

# Research priorities in suicide prevention: an examination of Australian-based research 2007–11

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## Abstract

**Objective.** Suicide prevention, including among youth, has been a national priority in Australia for some time. Yet despite this, rates of suicide, and related behaviour, remain high. The aim of this study was to review all suicide-prevention research that had been conducted in Australia between January 2007 and December 2011, with a specific emphasis on studies relating to young people, in order to determine whether or not we are prioritising the sort of research that can adequately inform policy development and guide ‘best practice’.

**Methods.** Data were collected from two sources. First, several electronic databases were searched in October 2012 in order to identify published journal articles relating to suicide, written by Australian authors. Second, summary data obtained from the National Health and Medical Research Council, the Australian Rotary Health Research Fund and the Australian Research Council were examined in order to identify currently funded studies that relate to suicide. Studies were then classified according to whether or not they had a focus on youth, and according to research type, type of suicide-related behaviour under investigation and method of suicide.

**Results.** There were 224 articles published and 12 grants funded that specifically focussed on suicide-related behaviour over the period January 2007 to December 2011. Of these, 47 articles (21%) and five funded grants (42%) focussed on young people. Youth studies, in particular those reported in the published articles, tended to be epidemiological in nature and only six of the published articles (13%) and two of the funded grants related to intervention studies.

**Conclusions.** Although the focus on youth is welcome, the lack of intervention studies is disappointing. Given that rates of suicide and related behaviour remain high, there is a clear need for a stronger body of intervention research that can inform national policy, if we are to successfully develop effective approaches to reducing suicide risk.

**What is known about the topic?** Although the prevention of youth suicide has been a national priority for some time, rates of suicide and suicide-related behaviour remain high among young Australians. Much is known about the epidemiology of suicide; however, relatively little is known about which interventions may be effective in reducing this risk. Previous research suggests that although youth receive a reasonable amount of research attention in Australia, the majority of studies focus on epidemiological as opposed to intervention research.

**What does this paper add?** This paper reviews all suicide research that has been conducted in Australia between 2007 and 2011 in order to examine how much attention is currently given to studies relating to youth, and the relative priority given to intervention and epidemiological studies. Our findings support those reported previously, which suggest that although a significant proportion of suicide research focuses on youth, relatively little attention continues to be given to intervention studies.

**What are the implications for practitioners?** This paper argues that further intervention research is needed if we are to build a sufficiently strong evidence base that can effectively inform policy development and guide best practice when it comes to preventing youth suicide in Australia.

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## Background

Suicide is a significant public health problem, including among youth. Indeed, suicide is one of the most frequent causes of death

among young people, not only in Australia<sup>1</sup> but worldwide.<sup>2</sup> In Australia in 2010, the year for which most recent data are available, 2361 lives were lost to suicide in Australia. Two

hundred and ninety-nine of these suicides were by people aged 24 years or younger.

Non-fatal suicide-related behaviour, including suicide attempt and/or deliberate self-harm, and suicidal ideation are more common than suicide. In Australia approximately 13% of adults report experiencing suicidal ideation during their lifetime, and around 3% report having made a suicide attempt. The equivalent 12-month prevalence rates are 2.3% and 0.4% for ideation and attempts respectively.<sup>3</sup> International data show that these figures are higher among young people, with as many as 30% of 15–16 year olds reporting a lifetime prevalence of suicidal ideation, and up to 17% reporting a past suicide attempt. Equivalent 12-month figures are 24% for ideation and 11% for suicide attempts.<sup>4</sup> These behaviours are one of the greatest concerns for Australian youth<sup>5</sup> and are associated with a range of negative outcomes including completed suicide and premature mortality via other causes.<sup>6,7</sup>

For these reasons, the prevention of suicide has been a national priority in Australia for some time, beginning with the National Youth Suicide Prevention Strategy, which was introduced in 1999,<sup>8</sup> and continuing with the National Suicide Prevention Strategy,<sup>9</sup> which has a broader focus, covering the whole lifespan, although still places a strong emphasis on youth.

Despite these efforts, rates of suicide and suicide-related behaviours remain high, in particular among young people. One possible explanation for this might be that we are not prioritising the types of activities that are likely to reduce suicide risk. Although much is known about the epidemiology of suicide, there has, to date, been relatively little intervention research in the field of suicide prevention,<sup>10</sup> in particular among youth,<sup>11,12</sup> and including in Australia. We previously conducted a study examining the extent and nature of suicide-prevention research being conducted in Australia during the period 1999–2006 and found that although young people were a highly researched group in terms of published articles, most studies were epidemiological in nature reporting on rates of, and risk factors for, suicide, as opposed to studies reporting on the effectiveness of individual interventions.<sup>10</sup> This lack of emphasis on relevant research means that relatively little is known about what does and does not work in terms of reducing suicide risk, which hampers both policy initiatives and preventative efforts more generally.

The aim of the present study was to review all suicide-prevention research that has been conducted in Australia in the 5 years since our previous study (i.e. between January 2007 and December 2011). Because of the national focus that has been given to youth suicide over recent years,<sup>13</sup> and because early suicide-related behaviour is the greatest predictor of later suicide,<sup>7,14</sup> we placed a specific emphasis on studies relating to young people. This was done with the hope that if we can intervene promptly, with effective interventions for young people displaying early indicators of suicide-related behaviour, more lives could be saved. This rationale has been applied to early intervention in youth mental health more generally,<sup>15</sup> and could equally be applied here. In addition, we were particularly interested in the balance of intervention studies relative to other kinds of suicide-prevention research. We did this with a view to determining whether or not we are prioritising the sort of research that can adequately inform policy development and

guide ‘best practice’ when it comes to reducing suicide among Australians in general, and young Australians in particular.

## Methods

The methods for the current study drew on those applied in our previous study, examining both published journal articles and projects funded by the key funding bodies in Australia over the period of interest.<sup>10</sup>

### *Defining suicide-prevention research*

As per our previous study, suicide prevention research was defined as: ‘activities which collect new data or carry out some novel analysis of existing data, and which pertain to suicide prevention but may not necessarily involve evaluation of suicide prevention initiatives’<sup>10</sup> (p. 181).

### *Reviews of the published literature and funded grants*

In order to analyse the amount and nature of research into suicide prevention over the study period, we examined the abstracts of published articles and summary information on grants funded for research into suicide prevention between January 2007 (i.e. since the previous study) and December 2011 (the period for which funding data are consistently available for all three of the granting bodies included here).

As in our previous study,<sup>10</sup> the review of published literature only included papers published in peer-reviewed journals, in order to ensure a systematic approach to the identification of studies, and that the research included in the review was of a reasonable quality.

Medline, PsychInfo and ISI Web of Science (including the Social Science Citation Index and the Arts and Humanities Index) were searched in October 2012 using the following search terms: (suicide\* OR parasuicid\* OR deliberate self-harm OR suicide\* attempt\*) AND Australia.

Articles were excluded if they: (i) pertained to euthanasia (or assisted suicide); (ii) pertained to suicide terrorism; (iii) did not include a full abstract; (iv) did not involve primary research, a systematic or narrative review or an evidence-based commentary; or (v) did not have a first author with an Australian address or were not conducted in Australia.

The review of funded grants sought information on grants provided for suicide-prevention projects and fellowships during the same period (i.e. January 2007 to December 2011) by three key Australian academic funding bodies: the National Health and Medical Research Council; the Australian Rotary Health Research Fund; and the Australian Research Council, all of whom provided summary data on relevant grants.

### *Data extraction*

Year of publication was recorded for all published articles, and initial year of funding and annual and total amounts were recorded for all funded grants.

Both published articles and funded grants were classified according to: target group; research type; type of suicidal behaviour; and suicide method. The coding system has been described previously,<sup>10</sup> but is summarised below.

In the first instance studies were dichotomised into ‘youth’ and ‘non-youth’, and analysis for each group is presented. For example, results are presented for both youth- and non-youth-

related studies in terms of research type, type of suicide-related behaviour and, where applicable, suicide method (see below).

#### *Research type*

This included assessment studies (assessment/classification of suicide risk; assessment studies – other); epidemiological studies (rates; risk factors; protective factors; epidemiological studies – other); intervention studies (general intervention issues and methods; practice guidelines; efficacy of universal interventions; efficacy of selective interventions; efficacy of indicated interventions; intervention studies – other); evaluation of policies/programs/services (policy evaluation; program evaluation; services evaluation; evaluation of policies/programs/services – other); biological research (neurobiology; genetics; biological research – other); social science (sociology; history; literature; media studies; social science – other); other; and not specified or unknown.

#### *Type of suicide-related behaviour*

Types of suicide behaviours included: completed suicide; suicide attempt or deliberate self-harm; suicidal ideation; other; and not specified or unknown.

#### *Suicide method*

Method of suicide included: poisoning by drugs; poisoning by other; hanging; firearms; drowning; jumping from a high place; jumping or lying before a moving object; other; and not specified or unknown.

In most cases, articles or grants fell into one category from each component of the classification system, in which case they received a score of 1 for each item. For example, a study examining rates of hanging by young people would initially be classified into ‘youth’ studies and would then receive a score of 1 for each of the following: ‘epidemiological study of rates’ under study type; ‘completed suicide’ under type of suicide-related behaviour; and ‘hanging’ under suicide method. However, in some cases studies fell into more than one category. For example, a study that reported on both rates and risk factors for suicide would fall across two different research types, in which case to avoid double counting, the study would have received a score of 0.5 under each of the categories ‘epidemiological – rates’ and ‘epidemiological – risk factors’.

Each abstract and grant summary was examined and classified by one of the study authors, in consultation with the other author as necessary. Data were entered into a spreadsheet and simple weighted frequencies and percentages were calculated and reported for each category.

## **Results**

### *Youth versus non-youth studies*

Between 2007 and 2011, 224 Australian peer-reviewed journal articles were published in which suicide or suicide-related behaviour was the primary focus of the reported research. Of these, 47 (i.e. 21%) had a primary focus on young people whereas 177 focussed on other high-risk groups.

During the same period, funding was provided for 12 individual projects or fellowships where suicide or suicide-related behaviour was the primary focus, of which five (i.e. almost 42%)

were focussed on young people. Overall, a total of A\$1 923 246 was awarded for suicide-related research, with A\$780 890 (i.e. 40%) being for research into youth suicide.

#### *Type of suicide research*

Table 1 describes the published journal articles and funded grants by research type for youth- and non-youth-related studies. As can be seen, most of the published journal articles were epidemiological in nature, accounting for 70% of studies relating to young people and almost 70% of studies pertaining to other high-risk groups, mostly reporting on studies of suicide rates and/or risk factors. In contrast, only 13% ( $n = 6$ ) of articles reported on either the development of, or findings from, intervention studies targeting young people, and these were mostly studies of indicated interventions ( $n = 4$ ) followed by studies of selective interventions ( $n = 2$ ). The figure for non-youth-related studies was similarly low at 10%; again these mostly reported on studies of indicated interventions, followed by universal and then selective interventions.

With regard to grants, 40% of those targeting youth funded intervention studies, with the remaining 60% funding studies of an epidemiological nature. In contrast, half of the grants funding non-youth-related research funded intervention studies, whereas just over 40% funded epidemiologically based studies. However, the numbers here are small.

#### *Research into different types of suicidal behaviour*

Table 2 provides a breakdown of the published articles and funded grants by the type of suicide-related behaviour they focus on for youth- and non-youth-related studies. In the case of the published journal articles, almost one-quarter of youth studies focussed on completed suicide; just under half focussed on suicide attempt or deliberate self-harm and the remaining 30% focussed on suicidal ideation. The pattern in terms of funded grants is not overly different, again with the majority of studies funded to examine suicide attempt and the remainder evenly divided between examinations of suicidal ideation and completed suicide. In terms of non-youth studies, half of these reported on completed suicide, followed by attempted suicide and then suicidal ideation.

#### *Research into different suicide methods*

Little information was available from the grant summaries to determine whether they funded projects and/or fellowship activities relating to particular suicide methods. That said, most appeared to address suicide and/or suicide-related behaviour generally, with only one study focusing specifically on examining methods of suicide, and this was not specific to youth. With regard to published articles, from the information available in the abstracts it appeared that the majority of articles relating to young people did not focus on a particular suicide method ( $n = 41$ ). Of the four studies that focussed on one method specifically, three focussed on hanging and one focussed on jumping from a high place. With regard to articles that were not specifically focussed on young people, again most did not focus on a specific suicide method ( $n = 140$ ); however, among those that did, poisoning by drugs was the most commonly investigated, followed by firearms deaths and then hanging.

**Table 1. Percentage of published journal articles and funded grants by research type (high-level categories) and broken down by youth v. non-youth**

	Total (n)		Assessment studies		Epidemiological studies		Intervention studies		Evaluation studies		Biological studies		Social science studies		Other/not specified	
	Youth	Non-youth	Youth	Non-youth	Youth	Non-youth	Youth	Non-youth	Youth	Non-youth	Youth	Non-youth	Youth	Non-youth	Youth	Non-youth
Published journal articles (n = 224)	47	177	2.1%	2.8%	70.2%	68.4%	12.8%	10.2%	2.1%	1.7%	2.1%	2.0%	4.3%	15.0%	6.4%	0.0%
Funded grants (n = 12)	5	7	0.0%	0.0%	60.0%	42.9%	40.0%	50.0%	0.0%	7.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

**Table 2. Published journal articles and funded grants by research into different types of suicide-related behaviour**

	Total (n)		Completed suicide (%)		Attempted suicide/ deliberate self-harm (%)		Suicidal ideation (%)		Not specified/unknown (%)	
	Youth	Non-youth	Youth	Non-youth	Youth	Non-youth	Youth	Non-youth	Youth	Non-youth
Published journal articles (n = 224)	47	177	23.0	50.1	45.0	28.2	30.0	13.2	2.0	8.5
Funded grants (n = 12)	5	7	30.0	12.5	40.0	35.7	30.0	21.4	0.0	28.6

## Discussion

### *Key findings*

This study reports on the extent, and nature, of suicide-related research that has occurred in Australia during the period January 2007 to December 2011, paying particular attention to studies focusing on young people.

Overall, the current study identified that there were 224 articles published and 12 grants funded that specifically focussed on suicide-related behaviour over the period January 2007 to December 2011. Of these, 47 articles (i.e. 21%) and five funded grants (42%) focussed on young people.

With regard to the amount of funding awarded, the current study reports that a total of A\$1 923 246 was spent on suicide-related research grants over the period of interest – an average of A\$384 649 per year. Of this, around 40% (A\$780 890) was for research into youth suicide.

Youth studies, in particular those reported in the published articles, tended to be epidemiological in nature, reporting on rates of, and risk factors for, suicide. Only six of the published articles (13%) and two of the funded grants related to intervention studies. Although the emphasis on youth is welcome, the lack of intervention studies is notable.

The emphasis given to epidemiological studies is not just evident in studies targeting youth; epidemiological papers made up almost 70% of non-youth published articles, and again these were mostly studies of, rates of, and risk factors for suicide.

With regard to type of suicide-related behaviour we found that the majority of published articles pertaining to young people focussed on suicide attempt or deliberate self-harm, accounting for 45% of journal articles. This was followed by studies of suicidal ideation, followed by completed suicide. In contrast, the non-youth related articles primarily focussed on completed suicide.

Little can be said with regard to studies reporting on specific methods of suicide as few studies specifically investigated individual methods of suicide. However, of the youth-related studies that did, three focussed on hanging and one focussed on jumping from a high place. Among the non-youth-related articles, poisoning by drugs was the most commonly investigated, followed by firearms deaths and then hanging; however, numbers here are small.

### *Comparison to our previous study*

When comparing these findings to those reported in our previous study, we found a small increase in the overall number of published articles since the previous study period (an annual average of 45 compared with just under 38). However, we also found a decrease in the amount of funding allocated to suicide-related research between the two periods of interest (an annual average of around A\$384 649 compared with A\$834 191 over the previous study period).

In terms of research type, we found an overall increase of more than 10% of epidemiological studies since our previous study, compared with a 7% decrease in the number of intervention studies.

Taken together these findings are disappointing. Not only do they contrast with previously identified stakeholder priorities, which called for higher priority to be given to both research into

youth suicide and into intervention, as opposed to epidemiological studies,<sup>10</sup> but also, as noted above, young people have significant rates of suicide and suicide-related behaviour, and there is a need for a stronger body of intervention research if we are to develop effective interventions to reduce this risk.

### *Strengths and limitations*

Before considering the implications of these findings in more detail, several limitations should be considered. First, the review of the published literature did not include articles published in the grey literature, conference abstracts or studies currently underway. Similarly, the review of the funded grants only included research funded by the three largest funding bodies in the country and did not include studies funded by health departments or philanthropic organisations. This was deliberate and afforded some measure of quality assurance, but it does mean that some studies may have been missed. Further, in a second previous study we examined conference abstracts from major international suicide-prevention conferences and found a similar pattern, namely that intervention studies were under-represented in the papers presented.<sup>16</sup> Thus we consider the parameters applied to the current study to be satisfactory and we do not believe that our findings would have differed significantly had the terms of our search been broader.

In addition, it was beyond the scope of the study to examine the extent to which funding bodies supported investigator-initiated studies as opposed to generating funding rounds designed to address specific issues that are believed most likely to make an impact on suicide rates. Similarly, we were unable to examine how such funding decisions are made, and by whom. However, both of these could be subject to further research.

The present study was designed to examine research conducted in Australia only; therefore, no comment can be made on whether or not the priority given to suicide-related research in this country compares with that overseas. However, as noted above, our study of conference abstracts from research teams from around the world generated similar findings with regard to the lack of intervention studies.<sup>16</sup> This, together with findings from other studies that have examined approaches to suicide prevention that have been tested across the globe,<sup>17,18</sup> suggest that this problem is not unique to Australia, and a similar pattern may well be found in a larger-scale study.

Finally, this was a small study and as such resources allowed for the examination of summary information only. For the most part this was sufficient to classify each article and grant; however, we do acknowledge that in some cases detail may be lacking.

### *Implications and conclusions*

Notwithstanding the limitations noted above, the current study provides some insights into the nature and extent of suicide research in Australia at the current time, in particular among young people. Although young people are well represented in terms of both published articles and funded grants, both appear to have decreased since our previous study. In addition, the overall amount of funding allocated to suicide research appears to have decreased significantly over recent years.

There have been no notable increases in the number of intervention studies, including among youth, despite this having

been previously identified by stakeholders as a priority for the future.

In the paper from our previous study we discussed the potential benefits of intervention research in terms of its ability to guide national suicide prevention activity. However, although the National Suicide Prevention Strategy<sup>9</sup> has a strong focus both on youth and on highlighting the benefits of research, the current study suggests that a strong evidence base to guide national policy direction remains lacking.

There may be several reasons for this and funding bodies are, to a certain extent, limited in what they can fund by the types of studies proposed by the research community. Indeed there are several methodological, practical and ethical challenges associated with conducting intervention studies in suicide prevention,<sup>19–22</sup> which in some cases have led to a reluctance to include at-risk youth in research studies<sup>23,24</sup> and have arguably contributed to a lack of adequately conducted studies in this field.

These findings are supported by several systematic reviews that have recently been published. These reviews examine interventions for at-risk youth in general,<sup>25</sup> as well as in both clinical and school-based settings specifically,<sup>11,26</sup> and a further study reports on interventions designed to reduce the risk of suicide clusters among youth.<sup>27</sup> These studies go some way to guiding us as to where our efforts may best be placed. For example, the review examining clinically based interventions found some support for the effects of cognitive behavioural therapy, whereas the review examining school-based interventions found that both gatekeeper training packages and screening programs held promise. However, each of the reviews concludes that there remains a significant lack of intervention research targeting suicidal youth, and more well-designed and well-conducted studies are required.

It is not just the research community that is arguing for a stronger evidence base. Since our previous study, both a senate inquiry into suicide in Australia<sup>28</sup> and a parliamentary inquiry into Australian youth suicide<sup>13</sup> have been conducted. These inquiries both cited the prevention of youth suicide, plus the development of a strategic research agenda targeting interventions for suicidal youth, as national priorities. Yet despite this, and despite the conclusions drawn from the studies cited above, the findings from the current study suggest that we still have some way to go when it comes to the priority given to certain types of research in Australia.

In terms of ways forward, perhaps Australia could look toward the efforts of other countries such as the United States who have placed a strong, nationally coordinated, focus on developing a strategic program of suicide-prevention research. This program, the National Action Alliance for Suicide Prevention, seeks to bring together researchers in order to try and overcome the challenges associated with conducting intervention research in suicide prevention (for example the need for standardised definitions, large sample sizes and long-term follow-up periods), to employ sophisticated methodologies that can adequately test the effectiveness of targeted interventions, and to prioritise the delivery of interventions where they are most likely to show an effect.<sup>29</sup>

There is no doubt that to mount a program of this scope is a costly exercise and one that requires long-term commitment on the part of government and researchers alike. As a research community we need to work closely and effectively with policy

makers and funding bodies, as to do so will increase the likelihood of research findings influencing policy decisions.<sup>30</sup>

Additionally, we need to consider ways of addressing some of the methodological and practical challenges associated with conducting intervention research in suicide prevention. One way to achieve this could be through the development of collaborative research networks or centres. One such example is the recently funded Centre of Research Excellence in Suicide Prevention (<http://www.blackdoginstitute.org.au/public/research/cresp-suicideprevention.cfm> [verified 11 October 2013]). This has brought together several Australian and international researchers to develop a program of intervention research targeting suicide risk. However, this is just one example. Considering the number of lives lost to suicide and the number of family and community members affected by these deaths,<sup>31</sup> there is clearly still more to be done at a national and strategic level.

### Competing interests

The authors declare there are no competing interests.

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