance use and suicide attempts without planning (SANP), and not those that were planned prior to the event (SAP)\(^4\). This Australian study aimed to expand upon prior
knowledge by examining different levels of cannabis involvement (including use and use disorders). SI and suicide attempts were examined separately and the magnitude of genetic overlap between cannabis involvement and STB was estimated. The authors predicted that cannabis involvement would be associated with SI and suicide attempts in a dose-response fashion; however, associations with suicide attempts would only be restricted to those reporting SANP. It was also hypothesized that there would be moderate genetic and individual-specific environmental correlations to contribute to the association between cannabis involvement and SI. The study used data from the Australian Twin Registry. The first sample comprised of 6,257 participants who were interviewed between 1996 and 2000. The second sample included 3,326 twins who were interviewed during 2005 and 2009. Cannabis involvement was categorized as no cannabis use, cannabis use only, one to two cannabis use disorder (CUD) symptoms and lastly, three or more symptoms. Data was collected through interviews on participants’ demographics, other substance use and use disorders, psychopathology and early adversity.

Exploratory analyses found that after cannabis use 16.7% (1602) of participants had reported SI which lasted less than a day and 9.5% (n=907) reported SI which had lasted more than a day. Of those with SI, 17% (n=427) reported having a suicide plan without actually attempting. From the total sample 4.3% (n=408) reported suicide attempts, 2.6% (n=246) which were SAP and 1.7% (n=162) reporting never making a plan (SANP). Rates of substance use, psychopathology and a history of sexual abuse as a child were significantly higher in participants who reported STB (p<.05). The lifetime prevalence of cannabis use was 62.8% (n=6,017) and of these, 32.1% (n=1,933) reported at least one CUD symptom. Covariates between cannabis involvement and STBs were explored which showed that all levels of cannabis involvement remained significantly associated with SI after accounting for covariates, both less than a day (p<.05) and more than a day (p<.01). A dose-response relationship was observed as those who presented with three or more CUD symptoms were most likely to report having had SI for less or more than one day (p<.01 for both). After adjusting for the effects of other substance use involvement and psychopathology, cannabis use and presenting with three or more symptoms of CUD remained significantly related to SANP (p<.05 for both variables). By contrast, no significant association was found between any level of cannabis involvement and SAP. Through twin analyses, the authors established that the link between cannabis involvement and SI was strongly influenced by overlapping genetic and environmental factors.

**Implications:** The results from this Australian twin study provide evidence for the association between cannabis use and STB after adjusting for potential confounding variables. The evidence that linked cannabis use with SANP only could possibly be explained by either the self-medication hypothesis or the impaired functioning hypothesis. The former suggests that substances are used to cope with overwhelming aggression and negative affective states. The latter suggests that physical/psychological/emotional functioning is impaired by repeated use of
cannabis and early onset, subsequently leading to a higher risk of suicidal behaviours. Further research should examine the etiological mechanisms that underlie the finding that cannabis use and endorsement of CUD exacerbates the likelihood of STBs. Due to SI being reported by 26.2% of the participants and the nature of SANPs being particularly difficult to prevent, uncovering factors that are associated with the link between cannabis use and SANPs as well as replicating such research across different samples is important for suicide preventative strategies by accurately identifying at risk populations.

Endnotes
Short-term and long-term effects of psychosocial therapy for people after deliberate self-harm: A register-based, nationwide multicentre study using propensity score matching


The Lancet Psychiatry 2, 49-58, 2015

**Background:** Although deliberate self-harm is a strong predictor of suicide, evidence for effective interventions is missing. The aim of this study was to examine whether psychosocial therapy after self-harm was linked to lower risks of repeated self-harm, suicide, and general mortality.

**Methods:** In this matched cohort study all people who, after deliberate self-harm, received a psychosocial therapy intervention at suicide prevention clinics in Denmark during 1992-2010 were compared with people who did not receive the psychosocial therapy intervention after deliberate self-harm. We applied propensity score matching with a 1:3 ratio and 31 matching factors, and calculated odds ratios for 1, 5, 10, and 20 years of follow-up. The primary endpoints were repeated self-harm, death by suicide, and death by any cause.

**Findings:** 5678 recipients of psychosocial therapy (followed up for 42.828 person-years) were matched with 17 034 individuals with no psychosocial therapy in a 1:8 ratio. During 20 year follow-up, 937 (16.5%) recipients of psychosocial therapy repeated the act of self-harm, and 391 (6.9%) died, 93 (16%) by suicide. The psychosocial therapy intervention was linked to lower risks of self-harm than was no psychosocial therapy (odds ratio [OR] 0.73, 95% CI 0.65-0.82) and death by any cause (0.62, 0.47-0.82) within a year. Long-term effects were identified for repeated self-harm (0.84, 0.77-0.91; absolute risk reduction [ARR] 2.6%, 1.5-3.7; numbers needed to treat [NNT] 39, 95% CI 27-69), deaths by suicide (OR 0.75, 0.60-0.94; ARR 0.5%, 0.1-0.9; NNT 188, 108-725), and death by any cause (OR 0.69, 0.62-0.78; ARR 2.7%, 2.0-3.5; NNT 37, 29-52), implying that 145 self-harm episodes and 153 deaths, including 30 deaths by suicide, were prevented.

**Interpretation:** Our findings show a lower risk of repeated deliberate self-harm and general mortality in recipients of psychosocial therapy after short-term and long-term follow-up, and a protective effect for suicide after long-term follow-up, which favour the use of psychosocial therapy interventions after deliberate self-harm.

**Comment**

**Main Findings:** Deliberate self-harm (DSH) has been established as a significant predictor of suicidal behaviour. The World Health Organization (WHO) has emphasised the need for health-care providers to use operative treatment as a means of suicide prevention strategies; however, evidence for effective interventions is limited due to suicide being a relatively rare event as an outcome measure. This study examined DSH as a risk factor of suicide and whether patients receiving a psychosocial therapy intervention after a self-harming event had lower risk...
of suicidal behaviour than those not receiving such treatments. The psychosocial therapy (PT) group included those who received psychosocial therapy intervention at one of the eight suicide prevention clinics in Denmark after their first episode of DSH during 1992 to 2010. This was compared with the no psychosocial therapy (NPT) group which included those who presented with an episode of DSH at a psychiatric hospital in Denmark but did not receive an intervention. A total of 5,678 patients who received PT were included in the study. Out of the 58,282 patients in the NPT group, 17,034 individuals from the NPT group were matched with the PT group (ratio 1:3) on 31 variables (i.e. gender, age, marital status, socio-economic status, psychiatric diagnosis, parental history of suicidal behaviour/psychiatric disorder, etc.).

In the PT group, 56.9% were referred to the clinic from hospitals or emergency departments (EDs), 10.1% by GPs, 10.9% were self-referrals and of the remaining, 7.4% were referred from an unspecified location and 14.8% had missing data. During the first year, those in the PT group significantly less often repeated DSH (6.7%) compared with 9% of those in the NPT group (p< .0001). However, suicide rates did not significantly differ between the two groups after the first year. Comparisons made at 10 years showed that 15.5% of those in the PT group had readmitted with a self-harm episode versus 18.4% of those in the NPT group. Unlike at one year follow-up, suicide rates were significantly lower for the PT group (p=.009). Based on odds ratios, repeated DSH and suicide risk were assessed. After one-year follow-up, there was a lower risk of repeated DSH in the PT group with an absolute risk reduction of 2.3% for those receiving therapy. At 20 year follow-up, risk of repeated DSH and suicide was lower for those in the PT group. Authors also estimated events avoided — a total 145 repeated episodes of DSH and 30 suicides were avoided in association with provision of the PT.

Implications: A main limitation in this study was the inability to randomise patients which potentially lent itself to self-selection bias in that patients who attended treatment at the clinic were more willing and motivated to make a difference despite the authors intending to adjust for this through matching. Notwithstanding this limitation, psychosocial interventions that were offered to individuals after their first episode of DSH was associated with a reduced risk of repeated DSH and general mortality, short- and long-term. Risk of suicide was lower for those in the PT group during the long-term follow-up. In summary, patients who present with DSH constitute a high-risk population for suicidal behaviour for which preventative efforts are important. A study conducted in Queensland evaluated the effectiveness of intensive case management in suicide attempters after discharge from inpatient psychiatric care³. Patient needs were addressed using a holistic approach by meeting with case managers face-to-face on a weekly basis for 12 months and received outreach telephone calls from experienced telephone counsellors. Compared with those who received usual treatment in accordance with existing hospital standards, the authors concluded that intensive case management of high-risk patients was associated with improve-
ments in their mental health as well as increased use of health care services, reduced suicidal ideation and increased satisfaction with community-based mental health services³.

Despite such promising findings, little research in Australia has examined the effectiveness of treatment services for patients who present with DSH explicitly. According to a report published in 2014 evaluating suicide prevention activities funded under Australia's National Suicide Prevention Strategy, those targeting people who have self-harmed accounted for 7.7% of all prevention activities⁴. However, there is a lack of prevention activities that offer follow-up services for patients who present to hospitals with DSH⁵. The findings from this study provide a foundation for policymakers state- and nation-wide. Implementing PT interventions for those people who present to hospital with DSH should be considered. Research regarding the different types of psychosocial treatments would be valuable to examine their effectiveness in reducing DSH and suicide.

Endnotes
Religious conflict, sexual identity, and suicidal behaviors among LGBT young adults
Gibbs JJ, Goldbach J (USA)

Archives of Suicide Research. Published online: 12 March 2015. doi: 10.1080/13811118.2015.1004476

Objectives: This is the first known study to explore how religious identity conflict impacts suicidal behaviors among lesbian, gay, bisexual, and transgender (LGBT) young adults and to test internalized homophobia as a mediator.

Methods: A secondary analysis of 2,949 youth was conducted using a national dataset collected by OutProud in 2000. Three indicators of identity conflict and an internalized-homophobia scale (mediator), were included in logistic regressions with three different suicide variable outcomes.

Results: Internalized homophobia fully mediates one conflict indicator and partially mediates the other two indicators’ relationship with suicidal thoughts. Internalized homophobia also fully mediates the relationship between one conflict indicator and chronic suicidal thoughts. Two indicators were associated with twice the odds of a suicide attempt.

Conclusion: LGBT young adults who mature in religious contexts are at higher odds for suicidal thoughts, and more specifically chronic suicidal thoughts, as well as suicide attempt compared to other LGBT young adults. Internalized homophobia only accounts for portions of this conflict.

Comment

Main findings: Involvement in religion has generally been considered a protective factor against negative mental health outcomes. However, studies investigating the relative impact of religious affiliation and religiosity on mental health outcomes in lesbian, gay, bisexual and transgender (LGBT) adults have generally been inconclusive. This study used data from 2,949 18- to 24-year olds collected in a large, internet-based survey by OutProud in 2000. The majority identified themselves as gay or lesbian (61%), with 21% identifying as bisexual, 10% as ‘questioning’, 2% as ‘other’ and less than 1% as heterosexual. About 45% identified with a Christian denomination, about 16% reported a diversity of religious affiliations, and others were not religious or not sure of their current affiliation. Forty-three percent with a religious upbringing experienced conflict between religious beliefs and sexuality; 40% reported religious upbringing without conflict, and 17% were raised in a non-religious environment. Thirty-three percent reported suicidal thoughts in the last month, with 15% of these being chronically occurring thoughts; 3% reported suicide attempts in the last year. The study used three indicators of religious and sexual orientation identity conflict: having left a religion due to its views on sexuality, parents with anti-homosexual religious beliefs, and self-reported conflict in relation to religious upbringing. Logistic regression found that all three indicators were associated with (general) suicidal thoughts in the last month. Parental anti-homosexual religious beliefs were associated with chronic suicidal thoughts, and two indi-
cators (leaving one’s religion and parental religious beliefs about homosexuality) were associated with suicide attempt in the last year. The two indicators were associated with more than two times the odds of having attempted suicide in the last year. Internalised homophobia has an established relationship with suicide, so it was included as a mediator to determine if religious conflict independently explained variance in suicidality beyond that of internalised homophobia. Internalised homophobia only partially mediated the relationship between religious conflict and suicidal thoughts. After consideration of internalised homophobia, the relationship between leaving one’s religion and suicidal thoughts was significant. A dual relationship was found whereby leaving one’s religion was related to lower internalised homophobia, leading to lower odds of suicidal thought, but increasing risk of suicidal thoughts directly.

**Implications:** The results of this study suggest that LGBT young adults who experience religious identity conflict are at increased risk for suicide. This may not seem surprising given that a strong association exists between level of religiosity and negative attitudes towards non-heterosexuality\(^1\). An Australian study found that young same-sex attracted people who mentioned religion in a survey were also more likely to have had thoughts of self-harm, to have self-harmed, and to have had thoughts of suicide\(^2\). The study highlights the ongoing influence of parental religious beliefs in adulthood. Although internalised homophobia fully mediated the direct impact of religious conflict, through parental beliefs, on suicidal thoughts, it had a lower impact on the relationships between two indicators (combination of parental beliefs and leaving one’s religion due to conflict) on suicidal thoughts. Leaving one’s religion of origin due to conflict with sexual identity may seem a functional way of dealing with the conflict. However, it was also associated with a higher risk of suicidal thoughts. This may be due to other associated losses experienced such as loss of family relationships, community and supportive resources. Mental health professionals assessing and treating LGBT clients from religious backgrounds must consider such complexities in assessing risk; interventions with parents and families may be considered where feasible. Further research should particularly seek to define aspects of religious identity conflict, and apply them to the Australian context. Australia is generally a far more secular country than the United States\(^3\), and the secular community and national environment may have an impact. The particular influences of diverse religions should also be considered.

**Endnotes**
Newspaper coverage of suicide and initiation of suicide clusters in teenagers in the USA, 1988-96: A retrospective, population-based, case-control study

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Lancet Psychiatry 1, 34-43, 2014

**Background:** Public health and clinical efforts to prevent suicide clusters are seriously hampered by the unanswered question of why such outbreaks occur. We aimed to establish whether an environmental factor — newspaper reports of suicide — has a role in the emergence of suicide clusters.

**Methods:** In this retrospective, population-based, case-control study, we identified suicide clusters in young people aged 13-20 years in the USA from 1988 to 1996 (preceding the advent of social media) using the time-space Scan statistic. For each cluster community, we selected two matched non-cluster control communities in which suicides of similarly aged youth occurred, from non-contiguous counties within the same state as the cluster. We examined newspapers within each cluster community for stories about suicide published in the days between the first and second suicides in the cluster. In non-cluster communities, we examined a matched length of time after the matched control suicide. We used a content-analysis procedure to code the characteristics of each story and compared newspaper stories about suicide published in case and control communities with mixed-effect regression analyses.

**Findings:** We identified 53 suicide clusters, of which 48 were included in the media review. For one cluster we could identify only one appropriate control; therefore, 95 matched control communities were included. The mean number of news stories about suicidal individuals published after an index cluster suicide (7.42 [SD 10.02]) was significantly greater than the mean number of suicide stories published after a non-cluster suicide (5.14 [6.00]; p< 0.0001). Several story characteristics, including front-page placement, headlines containing the word suicide or a description of the method used, and detailed descriptions of the suicidal individual and act, appeared more often in stories published after the index cluster suicides than after non-cluster suicides.

**Interpretation:** Our identification of an association between newspaper reports about suicide (including specific story characteristics) and the initiation of teenage suicide clusters should provide an empirical basis to support efforts by mental health professionals, community officials, and the media to work together to identify and prevent the onset of suicide clusters.

**Funding:** US National Institute of Mental Health and American Foundation for Suicide Prevention.

**Comment**

**Main findings:** Past research has indicated that suicides may increase after increased media reporting about suicide, with young people being particularly
Adolescents and young adults are also vulnerable to inclusion in suicide clusters, the occurrence of an exceptionally greater number of deaths than would be expected in a location over a particular time. The aim of the present study was to identify the possible role of newspaper suicide stories in the initiation of suicide clusters by examining the largest known group of youth suicide clusters studied to date, systematically identified through US national mortality data, and compared with matched non-cluster suicides. The study analysed 48 suicide clusters, occurring close in time and location, of young people aged 13 to 20 years living in populations of less than 500,000 between 1988 and 1996. Matched (non-cluster) suicides in 95 communities comprised young people who died within one year of the clusters, from the same states but not bordering counties. Newspaper articles from within each cluster community, printed between the first and second suicides in that cluster, were analysed for content about suicide; non-cluster community newspapers were examined for identical periods following non-cluster suicides.

Regression analyses revealed that the mean number of stories about the index suicide cases in the cluster communities (7.42; SD 10.02) was significantly greater than the mean number of stories about the non-cluster suicide cases in the control communities (5.14; SD 6.00; p<0.0001). At least one news story about the first adolescent suicide was published in 12 (25%) cluster communities compared with 13 (14%) control communities. Cluster communities were more likely than control communities to have two or more stories about the local teenage suicide; the mean number of stories about other suicidal individuals was also significantly greater following the initial cluster suicide than after the non-cluster suicide. Articles about suicidal individuals, rather than other articles about suicide, were found to be associated with subsequent suicides. Mixed effect regression analyses for characteristics of newspaper articles found that only two types of characteristics were significantly independently associated with cluster suicides: an accompanying sad picture, and celebrity status of the person who died by suicide.

Potential confounding variables such as location or method of death were not found to have had a significant effect on results.

**Implications:** Although causality cannot be assumed, the findings of this study are consistent with considerable past research indicating that news media dissemination of a suicide can increase the risk of subsequent suicides. The study’s findings support theories that media effect can operate through identification with models, such as articles about other young people or celebrities. Young people seem to be more vulnerable to suicide contagion, largely because they identify more strongly with the actions of their peers, and because adolescence is a period of increased vulnerability to mental health problems that increases the risk of suicide. Reporting of suicides has also been linked to negative effects, such as imitation, through glamourising and sensationalising suicide, detailed and repeated reports, prominent placement, and use of images and headlines. However, the potential for a positive effect exists; responsible reporting following celebrity
suicide has been linked to increased help-seeking\(^1\). In Australia, Mindframe, the National Media Initiative, has developed recommendations on responsible suicide reporting\(^2\), and the Australian Press Council Standards of Practice include updated standards on coverage of suicide\(^3\). This study was based on suicides that took place before the widespread use of online social media technologies; while further research is needed, studies have indicated that online ability to rapidly spread information and rumour has an impact on suicide contagion amongst young people\(^4\). Avoiding discussion of suicide with young people does not manage risk of suicide contagion, especially if a suicide has already occurred amongst friends or peers. Providing a safe place to talk about their feelings, and referral to appropriate support or treatment where relevant, will help to reduce distress and reduce the likelihood that suicide will be romanticised\(^5\).

Endnotes
Safety of patients under the care of crisis resolution home treatment services in England: A retrospective analysis of suicide trends from 2003 to 2011

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The Lancet Psychiatry 1, 135-141, 2014

Background: Community care provided by crisis resolution home treatment teams is used increasingly as an alternative to admission to psychiatric wards. No systematic analysis has been done of the safety of these teams in terms of rates of suicide. We aimed to compare the rate and number of suicides among patients under the care of crisis resolution home treatment teams with those of psychiatric inpatients. We also assessed the clinical features of individuals who died by suicide in both home and hospital settings.

Methods: We did a retrospective longitudinal analysis between 2003 and 2011 of all adults (aged 18 years or older) treated by the National Health Service in England who died by suicide while under the care of crisis resolution home treatment services or as a psychiatric inpatient. We obtained data from the National Confidential Inquiry into Suicide and Homicide by People with Mental Illness and from the Mental Health Minimum Dataset.

Findings: 1256 deaths by suicide (12% of all patient suicides) were recorded among patients cared for under crisis resolution home treatment teams, an average of 140 deaths per year. Different denominators meant that direct comparison between groups was difficult, but the average rate of suicide under crisis resolution home treatment services (14.6 per 10 000 episodes under crisis care) seemed higher than the average rate of suicide among psychiatric inpatients (8.8 per 10 000 admissions). The number of suicides in patients under the care of crisis resolution home treatment teams increased from an average of 80 per year (in 2003 and 2004) to 163 per year (in 2010 and 2011) and were twice as frequent as inpatient suicides in the last few years of the study. However, because of the growing number of patients under the care of crisis resolution home treatment teams, the average rate of suicide fell by 18% between the first and last 2 years of the study. 548 (44%) patients who died by suicide under the care of crisis resolution home treatment teams lived alone and 594 (49%) had had a recent adverse life event. In a third of patients (n=428) under the care of crisis resolution home treatment teams, suicide happened within 3 months of discharge from psychiatric inpatient care.

Interpretation: Although the number of suicides under the care of crisis resolution home treatment teams has risen since 2003, the rate has fallen. However, suicide rates remain high compared with the inpatient setting, and safety of individuals cared for by crisis resolution home treatment teams should be a priority for mental health services. For some vulnerable people who live alone or have adverse life circumstances, crisis resolution home treatment might not be the most appropriate care setting. Use of crisis resolution home treatment teams to facilitate early discharge could present a risk to some patients, which should be investigated further.
Main Findings: Crisis resolution home treatment services (CRHTS) provide treatment for those psychiatric patients with acute episodes of mental illness, who might otherwise be admitted in hospital, and have been initiated in Europe, the USA and Australia. Not only do they provide a hospital-at-home service but are also responsible for gate-keeping functions for admission into other psychiatric services. There have been recent concerns regarding the safety of this service, indicating that suicides amongst people in the care of these teams may have been increasing, with some suggestion that there were more suicides in CRHTS than among those admitted to inpatient care. However, it is unknown whether this is due to increasing caseloads of these services or a real increase. As a result, this study aimed to measure the incident of suicides in patients under the care of CRHTS in England since it was implemented in 2003 and examined particular trends. Furthermore, clinical characteristics of victims of suicide whilst under the care of CRHTS were assessed and compared with inpatients who were also victims of suicide.

A total of 39,361 suicides were recorded, from the beginning of 2003 to the end of 2011, of people aged over 18 years with 27% (n=10,744) of these having had contact with mental health services during the year prior to death. Of those, questionnaires were sent to the consulting psychiatrist regarding the treatment each individual received prior to suicide. The response rate was high (98%), with 10,497 completed questionnaires. Of these, 10% (1,057) were inpatients at time of death and 12% (1,256) were receiving care under CRHTS. The average number of suicide deaths per year for people under care of CRHTS versus inpatients was 140 and 117 respectively. The overall suicide rate from 2003 to 2011 was 14.6 per 10,000 episodes for those under care of CRHTS as against 8.8 suicides per 10,000 admissions. However, due to episodes and admissions reflecting different events, a straight comparison is difficult. There were 7.8 suicides in the community per 10,000 people in contact with mental health services. Trend analysis showed a significant increase in annual number of suicides for patients under care of CRHTS from 80 to 163 (p<.0001). On the other hand, there was a significant decline for inpatient suicides from 163 to 76 across the study period (p<.0001). Despite this escalation in CRHTS, suicide rates significantly reduced by 18% from 15.3/10,000 episodes at the beginning of the study period in 2003 to 12.5/10,000 in the final year in 2011 (p=.004). Similarly, suicide rates significantly reduced amongst inpatients also from 9.9/10,000 admissions to 6.3/10,000 (p<.0001). This was also true for suicides in the community (from 9.4/10,000 of those in contact with mental health services to 7/10,000, p<.0001). The following characteristics describe CRHTS patient suicide cases: median age was 48 years; hanging/strangulation and self-poisoning were the most common methods (45% and 21% respectively); 44% lived alone; 30% had been ill for less than a year; nearly half reported an adverse life event in three months prior to death (28% reported multiple events), with most common events being relationship break-up (22%), workplace problems
(19%) and financial difficulties (11%); one-third of cases occurred within three months of discharge form inpatient care and 40% of these were within two weeks. In addition, risk of suicide was assessed by clinicians as moderate-to-high in 27% for short-term and 50% for long-term. Comparisons between CRHTS patients and inpatients showed that CRHTS suicide cases had less frequent history of self-harm (p<.0001) and drug misuse (p<.0001) but more often had been dealing with a physical illness (p<.0001), experienced an adverse event in three months prior to death (p<.0001), and more often showed symptoms of mental illness at last contact with a health service, particularly emotional distress (p<.0001) and depression (p<.0001). Lastly, CRHTS patients were more often assessed by a clinician as moderate-to-high short term risk of suicide (p<.0001).

**Implications:** This study was the first of its kind to examine the incidence and suicide rates of patients under the care of CRHTS. Despite the decline in suicide rates of those CRHTS patients, the average number of deaths in this service was 20% higher than those inpatients at the beginning of the study period and increased to twice as many in the last five years. These results, plus the finding that suicide rates were consistently higher in CRHTS care than inpatient care settings across the time span, indicate the need for improved attention to safety in CRHTS environments. However, it is also important to note that patients under the care of CRHTS were assessed more often as being at high-to-moderate short-term risk of suicide by a clinician at their last contact, which suggests that it was more likely that these patients included individuals with acute mental illness at high risk of suicide. In conclusion, safety of those patients under the care of CRHTS should be a priority for mental health services.

**Endnotes**

The mental health of visitors of web-based support forums for bereaved by suicide

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Crisis 36, 38-45, 2015

**Background:** Persons bereaved by suicide are reluctant to ask for social support when they experience feelings of guilt and blame. A web-based peer forum may provide a safe and anonymous place for mutual support.

**Aims:** This study examined the mental health changes of visitors of two online support forums for persons bereaved by suicide and their experiences with the forum over 1 year.

**Method:** Visitors of two forums completed self-report measures at baseline and at 6 and 12 months’ follow-up. Repeated measures analyses were used to study changes in well-being, depressive symptoms, and complicated grief. Additionally, participants were interviewed about their experiences with the forum.

**Results:** The 270 participants were mostly female, low in well-being, with high levels of depressive symptoms and complicated grief. Suicidal risk was high for 5.9%. At 12 months, there were small to medium-sized significant improvements in well-being and depressive symptoms (p < .001) and nearly as much for grief (p = .08). About two thirds reported benefit from visiting the forum. Because of the pre-post design we cannot determine whether a causal relationship exists between the forum and changes in mental health.

**Conclusion:** After 1 year some positive changes but a large group was still struggling with their mental health. Interviews indicate that the forum was valued for finding recognition.

**Comment**

**Main findings:** Past research has suggested that mutual support amongst those bereaved by suicide can be beneficial, but may also increase risk of complicated grief. Research specifically examining how use of online support forums affects the mental health of people bereaved by suicide has returned inconsistent results to date. Participants in this study were 270 adults bereaved by suicide who accessed either of two government-funded online support forums for those bereaved by suicide; 87% of participants were female. The online forums were both linked to open-access websites based in The Netherlands and Belgium. The Belgian website specifically focussed on the bereaved by suicide and the Dutch website was primarily designed for people who were suicidal, with some resources for the bereaved. Both forums were moderated by volunteers who monitored the messages, and ensured rules were followed. About two-thirds of participants reported low levels of well-being and clinical depression at the commencement of the study, and one-third reported complicated grief. Suicide risk was medium to high for nearly one-quarter of participants. Assessments were made at baseline,
and at six and 12 months after commencement. Repeated measures analysis showed significant increases in well-being and decreases in depressive symptoms over the period of the study (p<.001). Effect sizes were small to medium for well-being (6 months: d=0.24; 12 months: d=0.36) and small for depressive symptoms (6 months: d=0.18, 12 months: d=0.28). However, it could not be concluded that these changes were brought about by use of the forum. Changes in symptoms of grief and in suicide risk did not reach significance; at 12 months, 17.2% of participants had a medium to high risk for suicide. Follow up telephone interviews were conducted with 29 participants including those who did and did not indicate benefit from the forum. Nearly all of those interviewed mentioned positive aspects of the forum; these included indication that they were greatly helped by finding recognition (65%), support (13.8%), and having a place to go when in need (24.1%). Participants had a high level of social support other than the online forum; 72% indicated that they had support from their social network and from professionals. The researchers suggested that the forum may not have been used as an alternative to general social support, but in addition.

**Implications:** Although people bereaved by suicide share many reactions with others who have lost loved ones, there are some unique features of grief such as a heightened sense of shame, responsibility, rejection and guilt. These may be linked to stigma about suicide, which can contribute to development of complicated grief; risk of suicide is also believed to be greater amongst bereaved relatives of people who have died by suicide. There has been some indication that the bereaved by suicide experience personal conflict about seeking help from social support networks, and it has been estimated that only about 25% of people bereaved by suicide have found their way to support groups or therapy where this is available. Online forums may may provide an anonymous means for those bereaved by suicide to gain support and share grief with others who have had similar experiences. Given that the increasing use of online communication has prompted shifts in the way that people grieve, further empirical and longitudinal research is needed to better understand the potential benefits and dangers this may present. A variety of online resources are available to provide information and access to support to people bereaved by suicide; Australian resources include online information offered by Lifeline and Standby Response Service. Clinicians should seek to understand how clients bereaved by suicide are using online communities and information, and be prepared to recommend the most appropriate options.

**Endnote**


Suicide risk among perinatal women who report thoughts of self-harm on depression screens

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Obstetrics and Gynecology 125, 885-893, 2015

Objectives: To estimate the incidence and clinical significance of suicidal ideation revealed during perinatal depression screening and estimate the associated suicide risk.

Methods: Retrospective cohort study of women completing the Edinburgh Postnatal Depression Scale at 24-28 weeks of gestation and 6 weeks postpartum through a suburban integrated health system with approximately 5,000 annual deliveries on two hospital campuses. Suicidal ideation on the Edinburgh Postnatal Depression Scale and prediction of suicide risk were examined through multivariable modeling and qualitative analysis of clinical assessments.

Results: Among 22,118 Edinburgh Postnatal Depression Scale questionnaires studied, suicidal ideation was reported on 842 (3.8%, 95% confidence interval [CI] 3.5-4.1%) and was positively associated with younger maternal age (antepartum mean age 30.9 compared with 31.9 years, P=.001), unpartnered relationship status (antepartum 29.5% compared with 16.5%, P<.001 and postpartum 25.0% compared with 17.5%, P<.01), non-Caucasian race (antepartum 62.1% compared with 43.8%, P<.001 and postpartum 62.4% compared with 45.2%, P<.001), non-English language (antepartum 11.0% compared with 6.6%, P<.001 and postpartum 12.4% compared with 7.7%, P<.01), public insurance (antepartum 19.9% compared with 12.5%, P<.001 and postpartum 18.2% compared with 14.2%, P<.001), and preexisting psychiatric diagnosis (antepartum 8.4% compared with 4.2%, P<.001 and postpartum 12.0% compared with 5.8%, P<.001). Multivariable antepartum and postpartum models retained relationship status, language, relationship status by language interaction, and race; the postpartum model also found planned caesarean delivery negatively associated with suicidal ideation risk (odds ratio [OR] 0.56, 95% CI 0.36–0.87) and severe vaginal laceration positively associated with suicidal ideation risk (OR 2.1, 95% CI 1.00–4.40). A qualitative study of 574 women reporting suicidal ideation indicated that 330 (57.5%, 95% CI 53.5–61.5%) experienced some degree of suicidal thought. Six patients (1.1%, 95% CI 0.2–1.9%) demonstrated active suicidal ideation with plan, intent, and access to means. Within this highest risk group, three patients reported a suicide attempt within the perinatal period.

Conclusion: Among perinatal women screened for depression, 3.8% reported suicidal ideation, but only 1.1% of this subgroup was at high risk for suicide. These findings support the need for systematic evaluation of those who report suicidal ideation to identify the small subset requiring urgent evaluation and care.
**Main findings:** Although pregnancy is regarded as a protective factor against suicide¹, subgroups of women may be at an increased risk before or after a birth. This study sought to estimate the overall incidence of suicidal ideation in a perinatal population, and to examine clinical correlates, characteristics of patients who reported suicidal thoughts and their explanations in order to estimate the magnitude of suicide risk. The study accessed data from a large suburban health system in the United States, where expectant mothers were routinely screened using the Edinburgh Postnatal Depression Scale (EPDS) during pregnancy and after delivery. First available antepartum and postpartum EPDS results were included, even if the screens were from different pregnancies, resulting in 22,118 unique screens. Suicidal ideation was indicated on 842 questionnaires (3.8%), with report rates similar across antepartum (4.1%) and postpartum (3.4%) questionnaires. The study identified subgroups of women more likely to report suicidal ideation in the perinatal period, including women without a partner, non-Caucasian women, and patients with a prior mental health diagnosis. Obstetric outcomes of birth modified postpartum suicide risk; greater risk was found in women with severe lacerations, but risk was reduced in caesarean delivery. The one perinatal suicide which occurred during the study period involved a patient whose obstetrician had chosen not to screen her because of her “positive affect” during a postpartum visit. Women who screened positively for suicidal ideation were interviewed by telephone within 48 hours of screening. Qualitative analysis of 574 of these interviews revealed that 330 women were experiencing some degree of suicidal thought at the time of the interview, both low and high risk. Six (1.1%) of the women interviewed (representing 0.7% of all screens in the study) reported high-risk active suicidal ideation, with a plan, intent and access to means. Three women reported a suicide attempt within the current perinatal period. A low rate of current mental health engagement was noted among the women reporting suicidal ideation. The majority (521 - 90.8%, 95% CI 88.4-93.13%) were not engaged in any form of mental health treatment.

**Implications:** Recent research has indicated that suicide in the perinatal period is a leading contributor to maternal death². Australian and international studies have consistently found significant rates of mental health disorders in the perinatal period³. In the past, Australian maternal mortality associated with psychiatric illness in the perinatal period has been under-reported due to limitations in data collection and methods of detection⁴. An Australian review of perinatal maternal mortality (defined here as occurring from pregnancy to the end of the first year post-partum)⁴ indicated significant rates of suicide in both pregnancy and the postnatal period. Between 1994 and 2002, 26 maternal deaths were found to be associated with mental health issues, comprising 17 suicides by violent means (65%), and nine deaths by overdose from prescription or illegal drugs (35%). At least three of the women (12%) were Indigenous, despite Indigenous women representing only 3.5% of the total number of women giving birth during the period studied. The creation of the National Perinatal Depression Initiative in 2008 led to
the development of national clinical practice guidelines for managing various perinatal mental health issues, including suicide risk\textsuperscript{3,5}. In addition to assessment in the primary care setting, the guidelines recommend universal screening using the EPDS, with specific principles for managing suicide risk\textsuperscript{3}. The current study adds to the evidence regarding the value of routine mental health screening of women during the perinatal period, with follow-up where suicide risk is identified. Ongoing research in this field is much needed to ensure that the most effective methods of detection and management of suicidality are in place. Continued focus on this issue by policymakers, clinicians and researchers is imperative in order to ensure the wellbeing of this vulnerable population.

Endnotes

Health and psychosocial service use among suicides without psychiatric illness

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Social Work 60, 65-74, 2015

Although mental illness is a major suicide risk factor, some cases of suicide list no symptoms of mental disorder at the time of death. Studying suicides without psychiatric illness has important implications for social work because this group’s service needs seem to have been overlooked. The authors of this article conducted a psychological autopsy study of 150 people who committed suicide and 150 age- and gender-matched living controls. Suicides without psychiatric illness showed similar detectable psychopathology as the suicide and living control groups with nonpsychotic psychiatric disorders. Though suicides without psychiatric disorders showed fewer warning signs that could be noticed by their informants, they experienced more negative life events than living controls. The suicide cases without psychiatric illness also seemed to be less protected by enabling factors (such as social support and employment) than living controls with and without psychiatric disorders. Furthermore, they had lower use of services than the control and deceased-with-diagnosis groups. With fewer at-risk signs and poorer enabling resources, they were undetected or unengaged by the existing physical, psychiatric, and psychosocial services. This group should be of concern to social workers, who may develop community-based health education programs and preventive services to meet this vulnerable population’s psychosocial needs.

Comment

Main findings: Mental health treatment is an important strategy in suicide prevention; however, interventions focusing on mental health problems only may not reach vulnerable people who do not possess a diagnosable mental disorder. This study examined whether suicides without psychiatric illness had different characteristics. The study accessed 150 cases from a psychological autopsy study in Hong Kong, where it is estimated that about 20% of suicide cases do not have a diagnosable psychiatric illness. Suicide cases were matched by age and gender with living controls; background information and history were collected from informants and relatives. Retrospective psychiatric diagnosis was assessed by trained interviewers using the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I). Cases not given a diagnosis included those with no apparent symptoms, or symptoms not at a level to warrant a diagnosis. As diagnoses assigned to living controls did not include psychotic disorders, only suicides with non-psychotic disorders were analysed. Data analysis was conducted on a sample of 265 cases including suicides with (n=86) and without (n=29) psychiatric diagnosis, and living controls with (n=15) and without (n=135) diagnosis. Chi-square and t tests were used to test differences between the suicide without diagnosis group and the three other groups on relevant variables. The study found that suicides without diagnosis were significantly younger (M=34.1, SD=11.64) than suicides with diag-
nosis (M=39.9, SD=11.06, p=.016) and living controls with diagnosis (M=43.7, SD=10.16, p=.01). They were also significantly better educated (p=.047) and less impulsive (p=.001) than the suicide group with diagnosis. Of the four groups, suicides without diagnosis had the highest proportion of indebtedness (approximately 43%). Suicides without diagnosis showed lower depression levels than suicides with diagnosis (p<.001), but these were higher than the living control group with no diagnosis (p<.001). Suicides without diagnosis were less likely to seek consultation for mental health problems (p=.007) and physical problems (p=.007) than the suicide with diagnosis group. In general, both suicide groups received less social support than living controls, had greater financial constraints and unemployment, and were more impacted by negative life events than living controls without diagnoses, but not those with a diagnosis. Although less likely to use health services, those without psychiatric diagnoses did show detectable psychopathology and other characteristics which should be further investigated as a means of identifying those at risk.

**Implications:** There has been minimal research into suicide in the absence of mental illness in high-income western countries such as Australia. While there are methodological issues in obtaining retrospective information from proxies, psychological autopsy studies provide a means of attempting to understand the experience of those at risk prior to death. Past psychological autopsy studies have generally reported that most people who have died by suicide have an identifiable psychiatric condition, whether or not it had been diagnosed before death. However, it should be noted that recent Australian research has found prevalence of psychiatric problems to be significantly lower among older suicides (61.6% in those 60+ years of age) than in middle age suicides (80.1%); the prevalence of psychiatric disorders in older suicides was also lower than reported in earlier studies (71.4 to 96.5%). The current study reflects findings of previous research from outside Europe and the United States, where higher proportions of suicide without diagnosable mental illness have been reported; major stressors in such cases included life events, and economic and social stress. The current study has also suggested that those at risk, without a clear mental illness, may not be high users of health services for either physical or mental health problems. Research has consistently shown that while identifiable mental illness is a major risk factor for suicide, it is not the only one. Other important risk factors, which may or may not be accompanied by symptomology of mental illness include job or financial loss, hopelessness, chronic pain or other physical illness, genetic or biological factors, family history of suicide, and influence of alcohol. It is clear that it is not adequate to confine suicide prevention strategies to alleviation of mental illness, or only intervene through health services. Further Australian research would assist to identify those risk factors other than mental illness more specific to the Australian population, which would in turn allow the design of better informed prevention strategies and determination of intervention points in the community.
Endnotes


Dialectical behavior therapy for adolescents with repeated suicidal and self-harming behavior: A randomized trial


**Objective:** We examined whether a shortened form of dialectical behavior therapy, dialectical behavior therapy for adolescents (DBT-A) is more effective than enhanced usual care (EUC) to reduce self-harm in adolescents.

**Method:** This was a randomized study of 77 adolescents with recent and repetitive self-harm treated at community child and adolescent psychiatric outpatient clinics who were randomly allocated to either DBT-A or EUC. Assessments of self-harm, suicidal ideation, depression, hopelessness, and symptoms of borderline personality disorder were made at baseline and after 9, 15, and 19 weeks (end of trial period), and frequency of hospitalizations and emergency department visits over the trial period were recorded.

**Results:** Treatment retention was generally good in both treatment conditions, and the use of emergency services was low. DBT-A was superior to EUC in reducing self-harm, suicidal ideation, and depressive symptoms. Effect sizes were large for treatment outcomes in patients who received DBT-A, whereas effect sizes were small for outcomes in patients receiving EUC. Total number of treatment contacts was found to be a partial mediator of the association between treatment and changes in the severity of suicidal ideation, whereas no mediation effects were found on the other outcomes or for total treatment time.

**Conclusion:** DBT-A may be an effective intervention to reduce self-harm, suicidal ideation, and depression in adolescents with repetitive self-harming behavior.

**Comment**

**Main findings:** High rates of adolescent self-harm, with or without suicidal intent, have been reported across many countries; population studies indicate that approximately 10% of adolescents report past year self-harm. Among the most vulnerable young people are those with features of borderline personality disorder (BPD), such as emotion dysregulation and high sensitivity to stress. There has been little evidence that intervention treatments specifically targeting adolescent self-harm are more effective than “usual care”, i.e. standard available treatments. The current study was the first published randomised controlled trial (RCT) of the efficacy of DBT-A, a short version of dialectical behavior therapy (DBT) adapted for self-harming adolescents with features of BPD. Participants received 19 weeks of treatment and were randomly allocated to either “enhanced usual care” (EUC) (psychodynamically oriented therapy or CBT) or to DBT-A, consisting of individual therapy, skills training involving parents or caregivers, and other contact as needed. Symptomology was measured throughout the trial by independent interviewers blind to treatment allocation. No suicides were observed.
during treatment and there were few overall hospital admissions or emergency department visits. Self-harm frequency of EUC participants showed a mean of 4.7 (SD=5.5) episodes in the first nine weeks and 3.3 (SD=6.8) in the subsequent six weeks. For DBT-A participants, the mean self-harm frequency was 4.1 (SD=5.8) and 1.2 (SD=2.0) episodes respectively. Analysis using a logarithmic scale showed a highly significant average drop in self-harm frequency in the DBT-A group (slope=-1.28, 95%CI=-1.77 to -0.80, p<.001), whereas the drop in the EUC group was not statistically significant (slope=-0.36, 95%, CI=-0.99 to 0.26, p=.254). Both treatment groups had a mean baseline severity of suicidal ideation of 36.91, well above clinical cut-off of 31; this reduced at a similar rate in both groups over the first 15 weeks of treatment, and continued to drop amongst DBT-A participants. At the end of the trial, the mean rate of suicidal ideation of the DBT group was 18.30 (SD=11.11), and for the EUC group, was 32.56 (SD=23.99). Effect sizes for treatment outcomes were 0.89 for the DBT condition and 0.16 for EUC. There were no significant differences between groups for participant drop-out, reported as 25.6% for DBT-A and 28.9% for EUC; other studies involving suicidal teens with BPD have reported drop-out rates exceeding 60%. Although adequately powered, the sample size was small; given that participants were mostly female, sample size was inadequate to study gender differences.

Implications: Although some mental health practitioners may have been traditionally reluctant to diagnose personality disorders in adolescents, current Australian clinical practice guidelines confirm that diagnostic criteria for BPD are as reliable and valid for people under 18 years as they are in adults. Although the condition often goes unrecognised in young people, adolescents with BPD are believed to be commonly seen in outpatient mental health services; given the propensity for self-harm and suicidal behaviours, and the high levels of distress experienced, early intervention is advisable to reduce potential for negative outcomes. However, there has been no consensus on Australian best practice interventions for this age group, considered difficult to treat because of reduced patient compliance, a tendency to drop out of treatment, and an apparent lack of understanding about the nature of BPD amongst practitioners. The findings of the current study lend support to previous uncontrolled studies suggesting the efficacy of DBT-A, including a 2013 Australian study assessing a pilot program in a community mental health service which treated self-harming and suicidal adolescent females with BPD features. Benefits of this treatment include its flexibility for application across clinical settings, encouragement of family validation and support, and shorter treatment length increasing cost-effectiveness and financial accessibility, while reducing the risk of drop-out. Ideally, further controlled studies looking to confirm these results would be conducted in Australian settings, involve larger sample sizes and provide longer-term follow-up evaluations.

Endnotes


Exposure to websites that encourage self-harm and suicide: Prevalence rates and association with actual thoughts of self-harm and thoughts of suicide in the United States

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This article provides 12-month prevalence rates of youth exposure to websites which encourage self-harm or suicide and examines whether such exposure is related to thoughts of self-harm and thoughts of suicide in the past 30 days. Data were collected via telephone from a nationally representative survey of 1560 Internet-using youth, ages 10-17 residing in the United States. One percent (95% CI: 0.5%, 1.5%) of youth reported visiting a website that encouraged self-harm or suicide. Youth who visited such websites were seven times more likely to say they had thought about killing themselves; and 11 times more likely to think about hurting themselves, even after adjusting for several known risk factors for thoughts of self-harm and thoughts of suicide. Given that youth thinking about self-harm and suicide are more likely to visit these sites, they may represent an opportunity for identification of youth in need of crisis intervention.

Comment

Main findings: In recent years, considerable concern has been expressed about the ease of access vulnerable young people may have to online content which actively encourages self-injury and suicide, including information about techniques and graphic visual images. Some research has suggested an association between suicide-related online searches and the incidence of suicide amongst young people, but much is still unknown about the level of exposure to such content, and the characteristics of those who access it. This study was based on data gathered through the third Youth Internet Safety Survey (YISS-3) in the United States; participants aged 10 to 17 years had used the internet at least once a month for the past six months. Measures included rates of self-harm and suicidal thoughts during the past month, and past year exposure to websites which encouraged suicide and self-harm. There has been little published research reporting self-harm prevalence within national samples of adolescents in the United States; this study found that 5% reported thoughts of self-harm in the past 30 days. The 12-month rate for visiting websites encouraging self-harm or suicide was low (1%, 95% CI: 0.51%, 1.49%); however, those who did access such sites presented with similar characteristics to those who reported thoughts of self-harm and suicide: for example, elevated depressive symptoms, being a victim of abuse or harassment, problem behaviours, conflict with parents, and low income households. Even after taking into account several known risk factors, stepwise logistic regression analysis showed that exposure to self-harm and suicide sites that may encourage these behaviours was associated with a seven-fold increase in likelihood of concurrent thoughts of suicide, and an
eleven-fold increase in likelihood of thoughts of self-harm. It was conjectured that these young people may have used the internet to find information, or connect with others, in order to reinforce intentions; however, due to cross-sectional study design, it was not clear whether higher rates of risk-factors for suicide and self-injury caused them to be influenced by the sites, or whether probability of carrying out these behaviours was increased by exposure to the websites.

**Implications:** Suicide is the leading cause of death among young Australians aged 15 to 24. Australian research suggests that 6-7% of young people aged 15-24 years engage in self-harm in any 12-month period, and that lifetime prevalence rates of self-harm are as high as 24% of females and 18% of males aged 20-24 years, and 17% of females and 12% of males aged 15-19 years. Australia became the first country to criminalise pro-suicide websites in 2006, and in recent years, various technology companies and social networking sites have increased monitoring and restriction of potentially harmful content. Research has noted that general searches for information about self-harm do not usually produce results for those websites encouraging self-harm or suicide, but rather show those that provide preventative information and support; more sophisticated searches may be necessary to access pro-self-injury sites. Given the constant evolution of online technologies, and the increasing technological skills of younger people, it is not thought to be possible to completely prevent access to potentially harmful online content. In Australia during 2012–13, 15 to 17 year olds had the highest proportion of internet use (97%) compared to other age groups; it has been recognised that the tendency of young people to turn to online content to help solve problems presents powerful opportunities to provide preventative and protective resources to those experiencing thoughts of suicide or self-harm. Findings of the current study provide further information about the characteristics of young people accessing potentially harmful content, which may be useful in designing online interventions targeting these risk factors. While further research into the processes of how young people at risk access and use online information would be beneficial, health providers should also review how young clients experiencing self-harm or suicidal ideation may be using online technologies.

**Endnotes**


Background: As with previous economic downturns, there has been debate about an association between the 2008 economic crisis, rising unemployment, and suicide. Unemployment directly affects individuals’ health and, unsurprisingly, studies have proposed an association between unemployment and suicide. However, a statistical model examining the relationship between unemployment and suicide by considering specific time trends among age-sex-country subgroups over wider world regions is still lacking. We aimed to enhance knowledge of the specific effect of unemployment on suicide by analysing global public data classified according to world regions.

Methods: We retrospectively analysed public data for suicide, population, and economy from the WHO mortality database and the International Monetary Fund’s world economic outlook database from 2000 to 2011. We selected 63 countries based on sample size and completeness of the respective data and extracted the information about four age groups and sex. To check stability of findings, we conducted an overall random coefficient model including all study countries and four additional models, each covering a different world region.

Findings: Despite differences in the four world regions, the overall model, adjusted for the unemployment rate, showed that the annual relative risk of suicide decreased by 1.1% (95% CI 0.8-1.4) per year between 2000 and 2011. The best and most stable final model indicated that a higher suicide rate preceded a rise in unemployment (lagged by 6 months) and that the effect was non-linear with higher effects for lower baseline unemployment rates. In all world regions, the relative risk of suicide associated with unemployment was elevated by about 20-30% during the study period. Overall, 41-148 (95% CI 39-552-42-744) suicides were associated with unemployment in 2007 and 46-131 (44-292-47-970) in 2009, indicating 4983 excess suicides since the economic crisis in 2008.

Interpretation: Suicides associated with unemployment totalled a nine-fold higher number of deaths than excess suicides attributed to the most recent economic crisis. Prevention strategies focused on the unemployed and on employment and its conditions are necessary not only in difficult times but also in times of stable economy.

Comment

Main Findings: The most recent data from the USA, Europe and Asia suggests there is an association between the Financial Crisis in 2008, increased unemployment rates and increased suicide rates, however, the significance of this effect has not been clearly revealed. As a result, the authors of this study aimed to improve understanding of the effect of unemployment on suicide rates by analysing global data from the WHO mortality database and the International Monetary Fund’s
world economic outlook database from 2000 to 2011. Other economic factors that may have impacted on suicide rates were also considered. The 63 countries analysed were categorised into four world geographic regions which were Americas (i.e. the USA, Brazil, Argentina, Mexico, etc.), northern and western Europe (i.e. Denmark, Austria, Estonia, Ireland, the UK, etc.), southern and eastern Europe (i.e. Greece, Italy, Spain, etc.) and non-Americas and non-Europe (i.e. Australia, Japan, Singapore, South Korea, etc.). Suicide rates were analysed by age groups, separated by gender; 15-24 years, 25-44 years, 45-64 years and 65 + years. Economic data was collected on four indicators; unemployment rates, Gross Domestic Product (GDP), growth rate and inflation.

The authors examined the best model fit and the estimated effects of each economic variable across the four world regions. Only unemployment rates were associated with suicide rates with similar effects across each world regions of the economic variables tested. The best fit model was the non-linear, six month time-lagged unemployment rate displaying similar estimates for each world region. In other words, rates of suicide tended to increase six months prior to unemployment rates rising and this affected both genders equally as well as different age groups. Using the best final model, the authors suggested that across all world regions between 2000 and 2011, the rate of suicide associated with unemployment had increased by 20-30%, estimating that of the average 233,000 suicides that occurred per year during this period, unemployment accounted for roughly 45,000 suicides. In 2007 and 2009, unemployment rates were associated with 41,148 and 46,131 suicides respectively, suggesting that the recession was responsible for an additional 4,983 suicides. As a result, this proposes unemployment was responsible for a nine-fold higher number of suicides than those attributed to the economic crisis. The impact of unemployment rate on suicide rate was more robust in those countries that had a lower pre-crisis unemployment rate.

**Implications:** In general, the findings of this study support prior research that has indicated a link between unemployment and suicide rates\(^1\),\(^2\) corroborating this effect as time-lagged and non-linear. The authors suggest that for those countries that do not commonly have unemployment prior to economic downturn, the unexpected increase in such rates may in fact elicit more severe insecurity and fears for this population than those countries with higher unemployment rates pre-crisis. This six month time lag may be in part due to restricting the labour market and corporate downsizing during economic contraction; impacts on employee job security, work-load, and work-related stress may result in poorer mental health\(^4\). Training of human resource departments is necessary to identify those at increased risk of suicide, for those both in and out of work. Suicide interventions need to focus more on those negative health effects that are consequences of unemployment during times of both economic crisis and economic stability. In addition, investing in programs that promote health work climates and integrate people into the job market is essential for those countries that have low unemployment rates as the impacts of economic downturn appear to be greater on countries where unemployment is uncommon.
Endnotes


Background: Anxiety disorders are assumed to increase suicide risk, although confounding by comorbid psychiatric disorders may be one explanation. This study describes the characteristics of older patients with an anxiety disorder who died by suicide in comparison to younger patients.

Method: A 15-year national clinical survey of all suicides in the UK (n=25,128). Among the 4,481 older patients who died by suicide (≥ 60 years), 209 (4.7%) suffered from a primary anxiety disorder, and 533 (11.9%) from a comorbid anxiety disorder. Characteristics of older (n=209) and younger (n=773) patients with a primary anxiety disorder were compared by logistic regression adjusted for sex and living arrangement.

Results: Compared to younger patients, older patients with a primary anxiety disorder were more often males and more often lived alone. Although 60% of older patients had a history of psychiatric admissions and 50% of deliberate self-harm, a history of self-harm, violence, and substance misuse was significantly less frequent compared to younger patients, whereas physical health problems and comorbid depressive illness were more common. Older patients were prescribed significantly more psychotropic drugs and received less psychotherapy compared to younger patients.

Conclusion: Anxiety disorders are involved in one of every six older patients who died by suicide. Characteristics among patients who died by suicide show severe psychopathology, with a more prominent role for physical decline and social isolation compared to their younger counterparts. Moreover, treatment was less optimal in the elderly, suggesting ageism. These results shed light on the phenomenon of suicide in late-life anxiety disorder and suggest areas where prevention efforts might be focused.

Comment

Main Findings: Despite the on-going debate that the association between anxiety disorders and suicide is confounded by comorbid psychiatric disorders, recent research has identified an independent contribution of anxiety to the onset of suicide attempts. No research thus far has examined the clinical, behavioural and care characteristics of suicide amongst those older people who suffer from anxiety disorders. This study took the opportunity to explore the characteristics of suicide in late-life anxiety disorders with particular focus on comorbidity rates compared with younger people who died by suicide. The main population of interest were suicide victims with a lifetime primary diagnosis of anxiety disorders. In addition, data was extracted on patients with a comorbid diagnosis of an anxiety disorder in order to examine their primary diagnosis. Data were collected over a 15 year period.
(1997-2012) on all suicides that occurred in the UK (n=94,922). A total of 25,128 suicide victims were in contact with mental health services in the year prior to their death. Questionnaires were sent to the consulting psychiatrist of each individual case and of those, 24,928 completed questionnaires were received which was the final sample used.

Suicide victims aged 60 years and older amounted to 4,481 with 16% having suffered from an anxiety disorder at the time of their death. Of these, 209 (4.7%) had a primary diagnosis of an anxiety disorder and 533 (11.9%) had an anxiety disorder comorbid with another primary diagnosis. These proportions were significantly higher in the older age group (p<.001). Comorbidity with depression was more common in the older age group with both a comorbid anxiety disorder and primary anxiety disorders (p<.001 and p=.001 respectively), whereas, younger patients suffered significantly more often from comorbid personality disorders and substance abuse disorders (p=.008 and p<.001 respectively). Analyses were then restricted to those with primary anxiety disorders to examine the clinical and behavioural characteristics of this population. Younger victims of suicide, when compared with older ones, were significantly more often male and less often lived alone (p=.002 and p=.001 respectively). Method of suicide differed between the two age groups (p<.001) with the older age group more often dying by suffocation and drowning and less often carbon monoxide poisoning or jumping. Substance taken for self-poisoning purposes did not differ between age groups with both young and old populations using opiates (n=70) either alone (n=43) or combined with paracetamol (n=27) the most often, followed by antidepressants (n=68). Frequency of previous hospitalisations did not differ between age groups, however older age groups had significantly less often a history of violence, self-harm, alcohol and drug misuse (p=.004, p<.001, p<.001 respectively), but suffered more often from chronic physical illnesses (p<.001). Interpersonal problems were more frequent in the younger age group (p<.001) and health-related events were more frequent in the older age group (p<.001). During the last contact with the older age group, deterioration in physical health was more frequently noted (p<.001) with less reported suicidal ideation (p=.03). Finally, the proportion of older suicide victims with an anxiety disorder who received psychological treatment was low (21%) and significantly lower compared to younger age group (p=.04).

**Implications:** This study from UK indicated that the proportion of those who died by suicide with anxiety disorders increased with age, as anxiety disorders were involved in roughly one of six suicides in older adults (16.6%) compared to 12.1% in younger age groups. In addition, there were other underlying mental health issues, in particular, the prominent role of late-life depression. When clinical characteristics were analysed using data from those who died by suicide with a primary anxiety disorder diagnosis, older groups with late-life anxiety presented with deteriorating health and concerns regarding this, as well as social isolation and significantly less suicidal thoughts and behaviours than the younger group. Furthermore, older populations less often missed their last appointment to see a doctor with
reasons for visiting being urgent. This study highlights the difficulty in identifying older people at high risk of suicide in daily care. More caution should be exercised in assessing suicide risk amongst patients with late-life anxiety that may or may not present with suicidal thoughts or actions and make pharmacological and psychological treatments more accessible from a preventative perspective.

Endnotes

Examining undetermined and accidental deaths as source of ‘under-reported-suicide’ by age and sex in twenty Western countries

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**Objectives:** ‘Undetermined’ (UnD) and accidental deaths (AccD) are explored as possible sources of ‘under-reported-suicides’ (URS) in 20 Western countries.

**Methods:** WHO mortality rates per million of AccD, UnD and suicides analysed. UnD:suicides ratios of <1:5 calculated as likely URS versus ratios >1:10 unlikely URS and all correlated by sex and age.

**Results:** Male URS likely in 7 countries and in 11 for females. URS in AccD likely in 5 countries for both sexes only UnD and suicide rates the elderly (75+) significantly correlated.

**Conclusion:** Strong indication of URS in the UK, Portugal, Switzerland, Sweden, Denmark and Germany with likely URS in AccD in Greece, Portugal, Switzerland and USA. These findings have important implications, indicating that, with the exception of France and Japan, official reported suicide rates contain a degree of under-reporting, and especially for women yet it is essential to have accurate suicide data to ensure adequate service provision.

**Comment**

**Main findings:** The accuracy of suicide data has been an ongoing issue due to potential under-reporting of suicides (URS) which lessens the recognition of the extent of the problem. This issue is highly reliant on the standardised diagnostic criteria of suicide that must be proved to be ‘beyond reasonable doubt’. Such decision-making can be influenced by numerous ethno-cultural factors regarding how suicide is viewed in each country. Many researchers have suggested that the most likely cause of URS is through undetermined deaths (UnD) due to cause of death being very similar between the two. Furthermore, this may also arise from coroners providing accidental or open verdicts in belief that it avoids adding to the family’s distress. This poses the detrimental issue of possibly distorting the true incidence of suicide. URS has also been proposed to comprise of accidental deaths which are particularly evident in the elderly population (i.e. car accidents). As a result, this study aimed to determine whether there are significant differences in patterns of suicide, UnD and accidental deaths by examination of possible URS amongst those UnD and accidental deaths (excluding transport related accidents). Data for this study were drawn from the WHO Annual Mortality Statistics and 20 Western countries were examined. Data was presented in age bands per million by gender. UnD:suicide ratios were calculated for each country for both males and females. Countries with a ratio less than 1:5 were classified as having a high likelihood of containing some URS, whereas countries with ratios that were more than 1:10 were less likely to contain URS.
Overall, there was a high chance that UnD contained URS in the following countries; Denmark, Germany, Switzerland, Ireland and particularly Portugal and the UK as UnD: suicide ratios were less than 1:3 in every age bracket. USR appeared smaller in Australia, New Zealand, Austria, Finland, France, Japan, Greece, Netherlands, Norway and Spain, producing UnD:suicide ratios of >1:10. Results indicated that URS was partly age and gender related as there appeared to be a smaller UnD:suicide ratio for women than men suggesting that URS may be more common amongst women. Only four countries reported high levels of URS for males with a UnD:suicide ratio of <1:5 (the UK, Switzerland, Portugal and Sweden). Whereas for females, 10 countries produced a similar ratio including the UK, Switzerland, Portugal and Sweden, Germany, Denmark, USA, Canada, Italy and Ireland. Data were not strong enough to suggest differences in mortality patterns between age brackets and gender in each country; however a few particular trends were evident. In nine of the 20 countries, low ratios were noticeable in elderly age groups for women and men displaying a possible source of URS. Greece was found to have low suicide rates and no UnD for both genders which suggests that accidental deaths may be a possible source of URS. This is also apparent in the USA for both genders and Spain for males.

Implications: The findings of this study indicate a substantial degree of URS in particular countries, such as Portugal, the UK, Sweden, Switzerland, Germany and Denmark across the majority of age groups. The authors suggested possible socio-religious-cultural factors such as age, sex, stigma and each individual mental health delivery system that were not explored in this study may explain such differences, highlighting the need for further research to be conducted on this matter. The main limitation that affects the results of this study is the decision of the researchers to conclude that UnD: suicide ratios of <1:5 are more likely to contain URS and those of >1:10 are unlikely to do so. Such ratios used in this study are only indictors of possible URS; however, they do strongly indicate where URS are likely to be due to internal consistency between and within countries regarding gender and age. Overall, the findings from this study have implication for policy and practice, as the extent of the problem is not adequately recognized, hindering the ability to confront the issue of suicide and thus, services will be under-resourced.

The accuracy of suicide reporting in Australia declined significantly since 2002. This was due to a number of possible factors which include the lack of a central authority for providing mortality data, coroners’ inconsistencies in determining intent (which is a consequence of inadequate information and suicide stigma), and collecting and coding which entails the objective difficulty in interpreting the cause of death (i.e. suicide-related single-vehicle road crashes). In addition, the introduction of the National Coronal Information System (NCIS) in 2000/2001 also contributed to the escalation in underreporting as it increased the workload of coroners and NCIS clerks in uploading electronic file, therefore an increasing number of open cases. In 2009, the problems with mortality statistics were
recognised and Australian Bureau of Statistics (ABS) introduced significant changes. Re-examining and revision of all coroner certified deaths at 12 and 24 months after initial processing and improved coding instructions for ABS coders were implemented7,8.

Endnotes
Objective: The U.K. has one of the highest rates of self harm in Europe at 400 per 100,000 of population. Paramedics and emergency staff may be the first professionals encountered, therefore understanding their views and approaches to care is crucial. The aim of this study was to systematically review published quantitative literature relating to paramedic and emergency workers’ perceptions and experiences of caring for people who self harm.

Methods: CINAHL®, MEDLINE®, OVID® and PsychINFO® databases were searched, PRISMA guidelines were followed, two researchers independently screened titles, abstracts and full papers against a priori eligibility criteria. Data synthesis was achieved by extracting and descriptively analysing study characteristics and findings.

Results: 16 studies met inclusion criteria; one included ambulance staff, all used questionnaires. Training, policies and guidelines improved staff knowledge and confidence in caring for people who self harm. Limited access to training was reported, ranging from 75% to 90% of staff lacking any. Limited departmental guidelines were also reported. Staff in acute settings exhibited increased feelings of negativity, becoming less positive closer to front line care. Recent studies report positive attitudes amongst emergency staff.

Discussion: Despite guidelines indicating need for education and policies to guide staff in self harm care, there is limited evidence of this happening in practice. The lack of literature including paramedics suggests a gap in our understanding about care for self harm patients. This gap warrants greater attention in order to improve care for patients who self harm in their first point of contact.

Comment

Main findings: There have been allegations regarding the attitudes of health care staff and the unsatisfactory quality of care they provide to those who intentionally self-harm¹. Many patients who self-harm find that health professionals ignore them not only because of their negative attitudes towards the patient but because they are perceived as being difficult to deal with and untreatable². As emergency department staff and paramedics are usually a first point of contact for those who self-harm, this can have detrimental effects on the individual during a vulnerable period¹³. This paper systematically reviewed quantitative research to investigate the current knowledge about the perceptions of emergency workers and paramedics that work with those who self-harm. Electronic searches of the literature were conducted using four databases (CINAHL®, MEDLINE®, OVID® and PsychINFO®). Searches were conducted and articles were reviewed by two researchers independently. Of the 864 studies that were screened for relevance, data was
abstracted from 16 studies that were conducted in Australia (4), the UK (5), Ireland (4), Finland (2) and Taiwan (1).

Studies reported that staff believed they lacked the skills to care for people who presented with self-harm and would have more confidence if given the adequate training in communication and understanding of self-harm. Participation in training significantly improved their confidence, knowledge and attitudes towards self-harm. One particular study conducted with staff from EDs in Ireland found positive relationships between knowledge and effectiveness (p<.05) and also between confidence and effectiveness (p<.01). Older and more experienced nursing staff reported more supportive and positive attitudes and greater empathy for patients with self-harm (p<.05). Interestingly, another study from Northern Ireland indicated that 92% of more experienced nurses and 71% of less experienced nurses stated that most people who tried to kill themselves did not in fact really want to die (p<.001). An Australian study found a relationship between staff members who had not been trained in self-harm and high levels of anger towards self-harming patients (p<.05). Some nurses reported feelings of frustration towards patients who repeatedly presented and were often ignored. Staff perceived those patients with self-harm as deserving a lower priority of care than those ‘purely medical’ patients with 76% of emergency staff stating that patients who attempt suicide are wasting staff time. Staff situated in large units and acute settings were more likely to report negativity toward self-harming individuals than those in non-acute settings. Two studies assessing gender differences in their attitudes towards self-harming patients found that males more likely expressed unfavourable attitudes (p<.01), less sympathy (p<.02) and greater irritation (p<.04) and frustration (p<.01) and alarmingly, a lack of willingness to help (p<.005) than women. Lastly, policies for dealing with people who self-harm and guidelines were lacking or underused in hospitals, either having no formal or informal procedures (46%), or nurses commonly had no knowledge of policy existence, with others reporting there were no guidelines to assess self-harm (82%).

Implications: This systematic review highlights a number of key issues that are faced by those who self-harm when they encounter paramedics and emergency staff. Quality of care was found to be influenced by a number of factors including education of staff, level of experience in caring for those who self-harm, age, gender, situational factors, availability of policies and guidelines for dealing with self-harm, confidence, assessment, and work load. As paramedics and emergency staff are often the first health professionals that patients with self-harm encounter, it is vital that they have an adequate level of knowledge and understanding regarding self-harm in order to provide quality care. As was seen from the review of the literature, this quality of care is compromised by staff in acute settings often exhibiting negativity towards self-harm patients, less positive attitudes, feelings of irritation and anger which often resulted in giving those patients lower priority and reduced entitlement to care. For the majority of staff their attitudes towards people who self-harm became more positive with increased knowledge, confi-
dence in their ability and perceived personal effectiveness which goes hand in hand with training and education. Addressing the need for educational training and availability of formal and informal guidelines and policies is paramount in its potential to ensure equitable practice is provided by paramedics and emergency department staff and to have a positive impact on the quality of care for self-harming individuals. More specifically, an Australian study in this review that analysed nurses’ actions and procedures for self-harm patients in Queensland emergency departments concluded that nearly all participants believed that they lacked specialised self-harm education and training. It was recommended that health services in Australia must budget for continuing education and training of all emergency department staff, for experimental research funding that evaluates the effectiveness of clinical initiatives and implementing comprehensive and consistent guidelines of standard practice in assessing and treating patients who present with self-harm.

Endnotes
Impulsive suicide attempts: A systematic literature review of definitions, characteristics and risk factors

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**Background:** Extensive research on impulsive suicide attempts, but lack of agreement on the use of this term indicates the need for a systematic literature review of the area. The aim of this review was to examine definitions and likely correlates of impulsive attempts.

**Methods:** A search of Medline, Psychinfo, Scopus, Proquest and Web of Knowledge databases was conducted. Additional articles were identified using the cross-referencing function of Google Scholar.

**Results:** 179 relevant papers were identified. Four different groups of research criteria used to assess suicide attempt impulsivity emerged: (a) time-related criteria, (b) absence of proximal planning/preparations, (c) presence of suicide plan in lifetime/previous year, and (d) other. Subsequent analysis used these criteria to compare results from different studies on 20 most researched hypotheses. Conclusions regarding the characteristics of impulsive attempts are more consistent than those on the risk factors specific to such attempts. No risk factors were identified that uniformly related to suicide attempt impulsivity across all criteria groups, but relationships emerged between separate criteria and specific characteristics of suicide attempters.

**Limitations:** Only published articles were included. Large inconsistencies in methods of the studies included in this review prevented comparison of effect sizes.

**Conclusions:** The vast disparities in findings on risk factors for impulsive suicide attempts among different criteria groups suggest the need to address the methodological issues in defining suicide attempt impulsivity before further research into correlates of such attempts can effectively progress. Specific recommendations are offered for necessary research.

**Comment**

**Main findings:** Despite description of impulsive suicide attempts in the literature as early as the 1890s1, this is the first systematic review of the literature on the concept. The review examined how impulsive suicide attempts have been defined in research, and sought to establish characteristics of such attempts. A total of 179 papers were identified, comprising 161 quantitative studies and 18 case studies, case descriptions or qualitative studies; most of the research was conducted in Western countries. A substantial lack of agreement on the definition of impulsive suicide attempts hampered integration of research findings. Studies used a wide variety of criteria to identify an attempt as impulsive, particularly differing in whether they used proximal or distal identifiers of attempt impulsivity. The distal criteria assessed whether the attempter had ever made a suicide plan in their lifetime or the previous year, and proximal criteria assessed
suicide ideation, planning and preparation just prior to the event. Results indicated that most attempts perceived as impulsive did not show signs of extensive preparation and planning proximally to the attempt, nor were attempts usually preceded by a long period of proximal suicide ideation. Even though the proportion of attempts that occurred without the person ever having made a suicide plan in their lifetime was smaller than those in which there had been a plan, it still comprised from 15% to 64% of all attempts. Given the problem with definitions, conclusions could only be drawn with a reasonable degree of support for approximately half of the 20 hypotheses advanced in the literature. These were that: impulsive suicide attempts are more likely to involve low intent to die, a low degree of expected lethality and readily available means, and were likely to be associated with deficits in executive function. Commonly held beliefs regarding associations with impulsive suicide attempts such as being male, a young age, substance use and alcohol intoxication\(^2\), were not supported by present research. Previously associated factors such as lethality of the attempt, depression, hopelessness, aggression or trait impulsivity were complex and depended on the criteria used and population studied.

**Implications:** Past research has supported the development of suicidality along a continuum ranging from less severe forms, such as thoughts of death or suicide ideation, to more serious expressions of intent to die, including suicide attempts\(^2\). The claim that risk of suicide, and suicide attempts, can develop quickly with little prior premeditation has been countered by others who believe that most people who suicide, and attempt suicide, have experienced thoughts of suicide at some stage, whether recently or in their past\(^3\). The literature review revealed many inconsistencies in methodology which prevent better understanding of this concept, particularly in determining whether assessments of suicide attempt impulsivity are valid. International standardisation of suicide terminology would be a starting point to progress this area, and would greatly benefit communication between researchers and clinicians\(^4\). Future research is particularly needed to explore how proximal suicide ideation and planning relate to more distal elements of suicidality in the past of the attempters. Given that the research may not support commonly held assumptions of the characteristics of impulsive suicide attempts, it is possible that health workers may inappropriately minimise risk factors and intentions, or assume that there has been no prior risk of suicidality. Absence of warning signs should not be treated as absence of acute suicide risk. Exploring how this construct is used in clinical practice could assist to formulate more robust, relevant criteria to assess impulsivity. However, the presence of warning signs should not be trivialised; past suicidal thoughts or acts are highly statistically associated with subsequent suicide, and warrant careful professional attention\(^3\).
Endnotes


Suicide in the oldest old: An observational study and cluster analysis

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Objectives: The older population are at a high risk for suicide. This study sought to learn more about the characteristics of suicide in the oldest-old and to use a cluster analysis to determine if oldest-old suicide victims assort into clinically meaningful subgroups.

Methods: Data were collected from a coroner’s chart review of suicide victims in Toronto from 1998 to 2011. We compared two age groups (65-79 year olds, n=335, and 80+ year olds, n=191) and then conducted a hierarchical agglomerative cluster analysis using Ward’s method to identify distinct clusters in the 80+ group.

Results: The younger and older age groups differed according to marital status, living circumstances and pattern of stressors. The cluster analysis identified three distinct clusters in the 80+ group. Cluster 1 was the largest (n=124) and included people who were either married or widowed who had significantly more depression and somewhat more medical health stressors. In contrast, cluster 2 (n=50) comprised people who were almost all single and living alone with significantly less identified depression and slightly fewer medical health stressors. All members of cluster 3 (n=17) lived in a retirement residence or nursing home, and this group had the highest rates of depression, dementia, other mental illness and past suicide attempts.

Conclusions: This is the first study to use the cluster analysis technique to identify meaningful subgroups among suicide victims in the oldest-old. The results reveal different patterns of suicide in the older population that may be relevant for clinical care.

Comment

Main Findings: Suicide in older populations, particularly the oldest old (80+ years) is an important public health issue due to having the highest suicide rates. Suicide risk factors in the elderly that have been identified include: male sex, widowed or divorced, psychiatric illness, stressful life events (i.e. financial difficulties, bereavement, social isolation and relationship problems) and physical illness. Compared to younger subjects, older individuals who die by suicide are less likely to report suicidal ideation to family members or physicians placing them at even higher risk of suicide due to a lack of help-seeking behaviours. This study aimed to explore the issue of high suicide rates in the oldest-old (80+ years) when compared to younger-old populations (65-79 years). Demographics, clinical and suicide-specific differences between the two groups were identified. A cluster analysis was conducted in order to examine whether suicide victims aged 80 years and over separate into meaningful subgroups in accordance with established risk factors (sex, living circumstances, marital status, mental illness, previous suicide attempts, recent stres-
ors, recent emergency department/psychiatric care)\(^3\). Furthermore, a more specific sample of suicide victims (90+ years) was examined to identify any features that distinguish them from suicide victims of older adults aged less than 90 years. Data were collected from the coroner’s office in Toronto, Canada, regarding all suicides that occurred between 1998 and 2011 in people aged between 65 and 79 years (n=335) and 80+ years (n=191), which included 25 aged 90+ years.

Comparisons between 65-79 year olds and 80+ year olds showed significant differences in marital status (p<.001) as the older group was more often widowed compared with younger group who were more often single. Living circumstances also significantly differed between the two groups (p<.001) in that the older group more often lived in a nursing home or retirement residence compared to young-old persons (8.9% vs 2.4% respectively) whereas the younger group more often lived alone compared with oldest-old persons (46.9% vs 38.2% respectively). Those aged 80+ years more likely had a physical health problem (p=.007) or dementia (p=.004). The younger group had more often recent stressors which were interpersonal (p=.04) or to do with finances/employment (p=.002). The two groups did not differ on depression, past attempts or suicide method. A cluster analysis of those 80 years and over of age showed three distinct constellations. The largest cluster comprised of those who were either widowed or married, had slightly higher rates of physical health issues and depressed moods. The second included almost all those who were single, majority living alone and had lowest rates of mental illness. Lastly, the third cluster was mostly single, lived in a nursing home or retirement residence and had the highest rates of depression, other mental illness, dementia and past attempts.

Exploration of characteristics of those 90 years and older suicide victims (n=25) displayed the following findings: 15 were male, 14 depressed, 12 had a recent medical health issue in the previous year and of those 12, nine stated they were bothered by their deteriorating health/loss of independence, six were married and 10 widowed and none had come into contact with mental health professionals in the week prior to death.

**Implications:** This study was the first of its kind to explore clusters of those aged 80 years and above who died by suicide and examine characteristics associated with victims of suicide aged 90 years and above. Recent contact with mental health professionals was very low across all three clusters, which aligns with research from Australia\(^4\). The first cluster highlights the importance of mental health professionals screening adults with medical comorbidities for depression and possible suicide ideation, particularly those who are widowed but also those who are married. The second cluster that identified the majority of those who lived alone could be an indication of social isolation, which has been previously identified as a significant risk factor of suicide\(^5\). It is important to identify suicide risk in the population of older adults regardless of whether they have been diagnosed with a psychiatric illness, as low rates were found which may reflect under-reporting or under-detection. A study conducted in Northern Italy reduced social isolation in the elderly by using a telephone and emergency support intervention and concluded that service use was
associated with fewer suicides when compared to the general population\textsuperscript{6}. The final cluster demonstrated high risk in older populations that live in a nursing home or retirement residence with high rates of mental illness.

Further effort needs to be made to heighten vigilance of screening for suicidality and intervening when necessary in those older age groups with a history of mental illness or dementia, residing in retirement or nursing homes. In addition, this study also highlights deteriorating health as a significant stressor in those aged 90 years and above. With a lack of contact with mental health professionals, it is important for physicians who are treating such individuals for physical health conditions express caution in assuming that people of this age do not have suicidal ideation even if there is no evident psychiatric history. A recent review on suicide prevention programs in Queensland indicates that there is a lack of suicide prevention activities targeting older adults, uncovering six times more programs for younger populations (up to 24 years) when compared with the number of programs available for older people (65 years and above)\textsuperscript{7}. Specific suicide prevention strategies to target elderly in Australia have been recommended which include: restricting access to means (i.e. using Webster packs to reduce stockpiling of medications), upskilling GPs and mental health staff and telephone counsellors in detecting and treating elderly people with suicidal ideations and behaviours and improving social support and reducing social isolation through community programs and telephone services\textsuperscript{8}.

\textbf{Endnotes}

Are LGBT populations at a higher risk for suicidal behaviors in Australia? Research findings and implications

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The aim of this article is to review the Australian literature about suicidality in minority sexual identity and/or behavior groups in order to determine the evidence base for their reported higher vulnerability to suicidal behaviors than heterosexual and non-transgendered individuals in the Australian context, as well as to identify the factors which are predictive of suicidal behaviors in these groups in Australia. A literature search for all available years (until the end of 2012) was conducted using the databases Scopus, Medline, and Proquest for articles published in English in peer-reviewed academic journals. All peer-reviewed publications that provided empirical evidence for prevalence and predictive factors of suicidal behaviors among LGBTI individuals (or a subset thereof) in Australia were included. Reference lists were also scrutinized to identify “gray” literature for inclusion. The results revealed that there is only limited research from Australia. Nevertheless, although no population-based studies have been carried out, research indicates that sexual minorities are indeed at a higher risk for suicidal behaviors. In order to further the understanding of suicidal behaviors and potential prevention among LGBT groups in the Australia, further research is needed, particularly on fatal suicidal behaviors.

Comment

Main findings: Despite Australian Government recognition of lesbian, gay, bisexual, transgender, and intersex (LGBTI) people as belonging to high risk groups for suicide\(^1\), limited research has been conducted to examine suicidality within minority sexual identity and/or behavior groups in Australia. This literature review, the first of its kind, aimed to determine the Australian evidence base for a heightened risk of suicidal behaviour. In total, 12 documents based on 11 empirical studies were identified for inclusion; the earliest study was published in 1988. Identified limitations in Australian studies to date included a lack of research based on suicide deaths, and reliance on cross-sectional studies and convenience sampling, often with self-selected participants. While no population-based studies had been published in Australia, the research indicated a higher risk of suicidal behaviours for populations studied. A 2002 study based on a sample of 4,824 people from the electoral roll found gay men at a higher risk for ‘suicidality’ than heterosexual men, and bisexual men at a higher risk than gay men\(^2\). A 2006 study found highly statistically significant differences in ‘feeling suicidal’ between both gay and bisexual men, and heterosexual men\(^3\). While LGBT populations and non-LGBT populations shared common risk factors for suicide attempt, such as substance abuse and psychiatric disorders, unique risk factors existed, including developmental stressors such as self-identifying (‘coming out’) in adolescence and adulthood. Homophobic abuse was associated with self-harming behaviours, as
was rejection by a family member. Possible protective factors identified by the research included acceptance of one’s sexuality, having a supportive family, positive fictional media portrayal of openly gay characters, and perceived school-based policy protection.

**Implications:** Sexual orientation is seldom recorded at death in Australia, increasing the likelihood that suicide deaths from LGBTI groups are under-reported. The relatively recent recognition of the high risk inherent within LGBTI populations in Australia has sparked initiatives such as the world’s first national suicide prevention project specifically targeting LGBTI individuals. This literature review has provided support for predictive factors for suicidal behaviours specific to minority sexual identity and/or behaviour groups, in line with recent research identifying LGBT suicide deaths in Queensland as belonging to a distinct subgroup. However, further methodologically sound research is needed; larger scale case-controlled studies would provide greater clarity as to the specific predictive factors within these populations, and help to close knowledge gaps such as those relating to lack of information about risk factors for transgender populations. Outcomes of such studies would be invaluable in informing targeted intervention strategies such as inclusive telephone counselling services staffed by counsellors specifically trained to help suicidal callers from LGBTI populations.

**Endnotes**


Objective: Suicide rates among Indigenous Australian children are higher than for other Australian children. The current study aimed to identify factors associated with Indigenous child suicide when compared to other Australian children.

Methods: Using the Queensland Suicide Register, suicides in Indigenous children (10–14 years) and other Australian children in the same age band were compared.

Results: Between 2000 and 2010, 45 child suicides were recorded: 21 of Indigenous children and 24 of other Australian children. This corresponded to a suicide rate of 10.15 suicides per 100,000 for Indigenous children – 12.63 times higher than the suicide rate for other Australian children (0.80 per 100,000). Hanging was the predominant method used by all children. Indigenous children were significantly more likely to suicide outside the home, to be living outside the parental home at time of death, and be living in remote or very remote areas. Indigenous children were found to consume alcohol more frequently before suicide, compared to other Australian children. Current and past treatments of psychiatric disorders were significantly less common among Indigenous children compared to other Australian children.

Conclusions: Western conceptualisation of mental illness may not adequately embody Indigenous people’s holistic perspective regarding mental health. Further development of culturally appropriate suicide prevention activities for Aboriginal and Torres Strait Islander children is required.

Comment

Main Findings: Research thus far has indicated that Aboriginal and Torres Strait Islander children were at a 10 times greater risk of suicide when compared to other Australian children living in Queensland; however, reasons for their over-representation in suicide statistics is unknown. Potential explanations for this have been suggested which include intergenerational trauma due to colonisation and forceful removal, enduring racism and disintegrated cultural identity. This study aimed to compare suicide rates of Aboriginal and Torres Strait Islander children with other Australian children and identify factors associated with Aboriginal and Torres Strait Islander child suicide when compared to other Australian children in Queensland. Data was collated from the Queensland Suicide Register (QSR). A total of 45 deaths by suicide were recorded for children 14 years and younger between 2000 and 2010 with Aboriginal and Torres Strait Islander children comprising 46.7% (n=21) of those 45. Aboriginal and Torres Strait Islander children had a suicide rate of 10.15 suicides per 100,000 whereas other Australian children’s suicide rate was 0.8 suicides per 100,000, being 12.63 times higher for Aboriginal and Torres Strait Islander children. Suicide rates for Aboriginal and Torres Strait Islander children were highest for those living in remote areas where
as other Australian children had their highest rate of suicide in metropolitan areas. Despite usual residency being the most frequent for both groups, Aboriginal and Torres Strait Islander children were more likely than other Australian children to die by suicide in places other than their usual residence and less likely to leave a suicide note. For both groups, hanging was the most common suicide method (95.2% for Aboriginal and Torres Strait Islander children and 95.8% for other Australian children). Diagnosed psychiatric disorders were significantly less common in Aboriginal and Torres Strait Islander children (4.8%) than other Australian children (29.2%) who died by suicide. Furthermore, current or past treatment for a psychiatric condition was significantly higher in other Australian children (29.2%) than Aboriginal and Torres Strait Islander children (4.8%). Analysing toxicology reports revealed a significant trend of Aboriginal and Torres Strait Islander children consuming alcohol prior to suicide (33.3%) more frequently when compared to other Australian children (4.2%). In addition, analysis of life events uncovered that the most common life event for both groups was familial conflict.

**Implications:** Thus far, there is a lack of understanding regarding cultural specificities of Aboriginal and Torres Strait Islander Australians’ mental health. This is particularly alarming in the context of such high suicide rates amongst Aboriginal and Torres Strait Islander children. Much less than other Australian children, 5% of Aboriginal and Torres Strait Islander children who died by suicide had been diagnosed with a psychiatric disorder. This lower prevalence of psychiatric disorders in Aboriginal and Torres Strait Islander children may be a manifestation of the unsuitable application of the Western concept of psychiatric disorder, not accurately representing Aboriginal and Torres Strait Islander holistic perspectives regarding mental health. One reason for this disparity might be the limited access to mental health professionals with skills required to recognise and subsequently treat mental health problems. This is particularly important as more than half of Aboriginal and Torres Strait Islander children who died by suicide lived in remote or very remote areas. This study highlights the importance of developing targeted suicide prevention strategies that are culturally sensitive, incorporating the Aboriginal and Torres Strait Islander holistic conceptualisation of mental health for this population as well as providing accessible mental health services.

**Endnotes**

Background: Installing physical barriers, such as platform screen doors (PSDs), on train platforms is considered to be one of the most effective measures to prevent railway suicide. However, there is little evidence on the effectiveness of such barriers. In particular, the effectiveness of half-height, as opposed to full-height, PSDs has never been assessed.

Methods: Using suicide and accident data between 2004 and 2014 provided by a major railway company in the Tokyo metropolitan area, this study examines whether the installation of half-height PSDs has contributed to the reduction of the incidents of fatal and non-fatal railway suicide. In addition, the study tests whether the installation of PSDs has resulted in the reduction of unintentional falls onto railway tracks.

Results: Our estimation using a Poisson regression model showed that the introduction of PSDs resulted in a decrease in the number of suicides by 76% (CI: 33-93%). Yet, the installation of PSDs has not completely prevented suicide, as there were cases in which passengers climbed them over. As for unintentional accidents, no fall accidents occurred at stations with PSDs.

Limitations: Our data come only from one train operator, and thus the generalizability of our results may be limited. We do not fully examine potential substitution effects.

Conclusion: Platform screen doors are effective in reducing the number of railway suicides. However, half-height PSDs are less effective than the full-height PSDs in preventing intentional entry to the train tracks. Installation of PSDs is an extremely effective method to prevent fall accidents.

Comment

Main findings: Railway suicides have a far-reaching impact beyond the individuals loss of life and their family and friends but also the train drivers and general public. For instance, in the metropolitan area of Tokyo, one railway suicide can affect up to 83,000 other people. This ranges from passengers simply disrupted by the normal operation of the train line to traumatised train conductors that witnessed the occurrence. Installation of physical barriers (i.e. platform screen doors — PSDs) on train platforms is considered to be one of the most effective measures to prevent railway suicide in an effort to limit access to the platform by individuals who enter train tracks for the purpose of ending their lives. PSDs in Japan are unique as they are ‘half-height’ (chest height) whereby adult persons have the ability to climb over the barrier in comparison with those ‘full-height’ PSDs that extend from ceiling to floor. Therefore, the current study explored PSDs in Japan in an attempt to provide evidence on their effectiveness to prevent sui-
cides, examining whether the installation of half-height PSDs are associated with a reduction of fatal and non-fatal railway suicidal behaviours.

Data on both fatal and non-fatal suicidal behaviours was obtained during April 2004 to March 2014 from a major railway company in the metropolitan area of Tokyo. As the study occurred during the installation of PSDs, it was feasible to compare the number of fatal and non-fatal railway suicidal behaviours between stations with and without PSDs. Despite PSDs not completely preventing railway suicidal behaviours, the number of incidents was much larger at those stations without PSDs than those with PSDs from 2004 to 2013 (137 and seven respectively). Overall, the installation of PSDs resulted in a significant decrease in the number of railway suicidal behaviours by 76% (p=.007). The few stations in Tokyo that had full-height barriers installed had no incidents that occurred during the study period. Of the seven people who attempted suicide at stations with half-height PSDs, only two cases were fatal. Attempts at stations with PSDs were less likely to be fatal than those without PSDs due to the nature of the suicide method as wandering onto the track (more common at stations with PSDs) was less fatal than jumping in front of an oncoming train (common at stations without PSDs).

**Implications:** This study demonstrated that the installation of half-height barriers is an effective method of suicide prevention as it contributed to a significant reduction of fatal and non-fatal railway suicidal behaviours. Of the seven incidents of fatal and non-fatal suicidal behaviours that occurred at stations with half-height PSDs, five had climbed the barrier and all were in their 20s or 30s thus having the physical capability to do so. By contrast, no incidents of fatal and non-fatal railway suicidal behaviours had occurred during the study period at those stations with full-height PSDs installed. Despite the greater effectiveness of full-height PSDs, half-height barriers are more appealing to train operators as they can be easily retrofitted to stations and are lightweight thus more cost effective. Future research should examine in more detail the cost of stalling different heights of PSDs with the associated benefits of their installation. One main limitation in this study were the inability to assess whether there were possible substitution effects in that suicides which may have occurred at locations with PSDs were potentially shifted to other stations without PSDs or substituted with other suicide methods. Further examination into substitution phenomenon is suggested for additional research.

In Australia, TrackSAFE is currently working on initiatives to reduce suicidal behaviours on railways. Recommendations that have been put forward as effective suicide prevention methods include creating physical barriers as a way of preventing individual from having access to the tracks. However, due to this approach being expensive and also logistically difficult, as most suicides on Australian railways occur on open track areas, an assessment of suicide risk factors at station hot spots with the result in erecting barriers at bridges or platform ends is recommended.
Endnotes


Suicide among 915,303 Austrian cancer patients: Who is at risk?
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Objectives: The aim of this study was to determine whether time since first diagnosis, site, and stage of cancer impacted suicide risk within a nationwide cohort of Austrian cancer patients.

Methods: Data for this population-based study were derived from the Austrian National Cancer Registry and Austrian Statistics on Causes of Death. The study of population comprised 915,303 patients diagnosed with cancer between 1983 and 2000 and 14,532,682 person-years of follow-up. Standardized suicide mortality ratios (SMRs) were calculated by sex, time since first diagnosis, site, and stage of cancer.

Results: A total of 2877 suicides were registered among all cancer patients over the observation period. Indicating excess suicide risk relative to the general Austrian population, the SMR for the patient cohort was 1.23 (95% CI: 1.19-1.28), and was higher for men (1.41; 95% CI: 1.35-1.47) than women (1.24; 95% CI: 1.15-1.34). This excess risk varied with time since first cancer diagnosis. SMRs peaked in year one after diagnosis (3.17; 95% CI: 2.96-3.40). An excess suicide risk was observed for patients with late locally advanced (SMR=1.59; 95% CI: 1.47-1.71) or metastasized cancer (SMR=4.07; 95% CI: 3.58-4.61), and cancers of the lung (SMR 3.86; 95% CI: 3.36-4.42) and central nervous system (SMR 2.81; 95% CI: 1.92-3.97).

Limitations: No data were available on psychiatric comorbidities, genetic variables, family characteristics, social factors, and community characteristics.

Conclusions: Our study shows that cancer patients have an excess risk for suicide, relative to the general population, which varies with time since first diagnosis, disease severity, and anatomical site. The diagnostic process needs to be sensitive and responsive to their mental health needs. Psychological care should be an integral component of cancer treatment programs.

Comment

Main Findings: Receiving a cancer diagnosis can be a major stressor and traumatic experience for many patients, often leading to hopelessness and depression and the desire for accelerated death is common in the terminally ill. Cancer is an important risk factor for depression and detection can be difficult due to symptoms being misinterpreted as ‘normal’ sadness from receiving the diagnosis, and many physical symptoms such as fatigue, loss of appetite and disturbed sleep are shared between the two. Such misinterpretation may lead to underestimation of depression and thus a lack of pharmaceutical treatment and psychological interventions. As mood disorders are a major risk factor for suicide, this may indicate a high suicide risk that goes undetected in this population. This study examined suicide deaths in a population of Austrian cancer patients for the purpose of identifying high-risk groups that might benefit from psychotherapeutic interventions.
Data was obtained on 915,303 patients who were initially diagnosed during 1983 to 2010 regarding their age, sex, site of cancer, stage of cancer, and cause of death. Overall, during the time period of 1983-2010, trend data revealed higher suicide rates in cancer patients than the general population, with rates reaching twice as high for cancer patients in 2010. Of the 915,303 cancer patients, 2,877 died by suicide with suicide rates peaking in the first year after diagnosis (Standardised Mortality Rate (SMR)=1.23, 95% CI: 2.96-3.40). This rate appeared to diminish between the first and second years (SMR=3.17, 95% CI: 1.54-1.89), and further between the second and third years (SMR=1.32, 95% CI: 1.17-1.50) and so on for subsequent years. Interestingly, patients beyond 10 years from initial diagnosis had a reduced risk of suicide when compared with the general population (SMR=0.74 for 11 to 15 years after diagnosis, 95% CI: 0.90-1.05). Higher risk of suicide was found in patients with more advanced cancer, as well as those with late locally advanced and metastasized cancer. Highest risk of suicide was found in patients with cancer of the lung, central nervous system (CNS) and a combined category of oesophagus, liver or pancreas cancer. Skin cancer patients showed no elevated risk of suicide.

Implications: Excess risk of suicide peaked in the first year following diagnosis. Such findings indicate that these immensely stressful months following diagnosis may induce a great deal of emotional distress, depression and possible suicidal ideation. As a result, improving the psychiatric and psychotherapeutic care of cancer patients, particularly focusing on the first year after diagnosis is crucial in suicide prevention. Lower rates of suicide in cancer patients 10 years after diagnosis compared to the general population point toward a possible ongoing and prosperous adaptation. Additional studies should be conducted to identify protective factors and coping mechanisms used by these long-term cancer survivors. This study also identified higher risk of suicide by anatomical site of cancer with those diagnosed with lung cancer at the highest risk followed by CNS tumours and combined combination of oesophageal, pancreatic, and liver cancer. Evidence has suggested that these cancers had poor prognosis with survival rates below 30% over five years. In addition, suicide risk was higher in patients in the two most severe cancer stages. As full remission declines with tumour progression this, along with diagnosis of cancers with poor prognosis, probably intensifies distress and hopelessness in such patients. Given the apparent positive association between suicide risk and cancer severity, optimised psychotherapeutic and psychiatric care of these patients is vital, particularly in detecting and treating mood disorders.

A number of literature reviews have identified cancer as a risk factor for suicidal behaviours. A study from Western Australia indicated that the highest level of suicide risk in cancer patients was found during the three months following diagnosis explained by painful emotional reactions from receiving a cancer diagnosis. Feelings of despair, distress and hopelessness were key features associated with those diagnosed with cancer particularly after failed treatment which increases risk of sui-
cidal behaviours. Suicide risk was found higher for those with cancers that affect vital functioning (i.e. pancreas, lung, head and neck, etc.) which often relate to impaired physical and social behaviours. A key implication stressed in a literature review was the need to screen for suicidality, potentially incorporating into the admission questionnaire, a 3-item version of the Beck Hopelessness Scale.

Endnotes
School-based suicide prevention programmes: The SEYLE cluster-randomised, controlled trial


Lancet 385, 1536-1544, 2015

Background: Suicidal behaviours in adolescents are a major public health problem and evidence-based prevention programmes are greatly needed. We aimed to investigate the efficacy of school-based preventive interventions of suicidal behaviours.

Methods: The Saving and Empowering Young Lives in Europe (SEYLE) study is a multicentre, cluster-randomised controlled trial. The SEYLE sample consisted of 11 110 adolescent pupils, median age 15 years (IQR 14-15), recruited from 168 schools in ten European Union countries. We randomly assigned the schools to one of three interventions or a control group. The interventions were: (1) Question, Persuade, and Refer (QPR), a gatekeeper training module targeting teachers and other school personnel, (2) the Youth Aware of Mental Health Programme (YAM) targeting pupils, and (3) screening by professionals (ProfScreen) with referral of at-risk pupils. Each school was randomly assigned by random number generator to participate in one intervention (or control) group only and was unaware of the interventions undertaken in the other three trial groups. The primary outcome measure was the number of suicide attempt(s) made by 3 month and 12 month follow-up. Analysis included all pupils with data available at each timepoint, excluding those who had ever attempted suicide or who had shown severe suicidal ideation during the 2 weeks before baseline. This study is registered with the German Clinical Trials Registry, number DRKS00000214.

Findings: Between Nov 1, 2009, and Dec 14, 2010, 168 schools (11 110 pupils) were randomly assigned to interventions (40 schools [2692 pupils] to QPR, 45 [2721] YAM, 43 [2764] ProfScreen, and 40 [2933] control). No significant differences between intervention groups and the control group were recorded at the 3 month follow-up. At the 12 month follow-up, YAM was associated with a significant reduction of incident suicide attempts (odds ratios [OR] 0.45, 95% CI 0.24-0.85; p=0.014) and severe suicidal ideation (0.50, 0.27-0.92; p=0.025), compared with the control group. 14 pupils (0.70%) reported incident suicide attempts at the 12 month follow-up in the YAM versus 34 (1.51%) in the control group, and 15 pupils (0.75%) reported incident severe suicidal ideation in the YAM group versus 31 (1.37%) in the control group. No participants completed suicide during the study period.

Interpretation: YAM was effective in reducing the number of suicide attempts and severe suicidal ideation in school-based adolescents. These findings underline the benefit of this universal suicide preventive intervention in schools.
**Main findings:** Worldwide, suicide is the second leading cause of death amongst young people aged 15 to 19 years\(^1\). As most adolescents attend school, it is an appropriate setting to conduct suicide prevention activities, yet few randomised controlled trials (RCTs) of school-based intervention programs have been conducted. The Saving and Empowering Young Lives in Europe (SEYLE) study is the first European, multi-country, RCT of the prevention of suicidal behaviour in adolescents, with the largest number of adolescent participants in any school-based preventive study. A total of 11,110 students, mostly aged 15 years, were recruited from 168 schools in Austria, Estonia, France, Germany, Hungary, Ireland, Italy, Romania, Slovenia and Spain; students who reported suicide attempts or severe suicidal ideation in the two weeks before baseline assessment were not included in the final analysis. Using a cluster-randomised design, schools were assigned to a control group with minimal intervention or to one of three intervention groups: Youth Aware of Mental Health Programme (YAM), developed for SEYLE, a manualised intervention targeting all students to raise awareness about suicide risk and protective factors, and enhance life skills; Question, Persuade and Refer (QPR)\(^2\), a manualised gatekeeper program which trains school personnel to recognise risk of suicidal behaviour and help students at risk to seek professional care; and screening by Professionals (ProfScreen), developed for the study, which identified students at risk of mental health problems through the baseline questionnaire, and invited these students to receive clinical assessment and referral if necessary.

No suicides were reported during the study. At three months, 3.4% of participants reported either a suicide attempt or severe suicide ideation, and 0.9% reported both; no significant differences were found between the intervention groups and the control group. At the 12-month follow-up, the only intervention associated with a significant reduction of suicidality compared to the control group was YAM: suicide attempts (odds ratio [OR] 0.45, 95% CI 0.24-0.85, \(p=0.014\)); severe suicidal ideation (0.50, CI 0.27-0.92, \(p=0.025\)). While the other two interventions were associated with reductions in suicidality at 12 months compared to the control group, these were not significant: QPR suicide attempts (OR 0.70, CI 0.39-1.25, \(p=0.229\)) and severe suicide ideation (OR 0.95, CI 0.55-1.63, \(p=0.858\)); ProfScreen suicide attempts (OR 0.65, CI 0.36-1.18, \(p=0.158\)) and severe suicide ideation (OR 0.71, CI 0.40-1.25, \(p=0.234\)). Reliance on self-report may have been a limitation of the study; however, the authors did not believe that the YAM training in mental health awareness would affect self-report of suicidality.

**Implications:** Identification of effective suicide prevention measures is imperative in Australia, given that suicide is the leading cause of death amongst young Australians aged 15 to 24\(^3\). Although a range of youth suicide prevention activities and programs have been implemented in the past across Australia, a paucity of empirical evidence exists to guide decisions about the most effective types of programs\(^4\). The evidence generated by the current study is useful as it directly compares the
three types of youth suicide interventions for which support has been generated to date. The authors believed that the gatekeeper program in the study may have been hampered by teachers’ subjective psychological wellbeing and the tendency of suicidality to be internalised and hidden, and that screening for early detection may be limited by the stigma of mental health issues. Population-based programs in which interventions are delivered to whole populations regardless of individual risk level, such as SEYLE, appear to have the benefit of increasing the likelihood of help-seeking by young people, and reducing stigma about suicidality amongst peers. However, concerns have been expressed that population-based programs which directly target suicidal behaviour may adversely affect young people who are already vulnerable, and may normalise suicidality by minimising the relationship between suicidal behaviour and mental illness. Various Australian schools have incorporated suicide prevention into more general mental health promotion programs, such as MindMatters. While further empirical research into the effectiveness of suicide prevention programs in the Australian context is needed, it should be noted that the most effective way to assess suicide risk is to ask young people sensitively, but directly, about suicidal thoughts and behaviours; research has shown that this approach is not harmful.

Endnotes
Recommended Readings
**Inhibitory control in people who self-injure: Evidence for impairment and enhancement**

Allen KJD, Hooley JM (USA)
*Psychiatry Research* 225, 631-637, 2015

Self-injury is often motivated by the desire to reduce the intensity of negative affect. This suggests that people who self-injure may have difficulty suppressing negative emotions. We sought to determine whether self-injuring individuals exhibit impaired inhibitory control over behavioral expressions of negative emotions, when responding to images containing aversive emotional content. Self-injuring participants and healthy controls completed a Stop Signal Task in which they were asked to judge the valence (positive or negative) of images. Three types of images depicted emotional content (neutral/positive/negative). A fourth type depicted self-cutting. An unpredictable “stop signal” occurred on some trials, indicating that participants should inhibit their responses to images presented on those trials. Compared to controls, self-injuring participants showed poorer inhibition to images depicting negative emotional content. Additionally, they showed enhanced inhibition to self-injury images. In fact, self-injuring participants showed comparable response inhibition to cutting images and positive images, whereas controls showed worse inhibition to cutting images compared to all other types of images. Consistent with the emotion regulation hypothesis of self-injury, people who self-injure showed impaired negative emotional response inhibition. Self-injuring individuals also demonstrated superior control over responses to stimuli related to self-injury, which may have important clinical implications.

**The modal suicide decedent did not consume alcohol just prior to the time of death: An analysis with implications for understanding suicidal behavior**

Anestis MD, Joiner T, Hanson JE, Gutierrez PM (USA)
*Journal of Abnormal Psychology* 123, 835-840, 2014

We identified and analyzed a total of 92 studies, representing 167,894 suicide decedents, to determine if there is evidence to support what appears to be a widely held cultural, clinical, and scholarly view that many people who die by suicide had been drinking at the time of death. It was determined that, based on weighted averages, approximately 27% of suicide decedents had above-zero blood alcohol concentrations (BACs) at the time of death. We emphasize that it was not 27% who were intoxicated at the time of death; rather, 27% had above-zero BACs and 73% had BACs of 0.00%. Among studies of suicide decedents, BACs differed as a function of race (higher in non-White individuals). We conclude that the role of alcohol use at the time of death may be less than some assume, and this interpretation can inform clinical practice and theories of suicide. Important unanswered questions are posed which will help refine research in this area going forward.
A modelling tool for policy analysis to support the design of efficient and effective policy responses for complex public health problems


Implementation Science 10, 26, 2015

**Background:** In the design of public health policy, a broader understanding of risk factors for disease across the life course, and an increasing awareness of the social determinants of health, has led to the development of more comprehensive, cross-sectoral strategies to tackle complex problems. However, comprehensive strategies may not represent the most efficient or effective approach to reducing disease burden at the population level. Rather, they may act to spread finite resources less intensively over a greater number of programs and initiatives, diluting the potential impact of the investment. While analytic tools are available that use research evidence to help identify and prioritise disease risk factors for public health action, they are inadequate to support more targeted and effective policy responses for complex public health problems.

**Discussion:** This paper discusses the limitations of analytic tools that are commonly used to support evidence-informed policy decisions for complex problems. It proposes an alternative policy analysis tool which can integrate diverse evidence sources and provide a platform for virtual testing of policy alternatives in order to design solutions that are efficient, effective, and equitable. The case of suicide prevention in Australia is presented to demonstrate the limitations of current tools to adequately inform prevention policy and discusses the utility of the new policy analysis tool. In contrast to popular belief, a systems approach takes a step beyond comprehensive thinking and seeks to identify where best to target public health action and resources for optimal impact. It is concerned primarily with what can be reasonably left out of strategies for prevention and can be used to explore where disinvestment may occur without adversely affecting population health (or equity). Simulation modelling used for policy analysis offers promise in being able to better operationalise research evidence to support decision making for complex problems, improve targeting of public health policy, and offers a foundation for strengthening relationships between policy makers, stakeholders, and researchers.

Change in emergency department providers’ beliefs and practices after use of new protocols for suicidal patients

Betz ME, Arias SA, Miller M, Barber C, Espinola JA, Sullivan AF, Manton AP, Miller I, Camargo CA, Boudreaux ED (USA)

Psychiatric Services 66, 625-631, 2015

**Objective:** The study examined changes in self-reported attitudes and practices related to suicide risk assessment among providers at emergency departments (EDs) during a three-phase quasi-experimental trial involving implementation of ED protocols for suicidal patients.
**Methods:** A total of 1,289 of 1,828 (71% response rate) eligible providers at eight EDs completed a voluntary, anonymous survey at baseline, after introduction of universal suicide screening, and after introduction of suicide prevention resources (nurses) and a secondary risk assessment tool (physicians).

**Results:** Among participants, the median age was 40 years old, 64% were female, and there were no demographic differences across study phases; 68% were nurses, and 32% were attending physicians. Between phase 1 and phase 3, increasing proportions of nurses reported screening for suicide (36% and 95%, respectively, p<.001) and increasing proportions of physicians reported further assessment of suicide risk (63% and 80%, respectively, p<.01). Although increasing proportions of providers said universal screening would result in more psychiatric consultations, decreasing proportions said it would slow down clinical care. Increasing proportions of nurses reported often or almost always asking suicidal patients about firearm access (18%-69%, depending on the case), although these numbers remained low relative to ideal practice. Between 35% and 87% of physicians asked about firearms, depending on the case, and these percentages did not change significantly over the study phases.

**Conclusions:** These findings support the feasibility of implementing universal screening for suicide in EDs, assuming adequate resources, but providers should be educated to ask suicidal patients about firearm access.

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**Inflammation and lithium: Clues to mechanisms contributing to suicide-linked traits**

Beurel E, Jope RS (USA)

*Translational Psychiatry* 4, e488, 2014

Suicide is one of the leading causes of death in the United States, yet it remains difficult to understand the mechanistic provocations and to intervene therapeutically. Stress is recognized as a frequent precursor to suicide. Psychological stress is well established to cause activation of the inflammatory response, including causing neuroinflammation, an increase of inflammatory molecules in the central nervous system (CNS). Neuroinflammation is increasingly recognized as affecting many aspects of CNS functions and behaviors. In particular, much evidence demonstrates that inflammatory markers are elevated in traits that have been linked to suicidal behavior, including aggression, impulsivity and depression. Lithium is recognized as significantly reducing suicidal behavior, is anti-inflammatory and diminishes aggression, impulsivity and depression traits, each of which is associated with elevated inflammation. The anti-inflammatory effects of lithium result from its inhibition of glycogen synthase kinase-3 (GSK3). GSK3 has been demonstrated to strongly promote inflammation, aggressive behavior in rodents and depression-like behaviors in rodents, whereas regulation of impulsivity by GSK3 has not yet been investigated. Altogether, evidence is building supporting the hypothesis that stress activates GSK3, which in turn promotes inflammation, and that inflammation is linked to behaviors associated with...
Suicide, including particularly aggression, impulsivity and depression. Further investigation of these links may provide a clearer understanding of the causes of suicidal behavior and provide leads for the development of effective preventative interventions, which may include inhibitors of GSK3.

A cross-sectional study of major repeaters: A distinct phenotype of suicidal behavior


Objective: The characterization of major repeaters (individuals with ≥ 5 lifetime suicide attempts) is a neglected area of research. Our aim was to establish whether or not major repeaters are a distinctive suicidal phenotype, taking into account a wide range of potential competing risks including sociodemographic characteristics, personal and familial history, psychiatric diagnoses, and personality traits.

Method: This cross-sectional study included 372 suicide attempters admitted to a specialized unit for suicide attempters in Montpellier University Hospital, Montpellier, France, between October 12, 2000, and June 10, 2010. Logistic regression models controlling for potential confounders were used.

Results: When compared with subjects who attempted suicide < 5 times, major repeaters were more likely to be female (odds ratio [OR]=5.54; 95% CI, 1.41-21.81), to have a lower educational level (OR=5.1; 95% CI, 1.55-17.2), to have lifetime diagnoses of anorexia nervosa (OR=3.45; 95% CI, 1.10-10.84) and substance dependence (OR=5.00; 95% CI, 1.37-18.27), and to have lower levels of anger expressed outward (OR=0.17; 95% CI, 0.06-0.47) and higher levels of trait anger (OR=2.82; 95% CI, 1.18-6.75). Major repeaters had significantly higher suicide risk (lethality) scores (OR=2.14; 95% CI, 1.08-4.23).

Conclusion: Major repeaters are a distinctive suicidal phenotype characterized by a distinctive sociodemographic (ie, female gender, low education) and clinical profile (ie, trait anger, substance dependence, anorexia nervosa). If our results are replicated, specific preventive plans should be tailored to major repeaters.

Associations between the Department of Veterans Affairs’ suicide prevention campaign and calls to related crisis lines

Bossarte RM, Karras E, Lu N, Tu X, Stephens B, Draper J, Kemp JE (USA)

Objective: The Transit Authority Suicide Prevention (TASP) campaign was launched by the Department of Veterans Affairs (VA) in a limited number of U.S. cities to promote the use of crisis lines among veterans of military service.

Methods: We obtained the daily number of calls to the VCL and National Suicide Prevention Lifeline (NSPL) for six implementation cities (where the campaign was active) and four control cities (where there was no TASP campaign messag-
ing) for a 14-month period. To identify changes in call volume associated with campaign implementation, VCL and NSPL daily call counts for three time periods of equal length (pre-campaign, during campaign, and postcampaign) were modeled using a Poisson log-linear regression with inference based on the generalized estimating equations.

**Results:** Statistically significant increases in calls to both the VCL and the NSPL were reported during the TASP campaign in implementation cities, but were not reported in control cities during or following the campaign. Secondary outcome measures were also reported for the VCL and included the percentage of callers who are veterans, and calls resulting in a rescue during the study period.

**Conclusions:** Results from this study reveal some promise for suicide prevention messaging to promote the use of telephone crisis services and contribute to an emerging area of research examining the effects of campaigns on help seeking.

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**Treating prolonged grief disorder: A randomized clinical trial**

Bryant RA, Kenny L, Joscelyne A, Rawson N, Maccallum F, Cahill C, Hopwood S, Aderka I, Nickerson A (Australia)

*JAMA Psychiatry* 71, 1332-1339, 2014

**Importance:** Prolonged grief disorder (PGD) is a potentially disabling condition that affects approximately 10% of bereaved people. Grief-focused cognitive behavior therapy (CBT) has been shown to be effective in treating PGD. Although treatments for PGD have focused on exposure therapy, much debate remains about whether exposure therapy is optimal for PGD.

**Objective:** To determine the relative efficacies of CBT with exposure therapy (CBT/exposure) or CBT alone for PGD.

**Design, Setting, and Participants:** A randomized clinical trial of 80 patients with PGD attending the outpatient University of New South Wales Traumatic Stress Clinic from September 17, 2007, through June 7, 2010.

**Interventions:** All patients received 10 weekly 2-hour group therapy sessions that consisted of CBT techniques. Patients also received 4 individual sessions, in which they were randomized to receive exposure therapy for memories of the death or supportive counseling.

**Main Outcomes and Measures:** Measures of PGD by clinical interview and self-reported measures of depression, cognitive appraisals, and functioning at the 6-month follow-up.

**Results:** Intention-to-treat analyses at follow-up indicated a significant quadratic time x treatment condition interaction effect (B [SE], 0.49 [0.16]; t(120.16)=3.08 [95% CI, 0.18-0.81]; P=.003), indicating that CBT/exposure led to greater PGD reductions than CBT alone. At follow-up, CBT/exposure led to greater reductions in depression (B [SE], 0.35 [0.12]; t(112.65)=2.83 [95% CI, 0.11-0.60]; P=.005), negative appraisals (B [SE], 0.68 [0.25]; t(109.98)=2.66 [95% CI, 0.17-1.18]; P=.009), and functional impairment (B [SE], 0.24 [0.08]; t(111.40)=3.01 [95% CI, 0.08-0.40]; P=.003) than CBT alone. In terms of treatment completers, fewer
patients in the CBT/exposure condition at follow-up (14.8%) met criteria for PGD than those in the CBT condition (37.9%) (odds ratio, 3.51; 95% CI, 0.96-12.89; chi(2)=3.81; P=.04).

Conclusions and Relevance: Including exposure therapy that promotes emotional processing of memories of the death is an important component to achieve optimal reductions in PGD severity. Facilitating emotional responses to the death may promote greater changes in appraisals about the loss, which are associated with symptom reduction. Promotion of emotional processing techniques in therapies to treat patients with PGD is needed.

Everyday functioning of male adolescents who later died by suicide: Results of a pilot case-control study using mixed-method analysis

Objective: Previous research has shown a link between difficulties in everyday functioning and suicidality in adolescence. The majority of research in this field focuses on suicidal ideation and attempts, rather than on completed suicide. The main goal of this study is to better characterize everyday functioning among young men who later completed suicide. Based on previous literature, we hypothesized that the functioning of adolescents who died by suicide would be poor, compared to controls.

Methods: The current study is a record-driven study, which examined summaries of screening interviews performed by the Israeli Defense Forces (IDF) of 20 male adolescents who later completed suicide, compared with 20 matched living controls. The current study is a pilot stage of a larger project. The study used unique data, collected as part of the IDF pre-induction process, in the months or years before the tragic outcome. The data were extracted by two psychologists, blinded to the participants’ suicide or non-suicide outcome, using mixed-method technique, combining qualitative and quantitative analysis.

Results: The main findings indicated that, in comparison with controls, male adolescents who later died by suicide were described as having more interpersonal difficulties, were more likely to be involved in violent behavior, had more difficulties in dealing with problems in everyday functioning and had an avoidant conflict resolution style.

Conclusions: Functional difficulties are apparent in a wide range of behavioral domains in adolescents who later complete suicide. These findings indicate a need for interventions that might assist young persons, and it is possible that such assistance might reduce the likelihood of suicide. However, because suicide is a rare outcome and these behavioral traits are common in adolescence, the presence of such traits might not be useful in identifying people at risk of suicide.
Meta-analysis of the association between suicidal ideation and later suicide among patients with either a schizophrenia spectrum psychosis or a mood disorder

Chapman CL, Mullin K, Ryan CJ, Kuffel A, Nielsen O, Large MM (Australia)

Objective: Recent studies of patients with a mix of psychiatric diagnoses have suggested a modest or weak association between suicidal ideation and later suicide. The aim of this study was to examine the extent to which the association between expressed suicidal ideation and later suicide varies according to psychiatric diagnosis.

Method: A systematic meta-analysis of studies that report the association between suicidal ideation and later suicide in patients with ‘mood disorders’, defined to include major depression, dysthymia and bipolar disorder, or ‘schizophrenia spectrum psychosis’, defined to include schizophrenia, schizophreniform disorder and delusional disorder.

Results: Suicidal ideation was strongly associated with suicide among patients with schizophrenia spectrum psychosis [14 studies reporting on 567 suicides, OR=6.49, 95% confidence interval (CI) 3.82-11.02]. The association between suicidal ideation and suicide among patients with mood disorders (11 studies reporting on 860 suicides, OR=1.49, 95% CI 0.92-2.42) was not significant. Diagnostic group made a significant contribution to between-study heterogeneity (Q-value=16.2, df=1, P < 0.001) indicating a significant difference in the strength of the associations between suicidal ideation and suicide between the two diagnostic groups. Meta-regression and multiple meta-regression suggested that methodological issues in the primary research did not explain the findings. Suicidal ideation was weakly but significantly associated with suicide among studies of patients with mood disorders over periods of follow-up of <10 years.

Conclusion: Although our findings suggest that the association between suicidal ideation and later suicide is stronger in schizophrenia spectrum psychosis than in mood disorders this result should be interpreted cautiously due to the high degree of between-study heterogeneity and because studies that used stronger methods of reporting had a weaker association between suicidal ideation and suicide.

Late-life homicide-suicide: A national case series in New Zealand

Cheung G, Hatters Friedman S, Sundram F (New Zealand)
Psychogeriatrics. Published online: 3 March 2015. doi: 10.1111/psyg.12120

Homicide-suicide is a rare event, but it has a significant impact on the family and community of the perpetrator and victim(s). The phenomenon of late-life homicide-suicide has not been previously studied in New Zealand, and there is only limited data in the international literature. The aim of this study is to systematically review coroners’ records of late-life homicide-suicides in New Zealand. After ethics approval was granted, the Coronial Services of New Zealand was approached to provide records of all closed cases with a suicide verdict (age 65+)
over a five-year period (July 2007-December 2012). Of the 225 suicides, 4 cases of homicide-suicide were identified (an estimated incidence of 0.12 per 100,000 per persons year). All four perpetrators were men; three had been farmers. Their ages ranged from 65 to 82. One case occurred in the context of an underlying psychiatric illness (psychotic depression in bipolar disorder). Firearms were used in three cases. Two cases were categorized as spousal/consortial subtype, one case as filicide-suicide, and one case as siblicide-suicide. The prospect of major social upheaval in the form of losing their homes was present in all four cases. The findings of this case series were consistent with the limited existing literature on homicide-suicide. Age-related biopsychosocial issues were highlighted in this case series of late-life homicide-suicide. Additionally, evaluating firearm licences in high-risk groups may represent a prevention strategy.

Why are suicidal thoughts less prevalent in older age groups?
Age differences in the correlates of suicidal thoughts in the English adult psychiatric morbidity survey 2007
Cooper C, Rantell K, Blanchard M, McManus S, Dennis M, Brugha T, Jenkins R, Meltzer H, Bebbington P (UK)
Journal of Affective Disorders 177, 42-48, 2015

Background: Suicidal ideation is more strongly associated with suicidal intent in later life, so risk factors may also differ by age. We investigated whether the relationship between suicidal ideation and established correlates varied by age in a representative population.

Methods: We used data from the 2007 Adult Psychiatric Morbidity Survey of England to assess the relationship between age and suicidal thoughts across 20-year age bands, using logistic regression, adjusted for survey weights. We used mediation analyses to assess the extent to which other factors mediate the relationship between suicidal thoughts and age.

Results: Reports of previous-year suicidal thoughts decreased with age. This was partly explained by (1) lower rates of reported child abuse (in those aged 75+), of depression, and of anxiety symptoms (in those aged 55+), factors all strongly associated with suicidal thoughts, and (2) higher rates of protective factors in people aged 35+, specifically homeownership and cohabitation. Rates of phobias, irritability and compulsions also decreased with age, and the association of these symptoms with suicidal thoughts was particularly strong in the youngest (16-34) age group. People who reported experiencing childhood abuse in all age groups reported more suicidal thoughts, suggesting abuse has lifelong negative effects on suicidal ideation.

Limitations: The response rate was 57%. Older people may be less likely to recall childhood abuse.

Conclusions: Sexual and physical abuse in childhood are associated with suicidal ideas throughout the lifespan, so screening for suicidal ideas in younger and older people should be routine and vigorous, and cover experiences in early life: management may require appropriate psychological interventions.
Help-seeking behaviour following school-based screening for current suicidality among European adolescents


Social Psychiatry and Psychiatric Epidemiology 50, 973-982, 2015

**Purpose:** To screen and clinically interview European adolescents reporting current suicidality (suicidal ideation and suicide attempt) and investigate attendance at the clinical interview.

**Methods:** The Saving and Empowering Young Lives in Europe (SEYLE) Project was carried out in 11 European countries. A baseline questionnaire was completed in school by 12,395 adolescents (mean age 14.9; SD 0.9). Those who screened positive for suicidality (attempting suicide and/or serious suicidal ideation or plans) in the past 2 weeks were invited to a clinical interview with a mental health professional.

**Results:** Of the 12,395 adolescents, 4.2 % (n=516) screened positive for current suicidality. The prevalence ranged from 1.1 % in Hungary to 7.7 % in Israel (p < 0.001). 37.6 % (n=194) of those who screened positive subsequently attended the clinical interview. Female students were more likely to attend for interview (42.0 % versus 30.6 %, p=0.010). The attendance rate varied considerably across countries, from 5.7 % in Italy to 96.7 % in France (p < 0.001). Improved attendance was associated with using school as the only interview setting (Mean attendance rate, MAR=88 vs. 31 %, p=0.006) and arranging the interview within 1 week of contacting the student (MAR=64 vs. 23 %, p=0.013). The greater the travel time to interview, the lower the attendance rate (Pearson’s r=-0.64, p=0.034). Independent of the variation by country, at the individual level, adolescents with more depressive symptoms and a recent suicide attempt more often attended for interview.

**Conclusion:** A high rate of current suicidality was found amongst European adolescents. However, the majority of these displayed limited help-seeking behaviour. Future studies should investigate ways of making screening programmes and other interventions more acceptable and accessible to young people, especially young males.

**Recommended Readings**

- [103]
Using participatory action research to prevent suicide in Aboriginal and Torres Strait Islander communities

Australian Journal of Primary Health 20, 345-349, 2014

The National Empowerment Project is an innovative Aboriginal-led community empowerment project that has worked with eight Aboriginal and Torres Strait Islander communities across Australia over the period 2012–13. The aim of the Project was to develop, deliver and evaluate a program to: (1) promote positive social and emotional well-being to increase resilience and reduce the high reported rates of psychological distress and suicide among Aboriginal and Torres Strait Islander people; and (2) empower communities to take action to address the social determinants that contribute to psychological distress, suicide and self-harm. Using a participatory action research approach, the communities were supported to identify the risk factors challenging individuals, families and communities, as well as strategies to strengthen protective factors against these challenges. Data gathered during Stage 1 were used to develop a 12-month program to promote social and emotional well-being and build resilience within each community. A common framework, based on the social and emotional well-being concept, was used to support each community to target community-identified protective factors and strategies to strengthen individual, family and community social and emotional well-being. Strengthening the role of culture is critical to this approach and marks an important difference between Aboriginal and Torres Strait Islander and non-Indigenous mental health promotion and prevention activities, including suicide prevention. It has significant implications for policy makers and service providers and is showing positive impact through the translation of research into practice, for example through the development of a locally run empowerment program that aims to address the social determinants of health and their ongoing negative impact on individuals, families and communities. It also provides a framework in which to develop and strengthen culture, connectedness and foster self-determination, through better-informed policy based on community-level holistic responses and solutions as opposed to an exclusive focus on single-issue deficit approaches.

Psychological distress because of asking about suicidal thoughts: A randomized controlled trial among students

de Beurs DP, Ghoncheh R, Geraedts AS, Kerkhof AJFM (The Netherlands)
Archives of Suicide Research. Published online: 9 March 2015. doi: 10.1080/13811118.2015.1004475

To investigate the effect of the questions from the Beck Scale for Suicide Ideation on psychological well-being among healthy participants.

Methods: A randomized controlled study. 301 participants completed the same four questionnaires on psychopathology. The experimental group additionally
answered 21 items of the Beck Scale for Suicide Ideation. The control group answered 19 items on Quality of Life.

**Results:** The experimental group showed a significant smaller decrease of negative affect compared to the control condition. When analyzing participants with an increase in distress, 80% were part of the experimental group.

**Conclusions:** For most participants, answering questions about suicide does not affect their mood. A small group of participants did react with some distress to the questions about suicide. As the questions about suicide were administered immediately before the questions about negative affect, the questions about suicide could have worked as a negative mood challenge. Future experimental research should further investigate the effect of questions about suicide among healthy participants, especially on the long term.

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**Suicidal ideation and suicide attempts among adults with psychotic experiences: Data from the collaborative psychiatric epidemiology surveys**

DeVylder JE, Lukens EP, Link BG, Lieberman JA (USA)  
*JAMA Psychiatry* 72, 219-225, 2015

**Importance:** Suicide is a leading cause of preventable death, especially among individuals with psychotic disorders, and may also be common among nonclinical populations of adults with subthreshold psychotic experiences. Understanding this association has the potential to critically bolster suicide prevention efforts.

**Objectives:** To examine the association between 12-month suicidality and 12-month psychotic experiences and to test the hypotheses that psychotic experiences are associated with increased prevalence of suicidal ideation and suicide attempts during the concurrent period and with greater severity of suicidal behavior.

**Design, Setting and Participants:** Cross-sectional survey data were drawn from a large general population-based sample of households in the United States identified through the Collaborative Psychiatric Epidemiology Surveys (2001-2003). Adult household residents (n = 11,716) were selected using a clustered multistage sampling design with oversampling of racial/ethnic minority groups. Logistic regression models were adjusted for potential demographic confounders and co-occurring DSM-IV mental health conditions.

**Exposures:** Twelve-month psychotic experiences assessed with the Composite International Diagnostic Interview, version 3.0 psychosis screen.

**Main Outcomes and Measures:** Twelve-month suicidal ideation and suicide attempts.

**Results:** Respondents reporting psychotic experiences were more likely to report concurrent suicidal ideation (odds ratio [OR], 5.24; 95% CI, 2.85-9.62) and suicide attempts (OR, 9.48; 95% CI, 3.98-22.62). Most respondents with psychotic experiences (mean [SE], 65.2% [4.2%]) met criteria for a DSM-IV depressive, anxiety, or substance use disorder. Among respondents with suicidal ideation,
those with psychotic experiences were likely to make an attempt during the concurrent 12-month period (OR, 3.49; 95% CI, 1.05-11.58) when adjusting for co-occurring psychiatric disorders. In contrast, depressive (OR, 1.67; 95% CI, 0.62-4.52), anxiety (OR, 1.57; 95% CI, 0.40-6.09), and substance use disorders (OR, 1.64; 95% CI, 0.24-11.17) did not reliably identify those at risk for attempts among respondents with suicidal ideation. The mean (SE) 12-month prevalence of suicide attempts among individuals reporting ideation and psychotic experiences and meeting criteria for any psychiatric disorder was 47.4% (10.9%) compared with 18.9% (4.8%) among those with just ideation and a disorder. Psychotic experiences were especially prevalent among individuals reporting severe attempts and may account for nearly one-third of attempts with intent to die (population attributable risk, 29.01%) in the United States annually.

Conclusions and Relevance: Assessment of psychotic experiences among individuals with suicidal ideation has potential clinical and public health utility in reducing the prevalence of suicide attempts, particularly attempts with intent to die.

Suicide ideation and attempts in children with psychiatric disorders and typical development
Dickerson Mayes S, Calhoun SL, Bawaja R, Mahr F (USA)
Crisis 36, 55-60, 2015

Background: Children and adolescents with psychiatric disorders are at increased risk for suicide behavior.

Aims: This is the first study to compare frequencies of suicide ideation and attempts in children and adolescents with specific psychiatric disorders and typical children while controlling for comorbidity and demographics.

Method: Mothers rated the frequency of suicide ideation and attempts in 1,706 children and adolescents with psychiatric disorders and typical development, 6-18 years of age.

Results: For the typical group, 0.5% had suicide behavior (ideation or attempts), versus 24% across the psychiatric groups (bulimia 48%, depression or anxiety disorder 34%, oppositional defiant disorder 33%, ADHD-combined type 22%, anorexia 22%, autism 18%, intellectual disability 17%, and ADHD-inattentive type 8%). Most alarming, 29% of adolescents with bulimia often or very often had suicide attempts, compared with 0-4% of patients in the other psychiatric groups.

Conclusion: It is important for professionals to routinely screen all children and adolescents who have psychiatric disorders for suicide ideation and attempts and to treat the underlying psychiatric disorders that increase suicide risk.
The impact of patient suicide and sudden death on health care professionals

Draper B, Kõlves K, De Leo D, Snowdon J (Australia)

General Hospital Psychiatry 36, 721-725, 2014

**Objective:** To compare the professional and personal impact of patient suicide and sudden death on health care professionals (HCPs) and determine factors associated with these impacts.

**Method:** The sample was derived from a sudden death-controlled psychological autopsy study of suicide. HCPs were identified by deceased’s next of kin, by other HCPs, from coroners’ files and from medical records. The HCPs were interviewed about their last contact with the deceased and the impact of the death on their lives.

**Results:** Two hundred eleven HCPs were interviewed following suicide; 92 after sudden death. Suicide deaths were significantly more likely to impact upon the HCP’s professional practice [suicide n=79 (37.4%); sudden death n=9 (9.9%); chi(2)=22.06, P < .001] and personal life [suicide deaths n=55 (26.1%); sudden death n=12 (13.0%); chi(2)=5.58, P = .018] than sudden deaths. Using multinomial logistic regression, being female and suicide within a week of the consultation predicted professional and personal impacts; having less than 5 years experience predicted professional impact and receipt of support/counseling predicted personal impact.

**Conclusion:** Suicide deaths have a greater impact than sudden deaths upon the life of HCPs. Clinical inexperience influences impacts on professional practice and availability of support impacts on personal life.

Impact of a suicide-specific intervention within inpatient psychiatric care: The collaborative assessment and management of suicidality

Ellis TE, Rufino KA, Allen JG, Fowler JC, Jobes DA (USA)

Suicide and Life-Threatening Behavior. Published online: 12 January 2015. doi: 10.1111/sltb.12151

A growing body of literature indicates that suicidal patients differ from other psychiatric patients with respect to specific psychological vulnerabilities and that suicide-specific interventions may offer benefits beyond conventional care. This naturalistic controlled-comparison trial (n=52) examined outcomes of intensive psychiatric hospital treatment (mean length of stay 58.8 days), comparing suicidal patients who received individual therapy from clinicians utilizing the Collaborative Assessment and Management of Suicidality (CAMS) to patients whose individual therapists did not utilize CAMS. Propensity score matching was used to control for potential confounds, including age, sex, treatment unit, and severity of depression and suicidality. Results showed that both groups improved significantly over the course of hospitalization; however, the group receiving CAMS showed significantly greater improvement on measures specific to suicidal ideation and suicidal cognition. Results are discussed in terms of the potential advantages of treating suicide risk with a suicide-specific intervention to make inpatient psychiatric treatment more effective in reducing risk for future suicidal crises.
Relationship of suicide rates to economic variables in Europe: 2000-2011


British Journal of Psychiatry 205, 486-496, 2014

**Background:** It is unclear whether there is a direct link between economic crises and changes in suicide rates.

**Aims:** The Lopez-Ibor Foundation launched an initiative to study the possible impact of the economic crisis on European suicide rates.

**Method:** Data was gathered and analysed from 29 European countries and included the number of deaths by suicide in men and women, the unemployment rate, the gross domestic product (GDP) per capita, the annual economic growth rate and inflation.

**Results:** There was a strong correlation between suicide rates and all economic indices except GDP per capita in men but only a correlation with unemployment in women. However, the increase in suicide rates occurred several months before the economic crisis emerged.

**Conclusions:** Overall, this study confirms a general relationship between the economic environment and suicide rates; however, it does not support there being a clear causal relationship between the current economic crisis and an increase in the suicide rate.

Disagreement between self-reported and clinician-ascertained suicidal ideation and its correlation with depression and anxiety severity in patients with major depressive disorder or bipolar disorder


**Objectives:** To study the disagreement between self-reported suicidal ideation (SR-SI) and clinician-ascertained suicidal ideation (CA-SI) and its correlation with depression and anxiety severity in patients with major depressive disorder (MDD) or bipolar disorder (BPD).

**Methods:** Routine clinical outpatients were diagnosed with the MINI-STEP-BD version. SR-SI was extracted from the 16 Item Quick Inventory of Depression Symptomatology Self-Report (QIDS-SR-16) item 12. CA-SI was extracted from
a modified Suicide Assessment module of the MINI. Depression and anxiety severity were measured with the QIDS-SR-16 and Zung Self-Rating Anxiety Scale. Chi-square, Fisher exact, and bivariate linear logistic regression were used for analyses.

**Results:** Of 103 patients with MDD, 5.8% endorsed any CA-SI and 22.4% endorsed any SR-SI. Of the 147 patients with BPD, 18.4% endorsed any CA-SI and 35.9% endorsed any SR-SI. The agreement between any SR-SI and any CA-SI was 83.5% for MDD and 83.1% for BPD, with weighted Kappa of 0.30 and 0.43, respectively. QIDS-SR-16 score, female gender, and ≥4 year college education were associated with increased risk for disagreement, 15.44±4.52 versus 18.39±3.49 points (p=0.0026), 67% versus 46% (p=0.0783), and 61% versus 29% (p=0.0096). The disagreement was positively correlated to depression severity in both MDD and BPD with a correlation coefficient R2=0.40 and 0.79, respectively, but was only positively correlated to anxiety severity in BPD with a R2=0.46.

**Conclusion:** Self-reported questionnaire was more likely to reveal higher frequency and severity of SI than clinician-ascertained, suggesting that a combination of self-reported and clinical-ascertained suicidal risk assessment with measuring depression and anxiety severity may be necessary for suicide prevention.

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**Acute alcohol use among suicide decedents in 14 US States: Impacts of off-premise and on-premise alcohol outlet density**

Giesbrecht N, Huguet N, Ogden L, Kaplan MS, McFarland BH, Caetano R, Conner KR, Nolte KB (USA)

*Addiction* 110, 300-307, 2015

**Aims:** To estimate the association between per capita alcohol retail outlet density and blood alcohol concentration (BAC) from 51,547 suicide decedents and to analyse the relationship between alcohol outlet density and socio-demographic characteristics among alcohol positive suicide decedents in the United States by racial/ethnic groups and method of suicide.

**Design:** Analysis of U.S. data, 2003-11, National Violent Death Reporting System.

**Setting:** Suicide decedents from 14 U.S. States.

**Cases:** A total of 51,547 suicide decedents tested for blood alcohol content.

**Measurements:** Blood alcohol content and levels were derived from coroner/medical examiner reports. Densities of county level on-premises and off-premises alcohol retail outlets were calculated using the 2010 Census.

**Findings:** Multilevel logistic regression models suggested that higher off-premises alcohol outlet densities were associated with greater proportions of alcohol-related suicides among men — for suicides with alcohol present (BAC>0; adjusted odds ratio [AOR]= 1.08, 95% confidence interval [CI]= 1.03-1.13). Interactions between outlet density and decedents’ characteristics were also tested. There was an interaction between off-premises alcohol availability and American Indian/Alaska Native race (AOR=1.36; 95% CI=1.10-1.69)
such that this sub-group had highest BAC positivity. On-premises density was also associated with BAC > 0 (AOR=1.05; 95% CI=1.03-1.11) and BAC ≥ 0.08 (PubMed AOR=1.05; 95% CI=1.02-1.09) among male decedents.

**Conclusions:** In the US, the density of both on- and off-premises alcohol outlets in a county is positively associated with the alcohol-related suicide rate, especially among American Indians/Alaska Natives.

**Suicide attempts in a longitudinal sample of adolescents followed through adulthood: Evidence of escalation**


*Journal of Consulting and Clinical Psychology* 83, 253-264, 2015

**Objectives:** This study was designed to examine escalation in repeat suicide attempts from adolescence through adulthood, as predicted by sensitization models (and reflected in increasing intent and lethality with repeat attempts, decreasing amount of time between attempts, and decreasing stress to trigger attempts).

**Method:** In a prospective study of 180 adolescents followed through adulthood after a psychiatric hospitalization, suicide attempts, and antecedent life events were repeatedly assessed (M=12.6 assessments, SD=5.1) over an average of 13 years 6 months (SD=4 years 5 months). Multivariate logistic, multiple linear, and negative binomial regression models were used to examine patterns over time.

**Results:** After age 17-18, the majority of suicide attempts were repeat attempts (i.e., made by individuals with prior suicidal behavior). Intent increased both with increasing age, and with number of prior attempts. Medical lethality increased as a function of age but not recurrent attempts. The time between successive suicide attempts decreased as a function of number of attempts. The amount of precipitating life stress was not related to attempts.

**Conclusions:** Adolescents and young adults show evidence of escalation of recurrent suicidal behavior, with increasing suicidal intent and decreasing time between successive attempts. However, evidence that sensitization processes account for this escalation was inconclusive. Effective prevention programs that reduce the likelihood of individuals attempting suicide for the first time (and entering this cycle of escalation), and relapse prevention interventions that interrupt the cycle of escalating suicidal behavior among individuals who already have made attempts are critically needed.
Paracetamol poisoning in adolescents in an Australian setting: Not quite adults

Graudins A (Australia)
Emergency Medicine Australasia 27, 139-144, 2015

Objective: To describe and compare the characteristics of paracetamol poisoning in adolescent and adult patients.

Method: Descriptive retrospective case series of adolescent (12-17 years) and adult (>18 years) patients presenting to a metropolitan hospital network ED, diagnosed with paracetamol poisoning from October 2009 to September 2013.

Results: There were 220 adolescent (median age 16 years, 47% treated with acetyl-cysteine [NAC]) and 647 adult presentations (median age 27 years, 42% treated with NAC) for paracetamol poisoning in the study period. Adolescent patients were more frequently women (89% vs 76%; odds ratio [OR] 2.4; 95% confidence interval [CI] 1.5-3.8) and ingested similar amounts of paracetamol (18 g) when requiring NAC treatment. Adolescents were more likely to ingest paracetamol as a single agent (53% vs 34%; OR 2.2; 95% CI 1.6-3.0) and less likely to ingest compound paracetamol products than adults (18% vs 29%; OR 0.54; 95% CI 0.36-0.79). Adolescents were less likely to report accidental supratherapeutic ingestion of paracetamol (0.02% vs 10%; OR 0.23; 95% CI 0.09-0.58), or co-ingestion of prescription medications (25% vs 43%; OR 0.4; 95% CI 0.31-0.62). Adolescents had more frequent histamine release reactions to NAC than adults (17% vs 8%; OR 2.3; 95% CI 1.2-4.5). No cases required liver transplantation or resulted in death.

Conclusion: Adolescents ingested comparable amounts of paracetamol to adults, when presenting with deliberate self-poisoning. However, there were significant differences in co-ingested medications and the reason for ingestion of paracetamol. Histamine reactions to NAC were more common in adolescents; however, most were mild. Overall, outcome was favourable in both cohorts.

Mental health treatment patterns among adults with recent suicide attempts in the United States

Han B, Compton WM, Groerer J, McKeon R (USA)
American Journal of Public Health 104, 2359-2368, 2014

Objectives: We examined mental health treatment patterns among adults with suicide attempts in the past 12 months in the United States.

Methods: We examined data from 2000 persons, aged 18 years or older, who participated in the 2008 to 2012 National Survey on Drug Use and Health and who reported attempting suicide in the past 12 months. We applied descriptive analyses and multivariable logistic regression models.

Results: In adults who attempted suicide in the past year, 56.3% received mental health treatment, but half of those who received treatment perceived unmet treatment needs, and of the 43.0% who did not receive mental health treatment, one
fourth perceived unmet treatment needs. From 2008 to 2012, the mental health treatment rate among suicide attempters remained unchanged. Factors associated with receipt of mental health treatment varied by perceived unmet treatment need and receipt of medical attention that resulted from a suicide attempt.

Conclusions: Suicide prevention strategies that focus on suicide attempters are needed to increase their access to mental health treatments that meet their needs. To be effective, these strategies need to account for language and cultural differences and barriers to financial and treatment delivery.

Self-reported contacts for mental health problems by rural residents: Predicted service needs, facilitators and barriers


BMC Psychiatry 14, 249, 2014

Background: Rural and remote Australians face a range of barriers to mental health care, potentially limiting the extent to which current services and support networks may provide assistance. This paper examines self-reported mental health problems and contacts during the last 12 months, and explores cross-sectional associations between potential facilitators/barriers and professional and non-professional help-seeking, while taking into account expected associations with socio-demographic and health-related factors.

Methods: During the 3-year follow-up of the Australian Rural Mental Health Study (ARMHLS) a self-report survey was completed by adult rural residents (N=1,231; 61% female; 77% married; 22% remote location; mean age=59 years), which examined socio-demographic characteristics, current health status factors, predicted service needs, self-reported professional and non-professional contacts for mental health problems in the last 12 months, other aspects of help-seeking, and perceived barriers.

Results: Professional contacts for mental health problems were reported by 18% of the sample (including 14% reporting General Practitioner contacts), while non-professional contacts were reported by 16% (including 14% reporting discussions with family/friends). Perceived barriers to health care fell under the domains of structural (e.g., costs, distance), attitudinal (e.g., stigma concerns, confidentiality), and time commitments. Participants with 12-month mental health problems who reported their needs as met had the highest levels of service use. Hierarchical logistic regressions revealed a dose-response relationship between the level of predicted need and the likelihood of reporting professional and non-professional contacts, together with associations with socio-demographic characteristics (e.g., gender, relationships, and financial circumstances), suicidal ideation, and attitudinal factors, but not geographical remoteness.

Conclusions: Rates of self-reported mental health problems were consistent with baseline findings, including higher rural contact rates with General Practitioners. Structural barriers displayed mixed associations with help-seeking, while attitudi-
nal barriers were consistently associated with lower service contacts. Developing appropriate interventions that address perceptions of mental illness and attitudes towards help-seeking is likely to be vital in optimising treatment access and mental health outcomes in rural areas.

The access study: Zelen randomised controlled trial of a package of care for people presenting to hospital after self-harm

Hatcher S, Sharon C, House A, Collins N, Collings S, Pillai A (New Zealand)

*Journal of Psychiatry* 206, 229-236, 2015

**Background:** The problem of people presenting to hospitals with self-harm is important because such presentations are common, there is a clear link to suicide and a high premature mortality. However, the best treatment for this population is unclear.

**Aims:** To see whether a package of measures, that included regular postcards and problem-solving therapy, improved outcomes at 1 year compared with usual care in people who presented to hospital with self-harm

**Method:** The design of the study was a Zelen randomised controlled trial. The primary outcome was re-presentation to hospital with self-harm within 12 months of the index episode.

**Results:** There were no significant differences in the primary outcome and most of the secondary outcomes between the two groups. About half the people offered problem-solving therapy did not receive it, for various reasons.

**Conclusions:** The package as offered had little effect on the proportion of people re-presenting to hospital with self-harm. The dose of problem-solving therapy may have been too small to have an effect and there was a difficulty engaging participants in active treatment.

Suicide following self-harm: Findings from the multicentre study of self-harm in England, 2000-2012


*Journal of Affective Disorders* 175C, 147-151, 2015

**Background:** Self-harm is a key risk factor for suicide and it is important to have contemporary information on the extent of risk.

**Methods:** Mortality follow-up to 2012 of 40,346 self-harm patients identified in the three centres of the Multicentre Study of Self-harm in England between 2000 and 2010.

**Results:** Nineteen per cent of deaths during the study period (N=2704) were by suicide, which occurred in 1.6% of patients (2.6% of males and 0.9% of females), during which time the risk was 49 times greater than the general population risk. Overall, 0.5% of individuals died by suicide in the first year, including 0.82% of males and 0.27% of females. While the absolute risk of suicide was greater in males, the risk relative to that in the general population was higher in females.
Risk of suicide increased with age. While self-poisoning had been the most frequent method of self-harm, hanging was the most common method of subsequent suicide, particularly in males. The number of suicides was probably a considerable underestimate as there were also a large number of deaths recorded as accidents, the majority of which were poisonings, these often involving psychotropic drugs.

**Limitations:** The study was focussed entirely on hospital-presenting self-harm.

**Conclusions:** The findings underline the importance of prevention initiatives focused on the self-harm population, especially during the initial months following an episode of self-harm. Estimates using suicide and open verdicts may underestimate the true risk of suicide following self-harm; inclusion of accidental poisonings may be warranted in future risk estimates.

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**General hospital-treated self-poisoning in England and Australia: Comparison of presentation rates, clinical characteristics and aftercare based on sentinel unit data**

Hiles S, Bergen H, Hawton K, Lewin T, Whyte I, Carter G (UK, Australia)


**Objective:** Hospital-treated deliberate self-poisoning (DSP) is common and the existing national monitoring systems are often deficient. Clinical Practice Guidelines (UK and Australia) recommend universal psychosocial assessment within the general hospital as standard care. We compared presentation rates, patient characteristics, psychosocial assessment and aftercare in UK and Australia.

**Methods:** We used a cross sectional design, for a ten year study of all DSP presentations identified through sentinel units in Oxford, UK (n=3042) and Newcastle, Australia (n=3492).

**Results:** Oxford had higher presentation rates for females (standardised rate ratio 2.4: CI 99% 1.9, 3.2) and males (SRR 2.5: CI 99% 1.7, 3.5). Female to male ratio was 1.6:1, 70% presented after-hours, 95% were admitted to a general hospital and co-ingestion of alcohol occurred in a substantial minority (Oxford 24%, Newcastle 32%). Paracetamol, minor tranquillisers and antidepressants were the commonest drug groups ingested, although the overall pattern differed. Psychosocial assessment rates were high (Oxford 80%, Newcastle 93%). Discharge referral for psychiatric inpatient admission (Oxford 8%, Newcastle 28%), discharge to home (Oxford 80%, Newcastle 70%) and absconding (Oxford 11%, Newcastle 2%) differed between the two units.

**Conclusions:** Oxford has higher age-standardised rates of DSP than Newcastle, although many other characteristics of patients are similar. Services can provide a high level of assessment as recommended in clinical guidelines. There is some variation in after-care. Sentinel service monitoring routine care of DSP patients can provide valuable comparisons between countries.
Geography of suicide in Hong Kong: Spatial patterning, and socioeconomic correlates and inequalities

Hsu C-Y, Chang S-S, Lee EST, Yip PSF (China)
Social Science & Medicine 130, 190-203, 2015

Past urban research on Western nations tends to show high suicide rates in inner city and socioeconomically deprived areas. However, little is known about geographic variations in suicide in non-Western cities. We used Bayesian hierarchical models to estimate smoothed standardised mortality ratios (2005-2010) for suicide in people aged 10 years or above in each geographic unit in Hong Kong at two levels, i.e. large street block (n=1639; median population=1860) and small tertiary planning unit group (n=204; median population=14,850). We further analysed their associations with a range of area socioeconomic characteristics and a deprivation index. The “city centre” of Hong Kong, a generally non-deprived area, showed mostly below average suicide rates. However, there were high rates concentrating in some socioeconomically deprived, densely populated areas, including some inner city areas, across the city. Males had greater geographic variations in rates than females, except the elderly group. The use of smaller geographic units revealed finer detailed suicide distribution than the use of larger units, and showed that suicide rates were associated with indicators of socioeconomic deprivation (population with non-professional jobs and low median household income), and social fragmentation (proportions of unmarried adults and divorced/separated adults), but not with Gini coefficient. Sex/age groups had different associations with suicide rates. Areas in the most deprived quintile had a suicide rate more than two times higher than the least deprived. The association between suicide and deprivation was stronger in males than females and more marked in the younger populations compared to the elderly. The spatial distribution of suicide in Hong Kong showed distinct patterning and a stronger association with income compared to findings from Western countries. Suicide prevention strategies should consider tackling the marked socioeconomic gradient in suicide and high risk in young and middle-aged males living in deprived areas.
Predicting suicide in older adults — a community-based cohort study in Taipei City, Taiwan

Hung GCL, Kwok CL, Yip PS, Gunnell D, Chen YY (Taiwan)
Journal of Affective Disorders 172, 165-170, 2015

**Background:** Older adults worldwide are at a greater risk of suicide than other age groups. There is a scarcity of prospective studies exploring risk factors for suicide in older people and their discriminative ability to identify future suicide.

**Methods:** We examined a prospective cohort of senior Taipei City residents between 2005 and 2009 (N=101,764). Cox proportional hazards regression analysis was used to determine significant risk factors and to construct a predictive score. The accuracy of the derived score in the prediction was tested by Receiver Operating Characteristic analysis.

**Results:** Male sex (Hazard Ratio [HR]=3.41, $p<0.001$), lower education (HR=3.31, $p<0.001$) and lower income (HR=2.52, $p=0.01$) were associated with an increased risk of suicide, as well as depressed mood (HR=1.44, $p=0.02$; per unit increase in a 4-point scale) and insomnia (HR=1.30, $p=0.03$; per unit increase in a 4-point scale). The derived prediction score yielded a sensitivity of 0.63 a specificity of 0.73 and an area under curve of 0.73. Removing depressed mood from the prediction model did not significantly alter suicide predictability ($P=0.11$).

**Limitations:** The dataset examined did not contain information regarding to important risk factors such as substance misuse and prescribed medications and the measures of mental health were relatively limited.

**Conclusion:** Prediction of suicide based on factors recorded in a routine health screen of elderly people was unsatisfactory; the strongest predictors were factors that cannot be easily altered. Further understanding of how the socioeconomic condition of seniors contributes to suicide may provide valuable insights for intervention targeting this growing population-at-risk.

Interventions to prevent repeat suicidal behavior in patients admitted to an emergency department for a suicide attempt: A meta-analysis

Journal of Affective Disorders 175, 66-78, 2015

**Background:** A huge number of patients with self-harm and suicide attempt visit emergency departments (EDs). We systematically reviewed studies and examined the effect of interventions to prevent repeat suicidal behavior in patients admitted to EDs for a suicidal attempt.

**Method:** We searched the databases of MEDLINE, PsychoINFO, CINAHL, and EMBASE through August 2013. Eligible studies were randomized controlled trials assessing the effects on repeat suicidal behavior of interventions initiated in suicidal patients admitted to EDs. Interventions in each trial were classified into
groups by consensus. Meta-analyses were performed to determine pooled relative risks (RRs) and 95% confidence intervals (CIs) of repetition of suicide attempt for interventions in each group.

**Results:** Out of 5390 retrieved articles, 24 trials were included and classified into four groups (11 trials in the Active contact and follow-up, nine in the Psychotherapy, one in the Pharmacotherapy, and three in the Miscellaneous). Active contact and follow-up type interventions were effective in preventing a repeat suicide within 12 months \((n=5319;\) pooled \(RR=0.83;\) 95% CI: 0.71 to 0.97). However, the effect at 24 months was not confirmed \((n=925;\) pooled \(RR=0.98;\) 95% CI: 0.76-1.22). The effects of the other interventions on preventing a repetition of suicidal behavior remain unclear.

**Limitation:** Caution is needed regarding the heterogeneity of the effects.

**Conclusion:** Interventions of active contact and follow-up are recommended to reduce the risk of a repeat suicide attempt at 12 months in patients admitted to EDs with a suicide attempt. However, the long-term effect was not confirmed.

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**Suicide risk among 1.3 million veterans who were on active duty during the Iraq and Afghanistan wars**

Kang HK, Bullman TA, Smolenski DJ, Skopp NA, Gahm GA, Reger MA (USA)

*Annals of Epidemiology* 25, 96-100, 2015

**Purpose:** We conducted a retrospective cohort mortality study to determine the post-service suicide risk of recent wartime veterans comparing them with the US general population as well as comparing deployed veterans to nondeployed veterans.

**Methods:** Veterans were identified from the Defense Manpower Data Center records, and deployment to Iraq or Afghanistan war zone was determined from the Contingency Tracking System. Vital status of 317,581 deployed and 964,493 nondeployed veterans was followed from the time of discharge to December 31, 2009. Underlying causes of death were obtained from the National Death Index Plus.

**Results:** Based on 9353 deaths (deployed, 1650; nondeployed, 7703), of which 1868 were suicide deaths (351; 1517), both veteran cohorts had 24% to 25% lower mortality risk from all causes combined but had 41% to 61% higher risk of suicide relative to the US general population. However, the suicide risk was not associated with a history of deployment to the war zone. After controlling for age, sex, race, marital status, branch of service, and rank, deployed veterans showed a lower risk of suicide compared with nondeployed veterans (hazard ratio, 0.84; 95% confidence interval, 0.75-0.95). Multiple deployments were not associated with the excess suicide risk among deployed veterans (hazard ratio, 1.00; 95% confidence interval, 0.79-1.28).

**Conclusions:** Veterans exhibit significantly higher suicide risk compared with the US general population. However, deployment to the Iraq or Afghanistan war, by itself, was not associated with the excess suicide risk.
Suicide Research: Selected Readings

Suicide after nonfatal self-harm
Karasouli E, Owens D, Latchford G, Kelley R (UK)
Crisis 36, 65-70, 2015

**Background:** Nonfatal self-harm is the strongest predictor of suicide, with some of the risk factors for subsequent suicide after nonfatal self-harm being similar to those for suicide in general. However, we do not have sufficient information regarding the medical care provided to nonfatal self-harm episodes preceding suicide.

**Aims:** Our study sought to explore hospital care and predictive characteristics of the risk of suicide after nonfatal self-harm.

**Method:** Individuals with history of nonfatal self-harm who died by suicide were compared with those who had a nonfatal self-harm episode but did not later die by suicide. Cases were identified by cross-linking data collected through a self-harm monitoring project, 2000-2007, and comprehensive local data on suicides for the same period.

**Results:** Dying by suicide after nonfatal self-harm was more common for male subjects than for female subjects (OR=3.3, 95% CI=1.7-6.6). Self-injury as the method of nonfatal self-harm was associated with higher risk of subsequent suicide than was self-poisoning (OR=2.0, 95% CI=1.04-3.9). More urgent care at the emergency department (OR=2.7, 95% CI=1.1-6.3) and admission to hospital (OR=2.0, 95% CI=1.0-4.0) at the index episode were related to a heightened risk of suicide.

**Conclusion:** The findings of our study could help services to form assessment and aftercare policies.

Farmers’ contact with health care services prior to suicide:
Evidence for the role of general practitioners as an intervention point
Kavalidou K, McPhedran S, De Leo D (Australia)
Australian Journal of Primary Health 21, 102-105, 2015

Suicide in Australian rural communities has received significant attention from researchers, health practitioners and policymakers. Farmers and agricultural workers have been a focus of particular interest, especially in relation to levels of help seeking for mental health concerns. A less explored area, however, is the level of contact that Australian farming and agriculture workers who die by suicide have had with health providers for physical, rather than mental, health conditions. It is often assumed that farmers and agricultural workers have lower levels of contact with health care services than other rural residents, although this assumption has not been well tested. Using data from the Queensland Suicide Register, this paper describes levels of contact with health care providers in the 3 months before death by suicide among men in farming and agriculture occupations and other occupations in rural Queensland. No significant differences were found in farming and agricultural workers’ levels of contact with a general practitioner.
when compared with other rural men in Queensland. The current findings lend weight to the view that rural general practitioners represent an important intervention point for farming and agriculture workers at risk of suicide (whether or not those individuals exhibit accompanying psychiatric illness).

Predicting suicides after psychiatric hospitalization in US army soldiers: The Army Study to Assess Risk and Resilience in Servicemembers (Army STARRS)


*JAMA Psychiatry* 72, 49-57, 2015

**Importance:** The US Army experienced a sharp increase in soldier suicides beginning in 2004. Administrative data reveal that among those at highest risk are soldiers in the 12 months after inpatient treatment of a psychiatric disorder.

**Objective:** To develop an actuarial risk algorithm predicting suicide in the 12 months after US Army soldier inpatient treatment of a psychiatric disorder to target expanded posthospitalization care.

**Design, Setting and Participants:** There were 53,769 hospitalizations of active duty soldiers from January 1, 2004, through December 31, 2009, with International Classification of Diseases, Ninth Revision, Clinical Modification psychiatric admission diagnoses. Administrative data available before hospital discharge abstracted from a wide range of data systems (sociodemographic, US Army career, criminal justice, and medical or pharmacy) were used to predict suicides in the subsequent 12 months using machine learning methods (regression trees and penalized regressions) designed to evaluate cross-validated linear, nonlinear, and interactive predictive associations.

**Main Outcomes and Measures:** Suicides of soldiers hospitalized with psychiatric disorders in the 12 months after hospital discharge.

**Results:** Sixty-eight soldiers died by suicide within 12 months of hospital discharge (12.0% of all US Army suicides), equivalent to 263.9 suicides per 100,000 person-years compared with 18.5 suicides per 100,000 person-years in the total US Army. The strongest predictors included sociodemographics (male sex [odds ratio (OR), 7.9; 95% CI, 1.9-32.6] and late age of enlistment [OR, 1.9; 95% CI, 1.0-3.5]), criminal offenses (verbal violence [OR, 2.2; 95% CI, 1.2-4.0] and weapons possession [OR, 5.6; 95% CI, 1.7-18.3]), prior suicidality [OR, 2.9; 95% CI, 1.7-4.9], aspects of prior psychiatric inpatient and outpatient treatment (eg, number of antidepressant prescriptions filled in the past 12 months [OR, 1.3; 95% CI, 1.1-1.7]), and disorders diagnosed during the focal hospitalizations (eg, non-affective psychosis [OR, 2.9; 95% CI, 1.2-7.0]). A total of 52.9% of posthospitalization suicides occurred after the 5% of hospitalizations with highest predicted suicide risk (3824.1 suicides per 100,000 person-years). These highest-risk hospi-
talizations also accounted for significantly elevated proportions of several other adverse posthospitalization outcomes (unintentional injury deaths, suicide attempts, and subsequent hospitalizations).

**Conclusions and Relevance:** The high concentration of risk of suicide and other adverse outcomes might justify targeting expanded posthospitalization interventions to soldiers classified as having highest posthospitalization suicide risk, although final determination requires careful consideration of intervention costs, comparative effectiveness, and possible adverse effects.

**Suicide acceptability as a mechanism of suicide clustering in a nationally representative sample of adolescents**

Kleiman EM (USA)

*Comprehensive Psychiatry* 59, 17-20, 2015

**Purpose:** The goal of the present study was to examine suicide acceptability as a mechanism of suicide clustering in adolescents.

**Methods:** Data were drawn from The National Annenberg Survey of Youth, a sample of 3302 adolescents aged 14-22 collected between 2002 and 2004.

**Results:** Results indicated that beliefs of the acceptability of suicide partially mediated the effect of exposure to suicide (defined as knowing someone who attempted or completed suicide) on 1) serious suicidal ideation and 2) suicide planning behaviors.

**Conclusions:** The present study demonstrated that suicide acceptability is in small part a possible reason why suicides tend to cluster in adolescents. It contributes not only to the knowledge of how the phenomenon of suicide clustering might occur, but more broadly highlights the importance of examining mediators of suicide clustering.

**Suicidal ideation and mental health disorders in young school children across Europe**


*Journal of Affective Disorders* 177, 28-35, 2015

**Introduction:** The aim of this study is to measure the prevalence of suicidal ideation and thoughts of death in elementary school children in a European survey and to determine the associated socio-demographic and clinical factors.

**Methods:** Data refer to children aged 6-12 (N=7062) from Italy, Turkey, Romania, Bulgaria, Lithuania, Germany, and the Netherlands randomly selected in primary schools. Suicidal thoughts and death ideation were measured using a computerized pictorial diagnostic tool from the Dominic Interactive (DI) completed by the children. The Strengths and Difficulties Questionnaire (SDQ) was administrated to teachers and parents along with a socio-demographic questionnaire.
Results: Suicidal ideation was present in 16.96% of the sample (from 9.9 in Italy to 26.84 in Germany), death thoughts by 21.93% (from 7.71% in Italy to 32.78 in Germany). SI and DT were more frequent in single-parent families and large families. Externalizing disorders were strongly correlated with SI and DT after controlling for other factors and this was true for internalizing disorders only when reported by the children.

Conclusion: Recognizing suicidal ideation in young children may be recommended as part of preventive strategies such as screening in the context of the presence of any mental health problems whether externalizing or internalizing.

Number of visits to the emergency department and risk of suicide: A population-based case-control study

Kvaran RB, Gunnarsdottir OS, Kristbjornsdottir A, Valdimarsdottir UA, Rafnsson V (Iceland)

BMC Public Health 15, 227, 2015

Background: The aim was to study whether number of visits to emergency department (ED) is associated with suicide, taking into consideration known risk factors.

Methods: This is a population-based case-control study nested in a cohort. Computerized database on attendees to ED (during 2002-2008) was record linked to nation-wide death registry to identify 152 cases, and randomly selected 1520 controls. The study was confined to patients attending the ED, who were subsequently discharged, and not admitted to hospital ward. Odds ratio (OR) and 95% confidence intervals (CI) of suicide risk according to number of visits (logistic regression) adjusted for age, gender, mental and behavioral disorders, non-causative diagnosis, and drug poisonings.

Results: Suicide cases had on average attended the ED four times, while controls attended twice. The OR for attendance due to mental and behavioral disorders was 3.08 (95% CI 1.61-5.88), 1.60 (95% CI 1.06-2.43) for non-causative diagnosis, and 5.08 (95% CI 1.69-15.25) for poisoning. The ORs increased gradually with increasing number of visits. Adjusted for age, gender, and the above mentioned diagnoses, the OR for three attendances was 2.17, for five attendances 2.60, for seven attendances 5.97, and for nine attendances 12.18 compared with those who had one visit.

Conclusions: Number of visits to the ED is an independent risk factor for suicide adjusted for other known and important risk factors. The prevalence of four or more visits was 40% among cases compared with 10% among controls. This new risk factor may open new venues for suicide prevention.
Dialectical behavior therapy for high suicide risk in individuals with borderline personality disorder: A randomized clinical trial and component analysis

Linehan MM, Korslund KE, Harned MS, Gallop RJ, Lungu A, Neacsiu AD, McDavid J, Comtois KA, Murray-Gregory AM (USA)

*JAMA Psychiatry* 72, 475-482, 2015

**Importance:** Dialectical behavior therapy (DBT) is an empirically supported treatment for suicidal individuals. However, DBT consists of multiple components, including individual therapy, skills training, telephone coaching, and a therapist consultation team, and little is known about which components are needed to achieve positive outcomes.

**Objective:** To evaluate the importance of the skills training component of DBT by comparing skills training plus case management (DBT-S), DBT individual therapy plus activities group (DBT-I), and standard DBT which includes skills training and individual therapy.

**Design, Setting and Participants:** We performed a single-blind randomized clinical trial from April 24, 2004, through January 26, 2010, involving 1 year of treatment and 1 year of follow-up. Participants included 99 women (mean age, 30.3 years; 69 [71%] white) with borderline personality disorder who had at least 2 suicide attempts and/or nonsuicidal self-injury (NSSI) acts in the last 5 years, an NSSI act or suicide attempt in the 8 weeks before screening, and a suicide attempt in the past year. We used an adaptive randomization procedure to assign participants to each condition. Treatment was delivered from June 3, 2004, through September 29, 2008, in a university-affiliated clinic and community settings by therapists or case managers. Outcomes were evaluated quarterly by blinded assessors. We hypothesized that standard DBT would outperform DBT-S and DBT-I.

**Interventions:** The study compared standard DBT, DBT-S, and DBT-I. Treatment dose was controlled across conditions, and all treatment providers used the DBT suicide risk assessment and management protocol.

**Main Outcomes and Measures:** Frequency and severity of suicide attempts and NSSI episodes.

**Results:** All treatment conditions resulted in similar improvements in the frequency and severity of suicide attempts, suicide ideation, use of crisis services due to suicidality, and reasons for living. Compared with the DBT-I group, interventions that included skills training resulted in greater improvements in the frequency of NSSI acts (F1,85 = 59.1 [P < .001] for standard DBT and F1,85 = 56.3 [P < .001] for DBT-S) and depression (t399 = 1.8 [P = .03] for standard DBT and t399 = 2.9 [P = .004] for DBT-S) during the treatment year. In addition, anxiety significantly improved during the treatment year in standard DBT (t94 = −3.5 [P < .001]) and DBT-S (t94 = −2.6 [P = .01]), but not in DBT-I. Compared with the DBT-I group, the standard DBT group had lower dropout rates from treatment (8
patients [24%] vs 16 patients [48%] [P = .04]), and patients were less likely to use crisis services in follow-up (ED visits, 1 [3%] vs 3 [13%] [P = .02]; psychiatric hospitalizations, 1 [3%] vs 3 [13%] [P = .03]).

Conclusions and Relevance: A variety of DBT interventions with therapists trained in the DBT suicide risk assessment and management protocol are effective for reducing suicide attempts and NSSI episodes. Interventions that include DBT skills training are more effective than DBT without skills training, and standard DBT may be superior in some areas.

Associations of racial/ethnic identities and religious affiliation with suicidal ideation among lesbian, gay, bisexual, and questioning individuals
Lytle MC, De Luca SM, Blosnich JR, Brownson C (USA)

Background: Our aim was to examine the associations of racial/ethnic identity and religious affiliation with suicidal ideation among lesbian, gay, bisexual, and questioning (LGBQ) and heterosexual college students. An additional aim was to determine the prevalence of passive suicidal ideation (i.e., death ideation) and active suicidal ideation among culturally diverse LGBQ individuals.

Methods: Data from the National Research Consortium probability-based sample of college students from 70 postsecondary institutions (n=24,626) were used to examine active and passive suicidal ideation in the past 12-months and lifetime active suicidal ideation among students by sexual orientation, racial/ethnic identity, and religious affiliation.

Results: Across most racial/ethnic groups and religious affiliations, LGBQ students were more likely to report active suicidal ideation than non-LGBQ individuals. Among LGBQ students, Latino individuals had lower odds of reporting both past 12-month passive and active suicidal ideation than their non-Hispanic white LGBQ counterparts. Compared to Christian LGBQ students, Agnostic/Atheist LGBQ individuals had greater odds of reporting past 12-month passive suicidal ideation, and Jewish LGBQ students were less likely to endorse past 12-month passive and active suicidal ideation.

Limitations: Cross-sectional design and self-reported data.

Conclusions: Results corroborate previous research showing elevated prevalence of suicidal ideation among LGBQ individuals in comparison to their heterosexual counterparts. These findings are among the first to document prevalence differences within the LGBQ population based on intersectional identities (race/ethnicity and religious affiliation). Providers should recognize that LGBQ individuals might need support in negotiating the complex relationship between multiple identities, especially due to their elevated prevalence of suicidal ideation.
Clinical and social outcomes of adolescent self harm: Population based birth cohort study


Objectives: To investigate the mental health, substance use, educational, and occupational outcomes of adolescents who self harm in a general population sample, and to examine whether these outcomes differ according to self reported suicidal intent.


Participants: Data on lifetime history of self harm with and without suicidal intent were available for 4799 respondents who completed a detailed self harm questionnaire at age 16 years. Multiple imputation was used to account for missing data.

Main Outcome Measures: Mental health problems (depression and anxiety disorder), assessed using the clinical interview schedule-revised at age 18 years, self reported substance use (alcohol, cannabis, cigarette smoking, and illicit drugs) at age 18 years, educational attainment at age 16 and 19 years, occupational outcomes at age 19 years, and self harm at age 21 years.

Results: Participants who self harmed with and without suicidal intent at age 16 years were at increased risk of developing mental health problems, future self harm, and problem substance misuse, with stronger associations for suicidal self harm than for non-suicidal self harm. For example, in models adjusted for confounders the odds ratio for depression at age 18 years was 2.21 (95% confidence interval 1.55 to 3.15) in participants who had self harmed without suicidal intent at age 16 years and 3.94 (2.67 to 5.83) in those who had self harmed with suicidal intent. Suicidal self harm, but not self harm without suicidal intent, was also associated with poorer educational and employment outcomes.

Conclusions: Adolescents who self harm seem to be vulnerable to a range of adverse outcomes in early adulthood. Risks were generally stronger in those who had self harmed with suicidal intent, but outcomes were also poor among those who had self harmed without suicidal intent. These findings emphasise the need for early identification and treatment of adolescents who self harm.
Prevalence of suicidal ideation and other suicide warning signs in veterans attending an urgent care psychiatric clinic

McClure JR, Criqui MH, Macera CA, Ji M, Nievergelt CM, Zisook S (USA)
Comprehensive Psychiatry 60, 149-155, 2015

**Background:** Suicide prevention in the clinical setting is focused on evaluating risk in the coming hours to days, yet little is known about which factors increase acute risk.

**Purpose:** To determine the prevalence of factors that may serve as warnings of heightened acute risk.

**Methods:** Veterans attending an urgent care psychiatric clinic (n=473) completed a survey on suicidal ideation and other acute risk warning signs.

**Results:** More than half the sample (52%) reported suicidal ideation during the prior week. Of these, more than one-third (37%) had active ideation which included participants with a current suicide plan (27%) and those who had made preparations to carry out their plan (12%). Other warning signs were also highly prevalent, with the most common being: sleep disturbances (89%), intense anxiety (76%), intense agitation (75%), hopelessness (70%), and desperation (70%). Almost all participants (97%) endorsed at least one warning sign. Participants with depressive syndrome and/or who screened positive for post-traumatic stress disorder endorsed the largest number of warning signs. Those with both depressive syndrome and post-traumatic stress disorder were more likely to endorse intense affective states than those with either disorder alone. All p-values for group comparisons are <.008.

**Conclusion:** Our major findings are the strikingly high prevalence of past suicidal ideation, suicide attempts, current suicidal ideation and intense affective states in veterans attending an urgent care psychiatric clinic; and the strong associations between co-occurring post-traumatic stress disorder and depressive syndrome with intense affective states.

Patterns of stressful life events: Distinguishing suicide ideators from suicide attempters

McFeeters D, Boyda D, O’Neill S (UK)
Journal of Affective Disorders 175, 192-198, 2015

**Background:** Suicidal ideation is an important indicator for subsequent suicidal behaviour, yet only a proportion of ideators transit from thought to action. This has led to interest surrounding the factors that distinguish ideators who attempt from non- attempters. The study aimed to identify distinct classes of life event categories amongst a sample of ideators and assess the ability of the classes to predict the risk of a suicide attempt.

**Methods:** A subsample of ideators was extracted based on responses to the suicidality section of the Adult Psychiatric Morbidity Survey (N=7403). Fifteen stressful life events (SLEs) were grouped into six broad categories.
**Results:** Using Latent Class Analysis (LCA), three distinct classes emerged; class 1 had a high probability of encountering interpersonal conflict, class 2 reported a low probability of experiencing any of the SLE categories with the exception of minor life stressors, whereas class 3 had a high probability of endorsing multiple SLE categories. The Odds Ratio for attempted suicide were highest among members of Class 3.

**Limitations:** The use of broad event categories as opposed to discrete life events may have led to an underestimation of the true exposure to SLEs.

**Conclusions:** The findings suggest the experience of multiple types of SLEs may predict the risk of transitioning towards suicidal behaviour for those individuals who have contemplated suicide. In application, this re-emphasises the need for a routine appraisal of risk amongst this vulnerable group and an assessment of the variety of events which may signal the individuals who may be at immediate risk.

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**Suicidal ideation and suicide attempts in five groups with different severities of gambling: Findings from the National Epidemiologic Survey on Alcohol and Related Conditions**

Moghaddam JF, Yoon G, Dickerson DL, Kim SW, Westermeyer J (USA)

*American Journal on Addictions* 24, 292-298, 2015

**Background and Objectives:** Problem and pathological gamblers show high rates of suicidal behavior. However, previous research of suicide among this population has been inconsistent. Discrepancies may stem from methodological issues, including variable use of suicide nomenclature and selection bias in study samples. Furthermore, earlier research has rarely examined gambling severity aside from problem or pathological categories. This study utilized subgroups derived from a nationally representative data set, examining different characteristics of suicidal behaviors and several gambling levels, including subclinical groups.

**Methods:** Participants included 13,578 individuals who participated in the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) and provided information on gambling behavior, lifetime suicidal ideation, and/or lifetime suicide attempts. Five gambling groups were derived using DSM-IV criteria for pathological gambling; non-gambling, low-risk gambling, at-risk gambling, problem gambling, and pathological gambling.

**Results:** Problem gambling was associated with suicidal ideation [(AOR)=1.64, 95% confidence interval (CI)=1.19-2.26] and suicide attempts [(AOR)=2.42, 95% (CI)=1.60-3.67] after adjustment for sociodemographic variables. Pathological gambling was associated with suicidal ideation [(AOR)=2.86, 95% (CI)=1.98-4.11] and suicide attempts [(AOR)=2.77, 95% (CI)=1.72-4.47] after adjustment for sociodemographic variables.

**Discussion, Conclusions, and Scientific Significance:** Our results from this population sample reinforce increased rates of suicidal behavior amongst smaller, clinical samples of problem and pathological gamblers. Education for providers about gambling is recommended, including screening for gambling-related symptoms such as suicidal behavior.
Suicide-related internet use: A review
Mok K, Jorm AF, Pirkis J (Australia)
*Australian and New Zealand Journal of Psychiatry.* Published online: 19 February 2015. doi: 10.1177/0004867415569797

**Objective:** To systematically review research on how people use the Internet for suicide-related reasons and its influence on users. This review summarises the main findings and conclusions of existing work, the nature of studies that have been conducted, their strengths and limitations, and directions for future research.

**Method:** An online search was conducted through PsycINFO, PubMed, Ovid MEDLINE and CINAHL databases for papers published between 1991 and 2014. Papers were included if they examined how the Internet was used for suicide-related reasons, the influence of suicide-related Internet use, and if they presented primary data, including case studies of Internet-related suicide attempts and completions.

**Results:** Findings of significant relationships between suicide-related search trends and rates of suicide suggest that search trends may be useful in monitoring suicide risk in a population. Studies that examine online communications between people who are suicidal can further our understanding of individuals’ suicidal experiences. While engaging in suicide-related Internet use was associated with higher levels of suicidal ideation, evidence of its influence on suicidal ideation over time was mixed. There is a lack of studies directly recruiting suicidal Internet users. Only case studies examined the influence of suicide-related Internet use on suicidal behaviours, while no studies assessed the influence of pro-suicide or suicide prevention websites. Online professional services can be useful to suicide prevention and intervention efforts, but require more work in order to demonstrate their efficacy.

**Conclusions:** Research has shown that individuals use the Internet to search for suicide-related information and to discuss suicide-related problems with one another. However, the causal link between suicide-related Internet use and suicidal thoughts and behaviours is still unclear. More research is needed, particularly involving direct contact with Internet users, in order to understand the impact of both informal and professionally moderated suicide-related Internet use.
Alcohol use and misuse, self-harm and subsequent mortality: An epidemiological and longitudinal study from the multicentre study of self-harm in England
Emergency Medicine Journal. Published online: 6 January 2015. doi:10.1136/emermed-2013-202753

Objectives: Alcohol use and misuse are strongly associated with self-harm and increased risk of future self-harm and suicide. The UK general population prevalence of alcohol use, misuse and alcohol-attributable harm has been rising. We have investigated the prevalence of and trends in alcohol use and misuse in self-harm patients and their associations with repeat self-harm and subsequent death.

Methods: We used patient data from the Multicentre Study of Self-Harm in England for 2000-2009 and UK mortality data for patients presenting from 2000 to 2007 who were followed up to the end of 2009.

Results: Alcohol involvement in acts of self-harm (58.4%) and alcohol misuse (36.1%) were somewhat higher than found previously in self-harm patients. Alcohol involvement and misuse were most frequent in men, those aged 35-54 years and those from white ethnicities. The frequency of alcohol misuse increased between 2000 and 2009, especially in women. Repetition of self-harm was associated with alcohol involvement in self-harm and particularly with alcohol misuse. Risk of suicide was increased significantly in women misusing alcohol.

Conclusions: Alcohol use and misuse in self-harm patients appears to have increased in recent years, particularly in women. The association of alcohol with greater risk of self-harm repetition and mortality highlights the need for clinicians to investigate alcohol use in self-harm patients. Ready availability of alcohol treatment staff in general hospitals could facilitate appropriate aftercare and the prevention of adverse outcomes.

The psychology of suicidal behaviour
O’Connor RC, Nock MK (UK)
Lancet Psychiatry 1, 73-85, 2014

The causes of suicidal behaviour are not fully understood; however, this behaviour clearly results from the complex interaction of many factors. Although many risk factors have been identified, they mostly do not account for why people try to end their lives. In this Review, we describe key recent developments in theoretical, clinical, and empirical psychological science about the emergence of suicidal thoughts and behaviours, and emphasise the central importance of psychological factors. Personality and individual differences, cognitive factors, social aspects, and negative life events are key contributors to suicidal behaviour. Most people struggling with suicidal thoughts and behaviours do not receive treatment. Some evidence suggests that different forms of cognitive and behavioural therapies can reduce the risk of suicide reattempt, but hardly any evidence about factors that protect against suicide is available. The development of innovative psychological and psychosocial treatments needs urgent attention.
The co-occurrence of aggression and self-harm: Systematic literature review

O'Donnell O, House A, Waterman M (UK)
Journal of Affective Disorders 175, 325-350, 2015

**Background:** Epidemiological research supports an association between aggression and self-harm through data on the frequency with which individuals exhibit both behaviours. Unbiased evidence, however, is needed to draw conclusions about the nature and extent of co-occurrence.

**Method:** Systematic review of published studies was undertaken to evaluate whether or not the frequency with which aggression and self-harm co-occur is beyond that which would be expected by chance. Outcome measures included: (a) between-group differences on a standardised aggression/self-harm measure - the groups defined by scores on a measure of the other behaviour; (b) correlations between the two behaviours; (c) co-occurrence rates in populations defined by the presence of either behaviour; (d) co-occurrence rates in populations not defined by either behaviour. Odds ratios were calculated for studies presenting complete frequency data.

**Results:** 123 studies, some yielding more than one type of result, met the inclusion criteria. Most case-control studies found elevated levels of aggression in self-harming populations (or self-harm in aggressive populations) compared to controls. The majority of correlational, co-occurrence rate, and odds ratio data found aggression and self-harm to be associated.

**Limitations:** Results were subject to descriptive synthesis only and thus, unable to report an overall effect size.

**Conclusions:** Evidence suggests that aggression and self-harm frequently co-occur. Such evidence necessitates more theoretical discussion and associated research on the source and nature of co-occurrence. Nonetheless, individuals who present with one behaviour may be considered an ‘at-risk’ group in terms of exhibiting the other. Such evidence holds implications for practice (e.g. risk assessment).

Frequency and functions of non-suicidal self-injury: Associations with suicidal thoughts and behaviors

Paul E, Ttypes A, Eidlitz L, Ernhout C, Whitlock J (USA)
Psychiatry Research 225, 276-282, 2015

Previous research has found associations between non-suicidal self-injury (NSSI) and suicidal thoughts and behaviors (STBs), yet the nature of this relationship remains equivocal. The goal of the present study was to examine how lifetime NSSI frequency and individual NSSI functions relate to a history of suicidal ideation, plan, and attempt. Data were collected via a large (N=13,396) web-based survey of university students between the ages of 18 and 29. After demographics and psychiatric conditions were controlled for, we found a positive curvilinear relationship between NSSI frequency and each of the suicide outcomes. When
examined among those with STBs, bipolar disorder and problematic substance use remained positively associated with risk for suicide attempt, but not NSSI. Analyses of individual NSSI functions showed differential associations with STBs of varying severity. Specifically, nearly every NSSI function was significantly related to suicide attempt, with functions related to avoiding committing suicide, coping with self-hatred, and feeling generation (anti-dissociation) showing the strongest risks for suicide attempt. From both clinical and research perspectives, these findings suggest the importance of assessing multiple reasons for engaging in self-injury.

Is suicide under the influence of alcohol a deliberate self-harm syndrome? An autopsy study of lethality

Pennel L, Quesada JL, Begue L, Dematteis M (France) 
Journal of Affective Disorders 177, 80-85, 2015

**Background:** Alcohol is a risk factor for suicide and is often involved in violent actions. The aim of the study was to assess the involvement of alcohol in suicides and its relationship with the lethality of suicide methods.

**Methods:** In a retrospective study on autopsy reports, we compared suicide and non-suicide victims, suicides with positive and negative blood alcohol concentration (BAC), and studied the lethality of suicide methods using a multivariate analysis.

**Results:** Suicide victims (n=88) were not different to non-suicide victims (n=270) for positive BAC and narcotics, but were more often positive for prescription medications (59.1 vs. 35.6%, p=0.003) and medications in blood (72.7 vs. 54.8%, p=0.004). Whereas non-suicidal victims died mainly of traumas (60%, p<0.001), two populations of suicides emerged with regard to BAC, self-poisoning predominating with positive BAC (38.9%, p=0.039) and asphyxiation with negative BAC (41.4%, p=0.025). Positive BAC appeared as the unique and strong independent predictive factor, increasing the risk of self-poisoning suicide by 4.36 [1.29-14.76], and decreasing the risk of suicidal asphyxiation by 84% (OR=0.16 [0.03-0.83]). Positive blood narcotics tended to behave in the similar way to alcohol.

**Limitations:** Recruitment bias (victims declared by the Forensic authorities) and incomplete autopsy reports are the two main limitations.

**Conclusions:** Characteristics of suicide victims with positive BAC are suggestive of Deliberate Self-Harm Syndrome (low lethality methods, substance misuse). These being at high risk of repeated suicide attempts, previous self-harm involving alcohol may represent a warning sign and access to medication should be limited to prevent recidivism.
Effects of suicide bereavement on mental health and suicide risk
Pitman A, Osborn D, King M, Erlangsen A (UK, Denmark)
*Lancet Psychiatry* 1, 86-94, 2014

Between 48 million and 500 million people are thought to experience suicide bereavement every year. Over the past decade, increased policy attention has been directed towards suicide bereavement, but with little evidence to describe the effect of exposure or to provide appropriate responses. We used a systematic approach to carry out a narrative review of studies of the effect of suicide bereavement on mortality, mental health, and social functioning, and compared them with effects from other bereavements. We found 57 studies that satisfied strict inclusion criteria. Results from these studies suggested that exposure to suicide of a close contact is associated with several negative health and social outcomes, depending on an individual’s relationship to the deceased. These effects included an increased risk of suicide in partners bereaved by suicide, increased risk of required admission to psychiatric care for parents bereaved by the suicide of an offspring, increased risk of suicide in mothers bereaved by an adult child’s suicide, and increased risk of depression in offspring bereaved by the suicide of a parent. Some evidence was shown for increased rejection and shame in people bereaved by suicide across a range of kinship groups when data were compared with reports of relatives bereaved by other violent deaths. Policy recommendations for support services after suicide bereavement heavily rely on the voluntary sector with little input from psychiatric services to address described risks. Policymakers should consider how to strengthen health and social care resources for people who have been bereaved by suicide to prevent avoidable mortality and distress.

Economic shocks, resilience, and male suicides in the great recession: Cross-national analysis of 20 EU countries
Reeves A, McKee M, Gunnell D, Chang S-S, Basu S, Barr B, Stuckler D (UK, China, USA)

*Background:* During the 2007-11 recessions in Europe, suicide increases were concentrated in men. Substantial differences across countries and over time remain unexplained. We investigated whether increases in unaffordable housing, household indebtedness or job loss can account for these population differences, as well as potential mitigating effects of alternative forms of social protection.

*Methods:* Multivariate statistical models were used to evaluate changes in suicide rates in 20 EU countries from 1981-2011. Models adjusted for pre-existing time trends and country-fixed effects. Interaction terms were used to evaluate modifying effects.

*Results:* Changes in levels of unaffordable housing had no effect on suicide rates (P=0.32); in contrast, male suicide increases were significantly associated with each percentage point rise in male unemployment, by 0.94% (95% CI: 0.51-1.36%), and indebtedness, by 0.54% (95% CI: 0.02-1.06%). Spending on active labour market
programmes (ALMP) (-0.26%, 95% CI: -0.08 to -0.45%) and high levels of social capital (-0.048%, 95% CI: -0.0096 to -0.087) moderated the unemployment-suicide association. There was no interaction of the volume of anti-depressant prescriptions (P=0.51), monetary benefits to unemployed persons (P=0.77) or total social protection spending per capita (P=0.37). Active labour market programmes and social capital were estimated to have prevented ∼540 and ∼210 male suicides, respectively, arising from unemployment in the countries studied.

Conclusion: Job losses were a critical determinant of variations in male suicide risks in Europe’s recessions. Greater spending on ALMP and levels of social capital appeared to mitigate suicide risks.

Service use and unmet needs in youth suicide: A study of trajectories
Renaud J, Séguin M, Lesage AD, Marquette C, Choo B, Turecki G (Canada)
Canadian Journal of Psychiatry 59, 523-530, 2014

Objective: While 90% of suicide victims have suffered from mental health disorders, less than one-half are in contact with a mental health professional in the year preceding their death. Service use in the last year of life of young suicide victims and control subjects was studied in Quebec. We wanted to determine what kinds of health care services were needed and if they were actually received by suicide victims.

Method: We recruited 67 consecutive suicide victims and 56 matched living control subjects (aged 25 years and younger). We evaluated subjects’ psychopathological profile and determined which services would have been indicated by conducting a needs assessment. We then compared this with what services were actually received.

Results: Suicide victims were more likely than living control subjects to have a psychiatric diagnosis. They were most in need of services to address substance use disorder, depression, interpersonal distress, and suicide-related problems. There were significant deficits in the domains of coordination and continuity of care, mental health promotion and training, and governance.

Conclusions: Our results show that we need to urgently take action to address these identified deficits to prevent further loss of life in our young people.
Aim: Social media platforms are commonly used for the expression of suicidal thoughts and feelings, particularly by young people. Despite this, little is known about the ways in which social media can be used for suicide prevention. The aim of this study was to conduct a systematic review to identify current evidence pertaining to the ways in which social media are currently used as a tool for suicide prevention.

Methods: Medline, PsycInfo, Embase, CINHAL and the Cochrane Library were searched for articles published between 1991 and April 2014. English language articles with a focus on suicide-related behaviour and social media were included. No exclusion was placed on study design.

Results: Thirty studies were included; 4 described the development of social media sites designed for suicide prevention, 6 examined the potential of social media in terms of its ability to reach or identify people at risk of suicide, 15 examined the ways in which people used social media for suicide prevention-related purposes, and 5 examined the experiences of people who had used social media sites for suicide prevention purposes. No intervention studies were identified.

Conclusion: Social media platforms can reach large numbers of otherwise hard-to-engage individuals, may allow others to intervene following an expression of suicidal ideation online, and provide an anonymous, accessible and non-judgmental forum for sharing experiences. Challenges include difficulties controlling user behaviour and accurately assessing risk, issues relating to privacy and confidentiality and the possibility of contagion. Social media appears to hold significant potential for suicide prevention; however, additional research into its safety and efficacy is required.
**Confronting death from drug self-intoxication (DDSI): Prevention through a better definition**

Rockett IR, Smith GS, Caine ED, Kapusta ND, Hanzlick RL, Larkin GL, Naylor CP, Nolte KB, Miller TR, Putnam SL, De Leo D, Kleining J, Stack S, Todd KH, Fraser DW (USA, Austria, New Zealand, Australia)


Suicide and other self-directed violence deaths are likely grossly underestimated, reflecting inappropriate classification of many drug intoxication deaths as accidents or unintentional and heterogeneous ascertainment and coding practices across states. As the tide of prescription and illicit drug-poisoning deaths is rising, public health and research needs would be better satisfied by considering most of these deaths a result of self-intoxication. Epidemiologists and prevention scientists could design better intervention strategies by focusing on premorbid behavior. We propose incorporating deaths from drug self-intoxication and investigations of all poisoning deaths into the National Violent Death Reporting System, which contains misclassified homicides and undetermined intent deaths, to facilitate efforts to comprehend and reverse the surging rate of drug intoxication fatalities.

**Help-seeking behaviour and adolescent self-harm: A systematic review**


*Australian and New Zealand Journal of Psychiatry* 48, 1083-1095, 2014

**Objective:** Self-harm is common in adolescence, but most young people who self-harm do not seek professional help. The aim of this literature review was to determine (a) the sources of support adolescents who self-harm access if they seek help, and (b) the barriers and facilitators to help-seeking for adolescents who self-harm.

**Method:** Using a pre-defined search strategy we searched databases for terms related to self-harm, adolescents and help-seeking. Studies were included in the review if participants were aged 11-19 years.

**Results:** Twenty articles met criteria for inclusion. Between a third and one half of adolescents who self-harm do not seek help for this behaviour. Of those who seek help, results showed adolescents primarily turned to friends and family for support. The Internet may be more commonly used as a tool for self-disclosure rather than asking for help. Barriers to help-seeking included fear of negative reactions from others including stigmatisation, fear of confidentiality being breached and fear of being seen as ‘attention-seeking’. Few facilitators of help-seeking were identified.

**Conclusions:** Of the small proportion of adolescents who seek help for their self-harm, informal sources are the most likely support systems accessed. Interpersonal barriers and a lack of knowledge about where to go for help may impede help-seeking. Future research should address the lack of knowledge regarding the facilitators of help-seeking behaviour in order to improve the ability of services to engage with this vulnerable group of young people.
Brief cognitive-behavioral therapy effects on post-treatment suicide attempts in a military sample: Results of a randomized clinical trial with 2-year follow-up

Rudd MD, Bryan CJ, Wertenberger EG, Peterson AL, Young-McCaughan S, Mintz J, Williams SR, Arne KA, Breitbach J, Delano K, Wilkinson E, Bruce TO (USA)

The American Journal of Psychiatry 172, 441-449, 2015

Objective: The authors evaluated the effectiveness of brief cognitive-behavioral therapy (CBT) for the prevention of suicide attempts in military personnel.

Method: In a randomized controlled trial, active-duty Army soldiers at Fort Carson, Colo., who either attempted suicide or experienced suicidal ideation with intent, were randomly assigned to treatment as usual (N=76) or treatment as usual plus brief CBT (N=76). Assessment of incidence of suicide attempts during the follow-up period was conducted with the Suicide Attempt Self-Injury Interview. Inclusion criteria were the presence of suicidal ideation with intent to die during the past week and/or a suicide attempt within the past month. Soldiers were excluded if they had a medical or psychiatric condition that would prevent informed consent or participation in outpatient treatment, such as active psychosis or mania. To determine treatment efficacy with regard to incidence and time to suicide attempt, survival curve analyses were conducted. Differences in psychiatric symptoms were evaluated using longitudinal random-effects models.

Results: From baseline to the 24-month follow-up assessment, eight participants in brief CBT (13.8%) and 18 participants in treatment as usual (40.2%) made at least one suicide attempt (hazard ratio=0.38, 95% CI=0.16-0.87, number needed to treat=3.88), suggesting that soldiers in brief CBT were approximately 60% less likely to make a suicide attempt during follow-up than soldiers in treatment as usual. There were no between-group differences in severity of psychiatric symptoms.

Conclusions: Brief CBT was effective in preventing follow-up suicide attempts among active-duty military service members with current suicidal ideation and/or a recent suicide attempt.
Evaluating the implementation of “Managing the Risk of Suicide: A Suicide Prevention Strategy for the ACT 2009-2014”: A whole-of-government/whole-of-community suicide prevention strategy
Sheehan J, Griffiths K, Rickwood D, Carron-Arthur B (Australia)
Crisis 36, 4-12, 2015

Background: Over the past two decades, governments have invested significantly in policies and strategies to prevent the tragic loss of life to suicide. However, there has been little focus on evaluating the implementation of such policies.
Aims: This paper reports on the evaluation of the implementation of “Managing the Risk of Suicide: A Suicide Prevention Strategy for the ACT 2009-2014,” the Australian Capital Territory’s (ACT) suicide prevention strategy. We sought to answer two questions: (1) Could agencies provide data reporting on their progress in implementing the activities for which they were responsible?; and (2) Could a judgment about implementation progress be made and, if so, to what extent was the activity implemented?
Method: Individually tailored electronic surveys were sent to 18 ACT agencies annually over 4 years to measure their progress in implementing activities for which they had responsibility.
Results: By year four, full data were provided for 64% of activities, maximal partial data for 9%, and minimal partial data for 27%. Forty-two per cent of activities were fully implemented, 20% were partially implemented, and 38% were not implemented or could not be measured.
Conclusion: It is possible to measure implementation of suicide prevention strategies, but appropriate processes and dedicated resources must be in place at the outset.

Suicide in children: A systematic review
Soole R, Kolves K, De Leo D (Australia)
Archives of Suicide Research. Published online: 17 December 2014. doi: 10.1080/13811118.2014.996694

Objectives: To provide a review of studies on suicide in children aged 14 years and younger.
Method: Articles were identified through a systematic search of Scopus, MEDLINE and PsychINFO. Key words were “children, suicide, psychological autopsy and case-study”. Additional articles were identified through manual search of reference lists and discussion with colleagues.
Results: Fifteen published articles were identified, eight psychological autopsy studies (PA) and seven retrospective case-study series.
Conclusion: Suicide incidence and gender asymmetry increases with age. Hanging is the most frequent method. Lower rates of psychopathology are evident among child suicides compared to adolescents. Previous suicide attempts were an important risk factor. Children were less likely to consume alcohol prior to suicide. Parent-child conflicts were the most common precipitant.
Understanding the elevated suicide risk of female soldiers during deployments


Psychological Medicine 45, 717-726, 2015

Background: The Army Study to Assess Risk and Resilience in Servicemembers (Army STARRS) has found that the proportional elevation in the US Army enlisted soldier suicide rate during deployment (compared with the never-deployed or previously deployed) is significantly higher among women than men, raising the possibility of gender differences in the adverse psychological effects of deployment.

Method: Person-month survival models based on a consolidated administrative database for active duty enlisted Regular Army soldiers in 2004-2009 (n=975057) were used to characterize the gender*deployment interaction predicting suicide. Four explanatory hypotheses were explored involving the proportion of females in each soldier’s occupation, the proportion of same-gender soldiers in each soldier’s unit, whether the soldier reported sexual assault victimization in the previous 12 months, and the soldier’s pre-deployment history of treated mental/behavioral disorders.

Results: The suicide rate of currently deployed women (14.0/100000 person-years) was 3.1-3.5 times the rates of other (i.e. never-deployed/previously deployed) women. The suicide rate of currently deployed men (22.6/100000 person-years) was 0.9-1.2 times the rates of other men. The adjusted (for time trends, sociodemographics, and Army career variables) female: male odds ratio comparing the suicide rates of currently deployed v. other women v. men was 2.8 (95% confidence interval 1.1-6.8), became 2.4 after excluding soldiers with Direct Combat Arms occupations, and remained elevated (in the range 1.9-2.8) after adjusting for the hypothesized explanatory variables.

Conclusions: These results are valuable in excluding otherwise plausible hypotheses for the elevated suicide rate of deployed women and point to the importance of expanding future research on the psychological challenges of deployment for women.
Are people at risk of psychosis also at risk of suicide and self-harm? A systematic review and meta-analysis

Taylor PJ, Hutton P, Wood L (UK)
Psychological Medicine 45, 911-926, 2015

**Background:** Suicide and self-harm are prevalent in individuals diagnosed with psychotic disorders. However, less is known about the level of self-injurious thinking and behaviour in those individuals deemed to be at ultra-high risk (UHR) of developing psychosis, despite growing clinical interest in this population. This review provides a synthesis of the extant literature concerning the prevalence of self-harm and suicidality in the UHR population, and the predictors and correlates associated with these events.

**Method:** A search of electronic databases was undertaken by two independent reviewers. A meta-analysis of prevalence was undertaken for self-harm, suicidal ideation and behaviour. A narrative review was also undertaken of analyses examining predictors and correlates of self-harm and suicidality.

**Results:** Twenty-one eligible studies were identified. The meta-analyses suggested a high prevalence of recent suicidal ideation (66%), lifetime self-harm (49%) and lifetime suicide attempts (18%). Co-morbid psychiatric problems, mood variability and a family history of psychiatric problems were among the factors associated with self-harm and suicide risk.

**Conclusions:** Results suggest that self-harm and suicidality are highly prevalent in the UHR population, with rates similar to those observed in samples with diagnosed psychotic disorders. Appropriate monitoring and managing of suicide risk will be important for services working with the UHR population. Further research in this area is urgently needed considering the high rates identified.

Age-specific suicide mortality following non-fatal self-harm: National cohort study in Sweden

Tidemalm D, Beckman K, Dahlin M, Vaez M, Lichtenstein P, Langstrom N, Runeson B (Sweden)
Psychological Medicine 45, 1699-1707, 2015

**Background:** Possible age-related differences in risk of completed suicide following non-fatal self-harm remain unexplored. We examined associations between self-harm and completed suicide across age groups of self-harming patients, and whether these associations varied by violent index method, presence of mental disorder, and repeated self-harm.

**Method:** The design was a cohort study with linked national registers in Sweden. The study population comprised individuals aged 10 years hospitalized during 1990-1999 due to non-fatal self-harm (n=53 843; 58% females) who were followed for 9-19 years. We computed hazard ratios (HRs) across age groups (age at index self-harm episode), with time to completed suicide as outcome.

**Results:** The 1-year HR for suicide among younger males (10-19 years) was 14.6
[95% confidence interval (CI) 4.1-51.9] for violent method and 8.4 (95% CI 1.8-40.0) for mental disorder. By contrast, none of the three potential risk factors increased the 1-year risks in the youngest females. Among patients aged 20 years, the 1-year HR for violent method was 4.6 (95% CI 3.8-5.4) for males and 10.4 (95% CI 8.3-13.0) for females. HRs for repeated self-harm during years 2-9 of follow-up were higher in 10- to 19-year-olds (males: HR 4.0, 95% CI 2.0-7.8; females: HR 3.7, 95% CI 2.1-6.5). The 20 years age groups had higher HRs than the youngest, particularly for females and especially within 1 year.

**Conclusions:** Violent method and mental disorder increase the 1-year suicide risk in young male self-harm patients. Further, violent method increases suicide risk within 1 year in all age and gender groups except the youngest females. Repeated self-harm may increase the long-term risk more in young patients. These aspects should be accounted for in clinical suicide risk assessment.

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**Suicide in U.S. workplaces, 2003-2010: A comparison with non-workplace suicides**

Tiesman HM, Konda S, Hartley D, Menéndez CC, Ridenour M, Hendricks S (USA)


**Introduction:** Suicide rates have risen considerably in recent years. National workplace suicide trends have not been well documented. The aim of this study is to describe suicides occurring in U.S. workplaces and compare them to suicides occurring outside of the workplace between 2003 and 2010.

**Methods:** Suicide data originated from the Census of Fatal Occupational Injury database and the Web-Based Injury Statistics Query and Reporting System. Suicide rates were calculated using denominators from the 2013 Current Population Survey and 2000 U.S. population census. Suicide rates were compared among demographic groups with rate ratios and 95% CIs. Suicide rates were calculated and compared among occupations. Linear regression, adjusting for serial correlation, was used to analyze temporal trends. Analyses were conducted in 2013-2014.

**Results:** Between 2003 and 2010, a total of 1,719 people died by suicide in the workplace. Workplace suicide rates generally decreased until 2007 and then sharply increased (p=0.035). This is in contrast with non-workplace suicides, which increased over the study period (p=0.025). Workplace suicide rates were highest for men (2.7 per 1,000,000); workers aged 65-74 years (2.4 per 1,000,000); those in protective service occupations (5.3 per 1,000,000); and those in farming, fishing, and forestry (5.1 per 1,000,000).

**Conclusions:** The upward trend of suicides in the workplace underscores the need for additional research to understand occupation-specific risk factors and develop evidence-based programs that can be implemented in the workplace.
The molecular bases of the suicidal brain
Turecki (Canada)

*Nature Reviews Neuroscience* 15, 802-816, 2014

Suicide ranks among the leading causes of death around the world and takes a heavy emotional and public health toll on most societies. Both distal and proximal factors contribute to suicidal behaviour. Distal factors - such as familial and genetic predisposition, as well as early-life adversity - increase the lifetime risk of suicide. They alter responses to stress and other processes through epigenetic modification of genes and associated changes in gene expression, and through the regulation of emotional and behavioural traits. Proximal factors are associated with the precipitation of a suicidal event and include alterations in key neurotransmitter systems, inflammatory changes and glial dysfunction in the brain. This review explores the key molecular changes that are associated with suicidality and discusses some promising avenues for future research.

The neurobiology of suicide
van Heeringen K, Mann JJ (Belgium, USA)

*Psychiatry* 1, 63-72, 2014

The stress-diathesis model posits that suicide is the result of an interaction between state-dependent (environmental) stressors and a trait-like diathesis or susceptibility to suicidal behaviour, independent of psychiatric disorders. Findings from post-mortem studies of the brain and from genomic and in-vivo neuroimaging studies indicate a biological basis for this diathesis, indicating the importance of neurobiological screening and interventions, in addition to cognitive and mood interventions, in the prevention of suicide. Early-life adversity and epigenetic mechanisms might explain some of the link between suicide risk and brain circuitry and neurochemistry abnormalities. Results from a range of studies using diverse designs and post-mortem and in-vivo techniques show impairments of the serotonin neurotransmitter system and the hypothalamic-pituitary-adrenal axis stress-response system in the diathesis for suicidal behaviour. These impairments manifest as impaired cognitive control of mood, pessimism, reactive aggressive traits, impaired problem solving, over-reactivity to negative social signs, excessive emotional pain, and suicidal ideation, leading to suicidal behaviour. Biomarkers related to the diathesis might help to inform risk-assessment procedures and treatment choice in the prevention of suicide.
Factors associated with suicide in the month following contact with different types of health services in Quebec

Vasiliadis HM, Ngamini-Ngui A, Lesage A (Canada)
Psychiatric Services 66, 121-126, 2015

**Objective:** The aim of the study was to identify factors associated with suicide death occurring in the month following an outpatient visit, emergency room contact, or hospitalization.

**Methods:** The results of this study are based on data for 8,851 individuals ages 11 years and older who died between January 1, 2000, and December 15, 2007, and whose death was confirmed as suicide by the coroner’s office in Quebec, Canada. Health service use in the year prior to death was assessed by review of data from the province’s public health insurance agency. Multivariate logistic regression models were used to assess the association of clinical and sociodemographic factors and the occurrence of suicide death in the month following versus more than one month after the last use of health services.

**Results:** A total of 81.6% of suicide decedents had consulted on an outpatient basis, 48.7% had visited an emergency department, and 28.5% were hospitalized in the year prior to death. Among individuals who had been discharged from an emergency department or a hospital closest to their death, 29.5% and 75.3%, respectively, died in the month following discharge. The most consistent modifiable factor associated with death in the month following last contact was number of outpatient consultations following discharge.

**Conclusions:** Ensuring follow-up care after an emergency department visit or hospitalization may be associated with a longer period between discharge and suicide, allowing for more time to intervene and, possibly, prevent suicide.

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Meta-analysis of suicide rates among psychiatric in-patients

Walsh G, Sara G, Ryan CJ, Large M (Australia)

**Objective:** To examine factors associated with the number of psychiatric admissions per in-patient suicide and the suicide rate per 100,000 in-patient years in psychiatric hospitals.

**Method:** Random-effects meta-analysis was used to calculate pooled estimates, and meta-regression was used to examine between-sample heterogeneity.

**Results:** Forty-four studies published between 1945 and 2013 reported a total of 7552 in-patient suicides. The pooled estimate of the number of admissions per suicide calculated using 39 studies reporting 150 independent samples was 676 (95% CI: 604-755). Recent studies tended to report higher numbers of admissions per suicide than earlier studies. The pooled estimate of suicide rates per 100,000 in-patient years calculated using 27 studies reporting 95 independent samples was 147 (95% CI: 138-156). Rates of suicide per 100,000 in-patient years tended to be
higher in more recent samples, in samples from regions with a higher whole of
population suicide rate, in samples from settings with a shorter average length of
hospital stay and in studies using coronial records to define suicide.

**Conclusion:** Rates of in-patient suicide in psychiatric hospitals vary remarkably
and are disturbingly high. Further research might clarify the extent to which
patient factors and the characteristics of in-patient facilities contribute to the
unacceptable mortality in psychiatric hospitals.

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**Sick-leave measures, socio-demographic factors and health care
as risk indicators for suicidal behavior in patients with
depressive disorders — a nationwide prospective cohort study
in Sweden**

Wang M, Alexanderson K, Runeson B, Mittendorfer-Rutz E (Sweden)

*Journal of Affective Disorders* 173, 201-210, 2015

**Background:** Studies based on large data sets investigating a wide range of risk indi-
cators on suicidal behavior in patients with depressive disorders are sparse. This
study aimed to examine the association of sick-leave measured in different ways on
one hand and socio-demographics, medication, and health care on the other hand
with suicide attempt and suicide among patients with depressive disorders.

**Methods:** This is a population-based prospective cohort study using nationw ide
register data. All individuals who lived in Sweden 31.12.2004, then aged 16-64
years, and had psychiatric in- or out-patient care due to depressive disorders in
2005 were included (N=21,096). Univariate and multivariate hazard ratios (HR)
and 95% Confidence Intervals (CI) with regard to suicide attempt and suicide
during 2006-2010 were estimated by Cox regression.

**Results:** Those with new sick-leave spells, full-time spells, spells due to mental
diagnoses and exceeding one year and those having ≥1 sick-leave spells had a
higher risk of suicide attempt. Female sex, young age, lower education, living
alone, prescription of antidepressants and anxiolytics, inpatient health care, and
suicide attempts resulted in higher HRs of suicide attempt in the multivariate
analyses (range of HRs 1.17-3.28). Male sex, combined antidepressant and anxi-
olytic prescription, mental inpatient health care, and suicide attempts predicted
subsequent suicide (range of HRs 1.84-3.33).

**Limitations:** Focus on specialized health care limited generalization.

**Conclusions:** Sickness absence, social-demographics, and medical determinants
were associated with suicidal behavior. These risk indicators should be considered
when monitoring individuals with depressive disorders and assessing suicide risk.
The roles of culture and gender in the relationship between divorce and suicide risk: A meta-analysis
Yip PSF, Yousuf S, Chan CH, Yung T, Wu KCC (Hong Kong, Taiwan)
*Social Science and Medicine* 128, 87-94, 2015

With some exceptions, literature has consistently shown that divorced populations are at higher risk for suicide than married ones. Here we make use of coefficients of aggravation (COAs), suicide rate ratios of the divorcees over the married, to study patterns of COAs and test the contribution of international sociocultural factors and gender to the relationship between divorce and suicide. We conducted a systematic search of electronic databases to identify ecological studies reporting suicide rates and ratios of those rates within different marital statuses between Jan 1, 2000 and Dec 31, 2013. In total, ten studies consisting in suicide statistics of eleven countries/areas were selected. Using random-effect modeling, we noted that the pooled COA for men and women were 3.49 (95% CI 2.43-4.56) and 3.15 (95% CI 1.74-4.56), suggesting both divorced men and women exhibited a greater risk of suicide than their married counterparts. Subgroup analyses revealed that COAs in Asian countries are significantly higher than those in non-Asian ones. Among the sociocultural measures retrieved from the HOFSTEDE index and the World Values Surveys, we noted significant associations between COA and four measures, including the individualism-collectivism score, the long-term orientation scores, the survival/self-expression score, and the gender inequality indices. The magnitudes and the directions of the associations however differ by sex. The results confirm that overall divorced people have an aggregate higher suicide risk than married ones. The method used in our research could reveal what cultural indicators are exerting effect on the relationship between divorce and suicide risk, which might change with sociocultural transition. More investigation into the relationships and then the construction of culturally appropriate suicide prevention policy is recommended.
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