Suicide among Asian young people aged under 25 years in Aotearoa New Zealand: different methods warrant different preventive initiatives

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ABSTRACT

BACKROUND: The Asian population is growing rapidly in New Zealand and is expected to overtake Māori and Pacific population groups by 2038. Although there has been research on suicide in elderly Asian people in New Zealand, there is relatively little knowledge regarding suicide within Asian young people.

AIMS: To describe the characteristics and prevalence of suicide among Asian young people aged 10–24 years between 2002 and 2017.

METHODS: A retrospective review of all child and adolescent suicide deaths in New Zealand was conducted using a national database.

RESULTS: Results include a pattern of increasing deaths with increasing age, with 87.5% over the age of 16 years, and two-thirds of deaths occurring in the Auckland region. The majority of Asian young people who died by suicide were born outside of New Zealand (80.7%), consistent with the fact that the majority (77%) of the Asian population in New Zealand were born overseas. However, deaths tended to decrease with longer duration of residence in New Zealand. That certain methods of suicide were more prominent among Asian young people has important implications for suicide prevention.

CONCLUSIONS: Overall, there has been no significant change in the rates of suicide between 2002 and 2017. Young Asian people who die by suicide come from heterogeneous cultural and linguistic traditions, so prevention strategies need to be culturally responsive and delivered across multiple settings, including education, primary care and mental health services. However, certain methods are more common in many Asian countries, such as jumping from a height. We found this method was more commonly used by Asian young people compared with NZ Europeans, which should be a consideration in town planning, particularly in areas where there is a significant Asian population as part of a multilevel approach to suicide prevention.

The Asian ethnic group is currently the third largest ethnic group, and also the most rapidly growing population group, in New Zealand. The population is projected to overtake Māori and Pacific population groups by 2038.[1] Prior to 2003 there had been fluctuations in the suicide rates in the Asian population (all ages).[2] However, recent data from the Suicide Mortality Review Committee (SuMRC) suggested a pattern of increasing suicide numbers between 2007 and 2018.[3]

No single sequence of events or single factor predisposes a person to suicide, but there are circumstances and factors an individual may possess or experience that increases their chance of suicidality.[4] Stigma, poor self-esteem, increasing age, poor parental support and substance abuse are associated with suicidal behaviour in the Asian population.[5–9] But the mental health of the Asian population in New Zealand has received little attention. A possible reason is that Asians as a group have many

positive psychosocial outcomes, such as low rates of crime and divorce as well as a high degree of occupational and educational attainment.[6] However, research has also suggested that stigma towards poor mental health within Asian culture prevents people from accessing mainstream health service [6] and may lead to an underestimation of the difficulties faced by this group.

Existing models of suicide, such as the Interpersonal Theory of Suicide[11] and the Integrated Motivational–Volitional Model of suicidal behaviour, are based on Western concepts of health and wellbeing.[12] However, it is important to consider cultural aspects of suicide. Chu's Cultural Model of Suicide[13] suggests that culture is important for defining which types of stressors lead to suicide and the threshold for tolerating psychological distress at which suicidal behaviours are expressed. [13] Chu highlights the importance of stressors experienced by members of cultural minority groups because of their social identity. Prejudice and discrimination towards ethnic minority groups, combined with stigma towards mental illness, creates a double stigma[14] that acts to deter Asian individuals experiencing mental illness from seeking treatment. Stigma and ethnic discrimination are also known to be associated with adverse psychological and behavioural outcomes such as depressive symptoms, smoking and use of alcohol, each of which is also associated with higher rates of suicidal ideation and behaviour. [5,7,15–17] Ethnic discrimination is one of the many developmental challenges Asian young people experience during growth and adjustment when migrating to a foreign country. [8]

Suicide is the second leading cause of mortality for individuals aged 15–19 years globally[18] and suicide rates in Asian countries appear to be increasing.[18,19] Asian young people bring with them culture that influences their susceptibility to suicidal ideation and behaviour.[20] There have been some studies of older Asian people in New Zealand, but the characteristics of those young Asians who die by suicide remains relatively unknown. It is important to conduct research on suicide in Asian young people in order to understand trends and the characteristics of affected individuals.

This study aims to describe the characteristics and prevalence of suicide among Asian young people aged 10–24 years; to compare numbers and rates to other ethnic groups; and to examine trends between 2002 and 2017. This study can help inform initiatives to prevent suicide among young Asian people in New Zealand.

Methods

Cases were identified using the Mortality Review Database at the University of Otago. This is a secure database that contains information on the deaths of all children and young people aged between 28 days and 24 years in New Zealand who have died since 1 January 2002 onwards. The data are collected and stored for the Child & Youth Mortality Review Committee (CYMRC). Cases were included in this study if death was determined by a coroner to be a suicide. The data of individuals aged 10–24 years who died from any cause between 2002 and 2017 inclusive (n=6,642) were extracted from the database. The examined demographic characteristics included age, sex, year of death, method of death (by ICD-10-Australian Modification code[21]), geographical location (district health board (DHB) of residence), country of birth, socioeconomic status (measured by New Zealand Index of Deprivation 2013 decile) and, where available, duration of residence and whether or not they were studying at a tertiary institution. Data were extracted, coded and cleaned by the two senior authors (GMcD and SF). Blind double coding was conducted to ensure good inter-rater reliability on the identification of cases and key variables. Descriptive statistics were generated using a 95% confidence interval (CI) based on a binomial distribution using SPSS Statistics 26. [22] A denominator set from Stats NZ, based on the estimated resident population at each census, was used. Linear extrapolation was undertaken to calculate the population between census years. All rates are age- and ethnic-group specific.

There are multiple sources for ethnicity information in the Mortality Review Database, including Births, Deaths and Marriages, Ministry of Health collections and information from coroners, all of which allow multiple ethnic groups to be recorded. These sources of ethnicity data vary in their quality and completeness. A

hierarchy determines which data source is used to determine ethnicity. In addition, in order to allocate one ethnic group to each individual, a system of prioritisation is used, as per Ministry of Health protocols. This system gives precedence to Māori, followed by Pacific, Asian, MELAA (Middle Eastern, Latin American and African), then Other and European Ethnicities. For this study, prioritised ethnicity was used so as to match the denominator set. However, occasionally a "total response" Asian category is used if "Asian" is listed as any of the ethnic groups, then that individual is included as "Asian." Ethics approval was given by the University of Otago Human Ethics Committee. A study advisory committee including experts in Asian suicide was established to provide cultural insight and expertise.

Results

Of the total sample of deaths (n=6,642), 1,894 young people (aged under 25 years) in New Zealand between 2002 and 2017 (inclusive) were classified as having died by suicide. Of these, 88 (4.6%) identified as being of Asian ethnicity with a rate of 4.8 per 100,000. The Asian ethnic sub-groups who had the highest numbers of suicide in this study were Indian (n=26), Chinese and Korean (both n=12) and Filipino (n=9). If using a total response ethnicity, an additional six Asian cases were identified.

Age

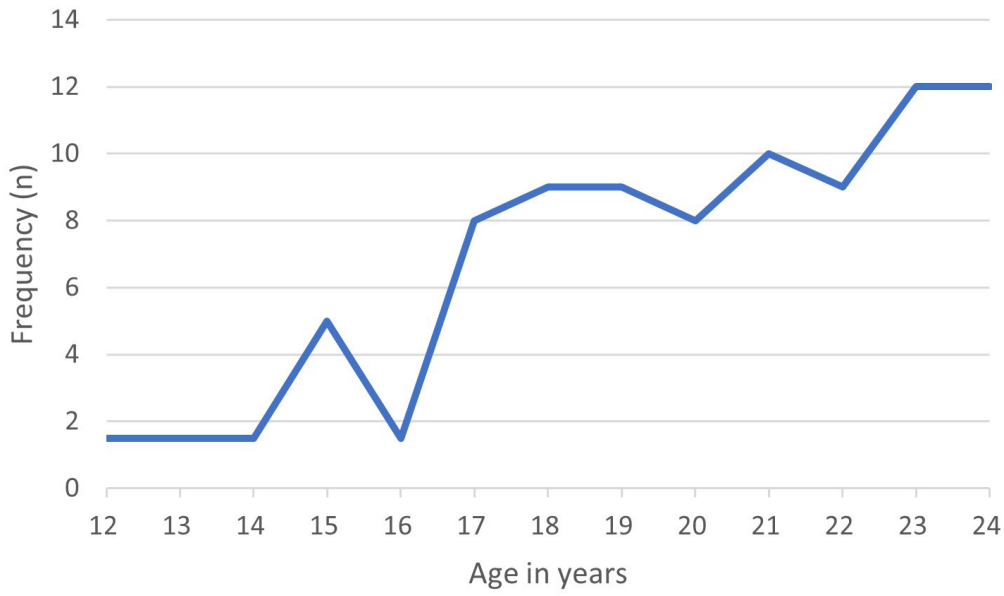
No suicide deaths were recorded for young Asian people aged under 12 years. But there appeared to be a pattern of increasing deaths by suicide as age increased beyond 12. Of all Asian suicide deaths, 87.5% (n=77) occurred among individuals aged 17 or older. When examined by a five-year age band, the oldest age group (20–24) had the highest rate of 6.3 per 100,000, with rates of 0.9 and 5.6 per 100,000 in the 10–14 and 15–19 year old age groups, respectively. The highest number of deaths was in those aged 23 and 24 years of age (Figure 1).

A similar pattern, whereby the total number of suicides increased with age, was observed for European young people. However, in comparison to the Asian group, the prevalence of suicide by age peaked in individuals at 20 years and slowly decreased from that point. Europeans also had a high rate of suicides in the 20–24 age group, at 20.4 suicides per 100,000.

Sex

Males made up 68.2% (n=60) of deaths by suicide within the Asian group. By rates,

Figure 1: Suicide mortality (frequency) in Asian young people by years of age, New Zealand 2002–2017 (n=88).



All numbers less than 3 have been adjusted to 1.5.

Asian males had twice the rate of suicides compared with females, at 6.3 and 3.2 per 100,000 respectively.

Similarly, within European young people, deaths were more prevalent in males, accounting for 76.9% (n=690) of the deaths with a male to female ratio of 3.2:1 (17.3 and 5.4 per 100,000 respectively).

Method of death

Within the Asian ethnic group, the most common methods of suicide were hanging, strangulation and suffocation (71.6%, n=63), followed by intentional-self poisoning (12.5%, n=11) and jumping from a high place (6.8%, n=6).

Hanging was also the most common method of suicide within the NZ European ethnic group (68.8%, n=617), followed by self-poisoning (11.9%,n=107) and firearm discharge (7.4%, n=66).

Some notable differences include a higher proportion of individuals within the Asian group jumping from a high place (6.8%) compared with NZ Europeans (3.1%) and a higher proportion of death by suicide within the NZ Europeans due to firearm discharge (7.4%) compared with the Asians (2.3%).

Location of residence by DHB

The DHBs with the largest number of deaths by suicide in Asian young people were in the Auckland area (Auckland, Counties Manukau and Waitematā) and made up 63.6% (n=56) of suicide deaths within the Asian group. This was expected because this is where 65% of Asian young people within New Zealand reside. The other DHBs where a significant proportion of suicides occurred were Waikato (9.1%, n=8), Capital & Coast (6.8%, n=6), Canterbury (5.7%, n=5) and MidCentral (5.7%, n=5). The DHBs with the highest rates of suicide deaths within the Asian ethnic group were MidCentral and Waikato, at 12.1 and 8.1 per 100,000 respectively.

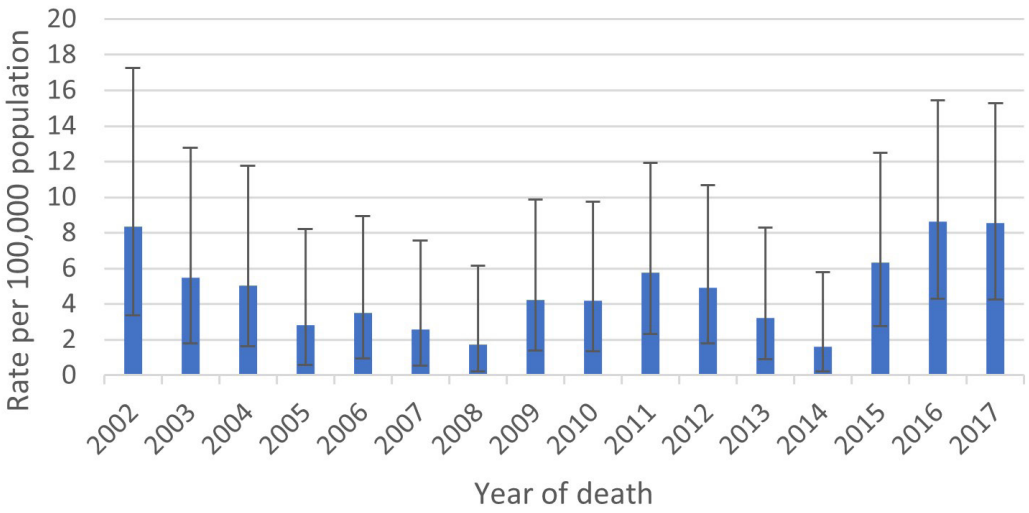
The DHBs with the largest number of deaths for NZ Europeans were Canterbury (17.7%, n=159), Southern (12.8%, n=115) and Waitematā (10.8%, n=97). The proportions of Asian and European deaths by suicide differed in the South Island DHBs. However, there was overlap within the Waitematā DHB. The DHBs with the highest rate of suicide within the NZ Europeans were South Canterbury and Wairarapa, at 21.8 and 17.5 per 100,000 respectively.

The location of residence is where the individual resided within New Zealand and not necessarily where they died.

Country of birth

The greatest proportion of suicides within the Asian ethnic group came from those who were born outside of New Zealand (80.7%, n=71), which is consistent with the fact that the majority of Asian population in New Zealand were born overseas. This fact, however, is changing over time, with 58%

Figure 2: Suicide mortality (rates and 95% CIs) in Asian young people by year of death, New Zealand 2002–2017 (n=88).



NZMJ 17 September 2021, Vol 134 No 1542
ISSN 1175-8716

of Asian children 10–14 years having been born in New Zealand according to the 2018 census.[1] The majority of those born outside of New Zealand were from an Asian country (83.1%, n=59). The number of deaths by suicide by country of birth were as follows: New Zealand n=17, India n=13, China n=11 and Korea n=10.

Duration of residence

Of the individuals classified as Asian who were not born in New Zealand, 64 out of 71 had the number of years living in New Zealand recorded. The range of time that was recorded was less than one year to greater than 20 years. There were fewer deaths in those who had been recorded as being in New Zealand for a longer time—although note there are many missing observations, and any associations between age and duration of residence may reflect the fact that older children/youth may have lived in New Zealand longer and also the significant degree of spread in duration of residence.

Year of death

The number of deaths per year within the Asian ethnic group ranged from less than three to more than 11, with the lowest rate of 1.6 per 100,000 in 2014 and the highest rate of 8.6 per 100,000 in 2016. The deaths in the Asian ethnic group were numerically small and fluctuated greatly from year to year. Consequently, there were not statistically significant trends observed (Figure 2).

In comparison, the number of deaths per year in NZ Europeans ranged between 44 and 68 and there was less fluctuation in the numbers and rates of suicide compared to Asian young people. Suicide rates ranged between 8.9 and 14.6 per 100,000, with an overall rate of 11.4 per 100,000.

Education details

Education details were only available for individuals who died by suicide from 2014 onwards (n=32). Of the 32 individuals, 20 had their details recorded: 12 were enrolled in an educational institution, and the remaining eight were not enrolled in any form of education. Of those who were enrolled at an educational institution, eight were enrolled in a tertiary institution and four were enrolled in a school.

Deprivation

In the Asian ethnic group, there was a higher number of deaths by suicide in those who lived in deprivation deciles 8 and 9 based on the New Zealand Index of Deprivation 2013 (NZDep) (n=13 and n=17 respectively). It is important to note that NZDep is an area level rather than an individual measure of deprivation, where NZDep 1 is an area with the least deprivation and NZDep 10 is an area with greatest deprivation. By rate, suicide deaths within the Asian ethnic group tended to follow a bimodal distribution, with a higher rate in deprivation deciles 1 and then in 8 and 9 in contrast to the NZ European group, where the greatest rates of suicide deaths were in deprivation deciles 6, 7 and 10.

Discussion

Consistent with previous studies,[8,18] our results indicated an association between older age and death by suicide, with 87.5% of suicides occurring within individuals of age 17 years or older. The male-to-female suicide ratio within this study was close to 2:1 consistent with previous studies[2] in Australia, the United Kingdom and the United States, in which immigrant populations have a lower male-to-female suicide ratios compared with the general population. As for NZ European young people in New Zealand, intentional self-harm by hanging and strangulation were the most common method of suicide among Asian young people, followed by intentional self-poisoning. However, in contrast to other groups, the Asian young people had fewer deaths associated with firearms and more deaths due to jumping from high places. The greatest number of deaths by suicide were within Auckland, Waitematā and Counties Manukau DHBs. However, this is to be expected given the concentrations of Asian residents in these districts. However, when calculating suicide rates, MidCentral and Waikato DHBs had the highest rate of suicides among Asian young people. Consistent with previous literature,[23] there is an increasing number of suicides with increasing deprivation. However, our results also show there was also a higher rate of suicide in the least deprived (decile 1) population.

The biggest contributors to the number of Asian suicides within this study were Asians who were born outside of New Zealand, which is consistent with the most

recent census that indicated the majority of the Asian community are born overseas. However, when classified by country of birth, New Zealand-born Asians had more deaths by suicide (n=17) than any other individual country and made up 19.3% of Asian suicide deaths within this study. This indicates a significant number of deaths came from second and subsequent generation Asians within New Zealand and not solely from Asian immigrants. Overseas-born immigrants who had been in New Zealand for a longer appeared to have lower rates of suicide. Previous research[24] has suggested that the longer an individual spends in a country, the more their suicide risk converges to that of the host country. Countries such as Korea, Sri Lanka, Japan and China have overall suicide rates higher than New Zealand, with males 15–29 years having particularly high rates in the South East Asian region.[19] It is important to note that, although the Asian population within New Zealand is increasing, the observed suicide rate fluctuates due to the relatively small numbers of deaths each year, and overall there is no significant trend either up or down in terms of suicide rates.

Strengths and limitations

To our knowledge, this is the first study conducted on the trends and characteristics of Asian youth in New Zealand who have died by suicide. This study, which covers all reported deaths of individuals aged under 25 years within New Zealand, offers a complete picture of mortality by suicide across the study period in this age group. Being a complete set of data, rather than a sample, there are no concerns about whether the study population is representative of all Asian young people who died by suicide. However, the numbers are still relatively small and need to be interpreted with caution. The limitations of this study include variable quality of ethnicity data with routinely collected datasets, use of country of birth as a proxy immigrant status, lack of data on first and subsequent generation immigrants for the total population of Asian young people and the lack of detailed ethnic subgroup demographic data. The Asian population in New Zealand is diverse in terms of cultural and linguistic traditions. However, the relatively small number of deaths in any given community precludes robust statistical analysis at a more fine-grained level. In addition, the information collected in official case records may reflect institutional racism.

Implications

Our study found that a significant number of suicides occurred in individuals 17 years and older, suggesting that secondary and tertiary institutions should be considered as locations for delivering suicide prevention work. The role of pastoral care within these settings needs further exploration, particularly within the private tertiary education section. More universal interventions supporting young people to develop healthy problem-solving skills should also be explored. It is important to recognise that the Asian community is heterogeneous with regard to country of origin, culture and language, so strategies need to be tailored accordingly.

Although making up a relatively small percentage of all suicide deaths, it was notable that there was a higher prevalence of the jumping from a height in Asian young people. This is consistent with international literature that has shown immigrants who die by suicide are more likely to use methods that are common in their country of origin. Jumping from a height is a common method of suicide in many Asian countries, possibly in part because of the ease of access to high buildings. There is growing interest internationally in strategies to reduce suicide deaths by jumping,[25] as part of a multi-level approach to suicide prevention. As our Asian population grows and our urban centres require more high-density housing, planners should ensure that housing and public amenities are designed with suicide prevention in mind.

The continued development and support of culturally responsive health services is likely to be important in areas with high and growing Asian populations such as Auckland. Integrated physical and mental health services should also be made accessible to those in highly deprived areas. In addition, further work to de-stigmatise mental illness within the Asian population could be of benefit.

Competing interests:
Sarah Fortune is Chairperson of the national Suicide Mortality Review Committee and a member of Local Child and Youth Mortality Review Committee, Counties Manukau DHB. Gabrielle McDonald, Epidemiologist, is a member of Mortality Review Data Group at the University of Otago.

Acknowledgements:
The first author would like to thank Dr Gary Cheung and Patrick Au for their input and advice regarding suicide prevention within the Asian community and to the Child and Youth Mortality Review Committee for their support. The lead author also expresses deepest gratitude to the Otago Medical Research Foundation (OMRF) for the funding and opportunity to undertake this research scholarship.

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