Suicide clusters in young people

Title: Suicide clusters in young people: Evidence for the effectiveness of post-vention strategies

Short title: Suicide clusters in young people

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Suicide clusters in young people: Evidence for the effectiveness of post-vention strategies

Abstract

Background and aims: Suicide clusters have been documented in adolescents and young people, and other high-risk populations including indigenous communities, prisoners, those with mental illness. The aim of the current review is to conduct a literature search in order to identify post-vention strategies that have been employed in response to suicide clusters in young people, and where possible, evaluate the effectiveness of these strategies.

Methods: Online databases were searched for relevant articles relating to post-vention interventions following a suicide cluster in young people. Grey literature was also searched using the Factiva database and Google.

Results: Few studies have formally documented response strategies to a suicide cluster in young people, and at present, only one has been longitudinally evaluated (Hacker et al., 2008). However, a number of strategies show promise, including: developing a community response plan; educational/psychological debriefings; providing both individual and group counselling to affected peers; screening high risk individuals; responsible media reporting of suicide clusters; and promotion of health recovery within the community to prevent further suicides.

Conclusions: There is a gap in formal evidence-based guidelines detailing appropriate post-vention response strategies to suicide clusters in young people. The low-frequency nature of suicide clusters means that long-term systematic evaluation of response strategies is problematic. However, a number of interventions have been positively endorsed by communities, and could lend themselves to more rigorous evaluation, thus helping to inform future post-vention response strategies.
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Declarations of interest:

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**Background**

A suicide cluster can be defined as ‘a group of suicides or suicide attempts, or both, that occur closer together in time and space than would normally be expected on the basis of statistical prediction/or community expectation’ (CDC, 1988). Clusters can be split into two distinct groups: point clusters and mass clusters. Point clusters are close in both space and time, occur in small communities and involve an increase in suicides above a baseline rate observed in the community and surrounding area. Mass clusters involve a temporary increase in suicides across a whole population (Mesoudi, 2009), and have been documented following suicides by high profile celebrities, or political figures, that have received considerable media attention (Chen et al., 2010). The purpose of this literature review is to outline evidence relating to the containment and future prevention of clusters, and will focus on point clusters only.

The mechanisms underlying suicide clusters are not clear, however it has been proposed that they may be due to a process of ‘contagion’, whereby one persons suicide influences another person to either attempt, or to complete suicide themselves (O'Carroll & Potter, 1994). Suicide clusters have been most commonly observed in adolescents and young people under the age of 25 years (Hazell, 1993); this population will be the main focus of this review. However it should be noted that suicide clusters have also been observed in other high risk groups, including indigenous communities (Hanssens & Hanssens, 2007; Wilkie et al., 1998), prisoners (McKenzie & Keane, 2007) and people with mental illness (McKenzie et al., 2005), particularly within inpatient settings (Haw, 1994).

Youth suicide rates have gradually been increasing, and this age group is now at the highest risk of suicide in one third of all countries (WHO, 2010). At least 100,000 adolescents complete suicide every year (WHO, 2002) and worldwide, suicide ranks in the top five causes of mortality among 15 to 19 year olds (WHO, 2000). In adolescents and
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young people, it has been estimated that between 1 and 5% of all suicides are part of a cluster (Gould, Wallenstein & Kleinman, 1987). Furthermore, contagion is thought to be a key factor in 60% of all suicides in this population (Davidson et al., 1989). The death of a peer can be a traumatic experience for a young person, and it is estimated that for every suicide, three friends are strongly affected (Mauk & Gibson, 1994). Although the exact process by which suicide contagion operates is still unclear, suicidal behaviour in peers may act as a risk factor to exacerbate underlying psychiatric disturbances in young people. For example, the presence of suicidal ideation in young people has been estimated between 20 and 30% (Evans et al., 2005; Nock et al., 2008) which may act as an additional risk factor for contagion to occur. Young people also appear to be particularly susceptible to contagion effects brought about by certain types of media reporting of suicide (Gould et al., 2003).

It is difficult to predict exactly when and where a suicide cluster will occur, and as a result, there is a need to develop a set of post-vention strategies that can be implemented following the identification of a suicide cluster. One of the most widely quoted documents concerning the management of suicide clusters is The Centres for Disease Control (CDC) community plan for the prevention and containment of suicide clusters (CDC, 1988). The report was originally developed to assist community leaders from a variety of backgrounds, including public health, mental health, and education, implement prevention and containment strategies to manage a suicide cluster. The community plan focuses strongly on communities developing a response plan that can be implemented before the onset of a suicide cluster, and on post-vention responses once a cluster has occurred.

The aim of the current literature review is to conduct a search of the academic and grey literature on suicide clusters that have been documented in young people. In doing so, key post-vention strategies that have been implemented in response to a suicide cluster in this population were identified, and evidence for their effectiveness discussed.
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Methods

Medline, Psychinfo and Embase were searched using search strings including the keywords (‘suicid*’) AND (‘cluster’ OR ‘epidemic’ OR ‘copycat’ OR ‘contagion’ OR ‘multiple’ OR ‘post-vention’). Hand searching of references and specialist journals was also conducted. The above search terms were also used in the search engine ‘Google’ in order to identify grey literature.
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Results

One hundred and fifty-five articles were retrieved in the database search. Of these, the majority of articles related either to the identification of clusters in high risk groups, or to the mechanisms underlying why suicide clusters occur.

The literature search identified two publications that have formally documented postvention strategies employed following a suicide cluster in young people within a community setting (Askland et al., 2003; Hacker et al., 2008). An additional three publications detailed more limited and specific strategies that have been employed in a school setting either following a suicide cluster, or where individuals were identified as being at risk of imitative suicidal behaviour (Brent et al., 1989b; Hazell, 1991; Poijula et al., 2001).

There was consistency in the type of postvention strategies adopted by the wider community, and in schools, in order to ‘contain a cluster’ once it had begun to evolve. These strategies tended to involve six main approaches: development of a community response plan; educational/psychological debriefings; providing both individual and group counselling to affected peers; screening of high risk individuals; responsible media reporting of the suicide cluster; and promotion of health recovery within the community to prevent future suicides.

[Insert table 1 here]

Development of a community response plan

A response plan has tended to involve members of community based trauma teams or networks, and ultimately, a ‘response team’ has been formed. The role of the team has been to investigate the events that have affected the community, be on the front line to respond to young people who show signs of distress as a result of a suicide and implement post-vention strategies such as improving media relationships or setting up focus groups for survival victims. Teams have commonly consisted of teachers, mental health professionals, parents,
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representatives from a local crisis centre, law enforcement, and liaison members from the local media and community (Hacker et al., 2008). Training for team members (such as post traumatic stress management) is often required in order for individuals to deal with the crisis in an appropriate manner (Hacker et al., 2008). A collaborative approach, using existing partnerships within the community, has been highlighted as essential in implementing an effective trauma team and network (Hacker et al., 2008).

Evidence for the effectiveness of response plans was predominantly descriptive in nature, and lacking in long-term follow-up. Askland et al (2003) developed a ‘real time’ community response plan following a suicide cluster involving adolescents in a rural community of Maine, USA. Key strategies included: educational debriefings giving young people information about suicide; suicide prevention and coping strategies; individual screening of young people identified as being at-risk for suicide (by their parents, other students, or school staff); and crisis evaluation, whereby young people who were felt to be at immediate high risk of self harm or suicide were referred to the appropriate mental health service (which included outpatient services, crisis stabilization services or psychiatric hospitalization). The collaboration that occurred between law enforcement, school staff, and health services (both public and private) allowed the community to gather information about potential high risk individuals, carry out screening in schools in order to facilitate referral to mental health services, and offer suicide awareness and prevention training to key stakeholders. Overall, 39 individuals were identified as needing intervention for potential suicidal behaviour, and could be referred on in a streamlined manner to the relevant services.

Hacker et al (2008) reported on the implementation of a community response to a suicide cluster primarily via drug overdose in young people in 2002 and was the only study to include a long-term follow-up on the effectiveness of their response plan. After implementing their response plan, only one death by suicide has been recorded, and this was unrelated to
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the previous cases of suicide contagion. In addition, since 2004, hospital discharges for non-fatal self-harm and non-fatal opiate related discharges have steadily decreased.

The CDC guidelines recommend developing a response plan before a cluster occurs, but timely implementation of a response plan following a suicide cluster in a school setting has been associated with fewer students showing symptoms of PTSD (Poijula et al., 2001). This underscores the importance in making a response plan a possible strategy to consider when managing an evolving suicide cluster.

*Educational/Psychological debriefings*

The death of a young person can have a deep and far reaching effect on individuals close to the deceased, other young people in their school, and the community. After a suicide cluster has been identified, schools have raised the awareness of the issue in a sensitive and timely manner. Information regarding suicide and suicide risk has been delivered either to a whole school, in order to raise awareness universally, or to high-risk individuals. Askland et al (2003) disseminated information about suicide, suicide prevention and coping strategies to school students over three days, in 1.5 hour small group educational debriefing sessions, led by trained clinicians. No evaluation was carried out regarding the effectiveness of the sessions

*Individual and group counselling for affected peers*

Friends of a young person who dies by suicide experience a range of emotions, including guilt for ‘missing the signs’ of their friend’s distress, or anger with themselves or others for not preventing it. It has been suggested that adolescent suicide is closely related to post-traumatic stress (PTSD), major depression and suicidal ideation in peers following exposure to a suicide (Brent et al., 1993; Poijula et al., 2001). Crisis counselling sessions have been highlighted as important in order to address the needs of these high-risk individuals, and have
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been employed as a post-vention strategy following suicide clusters. Group counselling sessions for young people affected by the suicide of a peer have centred around four themes: addressing guilt and responsibility following the death of a friend; difficulties in interpreting the signs of suicidal behaviour; recognising reactions to grief; and directing adolescents towards appropriate services for help should they feel suicidal themselves (Hazell, 1991). Counselling sessions have also been delivered in schools to both students and parents, in collaboration with local mental health services, and community based trauma teams (Hacker et al., 2008). However, the effectiveness of these sessions was not evaluated.

Screening high risk individuals

The CDC recommendations, and Hazell (1993) highlighted that risk assessment and screening of high risk individuals is an important post-vention response strategy to a suicide cluster. A number of young people can be classed as high risk following the suicide of someone in their community including; friends or acquaintances of the suicide victim, individuals with an existing psychiatric disorder and/or young people who have recently attempted suicide themselves. Screening has taken place following a suicide cluster for a number of risk factors, most notably, suicidal behaviour including recent attempt, or ideation (Brent et al., 1989) and symptoms of PTSD (Poijula et al., 2001).

Schools are an important organisation in responding to suicide clusters in young people, and have the potential to play a pivotal role in implementing screening programs for high risk individuals. Following one suicide cluster among teenagers, 33% of the school population that were screened were identified as ‘at risk’ (Askland et al., 2003). Furthermore, 28% of this screened population reported current or recent suicidal ideation, and of these individuals, 17% reported a suicide attempt within the previous 4 weeks. Furthermore, following screening for PTSD symptoms in three secondary schools where teenage suicides occurred revealed that friends of the suicide victims were more likely to be in the high risk group
Suicide clusters in young people showing PTSD symptoms, compared with those who were not friends with them (Poijula et al., 2001).

Individuals at high risk of suicidal behaviour have also been identified through a number of other sources. Parents play a role in recognising signs of distress in their offspring, especially after the death of someone close, and trauma response teams have acted to increase awareness of suicide ‘warning signs’ in the community. Professionals that come into contact with young people such as school staff, including teachers, school guidance counsellors or school nurses, and health professionals are also key individuals in identifying young people at risk of suicidal behaviour. Although GPs have been identified as playing a key role in helping families, friends, and those close to the deceased after a teenage suicide, and as having the potential to identify high risk individuals (Johansson et al., 2006), no formal evaluation regarding the effectiveness of GPs in identifying young people at risk of suicide following a suicide cluster has been reported.

Responsible media reporting of suicide clusters

Literature retrieved from the database search highlighted that suicide clusters often receive a large volume of media attention. Young people are thought to be particularly susceptible to suicide contagion effects as a product of certain types of media reporting (Gould et al., 2003), thus inappropriate media attention may contribute to the cluster continuing.

Previous post-vention strategies have included the media as part of the development of a community response. This has allowed information to be disseminated and reported on in a sensitive and responsible manner. For example, members of community trauma teams have met with the local newspaper editor, in order to clarify CDC recommendations on reporting suicide clusters (Hacker et al., 2008). As a result, the deaths of the young people who were part of the suicide cluster were reported in a non-sensational manner.
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It has also been suggested that media reporting of suicide clusters should be kept to a minimum, due to the risk of imitative suicide in the community. A body of evidence suggests that irresponsible reporting of suicide in the media can potentially lead to ‘copy-cat’ suicides and could thus act as a tipping point upon which a cluster could begin or be exacerbated. (Pirkis & Blood, 2001).

*Promotion of health recovery within the community to prevent further suicides*

Although crisis management of a suicide cluster appears to be imperative, communities in which suicide clusters have occurred highlight a number of long term steps that must also be taken in order to promote the recovery of the community. Poijula et al (2001) found that 6 months after a suicide cluster occurred in a school, 30% of the classmates of the suicide victim continued to show signs of PTSD, and 9.8% showed a high intensity grief reaction. This highlights the need to implement long-term programs to prevent suicide in the population within which the suicide cluster occurred.

Whole school screening and ongoing surveillance of suicidal behaviour has contributed to the development of a community response plan, and has aided the recovery of a community by identifying risk-factors, and risk behaviours that may have contributed to the suicide cluster. For example, poor social functioning and school adjustment were identified as risk factors for suicide attempts in the community discussed by Hacker et al (2008). They reported that surveillance of suicidal behaviour in the community was collected via surveys, death certificates, hospital discharge data and 911 calls.

Prevention training for community stakeholders and gatekeepers has been given in order to increase awareness of the warning signs of suicide, and to aid early intervention (Hacker et al., 2008). For example, teachers, parents and mental health professionals were trained in post-traumatic stress management. This not only acted to provide key community members
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skills essential to deal with the current suicide cluster, it also equipped them with knowledge and strategies that could be implemented in the future.

The anniversaries of suicide deaths can also bring to the surface a range of difficult emotions for the family and peers. In the long term, it has been suggested that suicide prevention articles could be published in the local media around the anniversary of a youth death, in order to promote help seeking and awareness at that time (Hacker et al., 2008).

Discussion

Despite young people being a high risk population in which suicide clusters occur, the current review has highlighted the limited number of studies published on post-vention strategies in response to suicide clusters in this group. At present, two community case studies have been published illustrating that the CDC guidelines are helpful in allowing a community to contain, manage and curtail a suicide cluster in young people specifically (Askland et al., 2003; Hacker et al., 2008). However, only one evaluated the long term gain from post-vention strategies over the period 2002 to 2006 (Hacker et al., 2008), whilst the other reported on immediate ‘crisis management’ of a cluster, without long term evaluation of it’s effectiveness (Askland et al., 2003). These publications, whilst rich in information concerning the nature of interventions implemented following a suicide cluster, did not evaluate the overall effectiveness of such steps in preventing future clusters. Furthermore, many papers identified in the search were epidemiological studies assessing risk factors and previously observed clusters, lacking in information regarding the response to such situations. This finding mirrors the general suicidology literature which is disproportionately strong focus on epidemiology rather than intervention (Robinson et al., 2008).

There are a number of limitations that need to be considered given the nature of the review. Firstly, many communities that have experienced a suicide cluster may have
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developed, or implemented post-vention strategies that are not in the academic or public domain, with documents being circulated at a local level only. As the suicide cluster abates, resources are directed into community recovery, rather than a formal and scientific evaluation of their experience. Indeed the lack of opportunity to evaluate post-vention strategies using randomised controlled trials (RCTs) means that formal evaluation of such approaches is problematic. Secondly, due to the guidelines surrounding media reporting of suicide (Mindframe, 2010), and the potential negative effects that inappropriate media coverage can cause following a suicide cluster, it is possible that many clusters were not identified by our search, as they were not reported in the media in the first instance. In addition, as suicide is a rare event, and suicide clusters even more so, the availability of information regarding such experiences is likely to be limited in nature. It should also be noted that the CDC recommendations on how to contain and manage a suicide cluster were initially developed in 1989, and have not to the authors knowledge been updated. Given the ways in which young people now communicate, such as through email, social networking sites, and mobile phones, it may be advantageous to update these guidelines with these communication methods in mind. Mobilizing resources and disseminating information following a suicide cluster may be helped by exploiting these methods of communication. Recent reviews on the prevention and treatment of mental illness in young people using internet delivered programs suggest that they are an effective means of intervention (Calear & Christensen, 2010; Richardson et al., 2010). However, as modern technology, and the way in which young people integrate it into their lives evolves, it may also be timely to investigate the ways in which suicide clusters may be exacerbated by these communication methods.

As discussed, there are a handful of published articles on post-vention strategies that appear to show promise in managing and containing suicide clusters in young people. There is a need to develop the evidence base in order to confirm the effectiveness of these
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strategies, but as alluded to above, this can be challenging given the nature of suicide clusters, and suicide prevention in general. However, evidence of effective interventions from the broader suicide prevention literature could be adopted and applied to the notion of suicide clusters. For example, screening high risk individuals has been shown to be effective in identifying young people at risk of suicidal behaviour (Gould et al., 2003; Shaffer et al., 2004), and may increase the likelihood of such individuals subsequently accessing services (Gould et al., 2003; Gould et al., 2009). Providing gatekeeper training to school staff also has the potential to prevent a suicide cluster, by aiding professionals in identifying individuals at-risk of suicidal behaviour (Wyman et al., 2008). Similarly, early detection of potential ‘contagious’ behaviour once a suicide cluster has begun will be informed by professionals knowledge of the early warning signs in suicidal individuals.

In addition, providing young people with information following a suicide may be a useful post-vention strategy that could be applied following a suicide cluster. In Australia, the “Toughin’ It Out” pamphlet was first designed to help young people talk about their own suicide risk after the suicide of a loved one. Bridge, Hanssens & Santanam report that since 1999, it has been used extensively as a brief intervention and educational resource in the Northern Territory and Queensland (Bridge et al., 2007) where a number of suicide clusters have occurred. However, no formal evaluation of it’s effectiveness in relation to dealing with suicide clusters could be located.

In summary, there is limited evidence regarding the effectiveness of post-vention strategies in response to suicide clusters. The most commonly implemented strategies are: developing a community response plan; educational/psychological debriefings; providing both individual and group counselling to affected peers; screening high risk individuals; responsible media reporting of suicide clusters; and promotion of health recovery within the community to prevent further suicides. However, adopting a broader perspective on the
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Interventions that have been shown to be effective in preventing suicide in youth and identifying young people at risk of suicidal behaviour may be beneficial in helping communities to develop effective evidence-based response strategies to a potential suicide cluster.

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Table 1: Common post-vention strategies employed following a suicide cluster in young people

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<th>Counseling for high-risk individuals</th>
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