Suicide in New Zealand youth: a multifaceted approach

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ABSTRACT

The rate of suicidal behaviour in New Zealand youth is among the highest in the OECD countries, posing a significant and immediate threat to the country's health and wellbeing profile.[1] Understanding the risk factors for suicidal behaviour is central to the identification of high risk individuals, and the design of targeted interventions. Mental illness, gender, family cohesion, bullying and Māori ethnicity have been associated with suicidal behaviour in New Zealand youth. Due to the complexity of the risk factors for youth suicide, a multifaceted and collaborative approach may prove to be the way forward. Four avenues of population based intervention are also discussed: education, screening, restricted media reporting and the restriction of means to suicide. Although some evidence exists for each avenue, there is a need for more well-designed studies before conclusions can be drawn on the usefulness of these strategies in the context of New Zealand youth.

INTRODUCTION

The rate of suicidal behaviour, including suicide attempts and self-harm, in New Zealand youth is among the highest in the OECD countries, posing a significant and immediate threat to the country's health and wellbeing profile (Figure 1).[1] In 2011 the suicide rates for youth aged 15 to 24 in New Zealand were 28.1 and 9.9 per 100,000 for males and females respectively.[1] However, it is promising that since peaking in 1995, suicide in youth has decreased by 32.8%, and self-harm hospitalisation has decreased for male and female youth by 46.9% and 27.5%, respectively.[1] When analysed by ethnicity, the youth suicide rate has been trending downwards in non-Māori youth since 1996, but the Māori rate has had a minimal change.[1] The 2011 Māori youth suicide rate was 2.4 times higher than that of non-Māori peers. A 2003 study of New Zealand secondary school students by Coggan *et al.* further highlights the high rates of suicidal behaviour in New Zealand youth.[2] This study reported that one in three students had experienced self-harm ideation and one in nine students reported attempting suicide.[2] This review aims to describe known risk factors for suicidal behaviour in an attempt to understand the high rates of suicidal behaviour in New Zealand youth. Furthermore, it appraises interventions and highlights barriers that may interfere with the successful implementation of these interventions in a New Zealand context. It is incredibly important that health professionals recognise the high rates of suicide in New Zealand youth and incorporate this knowledge into future practice. While some strategies require a higher level of change, many can be incorporated into individual practice.

RISK FACTORS FOR SUICIDAL BEHAVIOUR

Risk factors for suicidal behaviour are believed to act in a cumulative manner.[3,4] Understanding these factors is central to the identification of high risk individuals and the design of targeted interventions. As successful youth development is reliant on positive mental health, mental illness is a major risk factor for suicidal behaviour and ideation in youth.[2] Internationally, literature has shown that more than 90% of youth suicide victims had a current DSM-IV mental illness, 80% of which were untreated at death.[5] Depressive disorders are consistently the most prevalent with 49 to 64% of victims estimated to be affected.[3] Other affective disorders, conduct disorder, and substance abuse disorder have also been identified as risk factors and are often comorbid with depressive disorders.[3] A New Zealand survey by Fleming *et al.* showed that depression was the largest risk factor for youth suicide attempts, supporting international findings and implying that the psychopathology of suicide attempts and completion shares similarities.[6] Indeed, a history of suicide attempts is one of the strongest predictors of future attempts and completion.[3] The high prevalence of mental distress in New Zealand, and the relationship of this with suicidal behaviour, advocates for interventions aimed at promoting positive mental health.

Other factors implicated in the pathogenesis of suicidal behaviour and suicidal ideation are represented in Figure 2 and include age, gender, family cohesion and family history.[3, 4, 5] In New Zealand, as seen worldwide, more males complete suicide, while more females make suicide attempts.[2] Although some of the risk factors such as gender, sexual orientation or ethnicity are fixed, factors such as family cohesion and bullying represent avenues for potential intervention.

Impaired parent-child relationships have been shown in the literature to be associated with increased suicidal behaviour.[3] However, this is controversial

as examining this independently of psychiatric illness is difficult. A New Zealand study by Fleming *et al*. supported the importance of family relationships in the development of resilience in New Zealand's youth.[6] This study showed that the secondary school students who reported to be close to at least one parent had significantly fewer suicide attempts (p=<0.0001).[6] The authors suggested that caring families may reduce suicidal behaviours both directly and indirectly, by reducing risk factors such as depression.[6] In a New Zealand survey by Coggan *et al*. high school students who were classed as being 'chronically bullied' were more than two and a half times more likely to consider self-harm, attempt self-harm and attempt suicide.[2] Therefore, prevention of bullying, or counselling of the victims of bullying may be an avenue worth exploring in future suicide prevention strategies.

It is important to recognise that as Māori have a unique cultural and historical background, and a unique experience of New Zealand's society, additional risk factors for suicidal behaviour exist. The removal of land, forced acculturation, and forced impoverishment of Māori that occurred with colonisation continue to have profound effects on Māori today.[37] As a result, many Māori struggle to maintain a Māori identity, and to access the institutions of Māori culture which are a source of psychological, spiritual and physical wellbeing.[37] The extent of the impact of this is yet to be determined.[4]

Any intervention aimed at reducing suicidal behaviour in New Zealand's youth therefore needs to recognise and account for the unique needs of Māori youth. This is reflected in the New Zealand Suicide Prevention Action Plan 2013–2016 which states that "all agencies will design and implement initiatives in a manner that will be effective for Māori and Pasifika, and adopt an approach that empowers people and builds their resilience".[7] A major objective of this plan is to build the capacity of Māori and Pasifika whānau and communities to prevent suicide. This will be promoted by ensuring that culturally relevant education and training is available to Māori and Pasifika whānau, performing research into what works for these whanau and encouraging leadership for suicide prevention.[7] The New Zealand Suicide Prevention Strategy 2006–2016 also emphasises the importance of cultural frameworks to address suicide prevention in Māori.[8] This strategy highlights the importance of recognising that suicide in Māori impacts on whānau, hapū and iwi. Whakapapa links whānau, hapū and iwi. Therefore, loss of life also represents a loss of that whānau member's contribution to and continuation of whakapapa.[8] This strategy acknowledges four pathways to achieving better health outcomes for Māori: whānau, hapū, iwi and community development, Māori participation, effective service delivery and working across sectors.[8]

INDIVIDUALLY TARGETED APPROACHES TO SUICIDE PREVENTION

Pharmacological treatment of mental illness may prove an effective individually targeted intervention for reducing suicidal behaviour because of the strong association between mental illness in youth and suicide. Lithium therapy has been shown to significantly reduce the recurrence of suicide attempts in adults with bipolar disorder but this has not yet been studied in youth.[3, 9] Population based studies have shown that the introduction of selective serotonin reuptake inhibitor antidepressants (SSRIs) correlated with decreased suicide rates, and that the most substantial reductions were seen in populations with higher SSRI prescribing rates, such as Australia.[5, 9] However, meta-analyses of randomised control trials of SSRIs generally do not show significant changes in suicidal behaviours and suicide rates.[5] These studies are inherently flawed as the incidence of suicide is low, and information on suicidal behaviour relies on self-reporting.[5] Appropriate recognition of and treatment of mental illness with antidepressants such as SSRIs is an action that can be taken by individual practitioners to address the burden of suicide in New Zealand youth.

Adverse event reporting for SSRIs highlighted that youth taking SSRIs may experience an increased risk of suicidal thoughts and behaviours, although controversy exists here due to methodological issues.[5] Because of this finding, in 2004 the Food and Drug Administration (FDA) regulatory group issued a requirement for the drug manufacturers to place a black-box warning on all antidepressants, warning of this increased risk.[5, 9,10] This was revised in 2007 to the current statement, which includes the observation that depression itself is associated with an increased risk of suicide.[10] Practitioners have been advised by the FDA to balance the potential risks and benefits for each patient when prescribing antidepressants. This black-box warning acted as a barrier to the treatment of youth mental illness as it correlated with decreases in prescription rates of various antidepressants.[10] Few studies have analysed the effect of this on suicide attempts. However, it has been observed that there were no sudden changes in completed suicide rates of those aged 10 to 34 years marking the time of the FDA warnings.[10] A further barrier to the pharmacological treatment of youth mental illness is potential non-compliance with treatment.[5]

There are many barriers to help seeking in mental illness and this may include a preference to manage the problem alone.[11] Online and computerized self-help resources may overcome some of these barriers and prove an effective strategy for suicide prevention. The benefits

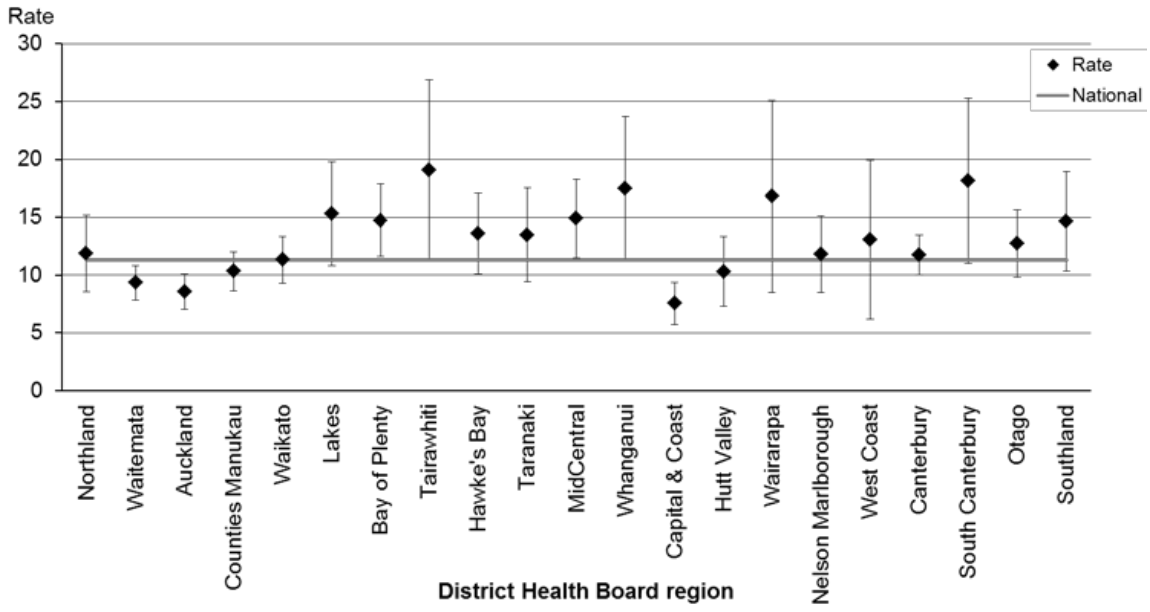

Figure 1: Suicide rates for New Zealand's youth as compared to other OECD countries
Adapted from Ministry of Health, NZ[1]

Risk factors for suicidal behaviour
Age (youth and eldery)
Depressive disorders
Substance abuse disorders
Other affective disorders
Gender
Low socioeconomic status
Low self esteem
Family cohesion
History of abuse
Homosexuality
Family history
Bullying
Rural lifestyle
Māori ethnicity

Figure 2: Risk factors for suicidal behaviour in youth[3,4,5]

Summary of suicide prevention approaches
Individually targeted approaches
Pharmalogical treatment of mental illness
Computer based therapy
Population targeted approaches
Education: public media campaign
Education: school based cirriculum
Education: physician training
Education: gatekeeper training
Screening
Restriction of suicide means
Restricted media reporting

Figure 3: Summary of suicide prevention approaches discussed in this review

of online delivery include anonymity and wide dissemination.[11] Such interventions have been found to be effective in the treatment of anxiety and depression.[11, 12, 13] A New Zealand based study by Merry *et al.* examined the effect of a computerized cognitive behavioural therapy (CBT) based intervention called SPARX on adolescents with depressive symptoms.[12] Adolescents receiving SPARX therapy had lower depression scores at the end of the intervention and a significantly higher remission rate compared to treatment as usual.[12] Given the close relationship between mental illness and suicidal behaviour, it is conceivable that e-therapy resources that reduce mental illness may reduce suicidal behaviour. However, few studies examine suicidal behaviour as an outcome. A small study by van Spijker *et al.* demonstrated that an online CBT based intervention reduced suicidal ideation in adults by 35% as compared to 21% for patients with usual care.[11] A study by Watts *et al.* showed that patients prescribed an internet based CBT programme for depression had reduced suicidal ideation at the end of the treatment course.[14] More research is needed before the effect of computer based therapies on suicidal behaviour in youth can be appreciated.

POPULATION TARGETED APPROACHES TO SUICIDE PREVENTION

Due to the complexity of the factors implicated in youth suicide risk, a multifaceted approach may be required. Potential areas of focus are summarized in Figure 3. In addition to the individually targeted interventions discussed above, interventions can also target a population as a whole. Such interventions may focus on avenues such as education, screening, media reporting and the restriction of means to suicide. Education can be targeted towards the general public, physicians or nominated 'gatekeepers', individuals who are trained to identify and refer youth at risk. Education of the public aims to improve the recognition of youth at risk and reduce stigmatism.[9] Although a New Zealand study by Akroyd *et al.* suggested a national media campaign had modest effects on public attitudes, there was no significant effect on suicidal behaviours, a finding paralleled by similar international campaigns.[5, 15, 16]

School based suicide awareness curriculum, aimed at facilitating self and peer recognition, has been reported in several studies to improve knowledge and attitudes.[3, 5, 21, 22] However, there is insufficient evidence to determine whether this is effective in reducing suicidal behaviours. An alternative approach is an introduction of school-based skills programs, which aim to enhance self-esteem, coping and problem solving skills. A small number of studies have indicated that these programs may reduce suicidal behaviour.[5, 7, 19, 20] However, further studies are needed to appreciate the effect of such programs. Variation in the programs studied further complicates the analysis of this intervention. A major barrier to the implementation of such programs is the considerable strain these programs put on schools.[17] Furthermore, school based education fails to target youth who do not attend school, such as older adolescents who have left school based education.[17] A further education strategy is the education of 'gatekeepers', such as teachers or pharmacists, who are trained to recognise and refer youth at risk. Although many schools have implemented gatekeeper training programs, few have evaluated the effect of these.[3] However, some studies have shown improvements in gatekeeper knowledge, attitudes and referral practices, and some military based gatekeeper programs have reported lower suicide rates in adults.[3,5,9,21,22,23] But this strategy requires youth to connect with adults and the disciplinary role of teachers may hinder its effectiveness.[9, 17]

Population screening aims to identify at risk individuals who may require further management.[5] Failure to screen for depression may contribute to poor patient management and treatment.[5] Screening as a preventative strategy for suicide is possible because a large proportion of those making suicide attempts have had recent contact with medical services.[5] Up to 83% of suicide victims have had contact with primary care in the year prior to their death, and up to 66% of victims within one month.[5] Evidence of the effect of screening for mental illness in primary care is varied. Whilst some studies report improved detection and increased treatment of depression, others show no benefit.[5, 24, 25, 26] In a small Australian study by Pfaff *et al.*, after attendance at a one day suicide prevention workshop, general practitioners demonstrated increased recognition of psychologically distressed patients, and the identification of suicidal patients (determined by the Depressive Symptom Inventory–Suicidality Subscale score) was increased by 130%.[26] Despite increased recognition, patient management was not significantly different after attendance of the workshop.[26] This study highlights that screening by primary care physicians alone is unlikely to be effective, but is reliant on changes in practice after a positive screen.[3, 5, 26] Such changes may include prescription of antidepressants, follow up with a nurse case worker, or referral to secondary services.[5] These actions are not limited to primary care physicians, and instead can be considered by health practitioners across many different contexts. More evidence is needed to determine whether screening does result in significant changes in physician practice, patient management and primary outcomes such as suicide attempts. As suicide risk for any individual waxes and wanes over time, screening may occur at a time when the patient is relatively asymptomatic, and this may be a major barrier to the success of screening interventions.[3] Furthermore, the success of screening also requires that the individual accepts the need for treatment.[3, 5]

Suicide attempts using highly lethal methods, such as firearm injury or hanging, result in higher rates of completion than the less lethal methods such as overdose.[5] Restricting the access to the means required for a particular method of suicide reduces the rate of suicide by that method.[9] Furthermore, restricting specific means can reduce the total suicide rate where the method is common, as seen with barbiturate restriction in Australia, or highly lethal.[5, 27] It has been suggested that means restriction is effective because suicidal individuals are often impulsive and the risk period for suicide is only transient.[3] Therefore, restriction of means of suicide during this time may prevent suicide.[3] In 2011 in New Zealand, 76% of male youth and 87% of female youth committed suicide through hanging, strangulation and suffocation.[1] Therefore, the restriction of means required for hanging, strangulation and suffocation in New Zealand may reduce both suicide attempts and the overall suicide rate. Other methods of means restriction include reducing the package size for over the counter analgesia, physical barriers at jump sites, restrictions to toxic drugs, and restricting vehicle emissions.[5, 9] An Australasian study by Beautrais showed a significant increase in the number of suicides by jumping from a bridge when safety barriers were removed as compared to before.[28] Although the restriction on these means has been shown to reduce suicide rates overseas, there is a need for evidence specific to New Zealand.[5, 9]

The media can play a dual role in suicide prevention efforts. Media attention may precipitate suicidal behaviour by drawing attention to and glamourising suicide, or it may educate the public and promote positive mental health.[5, 9] Internationally, media blackouts, which prevent reporting on suicide, have been associated with decreased suicide rates.[5, 29, 30] New Zealand has relatively restrictive guidelines for reporting suicide, but the effect of these on suicide rates has not as yet been evaluated.[9]

Many of these population based approaches are reflected in The New Zealand Suicide Prevention Strategy 2006–2016.[31] This strategy outlines seven goals to reduce the burden of suicide in New Zealand including to reduce access to the means of suicide, to promote the safe reporting and portrayal of suicidal behaviour by the media, and to promote mental health and wellbeing, and prevent mental health problems. This strategy highlights the importance of a co-ordinated multisectoral approach that is evidence based and is committed to reducing inequalities.[31]

CONCLUSION

The high rate of suicidal behaviour in New Zealand's youth as compared to other OECD countries poses a significant threat to the country's health and wellbeing profile and reflects a need for a more effective suicide prevention strategy. Understanding risk factors and how they apply to New Zealand's youth may aid the detection of high risk individuals, and the development of targeted interventions. Factors such as depressive illness, poor family cohesion, and bullying are potential areas for individually targeted interventions. Such interventions include the pharmacological treatment of mental illness. Although some evidence exists for the beneficial effects of the treatment of mental illness on lowering the rates of suicide, evidence in this area is generally lacking. Population based interventions may focus on education, screening, restricted media reporting and the restriction of means to suicide. Much of this data is international, with questionable applicability to New Zealand's youth. Furthermore, because of the variable and limited quality of research in these areas, there is a need for more well-designed studies before conclusions can be drawn on the usefulness of these strategies in the context of New Zealand's youth. However, due to the complexity of youth suicide risk and youth suicide prevention, a strategy that combines multiple, complementary approaches, may prove to be the way forward. This may include higher level change as well as changes to individual practitioner practice.

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