Title:

Suicide prevention: Evaluation of a pilot intervention in a primary care context

Running Head:

Suicide prevention in a primary care context

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**Background**

From July 2008 to June 2011, 19 Australian Divisions of General Practice piloted specialist services for consumers at risk of suicide within a broader primary mental health program. General practitioners and other mental health staff referred suicidal consumers to specially-trained mental health professionals for intensive, time-limited care.

**Aims**

To report the findings from an evaluation of the pilot.

**Method**

Data sources included a purpose-designed minimum dataset which collated consumer-level and session-level data, and a series of structured telephone interviews conducted with Divisional project officers, referrers and mental health professionals.
Results

There were 2,312 referrals to the pilot; 2,070 individuals took up the service. The pilot reached people who may not otherwise have had access to psychological care; over half of those who received services were on low incomes and about one third had not previously accessed mental health care. Project officers, referrers and mental health professionals were all positive about the pilot and commented that it was meeting a previously unmet need. Consumers appeared to benefit, showing significant improvements in outcomes.

Conclusion

This evaluation provides supportive evidence for the effectiveness of a suicide prevention intervention delivered by specially-trained mental health professionals in a primary mental health environment.

Key words

Suicide, Intervention, Evaluation, Primary Mental Health Care

Declaration of interest

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Introduction

Suicide is a major public health problem, with almost one million people per annum dying by suicide worldwide (World Health Organization, 2012). Suicide is one of the three leading causes of death among those in the most economically productive age group (Patton et al., 2009). A recent systematic review by Mann et al (2005) only found strong evidence for the effectiveness of two interventions – educating physicians to recognise and treat depression and suicidality, and restricting access to lethal means. Part of the problem is that comparatively few intervention studies have been conducted in the area. Huisman, Pirkis and Robinson (2010) found that only 12% of papers presented at international suicide prevention conferences over a six year period were intervention studies.

Given the lack of evidence about how best to address suicide, it is important that evaluations of interventions are written up and published, even if the interventions are only in their early stages and the evaluations are small in scale. In particular, attention should be given to building the evidence base around interventions that have a sound rationale. It is only in this way that we will begin to build up a body of knowledge about what works and what doesn’t work in suicide prevention.

Suicide prevention pilot

This paper examines the preliminary effectiveness of an intervention delivered by specialised mental health care providers in an Australian primary care setting. There are good reasons to hypothesise that suicide prevention delivered by such providers in this context might be effective. A number of studies have shown that significant proportions of people who die by
suicide seek care from primary care providers – particularly general practitioners – in the period leading up to their death (Luoma et al., 2002; Pirkis & Burgess, 1998). As noted above (Mann et al., 2005), physicians like general practitioners can be equipped through training to deal reasonably successfully with suicidality. It might be expected that even greater gains might be achieved through a model in which primary care providers with more specialised mental health care skills collaborated with general practitioners in the delivery of care. The intervention in question provides such a model.

The intervention occurred within the context of Australia’s Better Outcomes in Mental Health Care (BOiMHC) program, which has been funded by the Federal Department of Health and Ageing and run through Divisions of General Practice for about 10 years (Hickie & Groom, 2002; Pirkis et al., 2006). There are 110 Divisions in Australia, and each of them operates within defined geographical boundaries to help general practitioners deliver optimal care to the community. The Access to Allied Psychological Services (ATAPS) component of the BOiMHC program enables general practitioners in all Divisions to refer consumers to mental health professionals (predominantly psychologists) for a specified maximum number of sessions (usually six but sometimes 12 and occasionally 18) of evidence-based mental health care (typically cognitive behavioural therapy, or CBT). To be eligible for this care, consumers must have a diagnosis of a mental disorder.

From July 2008 to June 2011 19 Divisions were funded to pilot specialist services for consumers at risk of suicide (termed ‘the suicide prevention pilot’ or ‘the pilot’ in the remainder of this paper) through ATAPS. These Divisions were selected on the basis of their capacity to deliver these services, and in a manner that ensured representation from all eight
Australian states and territories. Participating Divisions were provided with additional funds to undertake the pilot.

The pilot had a number of unique features that distinguished it from the more general ATAPS approach to service delivery:

1) It focused on the treatment of people who had been discharged from a hospital ward or emergency department to the care of a general practitioner following a suicide attempt, presented to a general practitioner or community mental health service after an incident of self-harm, or expressed strong suicidal ideation to a general practitioner or community mental health service;

2) These people did not need to have a diagnosis of a mental disorder to be eligible for care;

3) The initial referral could come from a hospital (usually via its emergency department) or community mental health service, although a referral from a general practitioner was required within a week;

4) The mental health professional had to make contact with the consumer within 24 hours of referral and to provide the first session of care within 72 hours;

5) Therapeutic support was more intensive than that provided under general ATAPS, and occurred within a two-month time frame through an unlimited number of sessions; and

6) A centralised after hours telephone support service was also available.

To be able to provide care through the pilot, mental health professionals had to be fully registered (i.e., probationary registration was not permissible) and had to undertake mandatory training, which was developed by the Australian Psychological Society. The
training imparted relevant knowledge and skills for working with suicidal consumers. It was delivered online and included written content, video and audio presentations, and interactive exercises. It focused on ensuring the safety of the suicidal consumer, and providing them with intensive early intervention and ongoing psychological therapy and support. It had a particular emphasis on engaging young people at risk of suicide.

Evaluation of the pilot

This article reports the findings from an evaluation of the pilot, which was conducted within the context of a larger, ongoing evaluation of ATAPS, described elsewhere (Kohn et al., 2007). The process, impact and outcome evaluation (Ovretveit, 1998, Owen & Rogers, 1999) of the pilot examined the way in which the pilot was implemented by Divisions, the impacts it had for referrers and providers, and the uptake and outcomes it achieved for consumers, respectively.
Method

Data for the evaluation came from two sources: a purpose-designed minimum dataset, and a series of structured telephone interviews conducted with relevant stakeholders.

Minimum dataset

The minimum dataset was developed early in the life of the larger evaluation of ATAPS. The Department of Health and Ageing requires Divisions to enter de-identified socio-demographic, clinical and treatment-related data for each consumer, including pre- and post-treatment scores on standardised outcome measures with sound psychometric properties, most commonly the Depression, Anxiety and Stress Scales (DASS-21 or -42) (Lovibond & Lovibond, 1995) and the Kessler 10 (K-10) (Kessler et al., 2002). Divisions that participated in the suicide prevention pilot were encouraged to use the Modified Scale for Suicidal Ideation (MSSI) (Miller et al., 1986).

Divisions flagged consumers who were referred to the suicide prevention pilot, and data were downloaded for these consumers on 1 August 2011. The analysis period was from 1 October 2008 to 30 June 2011 (i.e., the duration of service delivery within the pilot).

Basic descriptive analyses were conducted in order to generate profiles of consumers and their treatment, and results from these analyses are presented as simple frequencies and percentages. Paired t-tests were used to examine the difference between mean pre- and post-treatment scores on selected outcome measures.
Structured telephone interviews

Telephone interviews were conducted with all 19 Divisional project officers responsible for implementing and managing the pilot and therefore most knowledgeable about related service delivery issues, nine referrers (i.e., general practitioners and staff from hospital emergency departments), and three mental health professionals. Divisions were asked to identify relevant stakeholders from each group, and several of the authors conducted the interviews.

The interviews, undertaken in three rounds, were approximately 30 minutes in duration. Using 26 predominantly open-ended questions, round one was conducted between October 2008 and February 2009 and involved all 19 project officers; it explored the models of service delivery being used, issues related to implementation, and challenges and benefits for the Division and for consumers. Round two, conducted from October to December 2009 and involving three mental health professionals and nine referrers (six general practitioners and three emergency department staff), concentrated on providers’ experiences with the referral process, views on the training, and perceptions of positive and negative impacts for themselves and consumers. Each of the three stakeholder groups interviewed in round two were asked between 22 and 30 open and closed questions. Round three, conducted in July and August of 2011 and involving all 19 project officers, considered models of service delivery, key achievements of the pilot, barriers and facilitators, and relationships with referrers using 23 open and closed questions. Interview schedules for each round may be obtained on request from the corresponding author.

Interviews were manually recorded. The transcripts were then analysed for themes using template analysis (King, 2004). This involved developing a coding “template” to summarise
and organise salient themes as they emerged from the data. The process began with the identification of some broad, a priori themes which paralleled the questions asked in the interview. Transcripts were read and re-read with these themes in mind, and segments of text were coded as belonging to these themes. During this process, additional broad themes were identified and portions of text were coded as being relevant to these new themes. Once the final set of broad themes was settled upon, the text relating to each theme was re-examined, and narrower themes were identified and coded. The complete set of broad and narrow themes then formed a template that was applied across all transcripts.
Results

Uptake of the suicide prevention pilot

Between 1 October 2008 and 30 June 2011, there were 2,312 referrals to the pilot. Demand grew over time. Referral source data were available for 2,054 referrals and showed that 1,717 were made by general practitioners, 271 came from emergency departments and 61 were directed through community mental health services. In total, 2,070 individuals took up services through the pilot.

Table 1 provides a socio-demographic and clinical profile of both the referred individuals and those who received care. In the main, the same trends were evident in both groups; the majority were female, their mean age was 33 years, and about 40% had previously accessed mental health care. The majority (86%) had a diagnosis, and most commonly this was depression. Proportionally more of those who received care (58%) were on low incomes.

[TABLE 1]

Treatment provided through the suicide prevention pilot

In total, 11,192 sessions of care were made available through the pilot and 10,503 of these were attended. This equates to an average of 5.2 sessions per consumer. Sessions were delivered by 266 mental health professionals.
Table 2 summarises the nature of these sessions. Almost all were delivered in an individual, face-to-face format. Sessions of 46-60 minutes accounted for 70% of all sessions. In the majority of sessions, the treatment provided was CBT-based.

**[TABLE 2]**

**Outcomes of the suicide prevention pilot for consumers**

Pre- and post-treatment outcome data were available for 328 consumers (14%), and some of these individuals had outcome scores on multiple measures. Two hundred and forty five had been assessed with the MSSI, 128 with the DASS, and 102 with the K-10. Table 3 shows that, across all outcome measures, the mean difference was statistically significant and indicative of clinical improvement.

**[TABLE 3]**

**Experiences of Divisional project officers with the suicide prevention pilot**

When Divisional project officers were interviewed early in the life of the pilot, they reported on a number of issues associated with its implementation. Many emphasised the need to establish operating policies and procedures around this new consumer group; they said this was time consuming and had delayed service delivery. Management of consumer risk was identified as a key issue. Issues related to the engagement of general practitioners and new external referrers (e.g., emergency departments and community mental health services) as well as the involvement of suitably trained mental health professionals were also mentioned.
By the second round of interviews, Divisional project officers indicated that many of the above 'teething' problems had been overcome, attributing this to increased awareness of the pilot and greater confidence on the part of general practitioners and mental health professionals. This had been achieved through a combination of promotional activities, clinical and administrative support, and clear protocols regarding service provision. Nonetheless, some Divisional project officers still reported that general practitioner engagement was an ongoing issue due to high turnover and the tendency of busy practitioners to overlook the service.

Divisional project officers indicated that they had employed a variety of service delivery models. Importantly, the pilot service delivery models were tailored to the local context. Divisions’ success in terms of integrating a new service into the mix was positively correlated with being well resourced, having a skilled mental health workforce and being well networked. Others had to work creatively to develop service models that worked; most, but not all, succeeded.

Divisions that had successful working relationships with emergency departments and community mental health services spent a considerable amount of time and energy creating and maintaining them. Good relationships were established through a combination of formal meetings, co-attendance at various committees and forums, regular formal and informal contact between managers, as well as individual relationships between providers.

Divisional project officers were overwhelmingly positive about the achievements of the pilot and commented on the benefits for consumers and general practitioners alike. Many of these
benefits were attributed to the flexibility afforded by the pilot to provide a quick, responsive, supportive service to consumers who otherwise would not have received services or would have been managed by general practitioners alone.

Experiences of general practitioners, emergency department staff and mental health professionals with the suicide prevention pilot

Referrers to and providers of the pilot services were generally positive. They saw benefits from their own perspective, as well as that of consumers. General practitioners and emergency department staff were happy with the referral process; they were confident in conducting the assessments and found the process simple to follow. Mental health professionals reported that generally the consumers were at moderate risk of suicide, which they felt was appropriate; in their view, those at higher risk required more immediate crisis intervention. All providers indicated that the pilot was a positive new initiative filling a previously unstopped gap. They highlighted that consumers were receiving an appropriate service in a more timely fashion than was previously available, and were doing so at no or low cost. They reported that consumers appreciated this care because it was responsive to their immediate needs.


Discussion

Summary of findings

The current evaluation suggests that upskilling mental health professionals to provide targeted treatment for suicidal individuals in a primary care setting may be a useful suicide prevention strategy. Uptake of services through the pilot increased steadily over time. The services reached people who may not otherwise have had access to psychological care; in particular, it is impressive that over half of those who received services were on low incomes and about one third had not previously accessed mental health care. Divisional project officers, referrers and mental health professionals were all positive about the pilot – particularly once initial procedural issues were addressed – and commented that it was meeting a previously unmet need. Consumers appeared to benefit, showing significant improvements in outcomes (including reductions in suicidality) over the course of their care.

Limitations of the evaluation

These findings should be interpreted within the context of the evaluation’s limitations. The evaluation was conducted as a part of the routine monitoring of a larger program, and there was no opportunity to allocate some consumers to receive the intervention and others to receive usual care, via a randomised controlled trial or even using a quasi-experimental design. Clearly, a control group would have been helpful in clarifying whether the positive outcomes for consumers who received services through the pilot were actually related to the pilot. It is worth noting that the evaluation was conducted in accordance with what is generally regarded as best practice for ‘real world’ evaluations of large-scale programs.
(Ovretveit, 1998; Owen & Rogers, 1999). For example, there was an implicit program logic which guided the evaluation, in which certain higher level outcomes (e.g., consumer improvement) were contingent upon the achievement of lower level ones (e.g., trained mental health professionals delivering appropriate services). Similarly, information was gathered from a range of sources and ‘triangulated’ in order to see whether the findings were internally consistent.

The stakeholders who contributed their views to the evaluation were sampled in a purposive fashion and their total numbers were small. Their views may not have been representative of the broader group of stakeholders involved in the pilot, although the data from the telephone interviews did reach a point of relative saturation where no new views were being offered. It was beyond the scope of the evaluation to seek the views of consumers and the evaluators were mindful of minimising consumer burden in this particularly vulnerable sample; however consumer uptake and outcomes (via standardised outcome measures and provider and project officer anecdotes) were examined.

Finally, complete pre- and post-intervention outcome data were only available for a minority of consumers who received services through the pilot. It is possible that some sort of selection bias operated here, such that there was an over-representation of consumers with positive outcomes (e.g., possibly because complex consumers who might arguably be less likely to show high levels of improvement may have dropped out of treatment and therefore had no post-treatment outcome data recorded).
Evaluation implications of the pilot

Notwithstanding the above limitations, the findings provide preliminary evidence that the provision of evidence-based CBT care by specialist providers in a primary care setting can be an effective suicide prevention strategy. The evaluation provides some lessons for those in other countries wishing to trial a similar approach.

In the pilot described here, care was delivered through existing structural, programmatic and financing arrangements. This made the process relatively smooth because Divisions had already put systems in place to enable general practitioners to refer consumers to mental health professionals, and general practitioners and mental health professionals had already established collaborative relationships. It is possible to see how other countries might implement similar programs through their existing service delivery systems. In the United Kingdom, for example, the Improving Access to Psychological Therapies (IAPT) program (National Health Service, 2012) shares much in common with Australia’s ATAPS. Like ATAPS, IAPT has focused on providing psychological therapies to people with common mental disorders, doing so through National Health Service (NHS) Primary Care Trusts. It has also piloted a sub-program known as Pathfinder, which has addressed barriers for particular population groups. Those at risk of suicide have not yet been targeted, but potentially they could be.

Even in the absence of large-scale primary mental health care programs, it is possible to see how elements of the pilot could be applied in other settings. For example, stakeholders were positive about the fact that mental health professionals were able to provide a timely and responsive service, and felt that this translated into benefits for consumers. The mental health
professionals were equipped to provide such a service through the specialist training they received from the Australian Psychological Society. Other professional bodies might consider offering similar training for their constituent members.

**Where to from here?**

When the suicide prevention pilot finished at the end of June 2011, all Divisions were funded to deliver suicide prevention services. Moving from the pilot to a more general roll-out has been effective; initial difficulties have been ironed out and the Divisions that have come on board later have been able to move into service delivery in an efficient manner.

Ongoing evaluation of the uptake and impacts of these services will be important as the program moves forward. The new evaluation efforts should aim to address some of the limitations of the current evaluation, although this may be difficult in the context of a program that has now been made nationally available. Ideally, a randomised controlled trial would be conducted in which consumers received specialist suicide prevention services or ‘usual care’ and outcome data would be collected for all consumers before receipt of services, after receipt of services and at a suitable follow-up period. Such a trial should include an economic evaluation to ascertain not only whether the intervention is effective but also whether it is cost-effective. Alongside the trial, qualitative data should be collected from a broad range of stakeholders to examine the processes and outcomes in greater depth.
Conclusion

The current evaluation provides supportive evidence for the effectiveness of a suicide prevention intervention delivered by specially-trained mental health professionals in a primary mental health care environment. Others may wish to explore the potential of similar initiatives within their own context. Ongoing, rigorous evaluation efforts will be required both here and elsewhere to firmly establish the value of this approach, but it certainly shows promise.
References


Table 1: Summary characteristics of referred consumers (n=2,312) and consumers who ultimately received care (n=2,070)

<table>
<thead>
<tr>
<th></th>
<th>Referred consumers</th>
<th>Consumers who ultimately received care</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n = 2,312)</td>
<td>(n = 2,070)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>1,333 (62%)</td>
<td>1,227 (63%)</td>
</tr>
<tr>
<td>Male</td>
<td>809 (38%)</td>
<td>729 (37%)</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean age</td>
<td>33.2 (sd = 14.2)</td>
<td>33.2 (sd = 14.2)</td>
</tr>
<tr>
<td>Income level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low income</td>
<td>1,217 (56%)</td>
<td>1,114 (58%)</td>
</tr>
<tr>
<td>Not low income</td>
<td>371 (17%)</td>
<td>343 (18%)</td>
</tr>
<tr>
<td>Unknown</td>
<td>579 (27%)</td>
<td>476 (25%)</td>
</tr>
<tr>
<td>Mental health care history</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Previous mental health care</td>
<td>901 (42%)</td>
<td>797 (41%)</td>
</tr>
<tr>
<td>No previous mental health care</td>
<td>715 (33%)</td>
<td>664 (35%)</td>
</tr>
<tr>
<td>Unknown</td>
<td>542 (25%)</td>
<td>462 (24%)</td>
</tr>
<tr>
<td>Diagnosis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol and drug use disorders</td>
<td>114 (8%)</td>
<td>103 (8%)</td>
</tr>
<tr>
<td>Psychotic disorders</td>
<td>61 (4%)</td>
<td>58 (4%)</td>
</tr>
<tr>
<td>Depression</td>
<td>1,291 (87%)</td>
<td>1,187 (86%)</td>
</tr>
<tr>
<td>Anxiety disorders</td>
<td>546 (37%)</td>
<td>490 (36%)</td>
</tr>
<tr>
<td>Unexplained somatic disorders</td>
<td>13 (1%)</td>
<td>13 (1%)</td>
</tr>
</tbody>
</table>

a. Multiple responses permitted.
Table 2: Summary characteristics of sessions (n=10,503) provided to consumers (no-show sessions excluded)

<table>
<thead>
<tr>
<th>Duration</th>
<th>Sessions</th>
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</thead>
<tbody>
<tr>
<td>0-30 mins</td>
<td>1,261 (12%)</td>
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<tr>
<td>31-45 mins</td>
<td>156 (2%)</td>
</tr>
<tr>
<td>46-60 mins</td>
<td>7,159 (69%)</td>
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<tr>
<td>Over 60 mins</td>
<td>1,807 (17%)</td>
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</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>Sessions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual</td>
<td>10,193 (100%)</td>
</tr>
<tr>
<td>Group</td>
<td>51 (0%)</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Modality</th>
<th>Sessions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face-to-face</td>
<td>8,891 (91%)</td>
</tr>
<tr>
<td>Telephone</td>
<td>914 (9%)</td>
</tr>
<tr>
<td>Videoconferencing</td>
<td>20 (0%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interventions*</th>
<th>Sessions</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBT – Cognitive interventions</td>
<td>3,990 (43%)</td>
</tr>
<tr>
<td>CBT – Behavioural interventions</td>
<td>2,301 (25%)</td>
</tr>
<tr>
<td>Diagnostic assessment</td>
<td>2,036 (22%)</td>
</tr>
<tr>
<td>Interpersonal therapy</td>
<td>1,791 (19%)</td>
</tr>
<tr>
<td>CBT – Skills training</td>
<td>1,627 (17%)</td>
</tr>
<tr>
<td>Psycho-education</td>
<td>1,330 (14%)</td>
</tr>
<tr>
<td>CBT – Relaxation strategies</td>
<td>1,183 (13%)</td>
</tr>
<tr>
<td>Narrative therapy</td>
<td>29 (0%)</td>
</tr>
</tbody>
</table>

*Multiple responses permitted.
Table 3: Scores on available outcome measures for consumers with pre- and post-treatment scores (n=328)

<table>
<thead>
<tr>
<th>Outcome measure</th>
<th>n</th>
<th>Pre-treatment mean (sd)</th>
<th>Post-treatment mean (sd)</th>
<th>Mean difference (sd)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modified Scale for Suicidal Ideation (MSSI)</td>
<td>245</td>
<td>11.1 (11.3)</td>
<td>2.5 (5.3)</td>
<td>8.6 (10.2*)</td>
</tr>
<tr>
<td>Depression, Anxiety and Stress Scales (DASS) – Anxiety</td>
<td>128</td>
<td>18.0 (10.4)</td>
<td>9.9 (8.1)</td>
<td>8.1 (10.1*)</td>
</tr>
<tr>
<td>DASS – Depression</td>
<td>128</td>
<td>26.4 (11.0)</td>
<td>12.0 (9.4)</td>
<td>14.4 (12.3*)</td>
</tr>
<tr>
<td>DASS – Stress</td>
<td>125</td>
<td>24.0 (11.1)</td>
<td>13.3 (9.4)</td>
<td>10.7 (11.9*)</td>
</tr>
<tr>
<td>Kessler 10 (K-10)</td>
<td>102</td>
<td>34.7 (7.9)</td>
<td>23.2 (9.4)</td>
<td>11.5 (9.9*)</td>
</tr>
</tbody>
</table>

* p <0.001.