

## Chapter 4

### The epidemiology of Maori suicide in Aotearoa/New Zealand

Nicole M. Coupe

#### **Abstract**

*Suicide is a Māori Public Health Issue. Suicide rates in Aotearoa/New Zealand are amongst the highest in OECD countries in the 15-24 year age group and second only to Hungary in other age groups (WHO, 1996; Disley & Coggan, 1996). Suicide is the leading cause of death for young people under the age of 25 years in Aotearoa/New Zealand and a major public health problem (Coggan, 1997). Approximatel, 540 New Zealanders kill themselves each year (Rose, Hatcher, & Koelmeyer, 1999). The total Māori suicide rate (per 100 000) increased to 17.5 in 1997, compared to non-Māori (13.1), and the Māori youth suicide rate (33.9) far exceeded the equivalent non-Māori rate (24.3), reflecting the disparity between Māori and non-Māori (Ministry of Health, 1997). This paper aims to present epidemiological data on Māori suicide and then use the existing literature to discuss possible reasons for the high Māori rate.*

#### **Definitions**

*Māori* – Indigenous people of Aotearoa/New Zealand

*Whānau* – family, including extended family

*Hapū* – sub-tribe

*Iwi* - tribe

#### **The State of Māori suicide in Aotearoa/New Zealand**

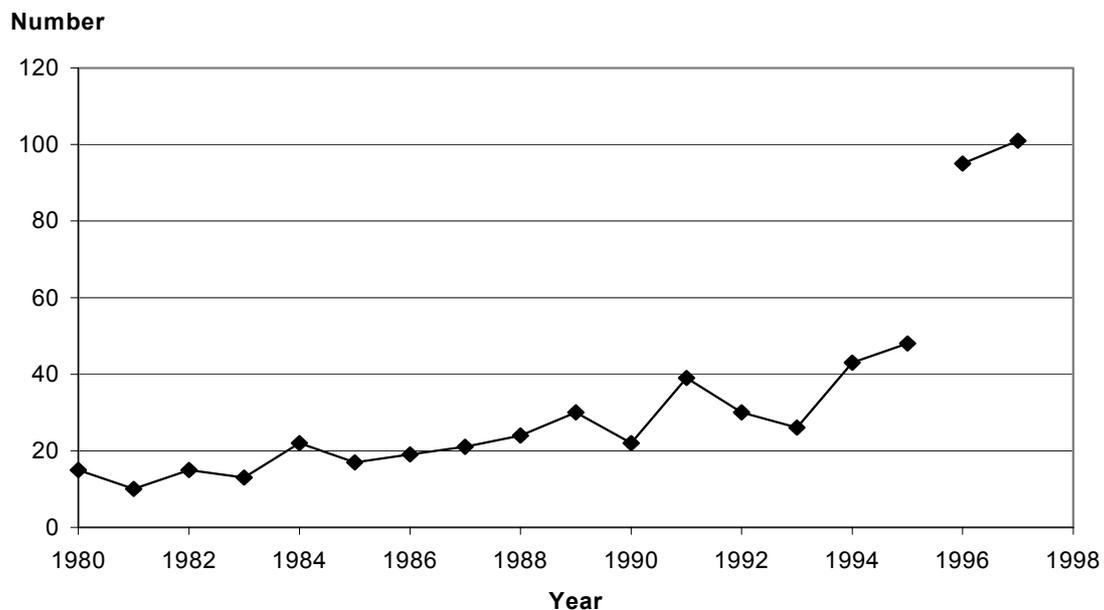
Mortality data in Aotearoa/New Zealand has three sources (death certificates, post-mortem and death registration) that are informed by various individuals (General Practitioners, pathologists and funeral directors), who notify the national health index. In Aotearoa/New Zealand suicide is defined as the disease or injury, which initiated the train of events leading directly to death, or the circumstances of the accident or violence, which produced the fatal injury (Australian version of the WHO's International Classification of Diseases, 1998). For the purposes of this paper, suicides for the period of 1980-1997 were extracted from mortality and demographic data held in the New Zealand Health Information Service (NZHIS, 1980-97). The definition of death via suicide and self-inflicted injury has its problems, however these are discussed more in depth in a paper in press (Coupe, 2000b). A further definition challenge arises with the change in definition of Māori in July of 1995.

Māori mortality after 1996 cannot be accurately compared with mortality data prior to 1995. This is due to the changes in ethnicity classification from a biological concept of 50% or more blood ancestry with only one choice of ethnicity (Māori, Pacific Islander, NZ European/Pakeha or Other) to self-identification with the option of selecting multiple ethnicities, therefore preventing time series analysis.

A search for E-Codes (external causes of death) between 950 and 959 revealed all intentional self-inflicted injuries causing death and suicides. Suicide and self-inflicted categories include: Poisoning (E950-2: solid, liquid, gases and vapours); hanging, strangulation and suffocation (E953); submersion and drowning (E954); firearms and explosives (E955); cutting and piercing (E956); jumping from high place (E957); unspecified means (E958); and late effects of self-inflicted injury (E959). All E-

codes between E950-9 with Māori ethnicity, both biological and self-identified, were extracted for this paper. Where possible the latest years' finalised data has been utilised.

Figure 1 gives the number of Māori suicides in Aotearoa/New Zealand over a 17-year period. From Figure 1, five hundred and ninety Māori completed suicide between 1980 and 1997. Significant increases occur from 1980 - 1994 ( $n = 15$  to  $n = 48$ ). Between 1996-7, numbers increase from 95 to 101, respectively. Due to the change in ethnicity coding in 1995, the number of Māori who complete suicide cannot be compared before and after this year. For this reason there is no data for 1995 and therefore a break in continuity.



**Figure 1**

Number of Māori Suicide in Aotearoa/New Zealand 1980-1997

Figure 2 gives age standardised suicide rates by age, sex, and ethnicity. From Figure 2, in 1997, Māori males had the highest overall suicide rate per 100,000 (26.8), followed by non-Māori males (21). Māori females had a higher overall suicide rate than their non-Māori counterparts (8.6 and 5.4, respectively). Figure 2 shows that Māori males in 1997 had the highest rate of suicide across most age groups, with the exception of 65+, followed by non-Māori males. Māori females had a suicide rate higher than non-Māori females across all age groups except the 45-64 years age range category.

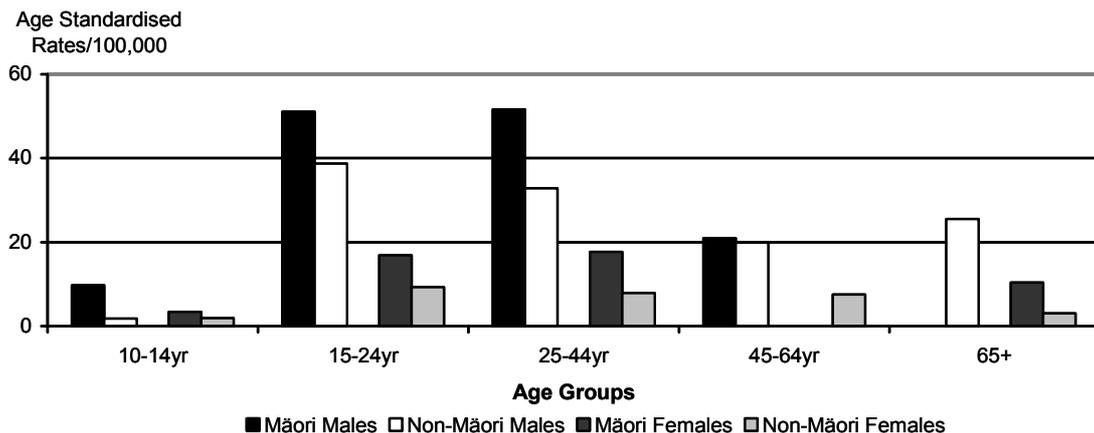


Figure 2  
Age standardised suicide rates by age, sex & ethnicity, 1997

From Figure 3, Māori suicide 1996-7 occurred in most age groups from 10 to 80 years. There is a distinctive peak in suicides between the ages of 15-35 years. The difference between 1996 and 1997 is a total increase of five. There appears to be a slight increase overall in the lower age groups (15-45 years). Sixty-four percent of Māori who complete suicide are not defined as the youth cohort (15-24 years) that the prevention strategies target.

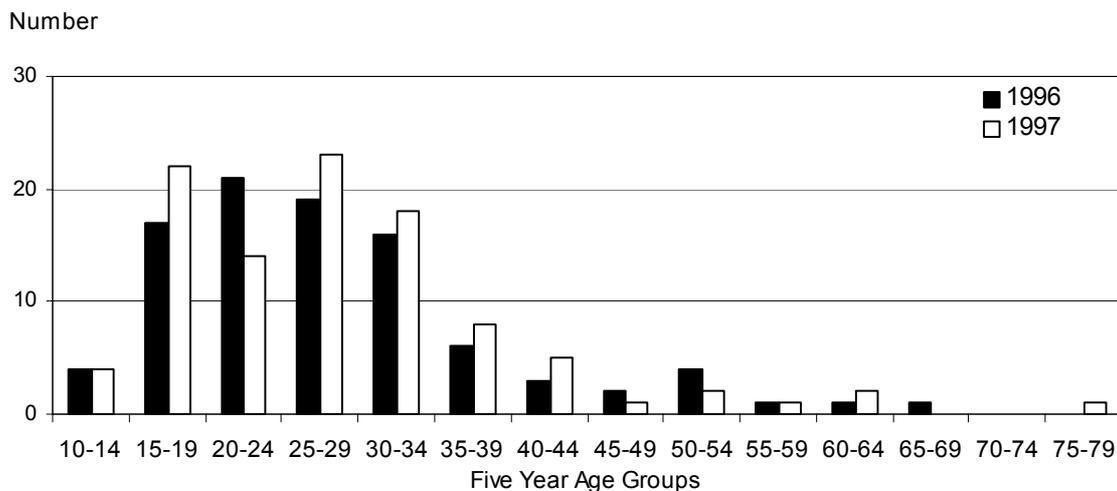


Figure 3  
Number of Māori suicides by five-year age groups, 1996-97

For the purposes of this paper, Māori suicide was categorised into three main cohorts. This by no means is reflective of what Māori age groups should look like. It is here to demonstrate the nature of suicide among different Māori cohorts. The three cohorts were labelled as taitamariki (10-29 years), pakeke/mātua (30-59 years), and kaumātua (60 years plus). This is a crude analysis of Māori suicide across age groups, and must only be read as that.

The age-standardised rates in Figure 4 have been calculated by the number of cases of Māori who complete suicide divided the total Māori population for that particular age group and then multiplied by 100,000. These Māori age-standardised suicide rates can be compared to other populations.

Age-standardised  
rates/100,000

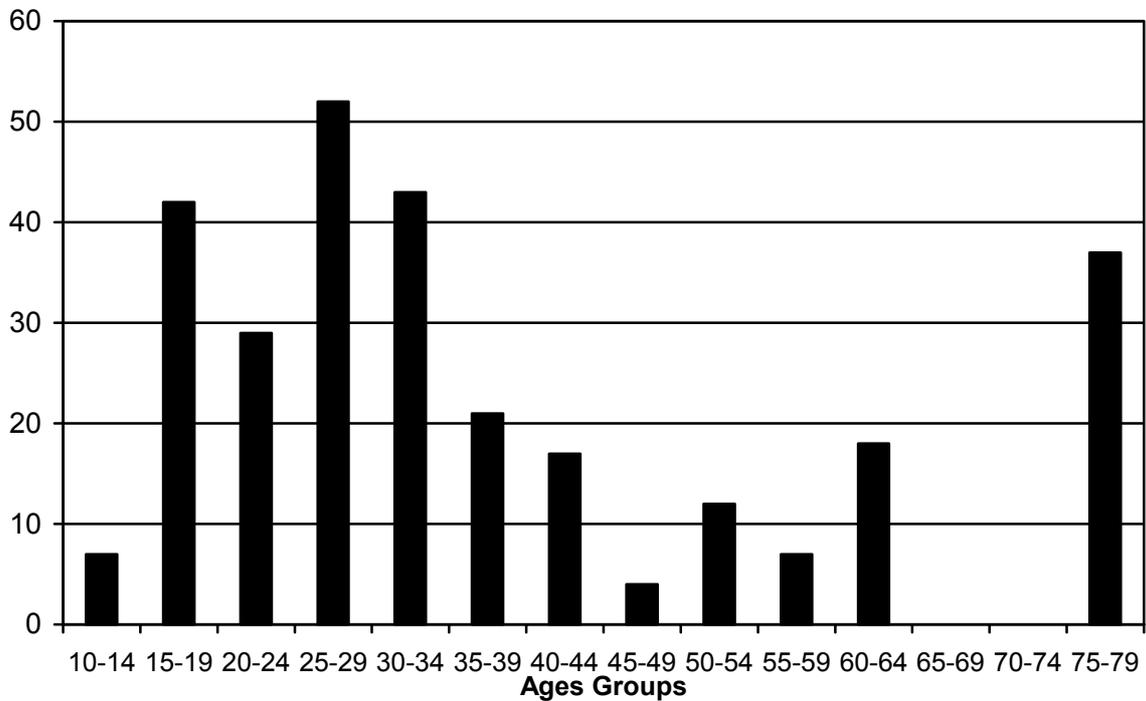


Figure 4  
Age-standardised Māori suicide rates by 5-year age groups, 1997

In 1997, the incidence of Māori suicide is notably high across most age groups. The age-standardised rates far outweigh the number of completed Māori suicides (Figure 3). There are two distinctive peaks for the rates of Māori suicide. The first peak occurs from 15-35 years of age and the second is in the eldest age group (75-79 year olds). These peaks may occur because of the sheer nature of the total Māori population structure, which is a youthful population with very few Māori in the older age groups.

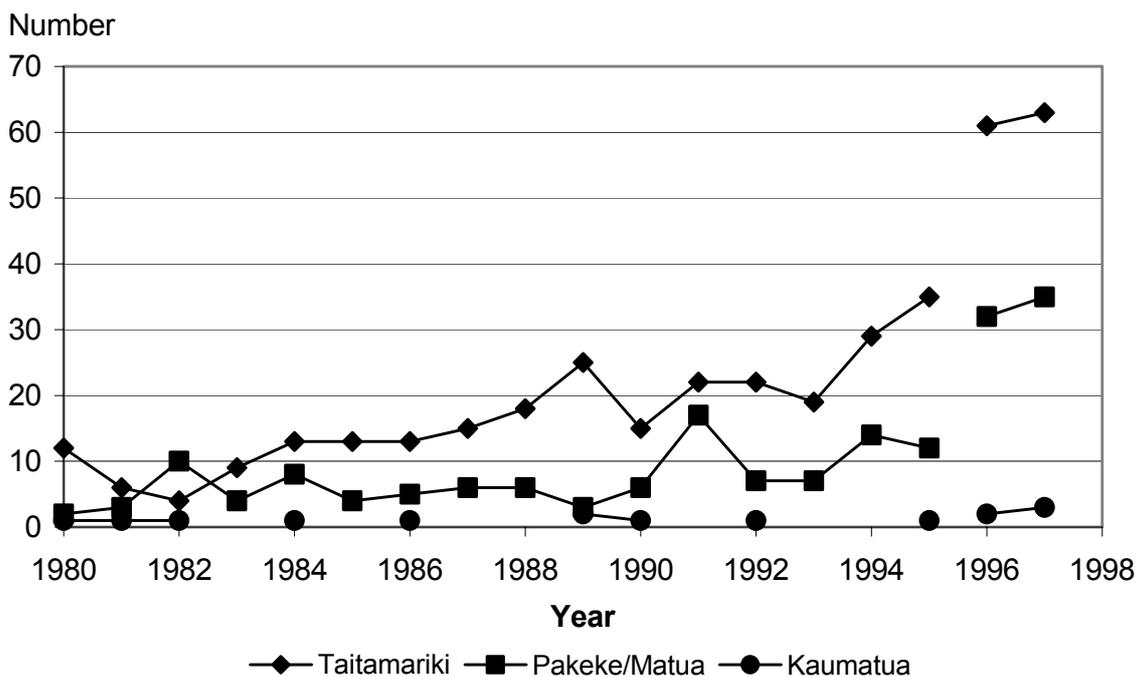


Figure 5  
Taitamariki, pakeke/mātua and kaumātua suicide, 1980-97

From Figure 5, the greatest numbers of Māori suicides occur among the taitamariki, with the exception of 1982 where pakeke/mātua were slightly higher. Of note is the difference between these three age groups after 1995. Prior to 1995, the difference in the number of suicides between these age groups is very little, although in the later years (1993-1995) they appear to be diverging. After the change in definition of Māori ethnicity, these differences are markedly increased. All Māori cohorts increased over time. Before 1995, taitamariki exhibit the greatest proliferation, followed by the pakeke/mātua and kaumātua, and after 1995, there appears to be a slight increase. As there are only two years of data for this period, very little can be said about post 1995 data.

The number of taitamariki that complete suicide maybe over-accentuated because this cohort includes pre and post pubescent Māori, which reflects major body developments and psychological growth. Māori are also more likely to become parents at a younger age, and therefore may be maturing at different stages of their lives, which adds to the burden of living in a Western world quite considerably. Taitamariki prior to 1995 may have been more like their non-Māori counterparts as a manifestation of the homogenic ethnicity classification system in place at the time. Pakeke/mātua and kaumātua, although less likely than their younger counterparts, still complete suicide.

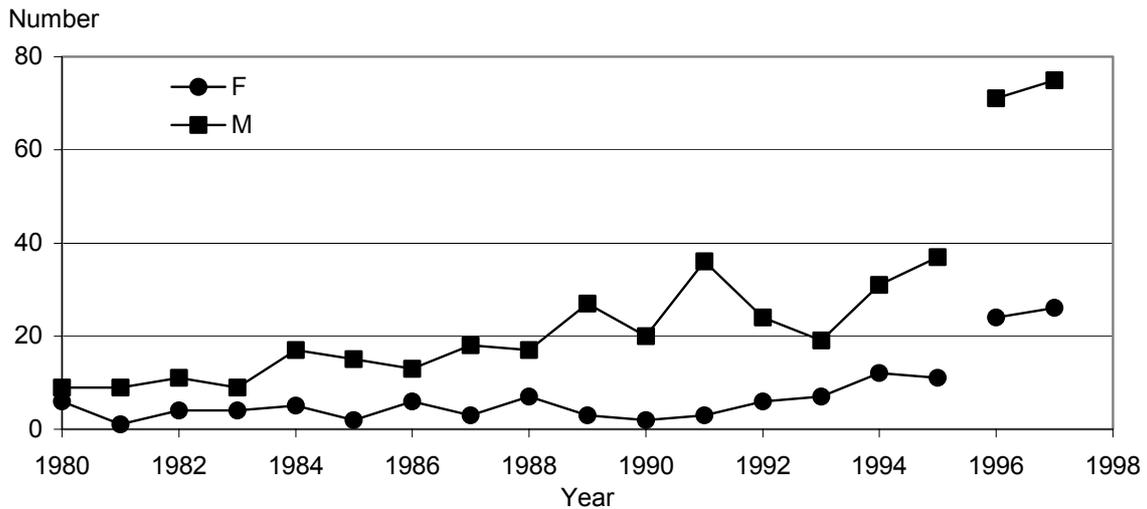


Figure 6  
Māori Suicides by gender from 1980-1997

The number of Māori males who complete suicide has always been higher than females; the difference is approximately 75% to 25%, respectively. From Figure 6, Māori male suicide has steadily increased from 1980 to 1997. Māori female suicide has progressed over this time with a slight gain post 1995.

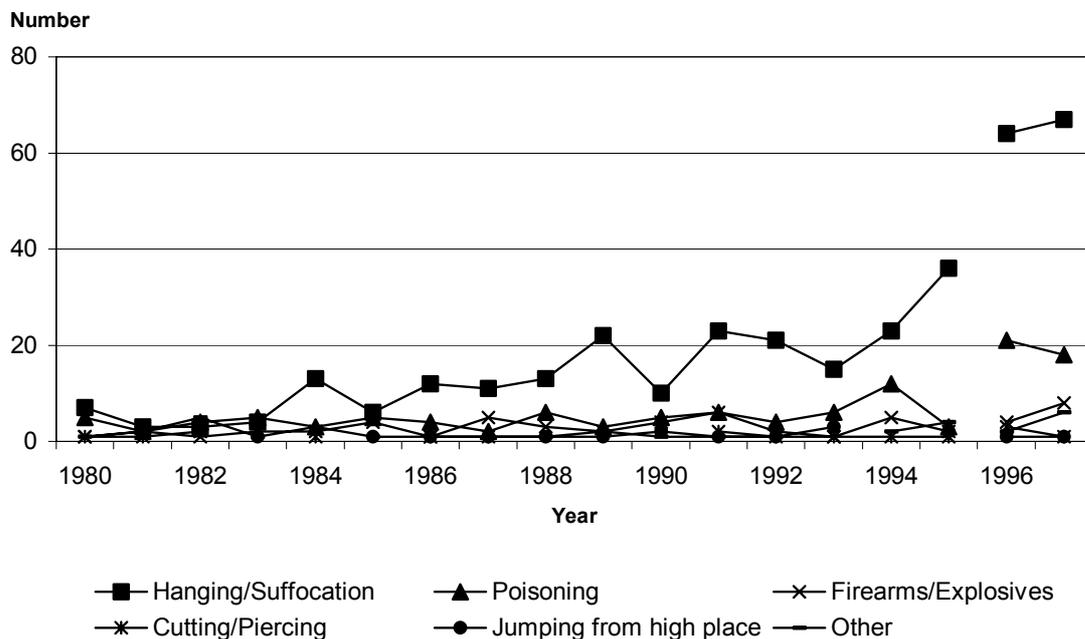


Figure 7  
Method of Māori Suicide, 1980-97

From Figure 7, hanging dominates the method of completing suicide for Māori (67%, 1997). Poisoning by solid, liquid, gas or vapours accounted for the majority of the rest of suicide for Māori at 18%, in 1997. Other methods such as firearms at 8%, cutting/piercing at 1%, jumping from a high place accounted for 1%, and other methods totalled 6%. All of the remaining methods have less than ten fatalities per year. Only hanging, strangulation and suffocation before 1995 exhibit an increasing

trend. Post 1995, this trend appears to be levelling off for preferred method of Māori suicide. Pre-1995, poisoning fluctuates over time, and post-1995 slightly declines.

The dominant method of hanging, strangulation and suffocation has been consistently high throughout time. One explanation for this choice of method is the ease of access to the necessary apparatus. Poisoning by gases, vapours and liquids follows hanging, and appears to be decreasing post-1995. The other possible methods, firearms, cutting/piercing and jumping from a high place, remain relatively stable throughout time.

There is a relative dearth of information in the literature for the association between the higher numbers of death attributable to suicide for Māori. The Christchurch psycho-autopsy case-control study has limited application for Māori since the study was located in the South Island, focused on mental health, and was limited as insufficient Māori participated (Disley, 1997). Studies have found linkages between a persons' mental health, socio-economic status, familial factors, life events, and cultural indices to suicidal behaviours. No evidence-based studies have focused and/or centred on Māori to determine the value of each of these factors. Many factors may contribute to the death of a person by their own hands. Lack of research and information about Māori suicide is a major barrier to understanding the reasons behind the high rate in this population (Te Puni Kokiri, 1998). A few of these factors for Māori suicide are described in the following paragraphs.

### **Risk factors for Māori suicide**

To date no epidemiological studies have centred/focused on Māori and therefore no risk factors for suicide have been purely deduced for this population. Research in Aotearoa/New Zealand has however identified factors that may contribute to a person engaging in suicidal behaviour (Beautrais, Joyce, & Mulder, 1997; Fergusson & Lynsky, 1995).

- Underlying psychological distress or mental illness
- Recognisable mental health or adjustment difficulty prior to the attempt
- Immediately prior to attempt may experience severe stress or life crisis usually centred around relationship breakdown
- Come from disturbed or unhappy backgrounds and
- Come from socially/educationally-disadvantaged backgrounds.

These studies found that ~90% of people who completed or attempted suicide will have one or more recognisable psychiatric disorders (depression; alcohol, cannabis, drug abuse; or significant behavioural problems). It is important to acknowledge that these epidemiological studies are based in the South Island (predominantly of European ethnic origin) of Aotearoa/New Zealand, and one study focuses on youth alone. Applicability for Māori is significantly limited as cultural awareness, accessibility, and identity of the participants, were not among the domains investigated.

### **Mental Health**

Epidemiological studies of mental health in Aotearoa/New Zealand have not focused on ethnicity as a variable, and have insufficient Māori in their samples to give adequate population-based information on psychiatric disorder amongst Māori. Without this information, assumptions are based on demographic characteristics, descriptive risk variables, and extrapolation from other Indigenous populations (Romans, Walsh, & Baxter, 1997).

A multitude of factors place Māori at risk of mental disorder increasing the threat of completed suicide. Māori have the highest rates of admissions to psychiatric care, access mental health services at a later stage of illness, and are more likely to be referred to psychiatric hospitals via law enforcement and

welfare services (Pōmare, Keefe-Ormsby, & Ormsby, 1995). Suicide may be associated with psychiatric disorder and psychological distress, the causes of which are still poorly understood but are clearly multifactorial (Beautrais, Joyce, & Mulder, 1996). Identified factors include:

- Low self-Esteem, where there's a struggle to develop and maintain a positive sense of identity and self esteem when messages received about being Māori are negative. The experience of emotional, physical and sexual abuse has a serious impact on mental wellbeing and self esteem. There are no reliable prevalence figures for these problems.
- Depression/Stress: There are no community prevalence studies enabling reliable determination of rates of depression and stress for Māori.
- Substance Abuse: Alcohol psychosis and drug abuse were the cause of 32% of all Māori first admissions to psychiatric hospital in 1993. Few Māori drink regularly, but on those occasions when they do, Māori drink nearly twice as much as non-Māori (Fergusson & Lynsky, 1995). It is of concern when statistics show that Māori suffer excessive morbidity/mortality from alcohol-related causes.

## **Abuse**

Physical, sexual, verbal and emotional abuses are all potential risk factors that may contribute to a person exhibiting suicidal behaviours. Whether these factors are precipitators or distal in nature toward a suicidal event is unknown, particularly for those of Māori descent where very little research has been undertaken in this area (Fergusson & Lynsky, 1995).

## **Sexual Orientation**

While little research in Aotearoa/New Zealand has been performed with Māori, we rely on international research. This research shows that it is widely believed by community groups that the gay and lesbian community are at an increased risk of suicide (Fergusson & Lynsky, 1995). Moscicki (1995) has challenged this perception, and emphasized that careful objective investigation is required.

### **Socio-economic Risk Factors For Māori suicide**

An Australian study found an association between socio-economic factors and suicide (Morrell, Taylor, & Quine, 1993). Many measures of socio-economic status are based on occupation and may not be a suitable measure for Māori, where a significant percentage of people are unemployed. Such measures also fail to recognise cultural differences in status and social responsibility, such as those following retirement. Māori socio-economic status explains some, but not the entire mortality surplus.

## **Employment/income/education**

Māori continue to be over-represented amongst Aotearoa/New Zealand unemployed. March 2000, the unadjusted unemployment rates stood at 14.6% for Māori compared 5% for European/Pākehā. In 1996, Māori comprised 27.7% of all unemployed people, but only 12.3% of the total working age population. Young Māori 1996, in the 15-19 and 20-24 age groups experienced the highest rates of unemployment, with rates of 30.4% and 21.8% respectively (Statistics New Zealand, 2000). Rates of suicidal behaviour tend to be elevated amongst young people from socially disadvantaged backgrounds characterised by low socio-economic status, limited educational achievement, and low

income (Fergusson & Lynsky, 1995). While there is some evidence from time series studies which links, at an aggregate level, rates of suicide in young people with rates of unemployment (Crombie, 1990; Pritchard, 1992; Te Puni Kokiri, 1996), these associations have not been confirmed by individual level studies (Beautrais et al, 1996; Goldney, Winefield, Tiggeman, & Winefield, 1995; Pōmare et al, 1995). Rather, individual level studies have tended to suggest that associations between suicidal behaviour and unemployment are likely to reflect common adverse social, family and personal factors, which are, independently, related to risks of both unemployment and suicidal behaviour.

## **Familial Factors**

The relevance of family disadvantage and/or abuse during childhood for Māori suicide is yet to be explored in a culturally appropriate way among whānau/hapū/iwi (Whānau/ /Hapū/Iwi are Māori words for family, sub-tribe, and tribe, respectively). There is some international evidence from twin and adoption (Roy, Segall, & Canterwall, 1991) and family studies (Brent, Bridge, & Johnson, 1996) that suicidal behaviour runs in families, suggesting a possible role of genetic factors in risk of suicidal behaviour (Disley, 1997). Mechanisms by which genetics influence suicidal behaviour and risk are not yet clear. Tendency for suicide to run in families may reflect a propensity for the familial transmission of aggressive, impulsive and violent behaviours, rather than the transmission of suicidal behaviour per se.

### **Precipitating Risk Factors for Māori Suicide**

There is considerable evidence to suggest that suicidal behaviour in people is often preceded by exposure to stress and personal adversity, notably: Interpersonal loss; conflict; disciplinary events; or legal crises. Generally, there is clear recognition that such events may occur relatively commonly, and may act as precipitating factors for suicidal behaviour only when they occur in those individuals who are vulnerable to suicidal behaviour (Brent et al, 1993). As we are well aware, Māori dominate the incarcerated population and this in the past has been a prevailing source of Māori suicides. So much so was this a problem population that the Department of Corrections commissioned a review group to investigate the extent of Māori suicide in prisons. After the review, recommendations were implemented and the number of Māori completing suicide in prison decreased (Department of Corrections, 1996).

### **Cultural Indicators for Māori Suicide**

Findings from individual discussions with six Kaumātua in one study found that the cause of increasing numbers of Māori youth suicide could be attributed to the process of colonisation, westernisation and the breakdown of traditional structures, values and attitudes present in pre-European Māori society (Joseph, 1997). It is therefore vital that cultural identity be further explored in relation to Māori suicide. A survey of 102 Māori households considered levels of cultural identity. Four profiles were developed each reflecting: Identity; knowledge of whakapapa; whānau participation; Māori land access; marae participation; association with other Māori; and te reo Māori ability (language). Thirty five percent of respondents fitted the criteria for a secure identity, 53% a positive identity, 6% notional and 6% compromised identity. This is a reflection of the levels of Māori cultural identity in the Manawatū-Wanganui (lower North Island), which may be indicative nationally (Durie et al, 1996).

There are two main perspectives that attempt to explain the increasing rates of suicide for Māori. According to John Broughton (Kāi Tahu/Ngāi Kahunganu), Director of Ngāi Tahu Māori Health Research Unit, it is the youth steeped in Māoritanga that are more likely to complete suicide while others contend that it is only, or mostly, those alienated from Māori culture who take their lives (Tatz,

1999). Epidemiological research is underway to determine which of these perspectives is more or less likely to be associated with those Māori who attempt suicide (Coupe, 2000a).

### **Protective factors for Māori Suicide**

A range of factors appears to have the capacity to protect people who might otherwise be at risk of suicide. Potentially these could include: Coping skills; raised self esteem; sense of belonging; connections to family/school; secure cultural identity; supportive family/whānau, hapū and iwi; responsibility for children; and social support. There is limited information on these factors other than in high-risk populations and for Māori, nothing.

### **Suicidal behaviour as a continuum-issue of intent**

Suicidal behaviour has been argued as falling into a continuum ranging from thoughts of suicide through to suicidal behaviours (plans to attempts) and in some cases suicide (Coggan, Fanslow, & Norton, 1995). There has been no research concentrating on Māori suicidal behaviours and whether this continuum holds true for Māori. Research has concentrated on cases resulting in death (Shaffi et al, 1985) or attempts resulting in hospitalisation (De Wilde et al, 1992; Morano, Cisler, & Lemerond, 1992). Even less is known about medically less serious attempts (Coggan, Disley, Patterson, & Norton, 1997). There is evidence that suicidal behaviours are frequently precursors to the completion of suicide. Contemporary theory of factors that contribute to this range of thoughts and behaviours is important for developing effective prevention efforts. Using suicidal ideation and behaviours as measures of suicide and attempts is highly problematic, as a high prevalence of suicidal ideation may be normal but prolonged preoccupation with death is abnormal and may not be a useful indicator of outcome. Strict definition of the lethality of suicide attempt is required in relation to suicidal behaviour due to cases contemplating death and therefore prevalence of attempt will be overestimated. By definition, suicide occurs when a person has intended to kill themselves, however ascribing intention to the actions of a deceased person is notoriously difficult and often a matter for considerable judgement (Durkeim, 1897; New Zealand Health Technology Assessment, 1998).

### **Discussion**

Rates of suicide in Aotearoa/New Zealand are amongst the highest in the OECD, and Māori experience the greatest rates of these irrespective of age, gender and societal structure. As most people are well aware, there are always issues with mortality data and its' reporting. For Māori and suicide this inaccuracy and underreporting of both ethnicity and cause of death has huge implications for prevention. Aside from the changes in ethnicity, Māori suicide continues to increase and the disparity between Māori and non-Māori continues to diverge. This disparity and its implication for New Zealand's National Youth Suicide Prevention Strategy are discussed in Coupe (2000b).

Suicide at any age has huge implications for the whānau structure and organization. Each person plays a significant role in that organization and those bigger structures that each whānau belongs to, whether that is a hapū, iwi, urban authority or community. The loss of any part within those structures is reflective. The gap must be filled, and the burden of existence is then transferred to that person, even if they are not ready for that responsibility.

Some factors that influence suicidal behaviour are macro-environmental, and can be manipulated through government policy (socio-economic issues, poverty, racism, housing, employment, income and education). Some in turn are micro-environmental and influenced by the individual, whānau/family, hapū and iwi/community (mental health; self-esteem; depression; substance abuse; physical, emotional, verbal and sexual abuse; familial factors; life events; and negative authoritative

involvement). Culture moves between both of these arenas, and is difficult and dynamic to quantify in its association to Māori suicide.

Potential protective factors for Māori could be viewed as the opposite to the risk factors. The better the macro- and micro-environments for Māori, the less suicides would be expected to occur. However there are some individual factors that have been postulated for other ethnicities that may include: Social support, coping skills, and raised self-esteem. Some of the more cultural based protective aspects could be a secure cultural identity, connections to whānau/family/school, supportive family/whānau/hapū/iwi, responsibility for children, and sense of belonging. These all need to be explored further to determine the nature of each with respect to Māori suicide.

The increase in Māori suicide cannot be irrefutably explained without strong evidence-based research, and is clearly multifactorial. The development of culturally appropriate strategies for Māori suicide prevention will enable policy makers, health purchasers and providers to address this important public health issue. The Treaty of Waitangi plays a pivotal role in the restoration of Māori self-determination. The principles of protection, participation and partnership are all being violated while the number of Māori who are completing suicide remains at these extremes.

## References

- Australian version of the *World Health Organisation's International Classification of Diseases*, 9<sup>th</sup> revision (2<sup>nd</sup> edition), Clinical Modification (ICD-9-CMA-II). 1998.
- Beautrais, A. L., Joyce, P. R., & Mulder, R. T. (1996). Access to firearms and the risk of suicide: A case control study. *Australian and New Zealand Journal of Psychiatry*, 30, 741-748.
- Beautrais, A. L., Joyce, P. R., & Mulder, R. T. (1997). Precipitating factors and life events in serious suicide attempts among youths aged 13 through 24 years. *Journal of the American Academy of Child and Adolescent Psychiatry*, 36, 1543-1551.
- Brent, D. A., Bridge, J., & Johnson, B. (1996). A controlled family study of adolescent suicide victims. *Archives of General Psychiatry*, 53, 1145-1152.
- Brent, D. A., Perper, J. A., Moritz, G., Allman, C., Friend, S. A., Roth, C., Schweers, J., Balach, L., & Baugher, M. (1993). Psychiatric risk factors for adolescent suicide: A case control study. *Journal of the American Academy of Child and Adolescent Psychiatry*, 32, 521-529.
- Coggan, C. A. (1997). Suicide and attempted suicide in New Zealand: A growing problem for young males. *The NZ Public Health Report*, 4, 49-51.
- Coggan, C., Disley, B., Patterson, P., & Norton, R. (1997). Risk taking behaviours among a sample of New Zealand adolescents. *Australian and New Zealand Journal of Public Health*, 21, 455-461.
- Coggan, C., Fanslow, J., & Norton, R. (1995). *Intentional injury in New Zealand: Analysis and Monitoring Report*, 4. Wellington: Public Health Commission.
- Coupe, N. M. (2000a). *Māori attempted suicide: A case control study in Auckland, New Zealand*. Tomaioira Seminar Series, Department of Māori & Pacific Health: University of Auckland.
- Coupe, N. M. (2000b, March). *Māori suicide prevention in Aotearoa/New Zealand*. Pacific Health Dialogue: Journal of Community Health and Clinical Medicine for the Pacific. Māori Health in New Zealand. Faculty of Medical and Health Sciences, University of Auckland.
- Crombie, I. K. (1990). Suicide in England and Wales and in Scotland: An examination of divergent trends. *British Journal of Psychiatry*, 157, 529-532.
- Department of Corrections. (1996). *Report of the Māori Suicide Review Group*. Wellington: New Zealand.
- De Wilde, E. J., Kienhorts, I. C. W. M., & Diekstra, R. F. W. (1992). The relationship between adolescent suicidal behaviour and life events in childhood and adolescence. *American Journal of Psychiatry*, 149, 45-51.

- Disley, B. (1997). An overview of mental health in New Zealand. In *Mental health in New Zealand from a mental public health perspective*. Wellington: Ministry of Health.
- Disley, B., & Coggan, C. A. (1996). Youth suicide in New Zealand. *Crisis*, 17, 116-172.
- Durie, M. H., Black, T. E., Christensen, A. E., Durie, A. E., Fitzgerald, E., Taipa, J. T., Tinirau, E., & Apatu, J. (1996). *Māori profiles: An integrated approach to policy and planning*. Report for Te Puni Kokiri.
- Durkheim, E. (1897, translated 1952). *Suicide: A study in sociology*. London: Routledge.
- Fergusson, D., & Lynsky, M. (1995). Childhood circumstances, adolescent adjustment, and suicide attempts in a New Zealand birth cohort. *Journal of the American Academy of Child and Adolescent Psychiatry*, 34, 612-622.
- Goldney, R. D., Winefield, A. H., Tiggemann, M., & Winefield, H. R. (1995). Persistent suicidal ideation and its enduring morbidity. In M. L. Mishara (Ed.), *The impact of suicide* (pp. 123-129). New York: Springer.
- Glover, M. (1993). *Te Puna Roimata: Māori women's experience of male partner violence*. Waikato University: Unpublished MA thesis.
- Joseph, P. (1997). *Māori youth suicide in Aotearoa: Selected interviews with Māori Elders*. Auckland: University of Auckland unpublished MA thesis.
- Ministry of Health. (1997). *Youth suicide facts 1997 statistics*. <http://www.moh.govt.nz>
- Morano, C. D., Cisler, R. A., & Lererond, J. (1992). Risk factors for adolescent suicidal behaviour: Loss, insufficient familial support, and hopelessness. *Adolescence*, 28, 851-865.
- Morrell, S., Taylor, R., & Quine, S. (1993). Suicide and unemployment in Australia. *Social Science and Medicine*, 36, 749-756.
- Mosciki, E. K. (1995). Suicide in childhood and adolescence. In F. C. Verhulst & H. M. Koot (Eds.), *The epidemiology of child and adolescent psychopathology*. Oxford, UK: Oxford University Press.
- New Zealand Health Technology Assessment. (1998). Youth suicide prevention by primary health care professionals: A critical appraisal of the literature. *NZHTA Report 4* (revised).
- Pōmare, E., Keefe-Ormsby, V., Ormsby, C., et al. (1995). *Hāuora: Māori Standards of Health III: A study of the years 1970-1991*. Wellington: Te Rōpū Rangahau Hauora A Eru Pōmare: Māori Health Research Center.
- Pritchard, C. (1992). Is there a link between suicide and young men and unemployment? *British Journal of Psychiatry*, 160, 750-756.
- Romans, S., Walsh, A., & Baxter, J. (1997). Women. In P. M. Ellis & S. C. D. Collings (Eds.), *Mental health in New Zealand from a public health perspective* (pp. 184-206). Wellington: Ministry of Health.
- Rose, J., Hatcher, S., & Koelmeyer, T. (1999). Suicide in Auckland 1989-1997. *New Zealand Medical Journal*, 112, 324-6.
- Roy, A., Segal, N., & Canterwall, B. (1991). Suicide in twins. *Archives of General Psychiatry*, 53, 1145-1152.
- Shaffi, M., Carrigan, S., & Whittinghill, R. (1985). Psychological autopsy of completed suicide in children and adolescents. *American Journal of Psychiatry*, 142, 1061-1064.
- Skegg, K. (1997). Suicide and parasuicide. In P. M. Ellis & S. C. D. Collings (Eds.), *Public Health Report: Mental Health in New Zealand from a Public Health Perspective* (Chapter 23). Wellington: Ministry of Health.
- Statistics New Zealand. (2000). *Māori: Impacts of unemployment*. <http://www.stats.govt.nz>
- Tatz, C. (1999). *Aboriginal suicide is different: Aboriginal youth suicide in NSW, ACT, and New Zealand: Towards a model of explanation and alleviation*. Report to the Criminology Research Council on CRC Project 25/96-7.
- Te Puni Kokiri. (1996). *Te Māori te Waipiro*. Wellington: Te Puni Kokiri.
- Te Puni Kokiri. (1998). *A review of the evidence: Kia Piki Te Ora O Te Taitamariki: The New Zealand Youth Suicide Prevention Strategy*. Te Puni Kokiri: Ministry of Māori Development, Wellington.
- WHO. (1996). *World health annual statistics*. Geneva: WHO.