Research Bulletin

Does Gatekeeper Training Prevent Suicide in Young People?

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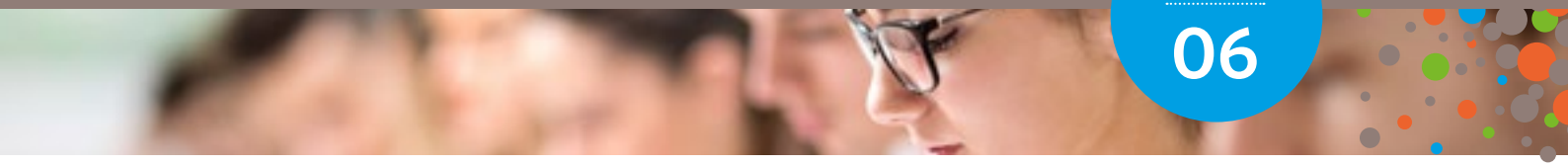

Comprehensive suicide prevention programs often include gatekeeper training as a core component of a multifaceted approach. Evaluations of gatekeeper training have largely focused on the impact on gatekeepers, rather than on preventive effects for the targeted population. Evidence exists for the acceptability and efficacy of gatekeeper training across a broad range of settings for improving the knowledge, attitudes, self-efficacy and perceived competence of gatekeepers in the short-term. The impact on help-seeking and suicidal behaviours is less clear and it is important to examine whether gatekeeper training does indeed have an effect on the suicide risk and behaviours of the people the intervention is ultimately targeted towards. This research bulletin summarises findings from controlled trials that have investigated the impact on suicidal behaviours in young people following the delivery of gatekeeper training.

Background

Suicide is the leading underlying cause of death among young Australians aged 15 to 24 years and accounted for one-third of deaths (33.9%) in this age group in 2015 (Australian Bureau of Statistics, 2016). While the majority of young people experiencing suicidal thoughts or engaging in self-harm do not seek professional help, they do seek help from informal sources of support in their social networks (Michelmore & Hindley, 2012). Therefore, up-skilling the people that regularly come into contact with young people in the community, such as teachers, school personnel or peers (collectively referred to as "gatekeepers") is a focus of many suicide-prevention strategies (Australian Government Department of Health and Ageing, 2007). Gatekeeper programs train these individuals to better recognise and inquire about risk for suicide, and intervene appropriately in order to increase the probability that a potentially suicidal person is identified, supported and, where necessary, referred for assessment and treatment before an adverse event occurs. Gatekeeper training is a key part of an integrated, regionally-based approach to suicide prevention that will be trialled in Australia (e.g. Victorian Government, 2016), in conjunction with other evidence-based strategies.

What is the evidence for gatekeeper training programs?

Research investigating the impact of gatekeeper training in both adult and adolescent studies is dominated by outcomes related to the knowledge, attitudes, self-efficacy or perceived skills of gatekeepers following training. A systematic review that summarises the evidence base of the effectiveness of gatekeeper training programs in schools and other youth settings suggests short-term positive gains across these domains (Lipson, 2014). Gatekeepers who have undergone training report feeling better able to respond to a young

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person who is experiencing suicidal ideation or engaging in suicide-related behaviours. While the majority of outcomes assessed in these studies are based on subjective self-report measures, a number of school-based studies have found short-term improvements in observed skills in suicide risk assessment following training, as measured via filmed role-plays (Cross et al., 2010; Robinson et al., 2016).

Does it have a direct impact on young people?

The outcomes measured in the majority of studies tend to focus on the impact of the interventions on gatekeepers and less is known about the influence of these programs on behavioural action (e.g. referrals) and population-level outcomes (e.g. help-seeking behaviours and actual suicide rates in the target population). There is some evidence that gatekeeper training programs for school staff can facilitate young people accessing mental health care, as evidenced by subsequent referral rates and treatment of at-risk students (Kataoka et al., 2007). Large-scale community-based, multimodal suicide prevention strategies with gatekeeper training as a core component have shown significant reductions in suicide mortality and suicide attempts among young people in the 2 years after implementation, compared to those in control conditions (Garraza et al., 2015; Walrath et al., 2015). These findings support the effectiveness of comprehensive suicide prevention strategies that include gatekeeper training; however, conclusions cannot be made about the specific contribution of gatekeeper training within these multimodal interventions for preventing suicide.

Considering the current interest and investment in gatekeeper training as part of broader suicide prevention strategies, it is useful to attempt to isolate the effects of this intervention and examine its impact on population-level outcomes. This research bulletin presents four controlled studies that have evaluated the effectiveness of gatekeeper training programs on population-level outcomes. These include referral, help-seeking and suicidal behaviours in young people following exposure to gatekeeper training. All four studies were cluster randomised controlled trials (RCTs) conducted in school settings and three of these trained young people themselves to be gatekeepers. See Table 1 for a summary of the participants, interventions, comparison/control groups and outcomes for all studies included in this research bulletin.

Table 1. Characteristics of the gatekeeper training studies

Study	Setting and number of participants (N)	Gatekeeper Training Program	Comparison or Control Group	Who received gatekeeper training?	Findings related to suicidal behaviours
Aseltine and DeMartino (2004)	5 high schools in the US (N=2,100)	*Signs of Suicide (SOS):* participants are taught over two days to recognise the signs of suicide and depression in themselves and in others through education incorporated into the curriculum and taught specific action steps to respond to those signs if needed ("ACT" - ACKNOWLEDGE the signs of suicide and take them seriously; let that person know you CARE and want to help; TELL a responsible adult). This was accompanied by self-evaluation through a brief, anonymous screen for depression and other risk factors associated with suicidal behavior.	Social studies class	High school students	No significant effect on rates of suicidal ideation. Significantly lower rates of suicide attempts at 3 months follow-up, compared to control. Findings replicated in 2007 extension study.
Aseltine et al (2007)	9 high schools in the US (N=4133)				
Wyman et al (2010)	18 high schools in the US (n=453 peer leaders; n=2675 students)	*Sources of Strength:* implemented through three phases: (1) school and community preparation where some staff members were give 4-6 hours of training to act as advisors to peer leaders; (2) peer leader training consisted of 4 hours of interactive training with a focus on protective "sources of strength" and skills for increasing those resources for themselves and other students, and on engaging trusted adults to help distressed and suicidal peers; and (3) school wide messaging over 3 months where peer leaders disseminated messages from the training	Wait-list control	Adolescent peer leaders (with support from school staff)	No significant effect on rates of suicidal ideation at 4 months follow-up, compared to control. Rates of suicide attempt not assessed.
Wasserman et al. (2015) The Saving and Empowering Young Lives in Europe (SEYLE) study	168 schools in the European Union (N=11,110)	*Question, Persuade, and Refer (QPR):* a manualised gatekeeper program developed in the USA. Teachers and other school personnel were trained over a 2-hour interactive lecture and a 1-hour role-play session to identify and intervene when students engaged in risk behaviours. They were also taught to enhance their communication skills to motivate and help pupils at risk of suicide to seek professional care. Teachers were also given cards with local health-care contact information for distribution to students identified as being at risk. Gatekeeping was only actively implemented over 1 month.	The Youth Aware of Mental Health Program (YAM); The Screening by Professionals Program (ProfScreen); and a control group	School personnel	No significant effect on rates of severe suicidal ideation and incident suicide attempts at 3 months and 12 months follow-up, compared to control.

Aseltine Jr, R. H., & DeMartino, R. (2004). **An outcome evaluation of the SOS suicide prevention program.** American Journal of Public Health, 94(3), 446-451.

Aseltine, R. H., James, A., Schilling, E. A., & Glanovsky, J. (2007). **Evaluating the SOS suicide prevention program: a replication and extension.** BMC Public Health, 7(1), 1.

These two cluster RCTs examined the impact of incorporating the two-day Signs of Suicide (SOS) prevention program (see Table 1 for program details) into the grade 9-12 school curriculum on students' subsequent suicidal behaviours. The original study (2004) was conducted with an urban, economically disadvantaged sample (N=2,100), while the extension and replication study (2007) was based on a more socially, economically, and geographically diverse group of high school students (N=4,133). Students' suicidal behaviour was measured approximately 3 months after program implementation using anonymous self-report responses on a questionnaire. Suicide attempts were measured using the single item: *"During the past 3 months, did you actually attempt suicide (yes/no)?"*. Suicidal ideation was also assessed with a single item: *"During the past 3 months, did you ever seriously consider attempting suicide (yes/no)?"*.

Results Response rates to the anonymous follow-up questionnaire in both studies were high (92% and 93% respectively). Both studies found that compared to the control group, students randomised to SOS had significantly lower rates of self-reported suicide attempts at 3 months follow-up. This effect was explained in part by improvements in students' knowledge and attitudes about depression and suicide following the intervention. It was estimated that exposure to SOS resulted in a 40% reduction in likelihood of a suicide attempt. There was no difference found for self-reported suicidal ideation and help-seeking behaviour between the intervention and control groups. Students' ethnicity, grade and gender did not change the impact of the intervention on any of the outcomes assessed and the magnitude of intervention effects was virtually identical across both studies.

The lack of effect on self-reported suicidal ideation and help-seeking behaviour is in contrast to previously published data of the same intervention showing that school counsellors indicated close to a 60% increase in the number of students seeking counselling for depression and suicidal ideation in the 30 days following exposure to SOS (Aseltine et al., 2003). Due to the current study design where classrooms, and not schools, were randomly assigned to experimental conditions, it is possible that students in the control group were inadvertently influenced by the SOS program as well. A focus of SOS is to be able to recognise those at-risk and "ACT" on them. Students who were assigned to SOS may have reached out to troubled peers in the control group, which would explain the non-significant finding for rates of suicidal ideation and help-seeking behaviour.

Take home messages A two-day curriculum-based gatekeeper program focusing on educating young people about the signs of suicide and depression in others and themselves, and how to respond to risk is effective at reducing suicide attempts in the short term among high school students. This effect was found across different ethnic and socioeconomic backgrounds, and for both boys and girls. This finding was consistent over two controlled trials.

A long-term follow-up of the program is necessary to determine whether the observed effects are enduring and future studies should randomise intervention conditions at the school level to reduce the possibility of contamination of effect across groups.

It was estimated that exposure to SOS resulted in a 40% reduction in likelihood of a suicide attempt

Wyman, P. A., Brown, C. H., LoMurray, M., et al. (2010). **An outcome evaluation of the Sources of Strength suicide prevention program delivered by adolescent peer leaders in high schools.** American journal of public health, 100(9), 1653-1661.

This cluster RCT measured the impact of the Sources of Strength suicide prevention program, where student peer leaders from "diverse social cliques" (n=453; mean age = 16 years) were nominated by school staff to receive gatekeeper training. These peer leaders, with adult mentoring, then conducted school wide messaging based on the training: they modelled the behaviour by engaging trusted adults, encouraged friends to identify their trusted adults, and disseminated messages about identifying and using interpersonal and formal coping resources through presentations, public service announcements, and video or text messages on social networking sites. A key objective of this phase of the intervention was to modify suicide perceptions and norms among peer groups. This was measured through reductions in students' perceptions of the acceptability of suicide, their beliefs about whether adults in the school help suicidal students, and their rejection of codes of silence in order to overcome secrecy barriers to engage adults for suicidal peers.

An anonymous survey was administered to students (n=2675) at baseline and 4 months after program implementation to measure suicidal ideation through the question: *"During the last 3 months have you seriously thought about killing yourself? (yes/no)"*. Suicidal ideation in the past year at baseline was used to explore differential intervention impact on students with and without a history of suicidal ideation, while rates in the prior 3 months were used to assess changes during the intervention period and for safety monitoring.

Results Students' rates of self-reported suicidal ideation decreased across both intervention and control schools, and did not vary significantly by randomised condition. The intervention significantly improved peer leaders' suicide perception and norms, decreased maladaptive coping strategies, and increased likelihood of referring friends at risk of suicide to an adult. The intervention effect was stronger for those with low baseline norms or connectedness. Peer leaders randomised to the intervention program were over four times more likely than those in the schools without training to refer a peer because of concerns about suicide. This effect appeared specific to their ability to identify suicide risk following training, as there was no intervention effect found for referrals due to other emotional or behaviour problems.

> "The largest, most positive increases occurred among students with a history of suicidal ideation

Training peer leaders also led to changes in suicide perceptions and norms across the full population of high school students after 3 months of school-wide messaging. This included improvements in students' perceptions that adults in their school can provide help to suicidal students and the acceptability of seeking help from adults. The largest, most positive increases occurred among students with a history of suicidal ideation.

Rates of suicide attempts were not assessed and so could not be compared across the intervention groups. Student suicide deaths were collected for safety monitoring and one student died by suicide shortly after that school received peer leader training. While the study's data safety and monitoring committee found no indication that this death was related to the intervention, the authors did not discuss whether exposure to this death might have influenced study outcomes for some students in the experimental group.

Participation in school messaging was inconsistent across schools and ranged from 59% to 100%. The authors did not examine whether this influenced study outcomes and it is possible that students in some schools were not fully exposed to the intended effects of the intervention. Approximately 25% of nominated peer leaders did not remain consistently engaged in the Sources of Strength program, and this group was more likely to report overall lower school engagement at baseline. Future studies should investigate strategies for retaining peer leaders, particularly those from high-risk peer groups that are more likely to contain young people with suicide risk.

Take home messages A suicide prevention program where peer leaders conducted 3 months of school-wide messaging activities after receiving 4 hours of gatekeeper training did not have a significant effect on rates of suicidal ideation in students over this period. However, the intervention did significantly improve protective factors associated with lower risk for suicidal behaviour, such as increased referral of at-risk peers and more adaptive norms pertaining to the acceptability of seeking help. Students with a history of suicidal ideation appeared to benefit the most from the intervention in regards to their perception of adult support for suicidal young people.

Future studies should consider assessing intervention impact on rates of suicide attempt as well, and follow participants up over a longer period of time.

Wasserman, D., Hoven, C. W., Wasserman, C., et al. (2015). **School-based suicide prevention programmes: the SEYLE cluster-randomised, controlled trial.** The Lancet, 385(9977), 1536-1544.

The Saving and Empowering Young Lives in Europe (SEYLE) study is a cluster RCT designed to compare the efficacy of a range of adolescent suicide prevention programs on incident suicidal behavior and ideation. It is one the largest school-based suicide prevention studies to date and across 168 schools in ten European Union countries, 11,110 students (mean age = 15 years) participated.

Schools were randomly assigned to one of four conditions: (1) Question, Persuade, and Refer_ (QPR), a 3-hour gatekeeper training program for school personnel with a card containing contact details of healthcare services and healthy lifestyle groups distributed to a sub-group of students identified by gatekeepers to be at-risk; (2) The Youth Aware of Mental Health Program (YAM), which promotes students' knowledge of mental health, healthy lifestyles and behaviors, and skills to cope with adverse life events, stress and suicidality through 5 hours of classroom lessons and role play sessions, with all students given the same contact card described in the QPR intervention arm; (3) The Screening by Professionals Program (ProfScreen) with referral of at-risk students following baseline assessments; and (4) a control group where educational posters were displayed in classrooms. YAM and ProfScreen were developed for the SEYLE study and all interventions were undertaken over 4 weeks. Unlike the universal approach of the other two active intervention arms where all students were screened (YAM and ProfScreen), the gatekeeper training intervention (QPR) was in effect a selective approach as only students identified as being at risk were approached by the adult gatekeepers.

Incident suicide attempt (ie. new cases of suicide attempt) were identified at the 3 month or 12 month follow-up using the question: *"Have you ever made an attempt to take your own life? (yes/no)"*. Students were identified as having severe suicidal ideation if they answered *"sometimes, often, very often or always"* to the question: *"During the past 2 weeks, have you reached the point where you seriously considered taking your life, or perhaps made plans how you would go about doing it?"*. Unlike the other studies in this research bulletin, the questionnaire in this study was not anonymous.

Results There were no differences between the intervention and control groups at 3 months follow-up. However, at 12 months, the self-reported rate of severe suicidal ideation and incident suicide attempts of students in YAM were significantly reduced, compared to the control group. There were no significant effects of either the QPR or ProfScreen interventions, compared to control. Baseline differences in psychopathology were controlled for and there was no evidence that age or sex moderated the effects.

Unlike the other studies in this bulletin where students were trained as gatekeepers, the SEYLE study trained school personnel. It is possible that changes in suicidal behaviour are more likely to occur if young people themselves are engaged in the interventions, rather than through adult-driven interventions. The effectiveness of QPR in this study relied on accurate detection and intervention by school personnel over a relatively short period of 4 weeks. Previous reports have shown that the readiness of teachers in the SEYLE study to help students with mental health issues was dependent on teachers' subjective psychological wellbeing and their satisfaction with the school (Sisask et al., 2014), which could have influenced the effective implementation of the QPR intervention in this study and raises questions about study fidelity. Examination of the rates of identification and referral of at-risk young people in this study, particularly comparisons between the QPR and ProfScreen groups, would have provided some indication of whether gatekeepers in this study

were effectively implementing the training. However, these rates were not reported in the study.

While SEYLE is a landmark study, there are a number of limitations in terms of the generalisability of its findings. Students with suicidal ideation in the 2 weeks before baseline assessment or any history of suicide attempt in their lifetime were excluded from the study. By considering only new cases of attempted suicide and suicidal ideation, the SEYLE study does not examine the effects of the interventions with a group that is particularly vulnerable and who potentially had the most to gain from the interventions. As the study by Wyman and colleagues (2010) found, the impact of their intervention was larger for students with a history of suicidal ideation. A key focus of gatekeeper training is to intervene with vulnerable, at-risk groups, and excluding students with pre-existing risk limits the conclusions that can be made about the effectiveness of QPR on suicide outcomes for these types of populations. Finally, more than half the study population (14,267 out of 27,099 students) did not participate as consent from parents or the students themselves was not given, indicating the potential for sample bias and also raising questions about the acceptability of the interventions.

Take home messages An active implementation period of 4 weeks following 3 hours of gatekeeper training for school personnel does not prevent new cases of suicidal behaviour in students. Secondary reports from SEYLE suggest that in order for gatekeeper training programs to be adequately implemented in schools by school personnel, teachers' own psychological wellbeing and satisfaction with the school need to be considered as well. Future studies evaluating gatekeeper training programs should report on rates of identification and referral of at-risk young people pre- and post-intervention in order to establish whether findings reflect effective implementation of the training.

Conclusions

It is well recognised that gatekeeper training is effective at improving the knowledge, attitudes, self-efficacy and perceived competence of gatekeepers in the short-term. There are promising findings that these programs can also influence proximal variables of suicide risk such as skill acquisition and referral behaviours of gatekeepers, and adaptive norms held by young people around acceptability of seeking help for suicide risk and perceptions of support from adults.

The examination of suicide outcomes following gatekeeper training programs is still in the early stages of research and there is some indication that providing gatekeeper training to young people themselves can prevent youth suicide through reducing rates of suicide attempts. While there is no evidence so far that training has an impact on suicidal ideation in young people, reducing suicidal ideation is not a key target of gatekeeper training and is likely more contingent on other factors, such as appropriate clinical intervention following identification of risk.

Most studies to date have only looked at the effects of an intervention over a short period of time. Considering the relatively low base rate of suicidal behaviours, longer-term follow-up is needed. Most studies have not examined the referral patterns and pathways following gatekeeper training. Therefore, it remains to be determined if this type of intervention actually does increase the identification, referral and provision of services to young people at risk of suicide and how this relates to reported reductions in suicidal behaviours and suicide rates. Addressing the wellbeing and employment satisfaction of gatekeepers in school settings may also be relevant for achieving the expected outcomes of the training.

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Where to from here for future research?

The studies included in this research bulletin demonstrate that it is possible to conduct RCTs in this area with young people in school settings. To advance the understanding of the contribution of gatekeeper training to reducing suicidal behaviours, studies with longer-term follow up periods are required. This would also provide information on whether refresher gatekeeper training is necessary to maintain effects over time. Future studies should include population-level outcomes like suicidal behaviours, along with outcomes that are expected to change over time as a consequence of the training. These include identification and referral rates to appropriate supports for those at risk of suicide, the number of these young people who go on to access and receive services, and the subsequent impact on their mental health outcomes.

Examining the impact of the psychological wellbeing of gatekeepers on their ability to effectively identify and refer young people at risk of suicide is an additional area in need of attention.

Involvement of young people in suicide prevention strategies is worthy of further research. Training young people to be peer gatekeepers may serve a dual purpose of increasing their own mental health literacy whilst supporting their at-risk peers to access appropriate services. None of the studies reported involvement of young people in the design of the gatekeeper training intervention and the SEYLE study had high refusal rates by parents and students. Revising the strategies to ensure they are acceptable to the target population may increase the uptake and effectiveness of the intervention. Research that includes principles of participatory design may be useful to address these concerns, that is, involving young people in the development and implementation of the intervention.

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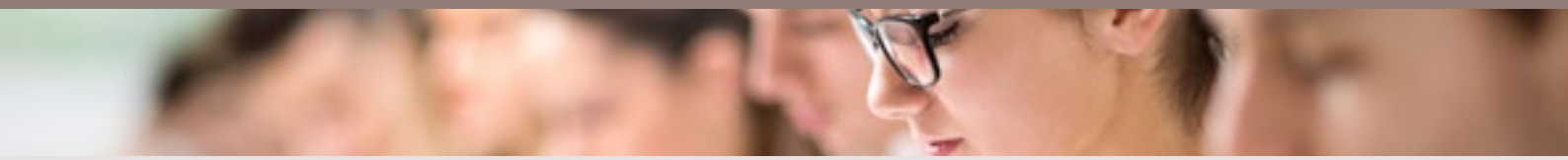

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