Explaining Patterns of Suicide

A selective review of studies examining social, economic, cultural and other population-level influences

Report 1: Social Explanations for Suicide in New Zealand

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Preface

Social explanations for suicide in New Zealand: utilising trend data to 1999

This paper is one of a suite of six reports that the Ministry of Health commissioned from the Wellington School of Medicine and Health Services between 2001 and 2004. The suite of reports explore a range of possible social explanations, analyses and evidence about New Zealand's suicide trends. Due to a three-year time lag in coroner statistics being available, most of the reports address suicide trends up to 1999.

National suicide prevention strategy

The suite of reports aims to inform discussion on New Zealand's proposed national suicide prevention strategy: *A Life Worth Living: All Ages Suicide Prevention Strategy* (2005).

Report no.	Topic	Author/s	Title
1	Literature review (2002)	Caroline Maskill Ian Hodges Velma McClellan Dr Sunny Collings	*Explaining Patterns of Suicide: A selective review of studies examining social, economic, cultural and other population-level influences*
2	Review of routine data (2002)	Stuart Ferguson Assc Prof Tony Blakely Bridget Allan Dr Sunny Collings	*Suicide Rates in New Zealand: exploring associations with social and economic factors*
3	Māori (2004)	Dr Paul Hirini Dr Sunny Collings	*Whakamomori: He whakaaro, he korero noa. A collection of contemporary views on Māori and suicide*
4	New Zealand–Finland comparison (2003)	Assc Prof Philippa Howden-Chapman Dr Simon Hales Dr Ralph Chapman Dr Ilmo Keskimaki	*The Impact of Economic Recession on Youth Suicide: a comparison of New Zealand and Finland*
5	Data analysis from the New Zealand Census–Mortality Study (2004)	Dr Sunny Collings Assc Prof Tony Blakely June Atkinson Jackie Fawcett	*Suicide Trends and Social Factors in New Zealand 1981–1999: Analyses from the New Zealand Census-Mortality Study*
6	Summary of reports 1–5 (2004)	Dr Sunny Collings Assoc Prof Annette Beautrais	*Suicide Prevention in New Zealand: a contemporary perspective*

Copies of reports and suicide publications

The Ministry of Health website, at www.moh.govt.nz, contains pdf copies of the following suicide related documents:

- the suite of six reports (2001–04)
- *A Life Worth Living: New Zealand Suicide Prevention Strategy* (2005)
- Comprehensive review of the suicide prevention literature (Beautrais et al 2005)
- the latest annual statistics, published as *Suicide Facts*.

Copies of suite of reports and other suicide or injury prevention-related information is available at: New Zealand Injury Prevention Strategy www.nzips.govt.nz, and Suicide Prevention Information New Zealand www.spinz.org.nz.

Acknowledgements

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Contents

Part 3: New Zealand Suicide Statistics

References

List of Figures

Executive Summary

This report reviews a selection of international literature that attempts to explain why suicide rates vary over time and between different population groups. The emphasis is on social, economic and cultural influences at the population rather than the individual level. This is a narrative review rather than a structured Cochrane-style systematic review. It was prepared to be used as a resource for the Ministry of Health funded project *Social and Epidemiological Explanations for New Zealand's Suicide Trends to 1999*.

Suicide theories

Durkheim's 1897 study *Le Suicide* proposed that suicide is a symptom of an underlying inadequacy (or excess) of 'social integration' and 'social regulation'. This analysis paved the way for the development of further suicide theories using the 'traditional' (or 'structure–functionalist') sociological approach. Other theorists modified or elaborated on Durkheim's concepts and suggested that disruptions to social status, social networks, social relationships or the economy could increase suicide levels.

There appear to be few formal theories from the 'conflict' or 'critical' stream of sociology specifically addressing the issue of suicide. However, applying this type of approach, we might expect that structural social inequalities will result in groups of people with poor access to resources (including social capital) having relatively high rates of suicide, as occurs for other indicators of poor physical and mental health.

Interpretive theorists looking at the social meanings of, and opportunities for, suicide among different social groups have criticised official suicide statistics for being unreliable and systematically biased. They suggest that suicide patterns stem from cultural norms, beliefs and values, labelling practices, social responses to suicide, the suicidal behaviour of others in society, and other social-psychological factors. People are also influenced by physical and cultural opportunities for suicide.

Empirical research

A review of quantitative studies investigating the relationship between rates of suicide and a number of socio-cultural and economic variables (for which New Zealand data is available) shows there has been extensive research in this area. Some of the studies have aimed to test specific suicide theories, while others have been more descriptive.

Some of the factors investigated show fairly consistent correlations, but for others there is contradictory evidence (sometimes depending on the unit of analysis used). Even where consistent patterns are evident it has been difficult to establish causality due to probable two-way relationships, confounding and mediating factors, and other complex interactions between variables.

No single suicide theory seems to account for all the empirical results. However, many of the social and economic indicators associated with high suicide rates may point to some kind of reduced social integration (eg, due to significant social or economic changes), social inequalities, and different social meanings of, or opportunities for, suicide.

New Zealand situation

As a brief analysis of the New Zealand context shows, there have been significant changes in the New Zealand socio-cultural and economic environment following European settlement in the 19th century. These changes have included variations in factors that have been correlated with variations in suicide rates overseas.

As in most other countries, suicide rates in New Zealand have fluctuated over time. Rates also vary – sometimes significantly – by age, sex and ethnicity. One particularly striking feature of the national situation is that New Zealand has a very high youth suicide rate. These patterns suggest that the factors influencing suicide are not identical for all New Zealand population groups.

Future research, including that planned in the next parts of the current wider project, may assist in further explaining why suicide rates in New Zealand vary in the way they do.

Introduction

Aims

This narrative literature review aims to:

- review theories that attempt to explain why people commit suicide – in particular social, economic, cultural and other population- or societal-level theories suggesting why variations and similarities in suicide rates exist at different times and for different population groups

- review empirical research that has investigated various population or societal-level influences on suicide rates (including trends and cross-sectional comparisons of different population groups)

- provide a preliminary overview of relevant New Zealand suicide statistics

- identify features of the New Zealand socio-cultural environment that may be relevant to suicide.

Method

Literature search

The following electronic bibliographic databases were searched for relevant literature:

- Medline
- Sociofile
- Psychinfo
- International Bibliography of Social Sciences database
- Auckland University library catalogue (Voyager)
- Auckland Public Library catalogue
- WHOLIS (WHO library)
- National Library Catalogue
- Ministry of Health Library Catalogue.

Search terms varied according to particular databases. Because of the scope of the topic, narrow terms tended to be unhelpful for identifying relevant literature. It was usually necessary to use broader terms like 'suicide and aetiology', 'suicide and sociology', 'suicide and history', 'suicide rates' or even just 'suicide', and then search and select potentially relevant titles on-screen. This means that these searches are not precisely reproducible.

Early in the project, the Ministry of Health also provided already-completed searches of:

- Te Puna – New Zealand National Bibliography
- Medline, Psychinfo, Sociological Abstracts
- Australian Medical Index
- Index New Zealand.

In addition, Internet searches were carried out using various search engines (eg, ANZwers, Yahoo, Google). These were particularly useful for identifying key publications by authors, and research centres with a track record of suicide research.

Initial searches mainly covered English-language literature published from 1990 to mid-2002,[1] with priority given to review articles. However, it became apparent after a good amount of literature had been retrieved that much of the relevant *theoretical* literature had been published in earlier decades. References cited by other authors, especially review articles and books, were particularly helpful in identifying this type of literature.[2] Due to the time and resource constraints of the review we were not always able to view original documents.

Literature selection and retrieval

Results from the database searches were printed out, including abstracts where these were available. From the very large number of documents identified, around 1200 were selected as potentially relevant for the review, based on the information provided in their titles and abstracts. The bibliographic details for these documents were then transferred to a master list. Following this, some 250 priority documents were selected from the master list for retrieval. Additional books and articles were also obtained after reviewing reference lists in retrieved documents. Articles were primarily retrieved from the Auckland University and Wellington Medical School libraries. A number of national and international interloans were also made. Not all the original documents could be obtained. Where this was the case, material is acknowledged by citation of the material we did see.

Structure

This report is divided into three parts: an overview of suicide theories, a summary of empirical research, and New Zealand statistics.

Part 1: Suicide theories

Part 1 examines a selection of theories about why people commit suicide. The focus is mainly on socio-cultural and economic theories that seek to explain variations in suicide patterns over time and between different groups of people. The emphasis is on macro-, or population- or societal-level, theories rather than theories about why *individuals* kill themselves (such as psychological and biological theories).

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[1] Although the Medline and Sociofile searches included earlier literature as well.
[2] Particular priority was given to documents that were identified by several authors, rather than a single author.

Part 2: Overview of selected empirical studies

This part of the report summarises, under 24 topic headings, the findings of selected quantitative empirical research examining the influences on suicide. This research has described rates of suicide observed over time, or among different groups of people, both overseas and in New Zealand. Where possible, for each topic links between the empirical findings and theoretical views are noted. Relevant features of the New Zealand context are also presented.

Part 3: New Zealand suicide statistics

The final part of the report provides a brief introduction to the published New Zealand suicide statistics.

Part 1: Theories of Suicide

This part of the report provides an introduction to the various theories that have been developed in an attempt to explain the social environmental influences underlying suicide.

Defining 'suicide'

Suicide can be defined simply as 'the destruction of oneself – self-killing or self-murder in the legal sense' (Clinard and Meier 1975: 497). Retterstol (1993: 2) offers a more detailed definition:

> An act with a fatal outcome, that is deliberately initiated and performed by the deceased him- or herself, in the knowledge or expectation of its fatal outcome, the outcome being considered by the actor as instrumental in bringing about desired changes in consciousness and/or social conditions.

However, there is a wide spectrum of suicidal behaviour, ranging from low-level suicide ideation (occasionally thinking about suicide) through to a deliberate action that actually results in death.

'Attempted suicide' is the term most often used to describe self-harm where there is apparently an intention to kill oneself but death does not occur. Taylor (1988: 52) defines this type of suicidal behaviour as 'any deliberate act of self-damage, or potential self-damage, where the individual cannot be sure of survival'.

Whether or not a person really intended to die is sometimes unclear or ambiguous in both attempted and completed suicide situations, given that it is difficult to accurately determine a person's intention after the event. For this reason, Taylor (1988) distinguishes four types of behaviour related to suicide:

- suicide – the person intends to dies, and does so
- attempted suicide – the person intends to die, but does not
- suicidal gesture – the person has no real intention of dying, and does not
- accident – the person does not intend to die, but does.[3]

To further complicate matters, a number of psychological theorists (eg, Shneidman and Farberow 1960; Menninger 1938; both cited by Fusé 1997) have suggested that people who engage in suicidal behaviour often want to live *and* die at the same time. Other interpretations are that such people 'gamble' and leave it up to others to decide the outcome, they are not aware that they have such a suicidal intent, or they are acting passively (ie, failing to stop themselves from dying) rather than actively (Clinard and Meier 1975; Lester 1997a; Taylor 1988; also see later discussion in this part of the report).

Another aspect of suicidal behaviour is the 'suicidal process': the 'development from suicidal thoughts to completed action' (Retterstol 1993: 135). This process is considered by some theorists to originate in childhood.

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[3] Aaron Beck et al (1976, cited by Lester 1997a) developed a scale of suicidal intent based on the circumstances of the act, which has been used in a number of studies.

Attempted suicide and completed suicide have been regarded by some researchers as two quite different types of behaviour. There is also some utility in considering deliberate self harm where there is a small risk of death separately from attempted suicide. However, there is a great deal of overlap between the risk factors for these types of behaviour, and a significant proportion of people who engage in low-risk deliberate self-harm or attempt suicide later go on to commit suicide (Lester 1989b; Taylor 1988, Williams 1997). This suggests that deliberate self-harm, attempted suicide and completed suicide should be regarded as occurring on a continuum ranging from thoughts of suicide to completed suicide.

Overview of suicide theories

Throughout human history numerous theories have been advanced in an effort to explain or better understand why people seek to take their own lives. In general, these theories can be classified into three groups.

- *Biological theories* postulate that certain physiological, biochemical or genetic factors exert an important influence on the aetiology of suicide (sometimes in combination with environmental factors). Examples include genetic predispositions, chemical imbalances, abnormal levels of neurotransmitters, neurological damage due to infections, and nutritional disorders (Fusé 1997).

- *Psychological and psychiatric theories* focus on the states of mind, psyche, or feeling and beliefs about the world of individuals who commit or attempt suicide. Often these theories give little prominence to the broader social relations or the socio-cultural context of suicidal behaviours. (For further discussion of psychological theories, see Fusé 1997, Lester 1988 or Retterstol 1993.)

- *Sociological theories* focus on the significance of the social environment, social relationships and other social, economic and cultural factors in the aetiology of suicide. Two different types of empirical investigation generally underpin these theories. The first is the mainly quantitative, statistical approach that grew out of the work of the early 'moral statisticians' and Durkheim. The second is the mainly qualitative, ethno-methodological or interpretive approach exemplified by the work of Jack Douglas (Douglas 1967, cited in Giddens 1971a).

Conflicting and overlapping theories

Evaluating the diverse and conflicting theories on suicide and suicidal behaviour, Fusé (1997) observes that there is no widespread agreement about which theories have the most explanatory power. He notes that the three main categories of suicide theories – sociological, psychological and biochemical – are all still largely at an:

> ... early developmental stage, in which there is competition between various theories, each building its own empirical base and methodology, but without systematic accumulation of knowledge as in the case of mature branches of science like physics and chemistry. (Ibid: 75)

He further observes that:

> ... the three major branches of theories have been competing for saliency, dominance and hegemony, each with its own theoretical base making different assumptions, concepts and methodology with some accumulation of knowledge achieved. (Ibid: 75)

However, although the different suicide theories can be characterised as competing, they also overlap in several ways. For instance, psychosocial (or social-psychological) theories examine the influence of the *social meanings* of suicide and suicidal behaviour in their *social context* (ie, they consider both social and individual aspects within the same theory) (Taylor 1988). But theories that focus on the influences of societal-level *social forces* (such as social integration/ social regulation) also frequently examine what these forces mean for individual behaviour. Moreover, certain psychological theories consider the impact of *socialisation* processes in a person's psychological development, including how societal norms shape their thinking, or how events in their life are shaped by relationships with other people.

Other suicide theories attempt to link or integrate social environmental, individual, and physical environmental influences using multi-level, multi-factorial models. Some of these give equal weight to social and psychological factors (Taylor 1988).

It should be noted, too, that indicators at various levels or units of analysis can be used to investigate a certain theory about why people commit suicide. For instance, 'divorce' (an indicator of social disintegration) can be examined by looking at international, national, regional or sub-population divorce rates, the nature of relationships between spouses, or the meanings or effects of divorce for families or individuals. What this means is that even if a theory attributes the 'cause' of suicide to features operating at the population or societal level, it is still legitimate to test the theory using data at many different levels of analysis.

Suicide theories plainly span disciplinary boundaries in some cases. For instance, several authors with sociology backgrounds have used traditional psychological concepts in their suicide theories (eg, Stephen Taylor and Anthony Giddens). Sociologists, psychologists, psychiatrists, anthropologists, economists, epidemiologists, demographers, historians, theologians and philosophers (among others) have all applied themselves to the problem of suicide. In this respect, the field of 'suicidology', as it is now often known, is interdisciplinary.

Relevance of sociological theories to suicide

The focus of this report is theories that try to explain the social, economic and cultural influences on suicidal behaviour. That is, what aspects of the social environment 'cause' or set the conditions for suicide, and how and why does this happen?

In this regard, social, economic and cultural influences are broadly defined as the dimensions of human life that arise out of the interactions between people, and which can be regarded as a product of collective thought or action. Giddens (1982) defines these dimensions as 'institutionalised' beliefs and behaviours that are reproduced across relatively long spans of time and space. Examples include language, ethical and moral codes, laws, beliefs about the nature of the physical and social world, beliefs about the meaning of death, marriage customs, and so on. These socio-cultural dimension can be contrasted with the elements of human behaviour that stem directly from inner biological, physical or psychological instincts, drives or needs. Social and cultural beliefs, practices or 'institutions' are recognised to be significant in 'amplifying, reformulating or restricting' these inner physical and psychological urges or imperatives (Bille-Brahe 2000).

Invariably, no one person designs or creates these social environmental dimensions. Rather, they arise out of, and are in turn reproduced or modified as a result of, the myriad of interactions

and communications between individuals over time. Evidence for the existence and character of these social environmental factors or 'institutions' can be obtained by studying what people say and do, both at the level of the individual and of populations.

Selection of theories

The two main types of theories examining the social environmental influences on suicide are:

- theories contending that suicide, and the way it is patterned in a group or population, is primarily an outcome of *generalised conditions* of social disruption or disorganisation

- theories contending that suicide, and the way it is patterned in a group or population, is primarily a product of the *distinct social or cultural meanings* attributed to suicide.

In addition, because they include aspects of both of the above, we have also summarised a selection of theories that attempt to *integrate* or *link* socio-cultural influences on suicide with other types of influences (eg, psychological, biological).

Note that due to the time and resource constraints of this literature review it has only been possible to provide introductory descriptions of various theories of suicide. For this we have relied considerably on previous reviews, in particular those of Lester (1989b), Taylor (1988), Fusé (1997) and Lester and Yang (1997), and collections of papers such as those by Giddens (1971c) and Lester (1994b). We have not always been able to review original documents ourselves, and to some extent the descriptions below and the choice of theories have been influenced by the interpretations and preferences of other reviewers.

We have, however, attempted to cover the more commonly discussed and significant theories addressing the relationship between social environmental factors and suicide. For further details, interpretations and criticisms of suicide theories, we recommend that readers obtain the reviews we have used and, where possible, the original writings of the theorists.

1.1 Social disorganisation and social change theories

Introduction

Various theories contend that the distribution of suicide is primarily influenced by certain kinds of generalised social disruption or disorganisation. These types of theory often look at what happens when the structural features of society (eg, people's relationships with one another; their position in society; their access to resources; cultural norms, values and beliefs) are significantly altered in some way, such as by widespread or local social, economic or political changes. Patterns of suicide over time and between different groups of people are considered to be greatly influenced by these types of social conditions.

Emergence of this perspective

People have not always believed that the social environment has an influence on suicide. Even as late as the end of the nineteenth century it was widely believed that human behaviour is fundamentally a product either of individual choice (free will), or inherited characteristics such as 'race' (Taylor 1988).

In Western Europe, during the last half of the 18th century and first half of the 19th century, interest developed in examining the causes of suicide by using observable evidence gathered from the systematic study of human action (Giddens 1971e). Two distinct methodological approaches emerged.

The first emphasised the study of individual cases of suicide and was typically the domain of physicians and psychiatrists. Jeanne-Etienne Esquirol's 1838 *Maladies Mentales*, for example, concluded that suicide was always a symptom of mental illness, and to explain the origins of suicide it was first necessary to understand the biological causes of mental illness. Following in this tradition, investigators such as Maurice de Fleury (1924) concluded that suicide was always a product of mental disorder, the causes of which were biopsychological, not social (Taylor 1988).

The second methodological approach was developed by the so-called 'moral statisticians', such as Quetelet, Guerry, Lisle, Legoyt, Wagner, Mercier, Falret and Masaryk. It involved studying patterns in official suicide statistics in the belief that these provided a 'quantitative index' or barometer of the moral life of society. The moral statisticians identified empirical correlations between suicide rates and certain socio-cultural factors, often explaining these in terms of differences in climate, 'race' or geography (Giddens 1971a).

Social disorganisation theories before Durkheim

In 1783 Charles Mercier first identified statistical evidence showing the steady growth of suicide in the modernising countries of Europe. Jean Pierre Falret subsequently observed that suicide rates tend to rise during periods of rapid social change and in periods of economic depression. In 1881 Thomas Masaryk, foreshadowing Durkheim, argued that the rising suicide rates apparent in various European countries were the result of modernisation and the dissolution of traditional institutions and moral controls, especially those connected with religion. He contended that religions that had strict rules and firm beliefs were better at reducing suicidal tendencies than religions that encouraged questioning and protest (Giddens 1971a; Lester 1994c).

Social integration/social regulation – Durkheim

Emile Durkheim's 1897 analysis of suicide, *Le Suicide,* is still the most widely celebrated, analysed, used and disputed sociological theory concerning suicide. Durkheim's work on suicide in the late 1800s grew directly out of the work of the 'moral statisticians'. Like them, Durkheim wanted to explain variations in the *statistical distribution* of suicide rates: why differences in suicide rates between countries remain relatively fixed or constant, and why, when suicide rates change within a country over time, they do so in a patterned way.

However, the unique feature of Durkheim's approach was his rejection of the importance of *non-social* factors for determining variations in rates of suicide. His writings were the first to claim that variations in suicide rates in modern societies were very largely – if not entirely – determined by the social environment. In short, he argued that societal conditions, the general moral and psychological climate of a society, could increase or decrease the propensity for individuals to react to problems and pain by committing suicide (Bille-Brahe 2000).

Durkheim noted that individual behaviour is profoundly influenced by the way the social and collective life of a society is organised, and that each society has its own set of rules, values and

norms – 'social facts' or 'institutions' – that have a constraining effect on individual behaviours (Fusé 1997). He proposed that there are two forces that normally maintain social order and prevent social chaos. The first is *social integration,* which binds individuals to society through the social norms and values of the group. The second is *social regulation*, which restricts people's potentially limitless natural desires and aspirations by defining specific goals and the means of attaining them.

Durkheim claimed that imbalances in either of these two social forces were the main causes of suicide, and described two key outcomes or scenarios:

- 'excessive individualism', where people become detached from close-knit contact with others, laying the foundation for what he described as 'egoistic suicide' (a symptom of inadequate social integration)

- 'anomie' (or a state of normlessness), a situation where the codes of behaviour that previously controlled people's conduct no longer apply, laying the foundation for what Durkheim described as 'anomic suicide' (a symptom of inadequate social regulation).

Variations in suicide rates between and within modern societies, said Durkheim, reflect the degree to which the social 'institutions' in these societies promote or diminish conditions of egoism or anomie.

Durkheim also described two other types of suicide:

- 'altruistic suicide', which he attributed to a lack of individuation (ie, excessive social integration), including the suicides (or perhaps more accurately sacrifices) of religious martyrs or kamikaze pilots

- 'fatalistic suicide', which he attributed to excessive social regulation, including the suicides of slaves, prisoners or others living in environments where their every move is controlled and scrutinised (Maris 1997).

Stack (1994) notes that for Durkheim the main 'driving force' behind the long-term increase in suicides was the impact of modernisation, including the growth of urbanisation, industrialisation, secular education and laissez-faire capitalism. This increased the risk of anomic and egoistic suicide by decreasing the subordination of the individual to group life, reducing the number of shared beliefs and practices, unleashing limitless appetites, weakening relationships based on the extended family, and generating sudden changes in people's lives, all of which contributed to the emergence of what Durkheim referred to as a kind 'collective sadness'.

Durkheim's theory can be regarded as a *unifying* theory in that it attempts to explain the observed relationships between suicide rates and a large number of different indicators (such as divorce rates, rapid social change, wars, etc.) using two key theoretical constructs – social integration and social regulation. A large amount of empirical research has found, as Durkheim predicted, that indicators of social integration and regulation are correlated with low or high suicide rates. However, there is also contrary evidence (Fusé 1997; Lester 1989b). (For more details, see Part 2 of this report.)

Durkheim's theories and empirical methods have also been criticised from a number of perspectives (Fusé 1997; Johnson 1965, cited by Lester 1989b; Taylor 1988). These include:

- the lack of reliability and validity of officially collected statistics (see the discussion of Douglas's theory below)

- Durkheim's statistical analyses were unsophisticated by today's standards

- social regulation and social integration may be reducible to one concept

- the different types of suicide Durkheim identified may not really be distinct from one another

- Durkheim resorted to the use of psychological concepts or explanations, even though he rejected non-social causes of suicide.

Despite these criticisms, Durkheim's work has formed the foundation for numerous studies examining sociological influences on suicide, especially after 1951, when the first English translation of *Le Suicide* was published (Giddens 1971b; Taylor 1988). His work still maintains a high profile and relevance today.

Urbanisation

Maurice Halbwachs was a student of Durkheim. Like his teacher, he regarded suicides 'as a sort of thermometrical index which informs us about the moral condition, the moral temperature of a group' (Halbwachs 1930, cited in Giddens 1971e). Halbwachs proposed that patterns of suicide distribution could be more simply explained by levels of urbanisation. His analysis showed that suicide rates were lower in communities situated further away from densely populated cities. Following Durkheim, he suggested that a lack of social integration in cities explained this phenomenon. He saw urban life as relatively transitory and impersonal, leading to a greater proportion of people becoming socially isolated and vulnerable to suicide (Halbwachs 1930, cited by Taylor 1988).

> If the individual becomes discouraged and neglects himself or if he becomes desperate and turns his anger against himself, it is because he has not wife and children to whom the double bond of affection and duty unite him; it is because he finds neither support nor guidance from the group of men who accept the same dogma and practise the same religion; or, finally, it is because he is not taken out of his selfish preoccupations and raised above himself by great political and national interests. (Halbwachs 1971: 32)

Sainsbury's analysis of suicide rates in the different boroughs of London built on the work of Halbwachs. Sainsbury found that suicide rates varied according to the social character of a district (Sainsbury 1971). In particular, he found high rates of suicide in boroughs with high levels of social disorganisation, isolation and mobility (Sainsbury 1955, cited by Taylor 1988). He concluded that 'the nature of community life, its cohesion and stability, and the opportunities it provides for satisfactory relationships, alone afford a comprehensive explanation of the variations in suicide rate of communities and other social groups' (Sainsbury 1971: 250). Commenting on social isolation and its impacts, he noted:

> ... the impassive indifference of the metropolis and its capacity to engender feelings of insignificance and loneliness among its residents is a product of two major social processes: first, the differentiation of districts given over exclusively to lodging-houses, hotels and flatlets; and secondly, the isolation produced by a high mobility which debases human relationships to a formal level and compromises all values by offering so many alternatives. … Social isolation is a wider concept than living alone. It includes: the social and cultural isolation of the immigrant; the solitude of old age arising from lack of

contemporaries to share values and outlook; the unemployed's sense of social rejection; the ostracism resulting from infringement of a social taboo by divorce or a criminal act, or any similar activity that might diminish relatedness to the community. A high suicide rate is found in all these categories: only the concept of social isolation embraces and accounts for such a diversity of phenomena. (Sainsbury 1971: 254–5)

Similar patterns to those identified by Sainsbury were found in Caran's 1965 (cited by Taylor 1988) analysis of Chicago city districts. Districts with higher suicide rates also had higher levels of social isolation and social mobility, and lower levels of social organisation.

Johnson (1965, cited by Lester 1989a) simplified Durkheim's theory by arguing that the more integrated a society, the lower will be its rate of suicide. Lester, however, suggests a modification of Johnson's theory, observing that 'when the integration of society is very low or very high, then its suicide rate is high, whereas at moderate levels of integration, its suicide rate is low' (Lester 1989b: 24).

Maris disagreed with Johnson's contention that the concepts of social integration and social regulation are identical (Maris 1969, cited by Lester 1989b). He proposed that the meaning of *social integration* could be operationalised as the number of interpersonal dependency relationships (ie, familial, friendship and occupational relationships). Also, the meaning of *social regulation* could be operationalised as the number of subordinate–superordinate relationships. However, Lester (1989b) criticises Maris's concept of social regulation for ignoring both the regulatory influences that have been internalised by individuals during the socialisation process, and the fact that some kind of regulatory constraint can be a feature of *peer* as well as subordinate–superordinate relationships.

Social status and social mobility

Powell (1958, cited by Lester 1989b) theorised that the risk of anomic suicide is directly related to the degree to which people achieve their *social status* aspirations or ideals. If these aspirations are frustrated, then a state of anomie arises. Powell described anomie as a 'general loss of orientation accompanied by feelings of emptiness, apathy and meaninglessness' (Lester 1989b: 26). Powell further distinguished two types of anomie: 'anomie of dissociation' and 'anomie of envelopment'.

Anomie of dissociation is characterised by a dissociation of self from the 'conceptual system of the culture', resulting in a reaction of flight and aggression in response to the fear of chaos. Powell considered this type of anomie to be mainly found among people in lower socioeconomic groups. Anomie of envelopment is characterised by the envelopment of self by the culture, leading to a repressive lack of spontaneity through excessive commitment to the 'prevailing conceptual framework' (Lester 1989b: 26). Powell considered this type of anomie to be mainly found among people in the higher socioeconomic groups. Powell's concepts are very similar to Durkheim's concepts of anomie and fatalism, so much so that some commentators have concluded that they are just different names for the same ideas (Lester 1989b).

A New Zealand study by Porterfield and Gibbs (1960, cited by Taylor 1988) examined the relationships between suicide and mobility in different occupational classes ('status change'). They found that upward and downward mobility both increased the risk of suicide. They theorised that upward mobility could lead to feelings of anxiety, and downward mobility could

lead to a sense of failure and frustration. Social ties were also weakened in both cases, leading to less social support.

Status integration and social role conflict

Gibbs and Martin (1964, cited by Taylor 1988 and Lester 1989b) argued that it is the stability and durability of social relationships that fundamentally protects people from committing suicide. Acknowledging the difficulties inherent in measuring the quality of social relationships *per se*, they devised the concept of 'status integration', which they considered measurable and testable. They noted that:

> ... the theory of status integration was not developed to explain individual cases of suicide, but to account for variations in the suicide rates of populations. ... That is, the theory of status integration is a sociological formulation that is not limited to any particular class or society; it is equally appropriate for predicting suicide rates by occupation, race, sex, marital status, religion, state or nation. (Gibbs and Martin 1964: 5)

Status integration was defined as the degree to which the *statuses* of the roles people occupy (eg, parent, worker, church member) are integrated, consistent and overlapping. If these statuses are conflicting or incompatible, then status integration is poor. Poor status integration is considered in turn to lead to role conflict, loss of social relationships and ultimately suicide (Lester 1989b). As Gibbs and Martin observe:

> A man may have numerous social relationships as a consequence of his occupation, but conformity to the roles of his occupational status alone will not maintain his social relationships with his wife and children; the latter can only be maintained by conforming to the roles of husband and father. Conformity to the roles of one status alone is not ordinarily difficult. It is only when conformity to the roles of one status tends to interfere with conformity to the roles of one or more of the other statuses that the individual finds it difficult to maintain his social relationships. (Gibbs and Martin 1971: 71)

Empirical research has investigated the relationship between status integration and suicide using variables such as gender, marital status, ethnicity and occupation (with multi-dimensional categorisation being preferred). Results have been mixed, with some studies supporting the theory and others not (Lester 1989b).

Taylor (1988) criticises Gibbs and Martin for relying on the analysis of statistical information, rather than pursuing the *meanings* people ascribe to suicide, and for not analysing whether *individuals* with low status integration are more prone to suicide than other people. Lester (1989b) notes the arbitrariness in Gibbs and Martin's choice of status categories and the difficulties of operationalising the concept of 'status integration' in practice (a point also made by Jack Douglas (Douglas, 1971), among others).

Social network theory

Another sociological perspective on suicide is offered by Bernice Pescosolido (1990), based primarily on studies of the connections between suicide and religious affiliation. She builds on Durkheim's ideas about social integration and regulation, as well as the work of Georg Simmel. who was a sociologist and philosopher who considered that society was primarily characterised by people's connections and interactions with each other . Pescosolido theorises that suicide risk

is not conditioned simply by the extent to which religious ties are present or absent in a community, but more particularly by the *strength and durability* of these ties (Pescosolido 1990). As she puts it:

> ... what differentiates religious groups in their ability to restrain suicidal impulses ... lies in the degree to which religions provide strong support communities. This depends fundamentally on the nature of the religious community and on ties that bind individuals to it. In the social network framework, the focus lies neither in whether individuals formally identify themselves as having a religious affiliation nor in what the formal prohibitions against suicide are. The key is whether they actually become part of the church or temple community. (Pescosolido 1994: 274)

Pescosolido notes that many theories of suicide – including Durkheim's – fail to provide an adequate explanation of how micro-level individual behaviours link to broader macro-level structures and processes (Pescosolido 1994). Network theory argues for the primary importance of *social ties* in mediating the link between these two levels of analysis, with individual actors and social structures reciprocally influencing each other through these social ties.

Pescosolido's framework shares some features with other social network theories that consider the influence of social relationships and social support on health and wellbeing. For example, Berkman et al (2000) emphasise the continued relevance of Durkheim's ideas about social integration for understanding and addressing the 'upstream' determinants of major health and social problems like violence, homicide and cardiovascular disease, as well as suicide. Importantly, these writers also acknowledge that some types of social integration may not necessarily be associated with good health outcomes. There may in fact be stressful or detrimental aspects to being integrated into large or dense social networks, just as there may be positive and health-promoting ones.

In this regard, Maris (1997) notes that not all social relations protect against suicide. If the individual is a member of a group where the group norms are pro-suicide, or where social relations or interactions are painful, rejecting, deprecating, punitive or vengeful, then this will likely raise the suicide rate, not lower it. In short, even if an individual is immersed in a wealth of social events, relationships or ties, these relations may be perceived as lacking in meaning or negative.

Social interaction theories

Several theories have been proposed suggesting how the nature of normal social interactions such as reciprocity, interpersonal role conflicts and interpersonal frustrations may be correlated with suicide.

Palmer (1972, cited by Lester 1989b) suggests that if the degree of reciprocity (giving and receiving) is high in a society, then people will agree with one another more (high social regulation) and interact with one another more (high social integration). Reciprocity is also related to social roles and status, both between people and within an individual. If there is a high degree of role conflict and reciprocity is low, tension and outward aggression will result. If reciprocity is high and tension is low, inward aggression is more likely.

Narroll (1965, cited by Lester 1989b) suggested a theory relating to social interactions between people that could also be applied to individuals. The theory was that if people are often 'thwarted' in their social interactions, then they become socially disorientated and frustrated and therefore more likely to commit suicide. Research by Narroll (1965), and Krauss and Krauss (1968, cited by Lester 1989b) in non-literate societies suggests that suicides (in particular suicides characterised as being related to thwarting) are more common in societies in which thwarting disorientation interactions are more frequent. 'Thwarting' was measured empirically by recording data on domestic violence, alcohol-related violence, marriage restrictions, freedom of men to divorce, accusations of witchcraft, and war.

Minority group/relative cohort size theories

Other theories have given primacy to measures of minority group status and cohort size as explanations for why suicide is more common in some populations than others.

Wechsler and Pugh (1967, cited by Lester 1989b), for example, postulate that people who live in communities where most people are not like them will have relatively high rates of psychiatric illness and hospitalisation. This is because they are more likely to lack peers and therefore will experience greater isolation and stress. Expanding on this idea, Lester (1987b, cited by Lester 1989b) proposed that people in social minority groups (eg, non-whites in predominantly white communities, recent migrant groups, etc.) will have higher suicide rates than those in majority groups. This proved to be the case in the empirical studies he conducted, which showed 'the scarcer a social group in the community, the higher was its suicide rate' (Lester (1987b, cited by Lester 1989b: 95–96). Lack of social contact, a sense of alienation and insecurity, and having to deal with discrimination were considered to be the key reasons why people from minority social groups generally have higher rates of suicide.

The relative cohort size hypothesis – also sometimes known as the Easterlin–Holinger theory – developed from empirical research on the suicide rates of different age groups. The theory suggests that the larger the size of an age cohort, the lower the rate of suicide will be in that age cohort. However, the theory is not considered to hold for 15–24-year-olds in some countries (Holinger and Offer 1982; Holinger et al 1987; both cited by Lester 1989b).

Homicide and suicide

Porterfield (1952, cited by Lester 1989b) predicted that rates of suicide will be high and rates of homicide low in secular societies where neighbourhood, friendship and kinship ties are 'loosened', where there is a breakdown in prevailing mores, and where there are fewer indigenous inhabitants. He provided supporting evidence for this theory by correlating indices of secularisation with indices of homicide and suicide in different states in the US. However, mixed or contradictory results have been found in other empirical studies examining the relation between suicide and homicide. In some cases, suicide and homicide rates are closely correlated; in others they are not.

Andrew Henry and James Short employed social as well as psychological concepts in their 1954 theory examining the economic influences on suicide (Henry and Short 1954, cited by Lester and Yang 1997; Henry and Short 1971). Building on the work of Freud, as well as Dollard and Berkowitz's frustration–aggression hypothesis, they argue that suicide and homicide are both aggressive reactions to frustrations generated by the impact of economic forces (Maris 1997).

They postulate that suicide (and depression) is more likely in people who, during childhood, have their normal outward aggressive reaction to frustration suppressed by their parents (Lester and Yang 1997).[4] Homicide, by contrast, is more likely in people who encountered few if any checks to the outward expression of aggression during childhood.

Henry and Short go on to observe that when punishment is administered by mothers (who are also generally the primary suppliers of nurturance), this inhibits the child's aggression against others, because the child's source of nurturance is endangered if an aggressive counter-response is made against the mother. On the other hand, when physical punishment is usually administered by fathers, aggression against others does not need to be inhibited (Lester 1989b).

Palmer (1965, cited by Lester 1989b) theorises that societies where severe punishment for crimes is mandated will have high rates of homicide and low rates of suicide. However, empirical studies in a number of non-literate societies have indicated that both homicide *and* suicide rates increase with the severity of punishment. Further psychological theories and various types of empirical evidence about the relationships between suicide and homicide are presented in some detail by Lester (1989b).

Conflict/critical theory

Conflict/critical theory is the second of the three main branches of sociology (the third being interpretive sociology – see below). Conflict or critical sociological theory was initially associated with Karl Marx. According to Clinard and Meier (1975: 81):

> Sociological conflict theory relies heavily on these ideas [anomie and labelling], while at the same time making much more explicit the political conditions under which certain kinds of rules are likely to arise. ... The conflict view stresses the pluralistic nature of society and the differential distribution of political and social power among these groups.

Marx himself wrote about suicide early in his career, but he never addressed the issue of suicide in his later work on economic class conflict. Instead, using three case histories of women who had committed suicide, he criticised the oppressive way in which women were treated in French bourgeois society (Plaut and Anderson 1999).

Since then there appear to have been few formal social conflict theories specifically addressing suicide. Colonisation, discrimination and unequal access to resources have been identified as responsible for high rates of suicide among minority ethnic groups in some studies (eg, Tatz 1999; Langford et al 1998), as has poverty among the unemployed and lower social classes (see Part 2 of this report). But the social mechanisms by which these occur specifically for *suicide* does not seem to have been addressed much at a theoretical level. Nonetheless, there has been a considerable amount of empirical research and comment about the impact of social inequalities on health at a more general level (New Zealand examples being: Howden-Chapman and Tobias 2000; National Health Committee 1998).

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[4]   Taylor (1988) adds that M Gold's 1958 study suggested that middle-class children tend to be punished psychologically, leading to inward aggression, whereas working-class children tend to be punished physically, leading to outward aggression. H Hendin's 1964 research suggested that, compared with children in Denmark and Sweden, Norwegian children are brought up to express their emotions more, and are therefore less likely to turn to inward aggression and suicide.

Social capital

Social capital is a concept widely promoted and discussed today in fields such as public health and community development. It has been defined as 'the features of social life – networks, norms and trust – that enable participants to act together more effectively to pursue shared objectives' (Putman 1993, cited by Labonte 1999: 431).[5] Thus social capital is very much a feature of *society*, or *groups* of people, rather than individuals, and as such can be regarded as broadly similar to Durkheim's notion of social integration (Cullen and Whiteford 2001; Spellerberg 2001). However, it also has elements of conflict theory as it stresses that *unequal access* to social capital by sub-groups of the population can lead to inequalities in physical and mental health.

Some authors accept that social capital is a type of 'capital', a word commonly used in economics to describe 'assets that can be invested to generate income', whether these assets are financial, physical, environmental, human, cultural or social (Spellerberg 2001: 9). Others dispute that social capital is a form of capital at all (Cullen and Whiteford 2001). There is also diverse opinion about the scope and definition of social capital, its usefulness, how it should be measured, and whether or not it is really a new idea (eg, Cullen and Whiteford 2001; Labonte 1999; Leeder and Dominello 1999).

Cullen and Whiteford (2001) identify cognitive and structural components of social capital. Cognitive social capital includes norms, values, attitudes and beliefs that support co-operative behaviour. Structural social capital includes social networks, roles and processes, and can be sub-divided into three types:

- *bonding* – strong horizontal ties between members of like groups such as families, neighbours and friends

- *bridging* – weaker horizontal ties between different kinds of groups (eg, different ethnic groups, different religious groups)

- *vertical* – links between groups with different access to resources and power (eg, between government and local communities).

A high degree of social cohesion is considered to be achieved when social capital is well integrated, both horizontally and vertically (Cullen and Whiteford 2001).

Indicators of social capital that may be measured include: behaviours (eg, giving to strangers, participation in voluntary organisations and the community, compliance with rules and norms); attitudes and values (eg, beliefs about self, trust and reciprocity, attitudes to institutions, confidence in the future); organisations (number, type, links and networks); and population groups (eg, demographic, family, employment) (Spellerberg 2001).

In the New Zealand context, a Māori concept of social capital is outlined by Spellerberg (2001). This encompasses:

- the primary importance of extended family relationships
- knowledge of (and maintaining) a specific 'place' in society

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[5]   For further information about social capital, see the World Bank's social capital website (http://www.worldbank.org/poverty/scapital).

- informal association rather than formal organisations
- the 'holistic', integrating nature of relationships and networks
- the close links between social capital and cultural capital
- the process of moving from iwi-based social capital to bridging social capital that enables one iwi to connect with others
- cultural capital – a sense of identity and belonging
- the defence, preservation and expansion of existing hapu/iwi communities
- the positive and negative effects of recent government reforms.

The relationship between social capital and health is usually theorised to be a positive one; ie, the higher the stocks of social capital, the better the health status of a population. However, social capital can encompass negative features as well, such as excessive bonding whereby non-group members are actively excluded or discriminated against (Spellerberg 2001). Mechanisms by which social capital can affect health include:

- *socialisation and isolation* – social capital networks transmit social and cultural norms about acceptable behaviour; socialisation with others protects against ill health

- *protection during crisis* – access to social capital (eg, family and friends) ensures access to basic health needs during a crisis, and the ability to recover afterwards

- *participation and civic engagement* – membership of voluntary associations reduces social isolation and enables groups to lobby for their own needs and interests (eg, health)

- *income disparities and health inequalities* – increases in the differential between rich and poor reduce social capital and therefore access to good health

- *trust* – low levels of interpersonal trust and reciprocity are correlated with poorer health

- *government performance* – it has been suggested that health is affected by government performance (such as the provision of health services), and that government performance is reciprocally influenced by social capital.

(See Cullen and Whiteford 2001; Kawachi and Kennedy 1997.)

A model of the specific relationship between social capital and *mental* health (and presumably suicide) is presented below (Figure 1.1).

Figure 1.1: Social capital and psychosocial processes
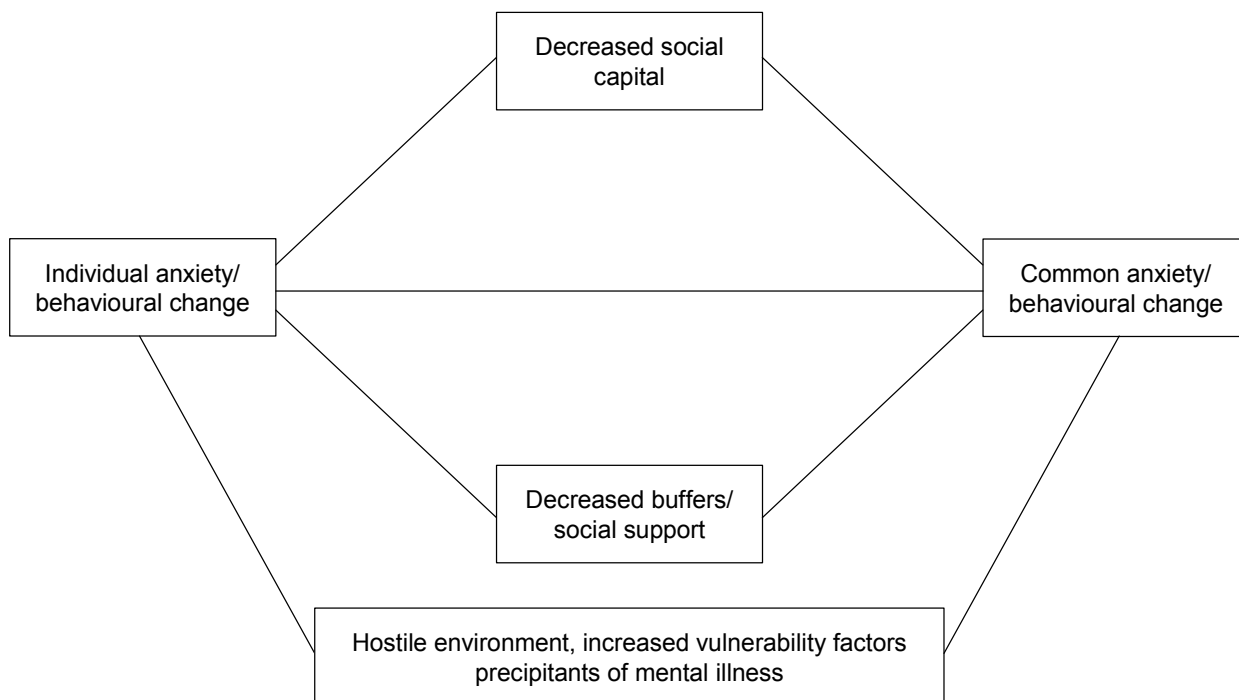
Source: Cullen and Whiteford 2001: 23

This review has not identified any theories specifically addressing the relationship between social capital and suicide. However, the similarity of Durkheim's theory of social integration to the concept of social capital, plus the fact that theories and models already exist linking indicators of social capital to health and mental health outcomes, suggest that the concept of social capital may have value for examining the social determinants of suicide.

It should be noted, however, that some researchers feel somewhat uneasy about the current prominence of the idea of social capital. They have pointed out that access to *all* types of capital (= resources) is important for people's health, not just *social* capital. They also believe that the *causes* of unequal access to social capital are not always addressed as they should be; that is, by using a conflict theory perspective (Baum nd; Kawachi and Kennedy 1997; Labonte 1999).

The economic business cycle

Modern economies go through cyclical phases of economic prosperity and depression. This phenomenon is known as the economic (business) cycle. Several theorists have suggested that the broad social changes associated with the economic business cycle cause suicide rates to fluctuate.

Durkheim's U-shaped theory

Durkheim (1897, cited by Lester and Yang 1997) predicted that suicides would increase during periods of economic instability, whether favourable (ie, economic booms) or unfavourable (ie, economic crashes or depression). This was, he claimed, because during these periods people do not have adequate time to adjust to the new economic circumstances. As a result, social limits are removed and there are no restraints on people's aspirations.

Durkheim claimed that poverty normally limited people's desires, but that in a state of anomie this restraint was removed. He also predicted that people in business (ie, those in relatively advantaged social classes) would have higher suicide rates during these periods of economic instability.

Durkheim's observations about the relationship between suicide and the economy have provided a foundation for the development of a number of additional theories. These have largely focused on the connections between suicide and factors such as poverty, unemployment, social class, the business cycle, and levels of economic development.

Ginsberg's pro-cyclical theory

Ginsberg (1966, cited by Lester 1989b and Lester and Yang 1997) takes the position that anomie arises primarily out of the unhappiness and dissatisfaction resulting from discrepancies between people's aspirations and their actual financial rewards. Levels of suicide therefore reflect the level of dissatisfaction in society.

Ginsberg suggested that, normally, if financial rewards increase (as in an economic boom), people's financial aspirations also increase. Similarly if rewards decrease (in an economic depression), their aspirations decrease. Consequently, aspirations lead to appropriate behaviour to gain appropriate rewards. Usually, in an economic boom rewards increase faster than aspirations (this is a normal process). However, if aspirations increase faster than rewards, a state of anomie occurs, and this can lead to suicide.[6]

Ginsberg predicted that suicides will normally increase just before the peak of business prosperity during slow rises. However, if the prosperous phase of the business cycle finishes earlier than expected, a large gap will arise between aspirations and rewards and there will be a larger-than-normal increase in suicides. In contrast, during sharp economic downswings suicide rates will fall, since at these times aspirations will almost catch up with rewards, so reducing dissatisfaction. However, Lester and Yang (1997) consider this aspect of Ginsberg's theory to be inconsistent, and it was not tested empirically in his research.

Henry and Short's counter-cyclical theory

Extending their theory about the underlying determinants of homicide and suicide, Henry and Short turned their attention to the relationship between the business cycle and changes in people's social status (Lester and Yang 1997).

In particular, they hypothesised that high-status people lose more status than low-status people during business contractions, essentially because they have more to lose. Henry and Short proposed that suicide occurs mainly among people of high status, whereas homicide occurs mainly among people of low status. This is because high-status people are less constrained or controlled by others than low-status people, and therefore have fewer external targets for their aggression (Henry and Short 1971).

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[6] Ginsberg believed, like Durkheim, that aspirations are unlimited, but that there is a normal range of aspirations and rewards governed by societal norms, which he called the 'interval of distributive justice'. In a state of anomie, normative controls are absent, but in a state of fatalism, normative controls are excessive.

Henry and Short also theorised that as the number of social relationships increases, the 'horizontal external restraint' (control by peers) increases (Lester and Yang 1997; Taylor 1988).

Henry and Short made two predictions based on these hypotheses. Firstly, suicide rates will increase during times of economic depression and fall during times of prosperity. The opposite will be the case for crimes of violence and homicide. Secondly, the effects of the business cycle on suicide will be stronger among people in high-status groups, whereas the effects of the business cycle on violence and homicide will be stronger among people in low-status groups (Lester and Yang 1997; Taylor 1988).

To test these predictions, Henry and Short analysed data on suicide and homicide for whites and non-whites in the US, along with economic data on the business cycle, as measured by the Ayres Index of Industrial Activity, from 1900 to 1947. As they predicted, for non-whites but not for whites, homicide rates were correlated with the business cycle. The empirical evidence also supported their second theory, although Lester and Yang point out that no tests of statistical significance were presented, and the population base for suicide and homicide rates changed in 1933.

Henry and Short also found that:

- suicide rates often increased when the Ayres Index was falling, but less often decreased when the Index was rising
- suicide rates peaked simultaneously with business troughs, but reached their lowest rates one or two years before business peaks
- the business cycle had a slightly stronger association with suicide rates among men than women
- the business cycle had a stronger association with suicide rates among people of working age.

Lester and Yang (1997) acknowledge that Henry and Short's theories have some predictive value, and achieve some success in integrating social and psychological concepts. However, they also have some criticism of these theories. In particular, Lester and Yang question the reference status group that people compare themselves to. According to Henry and Short's theory, during business contractions, *lower-class whites* will lose more status than lower-class *non-whites*, so their rates of homicide should *increase*. By contrast, the status of *lower-class whites* relative to *higher-status white* people will increase, so their rates of homicide should *decrease*. Lester and Yang observe that this is clearly inconsistent.

Summary

A large number of suicide theories attribute patterns to the effects of general social conditions evident at specific times or among certain population groups. Following the work of the 'moral statisticians', Emile Durkheim, in his 1897 study *Le Suicide*, examined suicide trends and differences in suicide rates (measured by official suicide statistics) between different countries and among different types of people. He proposed that suicide is a symptom of insufficient or excessive levels of 'social integration' and/or 'social regulation'.

In seeking to refine or modify Durkheim's theory, other authors, using a similar traditional sociological approach, have developed a variety of theories concerning the effects on suicide

rates of urbanisation and modernisation, disturbances in people's social roles or social status, diminished social networks, disordered social relationships, and rapid economic changes.

While there seems to be a lack of formal 'conflict' or 'critical' sociological theories specifically concerning suicide, some authors have associated high suicide rates with structural inequalities and discrimination among some population groups (eg, ethnic minorities). The theory that a lack of access to resources, including social capital, may increase rates of suicide among deprived population groups also seems to be applicable to this issue (as is generally thought to be the case for other physical and mental health problems).

1.2   Theories of social meanings of suicide and opportunities for suicide

Introduction

This section considers theories that examine the *specific social meanings* of, or *opportunities* for, suicide evident in a society or community. In essence, these theories are examining why, if and to what degree suicide is a *socially constructed* rather than *individually determined* option. That is, what features of the social environment, particularly socio-cultural meanings, specifically relate to suicide, and hence influence its trends and patterns among different types of people?

Interpretive approaches

Several theories examining the meaning of suicide have been developed using an interpretive approach. This approach was pioneered by Max Weber and writers on phenomenological philosophy. It emphasises careful description and analysis of mainly micro-level (but sometimes macro-level) features of the social, cultural and interpersonal milieu or context in which an individual engages in suicidal behaviour. In particular, the focus is on understanding the subjective meanings that people give to social action and experience, using information gathered close to the lived experiences of individuals who attempt or commit suicide (eg, suicide notes, case histories, diaries, interviews) (Fusé 1997; Taylor 1988).

According to Giddens (1971b), this approach became popular partly out of a recognition that the traditional statistical approaches – or the generalising disciplines, as he calls them – 'have very definite limitations in the sort of knowledge they can provide. By their very nature they deal in abstractions, and discard the particular' (ibid: xvi).

Jack Douglas (1967, cited by Douglas 1971 and Taylor 1988) was one of the first investigators to take an interpretive approach to the study of the social determinants of suicide. He described the features of the approach as follows:

> ... in order to determine and analyse the social meanings of suicide, and thence, to be able to determine what causal relationships exist between these meanings and the various types of suicidal actions, sociologists must develop scientific methods of observing, describing and analysing communicative actions concerning real-world cases of suicide. ... case study methods of psychiatry and psychology are also of little use, since they are based primarily on certain abstract, predetermined, genetic theories of action which leave out of consideration almost all aspects of social meanings and, thereby, falsify the nature of human action. (Douglas 1971: 133)

Douglas concluded that suicide is essentially a *social* act intended to communicate to others an individual's 'summing-up' of his or her life's worth: 'it is a statement about themselves, their social relationships and their social world' (Fusé 1997: 104).

Criticism of official statistics

Douglas was highly critical of the reliance Durkheim and other theorists placed on official suicide statistics for explaining the causes of suicide. He argues that the way suicide is defined, and the ways official suicide data is collected, are socially and culturally determined. Consequently, says Douglas, so-called 'objective' suicide statistics are in fact systematically biased for some population groups (eg, those living in different countries and at different times, people from different religions, different socioeconomic groups, etc) and are therefore invalid (Fusé 1997: 104).

Douglas argues that higher levels of social integration simply lead to a greater concealment of suicide rather than a truly lower incidence of suicide. For instance, people from higher socioeconomic groups or certain religious groups (like Catholics and Muslims) may not want to be publicly associated with what they perceive to be the stigma of suicide (due to issues of status or belief). They may try to influence the recording of suicides for members of their group by disguising suicides or lying in order to conceal the situation. This will lead to underestimates of the suicide rates of their group, a pattern which is consistent with empirical evidence showing that low rates of suicide are often a feature of higher socioeconomic groups as well as Catholic and Islamic countries.

In addition, suicide statistics may be unreliable in countries or regions without sophisticated data collection systems (such as economically underdeveloped areas), leading to further underestimates of suicide rates. The empirical evidence is again consistent with this theory, since developing nations tend to have lower suicide rates than developed nations (Lester 1989b; Taylor 1988; see also Part 2 of this report).

Critics of the Douglas argument point to evidence from the analysis of suicide rates among migrant populations, where migrants move from a relatively under-developed country to a developed country. Usually migrants have suicide rates that are about midway between their country of origin and their country of destination (for more details see Part 2 of this report). This suggests the suicide statistics in their country of origin are relatively accurate.

Building on the work of Douglas, Atkinson (1978, cited by Taylor 1988) theorised that there are primary and secondary cues that determine whether or not deaths are recorded as suicides. Different cues may be used by different coroners (or other officials) in different countries and societies, meaning, as Douglas suggested, that suicide data is systematically biased.

Primary cues relate to the circumstances of the death, especially the manner of the death and the presence of a suicide note. Secondary cues relate to the 'suicidal biography' of the person who commits suicide, including an assessment of their state of mind and suicidal motive, as described by relatives, friends, health and social workers who knew the dead person. Atkinson found that it is usually the secondary cues that determine whether or not deaths are recorded as suicide, and it is also these cues that are negotiated between witnesses and coroners. Atkinson found that if family members acted as witnesses, a verdict of suicide was less likely. Taylor (1988) himself

found that higher levels of social integration were associated with lower verdicts of suicide from coroners.

Baeschler (1979, cited by Fusé 1997), again using an interpretive paradigm, also questions the adequacy of using suicide statistics for investigating the causes of suicide. Problems include the accuracy of the statistics, the small numbers of cases involved and the inability of statistical correlations to identify 'psychological or suicide social types' (Fusé 1997: 105).

Cultural meanings of suicide

Cultural theories of suicide recognise that different groups and communities have their own norms, values and beliefs about all kinds of behaviour, and also modify the behaviour of group members through social sanctions, such as laws, rules and codes of morality. Attitudes to suicide, and more generally to death, also vary across different countries and between different communities, cultures and ethnic groups (Bille-Brahe 2000; Clinard and Meier 1975; Retterstol 1993; Williams 1997).

Cultural theories suggest that in societies or communities where there are strong cultural, religious or legal sanctions against suicide, suicide rates can be expected to be relatively low. Conversely, where cultural values are tolerant of suicide, suicide rates may be higher. However, the impact of cultural beliefs and practices can be confounded by other factors, such as economic development or modernisation, and not all patterns of suicide among different groups appear to be due to the group's norms and beliefs about suicide (Clinard and Meier 1975; see also Part 2 of this report).

Subcultural meanings of suicide

Subcultures can be broadly defined as 'cultures within cultures'. They are groups with their own distinctive norms, values and beliefs shaping the behaviour of their members. Some subcultures participate in the larger culture and share many of its values. Others exist largely in opposition to the wider culture, being defined thus as 'countercultures' (Clinard and Meier 1975).

Some subcultures and countercultures have peer members who share a preoccupation with suicide, are depressed and have difficult relations with others. Examples of suicide subcultures identified in studies include followers of heavy metal music and country music (Lester 1989b; Stack 2000b). Cluster suicides sometimes occur in these suicidal subcultures.

Kreitman et al (1970, cited by Lester 1989b), studying attempted suicide, proposed that many suicide attempters come from social contexts where self-aggression is regarded as an acceptable way of conveying information to others about personal circumstances and the nature of social relationships. Attempted suicide is viewed as understandable and appropriate in some circumstances.

Platt (1985, cited by Lester 1989b) agrees with this analysis. After interviewing people living in areas with high and low rates of parasuicide (attempted suicide), Platt found that people living in the high parasuicide areas were more likely to be less educated; come from lower social classes; be renting (rather than owning) their home; to agree that children are likely to leave school at age 16; to agree that people are likely to have sex before marriage; to agree that people were likely to attempt suicide; to agree that married couples are likely to argue; to agree that men are

likely to fight in the street; and to have experienced an intimate and personal experience of suicide. That is, they had specific subcultural views and values. However, there were no differences in the degree to which the people from the different areas proscribed attempted suicide.

Other researchers, examining small geographic areas, have found statistical correlations between parasuicide and other social indicators such as juvenile delinquency, children taken into care, cases of cruelty to children, and overcrowding (Lester 1989b).

Opportunity and displacement theories

Opportunity theories focus on the relationships between rates of suicide and external and/or internal opportunities for committing suicide.

Most theorists agree that restricting physical access to a specific lethal method of suicide (eg, firearms, toxic substances) will reduce the use of that method of suicide. Some also argue that restricting one type of suicide method can reduce *overall* rates of suicide, since people who would have committed suicide using a particular method will not commit suicide at all if that method is no longer available or accessible (Clarke and Lester 1989, cited by Lester 1989b; Stack 2000b). However, opposing theories suggest that if one suicide method is not available, another will be substituted ('displacement theory') (Stack 2000b). (For more on this issue, see Part 2 of this report.)

Some of these theorists also suggest that *internalised* cultural attitudes towards suicide represent an individual's *internal* opportunity, or non-opportunity, to regard suicide as an available solution (Lester 1987b, cited by Lester 1989b) (or presumably which particular methods are viable choices). This theory has links with cultural theories of suicide, since different methods of suicide tend to be used in different cultures (see above).

Imitation, contagion, suggestion and critical mass

DP Phillips's theory of imitation suggests that suicide rates will increase after suicide stories are extensively publicised in the media (Lester 1989b; Phillips 1974, cited by Stack 2000b).[7] This theory predicts that 'copy-cat' effects can occur after the death of a famous person, after the publication of books on how to commit suicide, or even following the publicising of fictional accounts of suicide stories involving people that certain groups in the community strongly identify with (Stack 2000b).

The so-called 'critical mass' theory developed by Lester (1989b) proposes that once suicide rates reach a certain level, a high proportion of people in the population will know someone who has committed suicide. The effect of suggestion (or imitation) results in the suicidal behaviour becoming self-sustaining, and even perhaps accelerates the behaviour.

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[7] For further reading on this issue, see Stack 1990. (This chapter was not obtained for this report.)

Social learning theory

Social learning theory proposes that people learn from publicity and knowledge of other suicides, as well as from their own experiences that 'one way to gain attention or to solicit help for some problem is to be sick or hurt. [These] techniques for gaining sympathy are learned early in life in experiences with parents and friends' (Clinard and Meier 1975).

Labelling theory

Labelling theory has been applied to many types of so-called socially 'deviant' behaviour, of which suicide can be considered an example. In essence, this theory suggests that the reactions of other people (and the wider society) to initial deviant behaviour by an individual can influence the future behaviour of that individual. Once a person has been labelled as 'deviant', he or she will be unwittingly pressured to continue acting in the same deviant role. The process of labelling is a social one: it emphasises the importance of 'ways in which institutionalised processes of social control and social definitions define what (and who) is deviant' (Clinard and Meier 1975: 74).

For example, labelling theories suggest that if people are labelled by others as having alcohol or drug abuse problems, or as economic failures, they are more likely to commit suicide. Likewise, if they are labelled as being at high risk of suicide, their risk of suicide increases (Taylor 1988).

Specific meanings of suicide

Interpretive sociologists have looked closely at the meanings suicide has to those who have committed suicide and those who have attempted suicide. Usually there is some kind of social dimension to these meanings. Three meanings of suicide have been identified: suicide as a solution to a problem, suicide as a communication to other people, and suicide as a means of gambling in which other people decide whether you live or die. Using an interpretive approach to analyse the contents of suicide notes, Jacobs (1967, cited by Taylor 1988) identified three predominant themes in the notes: problems were perceived by the suicidal person to be intolerable and unsolvable, death was considered to be the only answer, and the situation was defined as being beyond the person's control.

Analysing individual cases, Baeschler (1979, cited by Fusé 1997) also suggested people use suicidal behaviour as a means or strategy to achieve particular ends or to solve a particular problem. He identified four types of suicidal behaviour (Fusé 1997; Taylor 1988):

- *escapist* – fleeing an intolerable situation (flight, grief, punishment)
- *aggressive* – aiming to harm or appeal to others (vengeance, crime, blackmail, appeal)
- *oblative* – harming oneself because of political or moral ideals (sacrifice, transfiguration)
- *ludic* – gambling with life and death (ordeal, game).

Stengel and Cook (1958, cited by Taylor 1988) concluded that ludic motivation is very common in suicidal behaviour; that is, the person is gambling with life and death. The final outcome (living or dying) depends on factors beyond the person's control, and usually involves the possibility of rescue by other people. Ettlinger and Flordah (1955, cited by Taylor 1988) found that the vast majority (90 percent) of 500 cases of self-harm were either planned with precautions against failure, or were definitely virtually harmless. This meant that they were

planned more as a communication to others rather than as a wish to die. Shneidman and Farberow (1960, cited by Taylor 1988) conclude that the suicide act is an overt or indirect communication to try to make someone else (usually a 'significant other') do or feel something.

Stengel and Cook (1958, cited by Taylor 1988) examined the act of suicide as a social process. They contended that the suicidal person usually wishes to live *and* to die (a view shared by Kovacs and Beck 1977, cited by Taylor 1988). Often suicidal people tell others or give clues about their intentions. The response of others and the setting chosen determine whether the person is rescued before they die. Suicidal behaviour is essentially risk-taking, and can be likened to the idea of a 'trial' or 'ordeal': it determines if they are 'meant' to live or die.

Taylor (1982, cited by Taylor 1988) proposes a social-psychological model for suicide (see Figure 1.2). In this model, there are two outcomes: suicide acts that are either an 'ordeal' or are 'purposive'. These outcomes depend on the degree of certainty or uncertainty that the suicidal person feels, and also their degree of *attachment* or *detachment* from other people (presumably some indication of their social integration).

Figure 1.2: Taylor's theory of suicide
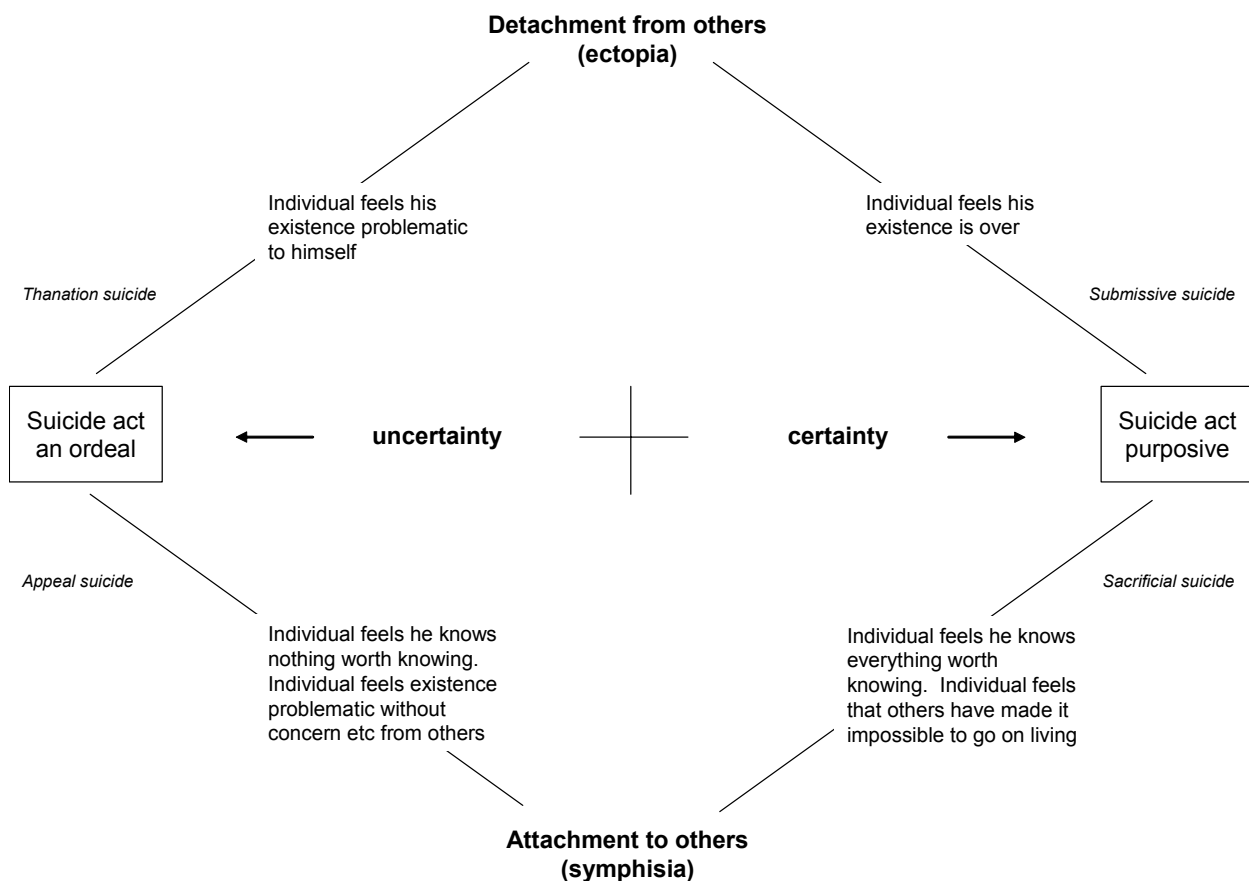
Source: Adapted from Taylor 1982 (cited by Taylor 1988) and Lester 1989b.

Firth's anthropological study of the people of Tikopia illustrates how cultural dimensions can condition social meanings of suicidal behaviours (Firth 1971). In this island society, the traditionally accepted method of attempting suicide was to swim or canoe out to sea. In many respects, however, a person's chances of being rescued depended on what kinds of sea and weather conditions the person went out in (night/day, calm/storm). If the person went out during daytime on a calm sea, they could be reasonably confident that they would be rescued. Rescues were always launched straight away if the person's absence was noticed. If people were rescued, they were always completely re-integrated into society, and they knew this would be the case. In fact, Firth says, they actually gained social status after the event (thus solving the situation that prompted them to make the suicide attempt in the first place). Firth concludes:

> Suicide, even if narrowly defined as persistence in conduct calculated to lead to self-destruction, is not a simple response to lack of alternatives, but to a selection of one alternative against others, for a complex of social reasons. The suicide of a person is a social act to be understood only in the context of other social acts both of the person himself and of other members of his society. (Firth 1971: 221)

Standard economic theories applied to suicide

Various attempts have been made to apply standard economic theories to the decision of an individual to commit suicide. Lester and Yang (1997) suggest that this is potentially a useful approach, given the overlap between economic theories and psychology. While these theories are presented in quite a psychological way, focusing on individual choice, some can be applied at an aggregate level as well.

Theories based on *cost–benefit analysis* treat suicide as a rational choice made by individuals after they have weighed up all the costs and benefits of committing suicide compared to its alternatives. If the costs of suicide are increased or the benefits decreased, suicide rates will fall (Lester and Yang 1997). *Demand and supply theory* suggests that suicide is conceptualised as a 'commodity'. The demand curve is constructed through the degree of distress an individual is feeling (the equivalent to the price he or she would pay to remove this feeling). 'As the amount of distress increases, the probability of committing suicide increases'; that is, it is an upward-sloping curve (Lester and Yang 1997: 47). The downward-sloping supply curve is related to the cost of committing suicide, such as the cost of losing one's life and the cost of purchasing any equipment needed to commit suicide. This type of demand and supply analysis is applied to issues such as predicting changes in the methods used by people to commit suicide.

Hamermesh and Soss (1974, cited by Lester and Yang 1997) use a *utility maximisation principle,* based on permanent income and current age, to predict suicide patterns. This theory predicts that a person will commit suicide when the expected utility of their life drops to a certain value. The authors suggest that (a) suicide rates will increase with age, and (b) suicide rates will be inversely related to permanent income.

A variation of this utility maximisation model was proposed by Crouch (1979, cited by Lester and Yang 1997). Crouch predicts that people will commit suicide if the sum of measurements of their 'enjoyments from life' plus 'distaste for suicide' drop to below zero ($E + D < 0$). Predictions from this model include:

- as the full income of an individual and his/her family increases, the probability of suicide will decrease

- higher living expenses cause less enjoyment for life and therefore more suicides

- increased religiosity (eg, Catholicism) will increase the distaste for suicide and consequently will decrease the probability of suicide

- divorce and widowhood will decrease the full income of the family and therefore increase the risk of suicide (Crouch 1997, cited by Lester and Yang 1997).

However, Dixit and Pindyck (1994, cited by Lester and Yang 1997) have criticised the utility maximisation principle for failing to consider the option of staying alive and waiting to see if the situation improves.

McCain's (1997) *theory of choice* suggests that an individual's impulses to commit suicide are moderated by various types of psychological filters, and are usually rejected. Cognitive filters include those assessing lifetime utility (an economic concept) and possibly those related to social conformity and/or moral prohibitions. Filters against suicide may become less effective or even fail because of factors such as an individual's level of arousal or mood, or by the knowledge of a role model who has committed suicide. McCain suggests that one of the strengths of his theory is that it can predict behaviour that may appear to be 'non-rational', unlike other economic models.

Huang's (1997) 'life force participation' theory of suicide is an adaptation of an economic labour market participation model. In the latter model, the decision about how much (or whether) one should participate in the labour market is regarded as a trade-off between income and leisure (within certain constraints). Applying this idea to suicide, when people decide whether or not to participate in living, they maximise utility by assessing the 'income' or benefits of life against the labour of achieving these benefits. 'In a sense L [labour] measures the extent of effort, enthusiasm, and resolve to live, and R [leisure/rest] measures its lack' (Huang 1997: 85). If enthusiasm to live reduces to a certain level, people may decide to drop out of the 'life force' – they will commit suicide. In this theory, while the decision to commit suicide is not irrational, it may be based on incomplete information about the available options.

Summary

Shared social meanings of suicide and access to opportunities for suicide are important influences in the social environment, and determine the extent to which suicide is seen as an option by various social groups.

Various (mainly interpretative sociological) theorists have criticised official suicide statistics for their lack of reliability and validity, suggesting that it is more fruitful to examine the social meanings of suicide in real-life situations. They propose that people will commit or attempt suicide according to the social meanings ascribed to these behaviours.

Suicide patterns depend on the nature and distribution of these social meanings, which in turn depend on cultural norms, beliefs and values, labelling practices, responses to suicide and the suicidal behaviour of others in society. They are also influenced by physical and cultural opportunities for suicide.

1.3   Integrating or linking theories and models

Introduction

Integrating or *linking* theories or models propose that there are a number of different types of influences on suicide (eg, socio-cultural as well as psychological) and that these influences operate at various levels. These influences combine to determine patterns of suicide among populations, or to predict whether an individual is at high risk of suicide. As well as direct influences on suicide, these theories or models often describe indirect influences and complex interactions between the influences (including two-way relationships). Five examples of these types of theories or models are presented below.

Anthony Giddens

In his paper 'A typology of suicide', Anthony Giddens, the influential British sociologist, develops a theory of suicide integrating the sociological perspectives of Durkheim with the psychological perspectives of Sigmund Freud (Giddens 1971e). Giddens notes that Durkheim's principal concern, as we have seen, was to elucidate the broad structural or 'macro-social' conditions underpinning variations in the distribution of suicide in populations. However, Giddens describes Durkheim's attempts to link these conditions to psychological concepts as 'fragmentary and inadequate'.

As Giddens sees it, Durkheim's concept of egoistic suicide essentially refers to a general condition of 'excessive individualism' evident in developed societies and bound up with institutionalised social conditions. These features increase the possibility of individuals becoming isolated from closely knit relationships by 'loosening' or 'diluting' the social ties that previously would have bound members of a group to each other. To illustrate this, Giddens uses the example of the marriage contract.

He notes the emphasis in contemporary society on romantic love as the foundation for marriage. Within this particular system – and reflecting wider institutionalised social values promoting individualism, personal initiative and responsibility in key areas of social activity – the onus is on 'each individual to search out and win a partner through his own efforts' (Giddens 1971e: 99). This can be contrasted to the situation in many traditional societies where marriage contracts are arranged relatively independently of the desires of the partners involved. In traditional societies, governing social structures operate in such a way that the formation and definition of social ties is 'taken out of the hands' of the individuals involved. In contemporary societies, though, the nature and conduct of relationships in many spheres of social life are comparatively 'open' and a matter of individual preference or choice.

Giddens interprets Durkheim's concept of anomic suicide as referring to situations where 'social norms come to exercise only a low level of regulatory control over behaviour' (Giddens 1971e: 99). Social norms govern the objectives and motivations of individuals by setting goals and defining what is appropriate or legitimate, as well as limiting or curtailing aspirations. Giddens defines the condition of anomie as when 'social norms for any reason provide no clear definition of aspiration, or where norms produce disparity between aspirations and the possibility of their implementation' (ibid). He notes that this includes most situations in which it is possible for people to experience socially defined 'failure'.

Turning to the psychoanalytic theories of Freud on depression, Giddens notes that Freud makes an important and illuminating comparison between depressive states and the grief process associated with the death of a loved person (Freud 1964, cited by Giddens 1971e). Grief and depression are both considered to stem from feelings of loss or abandonment stimulated by another person or persons, which then become redirected against the self. Repressed hostility or aggression are also likely to be evident. Similar reactions can also be generated by situations involving being slighted, neglected or disappointed.

As Giddens summarises: 'The self-accusations and feelings of worthlessness which characterize depression are thus sentiments which really refer to another person, and are stimulated by the real or imagined behaviour of another or others' (ibid: 101). He regards suicide as one extreme along a continuum of possible forms of self-aggression, with those who suffer from extreme states of depressive disorder as well as those experiencing an isolated case of depressive mood both being vulnerable to suicide.

Giddens suggests that one factor important in determining why only a certain proportion of people with depressive states make direct attempts at self-destruction is the conscious and unconscious meaning that the individual ascribes to death. He considers suicide may be more likely to accompany depression when the individual regards death as having an instrumental or functional significance: when death is perceived as something that can be used to achieve solutions to problems, or a desired outcome.

He also further develops Freud's ideas on the significance of guilt and shame, the latter being defined as 'anxiety generated when the goals and self-conception embodied in the ego-ideal diverge from the actual performance of the ego'. While individuals normally identify with figures who set realistic and fairly well-defined levels of attainment, and which conform with their objective circumstances, certain individuals may impose demands on themselves, or have demands imposed on them, that place great pressure on their ability to achieve a secure and satisfying identity.

These individuals, says Giddens, will be abnormally vulnerable to the anxieties related to shame and highly sensitised to signs from the external world validating their worth. The use of shame-orientated socialisation techniques in childhood (eg, teasing, ridiculing rather than scolding or threatening) may be especially important in the formation of this state of affairs.

Returning to Durkheim, Giddens offers the model illustrated in Figure 1.3 to summarise how he considers the background social structure identified by Durkheim interlinks with the psychological processes described by Freud.

Giddens contends that Durkheim's social structural factors operate firstly by shaping the family system and socialisation practices, thus influencing the development of the suicidal personality structure. But these social structural factors also act more 'directly' by affecting the social position or circumstances of the individual (eg, factors such as employment or income). Giddens emphasises that there is in reality a continual, dynamic interaction between the factors in the model.

Within this framework, in egoistic suicide:

> ... social factors may act to isolate large numbers of individuals from closely-knit relationships with others: but in certain instances their influence will interact with the personality dispositions of individuals who 'create their own social isolation' – in other words, who find it difficult to develop and maintain lasting and close affective relationships with others. The new result is the detachment of certain individuals from relationships on which they are extremely dependent. (Giddens 1971e: 108)

In anomic suicide, general conditions of the social structure produce a disjunction between social norms and the goals and aspirations held by individuals. They also encourage the development of personality structures with an unusual need for external validation or approval. Anomic suicide represents the conjunction of these social and psychological factors, resulting in 'the detachment of the individual from defined and realisable goals which enable him to "relate himself to life" in a meaningful way' (Giddens 1971e: 111). Suicide therefore becomes an act of self-indictment for perceived failure or disappointment.

Giddens suggests that in modern societies males are more likely to undertake anomic suicide, while females are more likely to engage in egoistic suicide. He also observes that it is the task of the sociologist to study the nature and character of the social institutions and processes that promote egoism or anomie. By contrast, it is the task of the psychologist to study 'the particular motives and circumstances which drive specific individuals to commit suicide when exposed, for example, to a situation of anomie' (Giddens 1971b: xiii).

Figure 1.3: Giddens: social and psychological factors in suicide
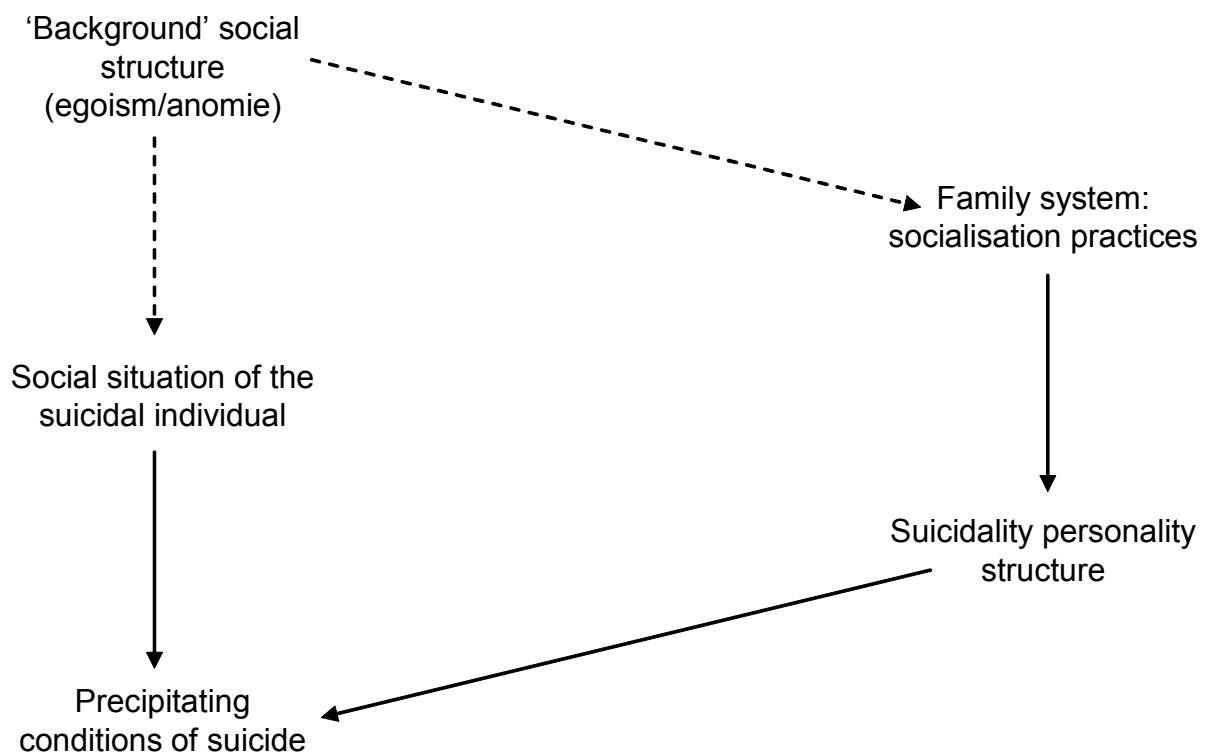
Source: Giddens (1971b: 106)

Michael Phillips and colleagues

Phillips et al (1999) have employed a multi-level, multi-factorial model to explain the relationships between suicide and various influences in China (see Figure 1.4). They state:

> ... single-cause models of suicide, which consider either socioeconomic factors or mental illness the primary cause of suicide, do not allow for the possibility that these factors coexist and interact to produce suicidal behavior. In some cases of suicide, mental illness exists in the absence of significant social stressors and in other cases social stressors exist in the absence of diagnosable mental illness, but in most suicides both factors are present. ... five interacting factors ... collectively determine the suicide rates in a community: (1) cultural beliefs in the after-life and the acceptability of 'rational suicide' as a solution for a variety of social problems; (2) the prevalence of social problems that place individuals in morally ambiguous or socially constrained circumstances; (3) the prevalence of psychosocial problems such as depression and substance abuse that the limit individuals' ability to adapt to stressful circumstances; (4) the availability of convenient and effective methods of suicide; and (5) the availability of suicide prevention services. (Phillips et al 1999: 43–4)

The authors add that the importance of these five factors varies between individuals and between different population groups.

Figure 1.4: Multi-factor model of suicide
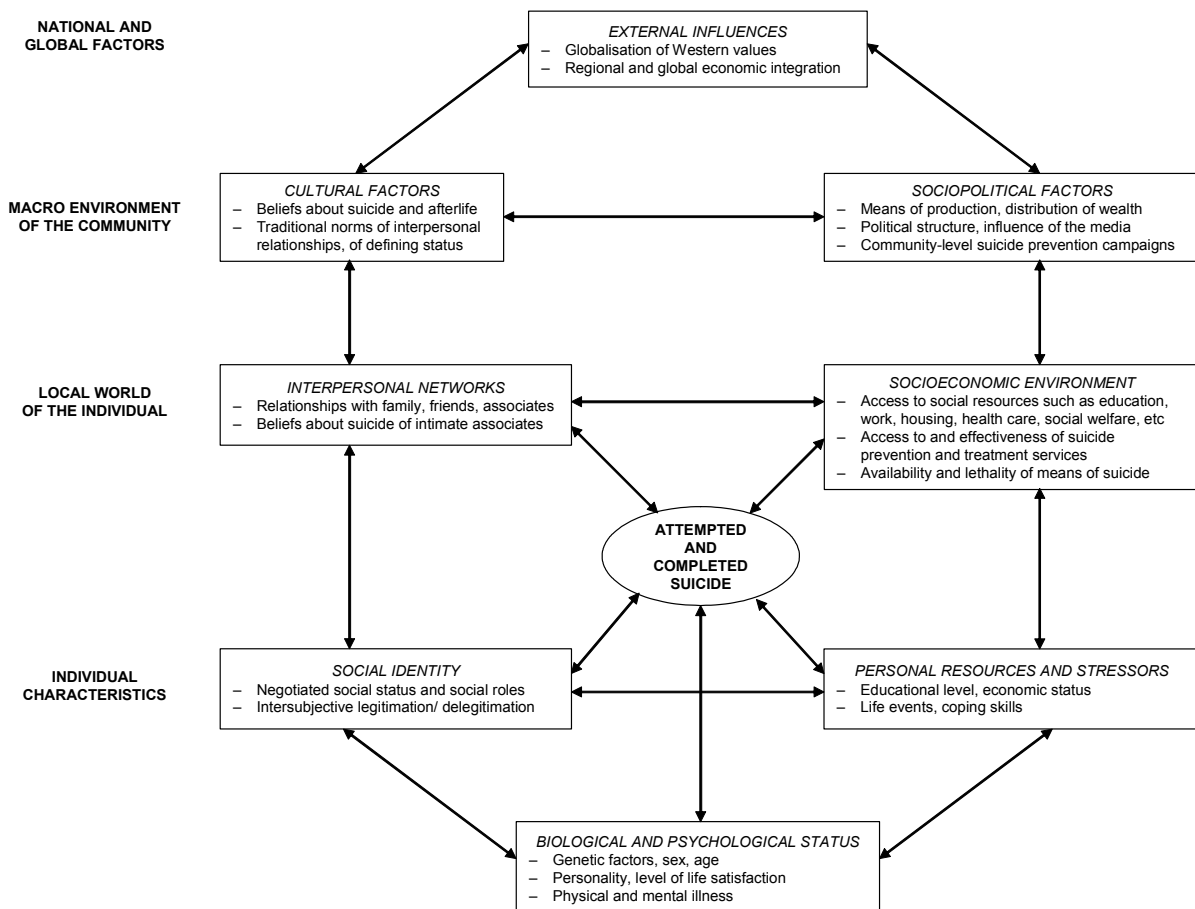
Source: Phillips et al 1999

Toyomasa Fusé

After reviewing a large number of different suicide theories, Fusé (1997) devised a multi-level multi-factorial model integrating biological, psychological and sociological factors (see Figure 1.5). Fusé states earlier in his book: 'herein lies the important linkage between psychology and sociology: divorce or widowhood as object loss can be understood both at the collective (suicide rates of the divorced and / or widowed) and at the individual level' (ibid: 152). However, it is not entirely clear whether the 'sociological' factors in his suicide model are at the individual or societal level.

Figure 1.5: Fusé's psychological/biological/sociological model of suicide
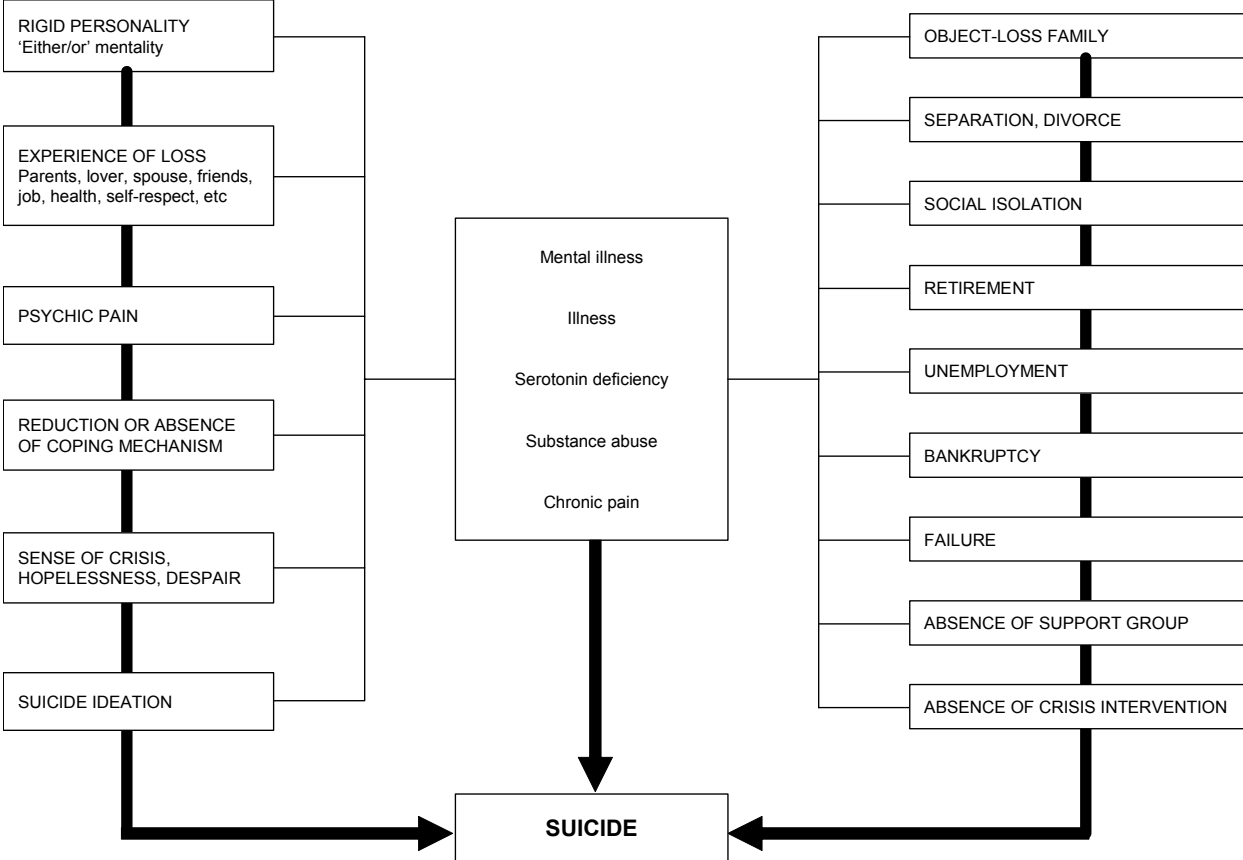
Source: Fusé 1997: 155

Annette Beautrais

Beautrais (2000b) presents a multi-factorial, multi-level model of the risk factors and life processes that lead to suicidal behaviours among young people (see Figure 1.6). She proposes that genetic/biological factors, social/demographic factors, family characteristics/childhood experiences, and personality traits/cognitive styles all interact with one another to directly influence people's vulnerability to suicidal behaviour. These factors also interact with environmental factors and psychiatric morbidity, which in turn influence suicidal behaviour.

Figure 1.6: Beautrais's model of suicide risk factor domains
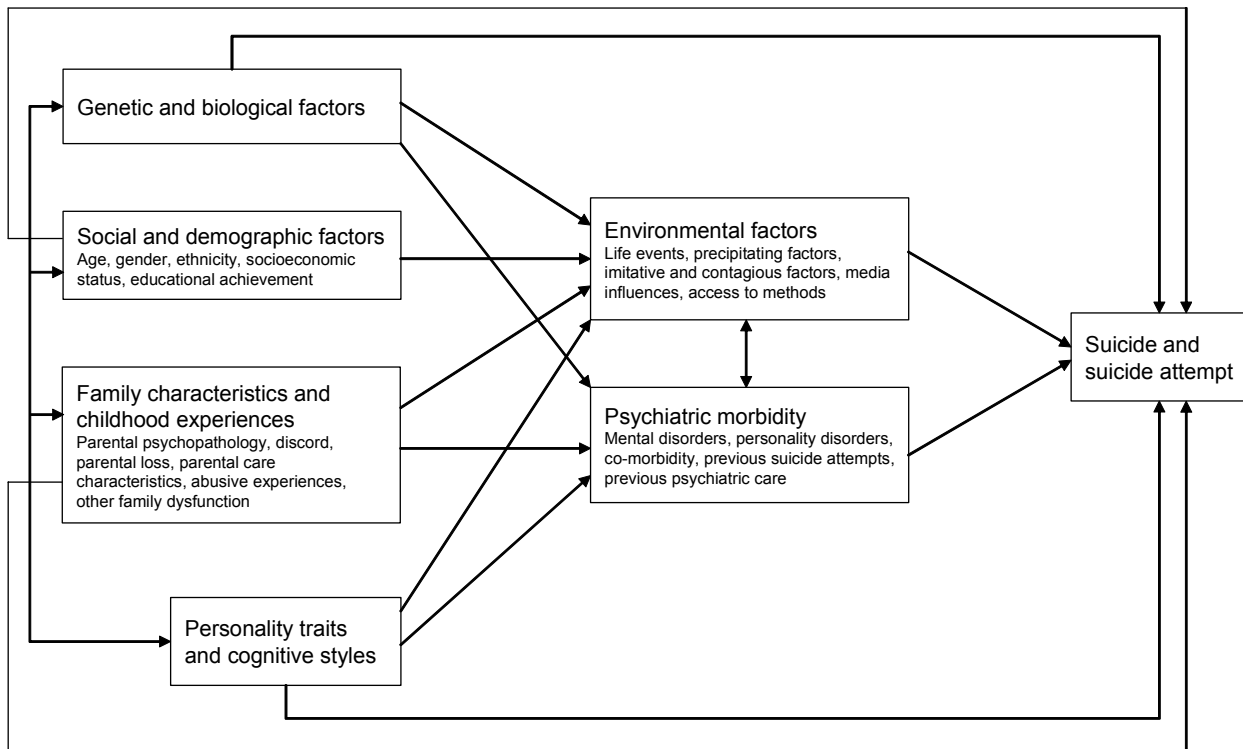
Source: Beautrais 2000b: 429

Beautrais concludes that the risk factors for both completed and attempted suicide are similar, and that suicidal ideation and suicide itself, rather than being two completely different types of behaviour, each sit at different ends of a continuum.

Ronald Maris

The bio-psychosocial theoretical model of Ronald Maris was developed using findings from interviews with the relatives (usually intimate partners) of completed suicides, and case-control studies and studies of population-level factors using multivariate statistical analysis (Maris 1997). Maris concluded that individuals who committed suicide 'tended to have 'suicidal careers' spanning several decades and involving complex interdependent mixes of biological, social, and psychological factors' (ibid: 528).

Typically, for suicide victims there are multiple stressors repeated over long periods. Stress and related problems (especially depression and hopelessness) tend to summate until the only perceived resolution may be to escape from life itself by suiciding (ibid: 542).
In Maris's view, social relations are not the only independent variable producing suicide: 'social, individual, and biologic traits and states usually interact in complex time series equations to produce a suicidal individual or a suicide rate', and 'the crucial proximate cause' of a suicide could be a non-social trait or state like a serotonin disturbance or neurotransmitter imbalance (ibid: 548).

Summary

Several suicide models or theories attempt to integrate or link social environmental influences with other types of influences (eg, psychological or biological). These influences are generally considered to relate to each other interactively in complex ways.

Part 2: Overview of Selected Empirical Studies

This part of the report summarises the findings of selected quantitative empirical studies examining the influences on suicide. The research describes or attempts to explain different rates of suicide observed over time, or among different groups of people, both overseas and in New Zealand. Some of the research has tried to test one or more of the theories described in Part 1 of this report, whereas other studies have been more descriptive.

For some topics consistent correlations with suicide have been observed; for other topics there have been conflicting results. Confounding factors, mediating factors, two-way relationships between variables and other complex interactions make the interpretation of findings difficult.

The original purpose of this part of the report (which is a revised version of the interim report prepared in March 2002) was to alert members of the research team to appropriate and available quantitative data they could analyse during their in-depth statistical analyses of New Zealand suicide and census mortality data. Although the text of the interim report has been edited, the topics and the type of research covered remain the same. That is, only *quantitative* data focusing on suicide *rates* has been included. The topics have been chosen on the basis of the issues that have been covered by previous studies, and whether New Zealand data is available (and accessible) to the research team.[8]

Types of study designs

Several broad types of quantitative research designs have been commonly used to describe and explain suicide patterns:

- analyses of *time trends in national suicide rates*, either crude rates, standardised rates, or age-specific rates) in relation to time trends in variables of interest (eg, associations between trends in the business cycle and trends in suicide rates): ecological designs, using national mortality data, census data and other national data sets

- *cross-national comparisons*, either cross-sectional or time trends of national suicide rates in relation to variables of interest (eg, modernisation, main religious affiliation): ecological designs, using national mortality data, census data and other national data sets

- *intra-national* regional comparisons of local suicide rates (usually cross-sectional) for variables of interest, such as unemployment rates: ecological designs, using sub-national mortality data, census data and other sub-national data sets

- cross-sectional or time-trend *comparisons of suicide rates* for two or more groups of people (eg, rates among people who are unemployed versus employed): epidemiological designs (eg, using linked census and mortality data)

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[8] Consequently, this part of the report does not cover interpretive studies (which are typically qualitative and not focused on data related to suicide *rates*), or topics such as sexual orientation, evaluations of suicide prevention programmes or biological influences.

- description of characteristics (*risk factors*) *of individuals* who have committed or attempted suicide compared with those of the rest of the population, or another control group (eg, are individuals who commit or attempt suicide statistically more likely to be migrants, have a history of mental illness, etc?): epidemiological designs using analyses of coroners' files, studies linking individual mortality and census data from national data sets, special quantitative studies based on medical records and case notes, longitudinal studies.

As noted in Part 1 of this report, it is appropriate to investigate most social environmental influences on suicide using various levels or types of units of analysis and various research designs.

Research design issues

It should be noted that there has been considerable debate about the value of the so-called 'ecological studies' often used in quantitative suicide research (eg, Durkheim's analyses comparing the dominant religion and suicide rates of different countries). Critics claim that these types of aggregate-level studies are prone to committing the 'ecological fallacy'. For instance, because countries with high proportions of Protestants have higher suicide rates, the assumption is made that Protestantism is in some way causally linked to suicide at the individual level. However, in reality, it may not be Protestants who are committing suicide, but other members of the community.

Epidemiological studies that examine *individual* risk factors for suicide (ie, comparing the characteristics of individuals who attempt or commit suicide with the characteristics of other people) do not commit the 'ecological fallacy', and are therefore often thought to be of greater value in identifying the causal links to suicide. Unfortunately, however, this type of epidemiological data is not always readily available.

Another issue often raised in relation to quantitative studies of suicide relates to definitions or classifications of different variables that change over time (eg, ethnicity as recorded in the New Zealand Census). In addition to this, care has to be taken in cross-national analyses because of the different data collection methods and definitions used in different countries.

Presentation of information

Due to the very large volume of empirical research that has been carried out on suicide, it has been possible to cover only a selection of studies and provide only introductory summaries of research results. As in Part 1 of this report, in Part 2 we have had to rely considerably on review articles. Therefore authors like David Lester and Stephen Stack, who have extensively summarised the work of other suicide researchers, feature quite prominently in many of the sections below.

An attempt has been made to cover the majority of the main socio-cultural and economic issues covered by previous quantitative research. For further details about the design and results of these studies, readers are advised to read the review articles and/or original research papers and monographs cited.

For each of the 24 selected topics a summary of observed patterns is provided, followed by details of the results of relevant studies. Authors' explanations for these results are then

presented. Finally, relevant features of the historical and current New Zealand socio-cultural context are briefly described.

2.1 Gender

Patterns identified in empirical studies

In the English-speaking Western countries, across all age groups, males show consistently higher *completed* suicide rates than females. Females, by contrast, have higher rates of *suicide ideation* (Canetto and Sakinofsky 1998) and *attempted suicide* (Girard 1993; Hassan 1995; Canetto and Lester 1998; Canetto and Sakinofsky 1998; Lester 2000).

Exceptions to this pattern have been found in certain groups and sub-populations, with rates of male and female 'medically serious suicide attempts' found to be similar in a Christchurch sample of young people (Beautrais, Joyce and Mulder 1996a) and in young people with a record of contact with the Children and Young Persons Services (Beautrais et al 2001).

Comparatively high rates of female suicide, particularly in younger adult women, are a feature of less developed nations (Canetto and Lester 1989). Examples include Mainland China (Canetto and Lester 1989; Schmidtke et al 1999; Yip et al 2000), Western Samoa (Booth 1999) and the Solomon Islands (Pridmore 1997, cited by Lester 2000).

Lester's comparative study of 31 nations found that the ratio of completed male to completed female suicides was lower for older adults and higher for younger adults in the more affluent nations (Lester 1990b, cited by Lester 2000).

Stack and Danigelis (1985) found that the male:female suicide ratio converged markedly between the years of 1919 and 1972 in 16 out of 17 industrialised countries studied. A review by Canetto and Sakinofsky (1998) found the gender gap to be stable in the United States as a whole, but narrowing in California and Denmark. In Australia, Hassan (1995) found that the male:female suicide ratio fluctuated markedly between 1901 to 1990. The ratio declined from a peak of 4.5 male suicides to every one female suicide in 1901, to a low point of less than two male to every one female suicide in 1965, followed by a steady rise again to a 3:1 ratio in the 1980s.

Possible explanations for patterns

Gender roles or identity are considered to exert a major influence on suicidal behaviour (Stack 2000b; Hassan 1995; Girard 1993; Stack and Danigelis 1985). Males largely use more lethal forms of suicide (Stack 2000b; Hassan 1995), and Lester (1997a) found that even when females use the same methods as males they tend to be less successful at completing suicide. On the other hand, in those developing countries where female rates of completed suicide exceed those of males, more females tend to use highly lethal methods, largely agricultural poisons; for instance, rural women in Beijing, Mainland China (Yip et al 2000) and Western Samoa and Fiji (Booth 1999). In New Zealand, Beautrais (1999) has linked an increasing rate of uncompleted suicides among females aged 15–24 years to a corresponding increase in females' use of more lethal methods – mainly hanging and motor vehicle exhaust fumes.
Canetto and Safinofsky (1998) argue that socialisation patterns account for much of the differences in male and female suicide outcomes and that people tend to adopt self-destructive

behaviours conforming to their cultural 'gender scripts'. For instance, women may choose to use a less lethal suicide method than men because of a prevailing view that it is less appropriate for females to kill themselves. The researchers also suggest that high alcoholism among males in the United States may possibly be a male alternative to attempting suicide.

Stengel (1964, cited by Lester 1997a) suggests that the higher incidence of suicide *attempts* among females may stem from their being more inclined than men to use suicide threats and suicide attempts to manipulate their personal relationships. Expanding on Stengel's hypothesis, Lester (1997a) contends that female flirtations with death may be their way of attempting to bring about a change to their immediate environment, or an alternative means of expressing aggression.

Other explanations focus on the impact of the masculine stereotype in which males are required to be 'strong', decisive and competitive. As a result, it is argued, men react more strongly to actual or perceived loss or failure in their primary adult male role (Stack 2000b). It has been observed that in English-speaking Western societies male suicide is frequently regarded as a decisive, 'strong' and calculated response to impersonal stressors, whereas female suicide is construed as a weak, ambivalent and emotional response to personal relationship problems (Stack 2000b).

Studies indicate that, compared to males, females have higher levels of religiosity, lower alcohol abuse, higher rates of *reported* depression (ie, recognised and therefore potentially treatable), more negative attitudes to completed suicide, more positive attitudes to suicide attempts, more flexible coping skills, more extensive social support networks to draw on, and less access to lethal suicide methods (eg, firearms) (Stack 2000b).

It has been theorised that increasing equality of social and economic opportunity for women in the industrialised countries (eg, control over fertility, increased uptake of educational opportunities and participation of females in the labour force) has increased women's integration into the wider society (Hassan 1995). One flow-on effect of this 'female emancipation' has been the lowering of female suicide rates (Stack 2000b; Hassan 1995). However, the impact of the change has not been strictly linear. Initially female suicide rates surged upwards, narrowing the suicide gender gap; once the social changes linked to female emancipation became normative, female suicide rates declined and the gender gap widened again.

The New Zealand context

Over the last 60 years in New Zealand, social expectations and assumptions about the roles and position of men and women have changed dramatically. J Phillips (1996) observes that the 'props of the monolithic figure' of the 'kiwi bloke' (his rural life-style, military role and amateur rugby status) were seriously undermined during the 1970s and 1980s as a product of increasing urbanisation, education, feminism, women's participation in the labour force, opposition to the Vietnam war and apartheid and unemployment.

Easton (1997) contends that the movement of women into the paid workforce was probably not just a consequence of the pressure of economic forces but also of more deep-seated changes in assumptions about gender roles. Nevertheless, the process was facilitated by changes in the economy, which increased employment opportunities, particularly through expansion of the service sector.

Summary

In most populations, especially in developed countries, males tend to have higher completed rates of suicide than females. Rates of suicide ideation and suicide attempt do tend to be higher among females, although in recent New Zealand studies both genders have been found to have similar rates of 'medically serious' suicide attempts.

In one study, the male:female suicide ratio converged markedly between 1919 and 1972 in 16 out of 17 industrialised countries studied, largely as a result of increasing rates of female suicide.

Explanations for the gender difference in suicidal behaviours point to differences in socio-cultural expectations about male and female identities and roles, as well as the tendency for males to use more lethal suicide methods than females. Other explanations highlight the higher rates of alcohol abuse among men, as well as the evidence suggesting that men have fewer social networks to call on in times of crisis, are more likely to fail to recognise and acknowledge suicidal warning signs, and tend not to seek professional help for problems.

In those few places where the female suicide rate exceeds that of males, mainly rural Beijing in China, Western Samoa and Fiji (predominantly young women in both these latter countries), females tend to use more intrinsically lethal suicide methods. Increasing use of lethal methods among young New Zealand women aged 15–24 years also corresponds with a recent increasing trend in completed suicides among females in this age group.

2.2   Age and the life-cycle

Patterns identified in empirical studies

Suicidal behaviour in childhood and early adolescence

Suicide among young people aged 16 and under is relatively rare, but is becoming more common, particularly among male children (Beautrais 1997, 2001a; Cantor and Neulinger 2000; Diekstra et al 1995; Gould and Kramer 2001; Kosky 1987; Pfeffer 1997).

The longitudinal Christchurch Health and Development Study (CHDS), which has followed up a cohort of children born in the Christchurch region in mid-1977, found that by age 16 years 3 percent of the cohort members had made suicide attempts. Most attempts were considered 'minor' (Fergusson and Lynskey 1995a).

Suicide ideation is relatively common in young people, with some studies indicating that about a quarter of young people have suicidal thoughts (Smith and Beautrais 1999). The CHDS cohort study found that by age 16 years 12 percent of the 954 adolescents had reported suicide ideation (Fergusson and Lynskey 1995b). Lester (1997a) points to the considerable variation in rates of suicide ideation found in different studies, which he attributes largely to methodological differences between the studies.

In New Zealand, young people under the age of 16 with a history of contact with social welfare service authorities are about 10 times more likely to commit suicide than their contemporaries with no previous history of contact (Smith and Beautrais 1999). The annual suicide rate for

children in contact with the Department of Child, Youth and Family between 1994 and 1997 was 60.2 per 100,000, compared to 11.2 for the total population (Beautrais et al 2001).

Youth suicidal behaviour

Youth suicide rates rose steeply in many OECD countries from the 1970s onwards (Lester 1991). Diekstra et al (1995) conclude that the 'true increase' in youth suicide in Europe and North America occurred between the early 1950s and the early 1980s.

New Zealand is one of several OECD countries where youth suicide rates have increased dramatically, with the male rate doubling and the female rate increasing four-fold between 1978 and 1997 (New Zealand Health Information Service 2001). In Australia, youth suicide rates have accelerated at a similar rate over much the same timeframe. However, in the last decade the Australian rate has started to decrease, whereas New Zealand's has not. Australia's youth suicide rate is now lower than New Zealand's (New Zealand Health Information Service 2001).

Between 1988 and 1997 New Zealand youth (15–24 years) consistently had higher suicide rates than all other age groups (New Zealand Health Information Service, 2001). Beautrais (1997) found that suicide is significantly more common in young people age 18 years and over, and relatively less common for those under age 18.

Completed suicide is also significantly more common among young males than young females, whereas females have higher rates of attempted suicides. In New Zealand the risk for 'medically serious suicide attempts' appears to be very similar for males and females (Beautrais 1997).

Suicidal behaviour in the middle years

The mid-life period of life (25–55 or 60 years) is considered one of the more stable stages in the human life-cycle (Stack 2000c; Balance and Leenaars 1991). In the US, Balance and Leenaars showed that suicide rates in the mid-life age groups were relatively stable from 1980 to 1985, compared to the steeply increasing rates in the younger age groups and the decreasing rates among older age groups.

In New Zealand there was an overall increase in suicide death rates in the 25–44 years age group over the period 1988–97. Suicide rates in this age group were the second highest (after youth suicide). During the same period, suicide rates in the 45–64 years age group decreased by 31 percent.

Suicidal behaviour in older age

While the rate of suicide among older age groups has remained high in many OECD countries, some countries have experienced a relative decline (Stack 2000c; Hassan 1995). Between 1988 and 1997 New Zealand experienced an overall decrease of 30 percent in the suicide rates for adults aged 65 to 75 years (although rates fluctuated due to the relatively small numbers involved). Suicide rates in the 75-plus age group were the highest in the older age groups (New Zealand Health Information Service 2001).

A recent multi-national study found that rates of attempted suicide among people aged 65 and over decreased with increasing age (De Leo et al 2001), while the rate of completed (ie, fatal) suicides increased with age.

Guohua's (1995) longitudinal cohort study of 10,000 widowed and married people aged 60 years and over found that the risk of suicide was three times higher for bereaved males compared to married males; no excess risk for suicide was detected for bereaved females. MacMahon and Pugh (1965, cited by Guohua 1995) found the risk for suicide was highest in the first 12 months post-bereavement, steadily decreasing up until four years post-bereavement, when the effect disappeared.

Possible explanations for patterns

Suicidal behaviour in childhood and early adolescence

Diekstra et al (1995) conclude from their review of the literature that suicidal behaviour and depression are closely related for younger adolescents, but that most young people with depression do not resort to suicide attempts or complete suicide.

The CHDS cohort study found a high prevalence of psychiatric disorder (90 percent) and adjustment problems (eg, police offending, juvenile offending, school drop-out and low self-esteem) in suicide attempters compared to non-attempters. Attempters also had a higher level of psychiatric co-morbidity, with 80 percent having both psychiatric and adjustment problems. A history of family disadvantage was also more common in the attempters (Fergusson and Lynskey 1995a).

Youth suicidal behaviour

The Australian national youth study conducted in 1988 found a high level of pessimism about the future among the study's 15- to 24-year-old participants. Their pessimism appeared to be driven by a fear of unemployment, economic deprivation, nuclear war, substance abuse and family problems. Hassan (1995) suggests that pessimism of this nature is easily translated into feelings of personal despair, powerlessness and hopelessness, contributing to mental illness, problem behaviour (including alcohol and drug abuse), feelings of alienation and anomie.

Beautrais, Joyce and Mulder's (1996a) study of a consecutive series of 129 young serious suicide attempters revealed personal histories of childhood adversity, social deprivation and psychiatric morbidity. A subsequent case control study by the same author found a strong correlation between social disadvantage (lower educational and socioeconomic status) and 'medically serious suicide attempts' among the young (Beautrais 2001b). Diekstra et al (1995) drew similar conclusions.

Family disadvantage and dysfunction – mainly parental marital disharmony, separation, divorce, a history of violence and abuse (including childhood sexual and emotional abuse), impaired parent–child relationships and institutional care during childhood or adolescence – are characteristic of young people who attempt or complete suicide (Hassan 1995). Diekstra et al (1995) found that the presence of alcohol and drug misuse and abuse, and a history of suicide in other family members, added to a young person's suicide risk.

Some studies suggest that, compared to other age groups, the suicides of young people tend to be more impulsive and precipitated by interpersonal events (Lester 1997a). However, Diekstra et al (1995) draw attention to the lack of adequately designed studies testing the relationship between impulsivity and suicidal behaviour.

Changes in family structure, including recent parent generations marrying and having children later than before, and the emergence of the single-parent family as the fastest growing family type, have been implicated in high youth suicide rates. Tied in with these and other factors, parent figures may be absent or have reduced emotional involvement with their children (Hassan 1995).

Other theories have pointed to the contradiction young people experience between so-called 'theoretical freedom' and experiential autonomy. Although civil, economic, welfare and legal rights are being gradually extended to adolescents by the state, the freedom to exercise these rights is mediated in practice by parental and societal approval, creating a tension which heightens inter-generational conflict. Some young people may also have difficulty coping with the repercussions of these new liberties and responsibilities (Hassan 1995).

Among young people, the risk of further suicide attempts is high for those who have previously tried to commit suicide (Beautrais 1997). Studies suggest that exposure to televised suicide stories and media reports on suicide are strongly associated with 'copycat' suicides among young people. The prevalence of media and entertainment celebrity suicides is an important predictor of copycat and 'cluster suicides' in young adults, especially less serious suicide attempts (DP Phillips 1996; Stack 2000b). (See section 2.18 for further discussion of copy-cat and cluster suicides.)

Results from an Australian study by Martina (1985, cited by Hassan 1995) suggest a positive association between young male suicide and unemployment levels in the 1960s, 1970s and early 1980s. (See section 2.13 for further discussion on suicide and unemployment.)

Suicidal behaviour in the middle years

It has been suggested that sudden and dramatic changes occurring during the mid-life phase of the life-cycle (ie, a 'midlife crisis') may lead to some individuals becoming depressed and suicidal. Examples of events leading to suicidal behaviour in this age group include marital and relationship breakdowns and sudden changes in employment status. Such changes may act to undermine or severely alter/reduce familial and social support, reduce self-esteem, or induce a sense of insecurity (Stack 2000b).

Suicidal behaviour in older age

Factors found to increase the risk of suicidal behaviour in older age include loneliness; social isolation (Hassan 1995; De Leo et al 2001); economic hardship (Altergott 1998), including the cost of health care (Stack 2000b); loss of significant others (Richman 1991; Guohua 1995); loss of work-related roles (Stack 2000b); institutionalisation with loss of associated freedom (Stack 2000b); organic brain disease (Bharucha and Satlin 1997); physical illnesses (Stack 2000b; Bharucha and Satlin 1997; Lester 2000); the growth in popularity of euthanasia for severe, painful disease (Stack 2000b); and a deepening sense of fatalism (Stack 2000b).

A study conducted by Altergott (1998, cited by Stack 2000b) with a sample drawn from 11 nations found suicide rates in older people were related to economic strain, with strain measured in terms of the proportion of gross national product spent on income support pensions. The decline in suicide rates in older age groups – particularly in countries with welfare benefit transfers such as the United States, Australia and New Zealand – has been attributed to their relatively improved economic position in society (Hassan 1995).

Some investigators have suggested that older suicidal people are more likely than young suicidal people to choose lethal suicide methods, so their suicide behaviours are therefore more likely to lead to death (Lester 1997a).

The New Zealand context

Compared with most developed countries, New Zealand's population has always had a relatively young age structure. Immigration in particular has contributed to this. However, the population has undergone a gradual ageing process throughout the 20th century (ESCAP 1985). By 2001 the median age of the population was 34.8 years, up from 33.0 years in 1996 and 31.3 in 1991. Between the 1996 and 2001 censuses the size of the 45–64 years age group increased by 14.3 percent, and the size of the 65-plus age group increased by 6.6 percent (Statistics New Zealand 2002).

Population projections suggest that the New Zealand population will continue to age as a result of declining fertility rates, improved longevity and changing immigration patterns. By 2050 the number of people aged 65-plus is expected to double, meaning that 25 percent of New Zealanders will be in this age group. Over this same period the number of people aged 85-plus is expected to increase five-fold (Statistics New Zealand 2000).

The number and proportion of children in the population will decrease significantly from now until 2050. At the same time, the proportion of working-aged people (15–64 years) in the population is predicted to fall: from 65 percent in 1999 to 59 percent in 2050 (Statistics New Zealand 2000).

Summary

In most developed countries suicide rates peak for men in old age and in women during late old age. This pattern is consistent with Durkheim's theory that social integration tends to lessen with increasing age, and that therefore the risk of suicide is higher among older people.

Since the 1980s, New Zealand has consistently had one of the highest youth suicide rates among the OECD countries.

Suicide in young children (under 16 years) is relatively rare.

Studies point to a strong association between the age distribution of suicide in a nation and its level of economic development.

2.3   Cohort and period effects

Definitions

A cohort is a group of individuals born in a circumscribed time interval, such as a single year, series of years or particular decade. A *cohort effect* refers to the effects experienced by a defined group of individuals exposed to the same temporal experiences that are usually sustained over the group's lifetime. A *period effect* refers to changes in a particular phenomenon (eg, suicide rates) over a defined period of time, usually months or years, but seldom more than a decade (Klerman 1989).

Patterns identified in empirical studies

Easterlin (1980, cited by Leenaars and Lester 1996b) proposed that the quantity of people in a birth cohort relative to other birth cohorts – its *relative cohort size* (RCS) – shapes the behaviour of the cohort members as well as the members of other cohorts. One way this could happen is through members of large cohorts, such as the 20th century's post-war 'baby boom' cohort, being forced to compete with each other more intensely for limited resources.

Holinger (1987, cited by Leenaars and Lester 1996b) tested the Easterlin hypothesis for the period 1933–82 and found a positive correlation between the RCS of a younger cohort (15–24-year-olds) and the risk of dying from both suicide and homicide. Leenaars and Lester (1996b) found similar results when they tested the hypothesis using Canadian and US homicide and suicide data for the period 1969–87.

Stack's (1996) study of 12 nations, selected to be representative of different market economies, found an association between RCS and youth suicide rates in mixed and command economies for the period 1950–80. The association was strongest for countries with market economies but weaker for those with mixed economies. Freeman (1998) similarly found RCS to be a significant predictor of youth suicide rates in the US, although Murphy et al (1986) found no evidence of a cohort effect in an analysis of suicides in England and Wales from 1921 to 1980.

In New Zealand, Skegg and Cox (1991b) have identified a *cohort effect* for increased suicide risk for males born from 1947 onwards. The results showed a *period effect* for females, with suicide rates increasing for all age groups born between 1957 and 1961 and 1962 and 1966. The increase was quickly followed by a general decline in rates across all age groups, with the exception of the youngest female age groups. Lynskey et al (2000) also found a *period effect* for Australia's increased youth suicide rates over the period 1964–97.

Possible explanations for patterns

Theories suggest that being a member of a relatively large birth cohort, such as the baby boomer cohort, increases the chances of experiencing relative deprivation and intense competition for limited resources in areas such as education and employment (Stack 2000b; Thomson 1991; Klerman 1989). Other studies indicate that the rise in youth suicide has been paralleled by a corresponding increase in other psychosocial disorders and antisocial behaviour among younger birth cohorts (Lynskey et al 2000; Moscicki 1995; Deavoll et al 1993).

Joyce et al (1990) found a greater cumulative lifetime risk and a greater six-month prevalence of major depressive episodes for baby boom women born between 1941 and 1950 and 1951 and 1960. Males in the most recent birth cohorts had a higher prevalence of depression than their female counterparts, though the difference was not significant. Men born between 1951 and 1960 had the highest lifetime prevalence rates for depression, while males in the oldest cohort had the lowest.

Deavoll et al (1993) also showed rising depression rates in younger cohorts and found a trend suggesting depression was occurring at younger and younger ages. Psychological autopsy studies have found that the presence of serious depressive disorders is a major risk factor for suicidal behaviour in young people (Beautrais 1995; Beautrais, Joyce and Mulder 1996b, 1996c; Fergusson and Lynskey 1995a; Diekstra et al 1995; Moscicki 1995).

Changing family structure (eg, the increased percentage of single-parent households and greater poverty in households with younger children) is thought to be an important determinant of increasing youth suicide rates (Freeman 1998; Hassan 1995).

Differences in the strength of associations found between RCS and youth suicide in different types of economies may partially reflect differences in the degree of control younger cohorts have over their respective labour markets (Stack 2000b).

The New Zealand context

Between 1944 and 1961, the period of the post-war baby boom, a higher proportion of women were marrying and having children than at any other time in New Zealand history. This included an older cohort of women who had delayed having children during the depression and the war (Zodgekar and McClellan 1986; Belich 2001). Coinciding with the baby boom was an upsurge in the economy, stimulated by very high export prices and increased government spending, to the point where New Zealand had the second-highest standard of living in the world (Sutch 1969; Sinclair 1976; J Phillips 1996).

The baby boom peaked in 1961 and ended in 1971 when birth rates declined to pre-boom days (Belich 2001). The subsequent 'baby bust' period was characterised by a reduction in family size and a trend towards later marriage and later motherhood (Belich 2001; Zodgekar and McClellan 1986). Belich (2001) considers the baby bust was the outcome of factors such as the liberalising of divorce and matrimonial property laws, and women having babies later earlier and taking up opportunities for tertiary study. Greater female participation in the labour force was another key factor, stimulated by the advance of feminism, a decline in the family wage, moves towards equal pay, and the abolition of the family benefit and other welfare entitlements.

Summary

The relative size of a birth *cohort* can impact on the behaviours of its members as well as the behaviours of members of other birth cohorts. For example, studies have found relative cohort size to be a significant predictor of high suicide rates in younger cohorts. This is postulated to be because members of large cohorts, such as the 'baby boom' cohort, are forced to compete with one another more intensely for limited resources.

The rise in suicide rates in recent birth cohorts has been paralleled by a corresponding increase in other psychosocial disorders and antisocial behaviour in these groups. Rates of depression in the youngest cohorts are increasing relative to older cohorts, and depression has been found to be developing in people at increasingly younger ages. Proposed explanations include changing family structures (especially greater poverty in households with children) and the increasing percentage of single-parent households.

2.4 Ethnic minority and indigenous groups

Patterns identified in empirical studies

Internationally, indigenous populations tend to have significantly higher suicide rates than non-indigenous populations. The age structures of many indigenous populations in New World countries are generally younger than those of their non-indigenous counterparts: age-adjusted rates for most indigenous people show attempted and completed suicides are largely concentrated in the younger age groups, particularly the 15–24 years age group (Clarke et al 1997; Tatz 1999; New Zealand Health Information Service 2001). In New World countries, rates of suicide and attempted suicide among young indigenous people in this age group have risen steeply over recent decades, largely in the line with the general increase in youth suicide occurring in many OECD countries (Tatz 1999; Clarke et al 1997; Skegg et al 1995).

Clear sex differences are evident in the suicide rates of ethnic minority groups such as Māori, with male suicide rates being significantly higher than female rates (Tatz 1999). For example, the New Zealand Health Information Service's (2001) provisional data for 1998 shows that Māori male youth suicide rates were 64 percent higher than the rates for non-Māori males, while the Māori female rate was double that for non-Māori females.

Documented exceptions to this pattern include Western Samoan and Fiji-Indian populations, where the sex ratio for both fatal and non-fatal suicides is reversed, and where the rates for younger women are particularly high compared to those for young men (Booth 1999).

Although suicide rates among ethnic minority groups are often high, in the United States the suicide rates of the African-American ('black') population are generally around half those of Caucasians ('whites'). This pattern has changed little over the last 20 years, although suicide rates for both blacks and whites in the younger age groups began converging in the 1970s. By contrast, in New Zealand, Māori suicide rates increased dramatically between 1957 and 1991, with a doubling of the Māori female rate and a trebling of the Māori male rate (Skegg et al 1995; Tatz 1999). About a quarter of suicides by young Māori males occur in prisons or while they are being held in police custody. This compares to 2.2 percent of non-Māori inmates (Skegg et al 1995; Gardiner 1997, cited by Lawson-Te Aho 1998).

Studies of suicide in Australia indicate that a similar pattern exists for young Australian aboriginals (Tatz 1999). Interestingly, the suicide rate for young indigenous Manitoba people living 'on the reserve' is lower than that for those living 'off the reserve': 59.5 compared to 83.9 per 100,000 (Tatz 1999; Clarke et al 1997).

Tatz (1999), in his review of suicides among Australia's aboriginal population, observes that under-reporting of indigenous people's suicides appears to be a universal problem, although he notes that New Zealand's statistics are considered better than most.

Possible explanations for patterns

Various studies conclude that the high rates of suicide found among many of the indigenous populations of New World countries, such as New Zealand Māori and North American Indian tribes, are symptomatic of cultural alienation and social disintegration (Langford et al 1998; Lawson-Te Aho 1998; Tatz 1999; Clarke et al 1997). Rapid colonisation is also argued to have led to the loss of traditional lands, cultural practices and social ties, exacerbated by mass rural–urban migration and policies of assimilation (Lawson-Te Aho 1998; Tatz 1999).

The subsequent devaluation of culture and loss of identity has produced a condition which some have termed 'cultural depression', the symptoms of which include anomie, hopelessness, low self-esteem and despair (Lawson-Te Aho 1998). Out of this alienation and marginalisation, it is argued, has emerged a unique set of social conditions typified by low educational achievement, high unemployment rates, low income, poor housing standards, family breakdown and dysfunction, inter-generational violence, poor physical and mental health status, and associated high and rising rates of attempted and fatal suicide (Tatz 1999; Lawson-Te Aho 1998).

Other studies propose less elaborate explanations for the higher suicide rates among some indigenous peoples, such as living in geographically remote reservations, which tend to be located on uneconomic land (Tatz 1999; Hassan 1995; Clarke et al 1997).

In an effort to explain why black Americans have lower rates of suicide than white Americans, Stack (2000b) suggests that aggression in white Americans is more commonly expressed against the *self* (suicide and suicide attempts), hence their higher rate of suicide. In contrast, aggression by black Americans is said to be more externalised, evidenced by higher *homicide* rates. This externalised aggression is often observed to be the result of frustration at continued discrimination against black people in society. Suicide is also seen to be a 'white thing'. Marital status and church attendance have been found to be the strongest predictors of low suicide tolerance among black Americans (Stack 2000b).

The New Zealand context

Various studies conclude that the minority status of Māori has been aggravated by aggressive colonisation; loss of traditional lands, authority and control; poverty; low socioeconomic status; poor health; and substandard housing (Langford et al 1998; Lawson-Te Aho 1998). Loss of the indigenous language and cultural identity, and feelings of hostility, worthlessness, hopelessness and low self-esteem, all contribute to what Lawson-Te Aho (1998) has called 'cultural depression'. The psychopathology of this condition includes self-destructive behaviour (alcohol and drug abuse) and negative thinking (ibid). Assimilation policies are also thought to have contributed to a sense of cultural alienation, both for Māori (Lawson-Te Aho 1998) and for Australia's aboriginal people (Tatz 1999).

Belich (2001) suggests that Mori experienced much greater change in the middle of the 20th century than their Pākehā contemporaries. Many Māori moved off their traditional lands to come to the city to take advantage of expanding employment opportunities. According to Belich, the 'change trauma was great, but the money was good' (2001: 475). Based on the findings of several reviews, Sachdev (1989) found that Māori migration to the cities was associated with high rates of psychiatric morbidity. He describes the process in terms of it being

a special case of social change, which for Māori meant a transition to living in what was largely a Pākehā-dominated world.

Langford et al (1998) suggest that the economic shocks and rapid political and social changes that occurred in New Zealand in the last quarter of the 20th century created large-scale social and cultural changes which they believe have yet to be fully absorbed by the population in general. Belich (2001) agrees, and concludes that these shifts have put enormous pressures on the population as a whole and on Māori in particular.

Skegg et al (1995) suggest that there is a common perception that suicide was a relatively rare event in traditional Māori society and that suicide by Māori in modern New Zealand is an unfortunate by-product of colonisation. They dispute this stereotypical viewpoint, and argue that far from suicide being an isolated event, it was very much embedded within the traditional society, particularly for bereaved Māori women.

Summary

Internationally, indigenous populations tend to have significantly higher suicide rates than non-indigenous populations. The steep rise in young indigenous people's suicide rates, particularly in 'New World' countries, has largely paralleled the general increase in youth suicide rates that these countries have experienced over recent decades. In general, male suicide rates exceed those of females, although exceptions have been found in some developing countries. A relatively high proportion of suicides among young Māori and Australian aboriginal males occur in prison or while in police custody. Under-reporting of indigenous people's suicides appears to be a universal problem.

High suicide rates among many of the indigenous populations of New World countries are considered symptomatic of cultural alienation and social disintegration. Cultural devaluation and loss of identity have produced a condition which some have termed 'cultural depression', the symptoms of which include anomie, hopelessness, low self-esteem and despair. The condition is typified by low educational achievement, high unemployment rates, low income, poor housing standards, family breakdown and dysfunction, inter-generational violence, poor physical and mental health status, and associated high and rising rates of attempted and fatal suicide.

2.5   Marital status, family status and household composition

Patterns identified in empirical studies

Marital status

Stack's review of studies examining the relationship between divorce and suicide in the US and other selected Western countries shows a consistent correlation between divorce and suicide: the higher the divorce rate, the higher the rate of suicide. These associations held true for most studies, irrespective of study type (Stack 1995; Lester 1995c). A multivariate hazard regression estimates study by Kposowa et al (1995, cited by Lester 2000) found that divorce raised the fatal suicide risk by 2.36 times.

There is evidence suggesting that severing the marriage bond affects men and women differently. Divorced men in general have higher suicide rates than divorced women (Lester

2000; Kposowa 2000; Hassan 1995). Using a Cox proportional hazards regression model analysis, Kposowa (2000) found that marital status, particularly divorce, has a strong net effect on fatal suicide only for men. Pescosolido and Wright (1990) found that the risk of suicide was highest for divorced males aged 25 to 64, whereas the suicide risk was only significant for divorced females at age 65 and over. Hoyer and Lund's study (1993, cited by Lester 2000) of Norwegian women found that the risk of suicide was highest for the never married and those with no children.

In Western countries, such as Australia, rates of suicide for the divorced, widowed and never married have generally declined since the 1960s, but still remain higher than for married people (Hassan 1995).

Family status

The presence of children in a household, particularly younger children, is generally considered to be protective against suicide – what Durkheim entitled the 'coefficient of preservation' (Lester 1994a). Hoyer and Lund (1993, cited by Lester 2000) found that among Norwegian women the risk of suicide was higher among women who had never had children: the larger the family, the greater the immunity for women aged 25–44 and 45–74 years. Conversely, Pescosolido and Wright (1990) found that the mean number of children was not associated with the suicide rates of young and elderly women in their study, although a significant association was found for middle-aged women. They concluded that, contrary to Durkheim's 'notions of the burden of children during divorce' theory, the presence of children appeared to moderate any negative effect of divorce for women.

Lester (1994a), examining crude birth rates, conducted a time-series analysis of 21 nations. He found that while marriage and divorce were generally associated with lower suicide rates, the correlation between the birth and suicide rates was inconsistent and showed no significant trend. However, New Zealand was one of six countries where all three coefficients ran in the predicted direction.

Household composition

In an ecological study in England in the 1980s, the largest increases in suicide rates occurred in areas with the largest increases in the proportion of people living alone (Guohua 1995).

Possible explanations for patterns

In the US there is a 'strong social emphasis on achieving a successful and happy marriage' (Stack 1990, cited by Kposowa 2000). A breakdown in marriage may therefore bring with it feelings of shame, hurt, confusion and guilt (Stack 2000c).

It has also been observed that divorced people have higher levels of 'suicidogenic conditions' than the general population or their married counterparts. These conditions include higher rates of alcohol abuse, financial difficulties, illness and depression (Stack 2000c).

One reason commonly given for why divorced men are more likely to commit suicide than divorced women is that marriage does not favour men and women equally. For men, marriage provides emotional security and acts as both a regulator and a means of social integration. For

women, marriage provides a material base but it can also produce a situation of over-regulation (Pescosolido and Wright 1990). Marriage breakdown thus disrupts cohesion and increases the risk of 'anomic' suicide more for divorced men.

Another explanation advanced for why divorced women may be less prone to suicide than divorced men is that women tend to form, or be involved in, greater social networks and more meaningful friendships than men (Kposowa 2000). Consequently, after a marriage breakdown, males may not have the social support networks to fall back on that females do (Stack 2000c; Hassan 1995; Pescosolido and Wright 1990). In addition, Hassan (1995) contends that increased labour-force participation has increased women's economic independence, giving them a greater ability to cope with the stresses of modern life, such as separation and divorce, and promoting their integration into the wider society.

Kposowa (2000) suggests that married people may experience a lower suicide risk by virtue of 'matrimonial selection'. People who are successful in attracting and holding on to a marriage partner may be healthier or wealthier than those who are not. Lester (1995c), reflecting on the significant association he found between divorce and suicide in the US, concluded that this was perhaps indicative of a general social malaise affecting all members of that society.

Hassan (1995) postulates that the recent decline in suicide rates in Australia, and certain other Western countries may be due to the destigmatising of divorce and singlehood: divorced and single adults comprise a greater proportion of the population than in earlier periods. Stack (2000c) proposes that divorce may only impact on suicide rates when other institutions promoting social integration are weak, such as religious and economic institutions.

Pescosolido and Wright (1990) have hypothesised that the demands of children might be expected to increase problems following divorce, thus raising the risk of suicidal behaviour for women. However, subsequent empirical work by these authors showed in fact that the presence of children was a protective factor for women. Hassan (1995) argues that improvements in the Australian social welfare system over the last 20 years have helped reduce distress and hardship for divorced and widowed women caring for children.

Phillips (1981) identifies several other sociological factors that may have contributed to increases in the New Zealand divorce rate in recent years. These include women's dissatisfaction with married life, changing perceptions of the character of marriage (traditionally marriage was held to be sacrosanct and divorce judged to be immoral), and increasing urbanisation offering greater employment opportunities for women, including scope for earning an independent income and accessing alternative accommodation other than the marital home.

The New Zealand context

In colonial times marriage was considered to have a civilising influence on the itinerant male settler, providing security and social support and an antidote to loneliness and desolation (Fairburn 1989). Unmarried working men were considered particularly at risk because they both expressed and compensated for the loneliness of the colonial frontier through excessive drinking.

Phillips (1981) found that changes in the divorce rates from 1867 to 1980 were strongly linked to legislative changes that incrementally liberalised the divorce and matrimonial property laws over this period. Divorce rates increased with every legislative change, with the most significant increases occurring in the period after World War II, and then again after 1969 when the

Matrimonial Proceedings Amendment Act came into effect. In 1978 the divorce rate reached nine petitions and eight divorces per 1000 existing marriages. Phillips calculates that only 10 percent of the people who married in 1946 remained married 27 years later.

Belich (2001) contends that the 'baby bust' (the decline in the birth rate that began in the 1970s) was evidence of New Zealander's growing disenchantment with the 'cult of romantic marriage, motherhood and domesticity.' Marriages had become easier to escape from and the annual number of divorces rose from around 2000 in 1960 to 7000 by 1980.

One-person households are becoming more common in New Zealand. In 2001, 22.9 percent of households consisted of people living on their own, compared with 20.2 percent in 1991 (Statistics New Zealand 2002). Factors identified by Davies (1999) as important for shaping this pattern include changes in marital patterns, higher proportions of unpartnered people, and an increase in marriage breakdowns. While non-Māori widowed females comprised the largest group of single-person households in 1996, the divorced and the separated were the second largest group. The majority of these divorced and separated were between the ages of 20 and 59, but with a clear peak in the 40- to 59-year-old group (Davies 1999).

The proportion of children living in two-person households declined between 1981 and 1996. The steepest decline occurred for Māori children, falling from 80 percent to 60 percent. There was a corresponding increase in children living in one-parent households, which were mainly households headed by a sole mother (Davies 1998).

Phillips (1981) has argued that inter-country comparisons of divorce rates are problematic because of the differences in the magnitude and timing of divorce law changes. He also notes that the increasing popularity of de facto relationships will in future dilute the usefulness of focusing solely on divorce rates as an indicator of domestic and social integration.

In New Zealand in 2001, of the people aged 15-plus years who specified their 'social' marital status in the census, 60.8 percent had partners (about half of these being legal spouses). Fifty percent of the usually resident population aged 15-plus stating their current 'legal' marital status were legally married, one-third had never been married, 7 percent were divorced, 4 percent were separated, and 7 percent were widowed (Statistics New Zealand 2002).

Since 1991 the percentage of families consisting of couples without children has increased (from 22.4 in 1991 to 26.0 percent in 2001), as has the proportion of one-parent families (from 14.9 percent to 17.3 percent). Over the same period, the proportion of couples with children has declined (from 62.8 percent to 56.7 percent) (Statistics New Zealand 2002).

Summary

Durkheim considered that marriage protects against suicide, especially for men, because it increases social integration and regulation at the domestic and societal levels. The hypothesis that divorce is a risk factor for suicide has been largely supported by much of the research undertaken since Durkheim's time, irrespective of study type.

The presence of children and larger family size are also considered to be protective against suicide, particularly for women. Increased labour-force participation is hypothesised to have

enhanced women's economic independence, increased their social integration into the wider society and given them a greater capacity to cope with the stresses of modern life.

It has been suggested that the significant association between divorce and suicide in the United States indicates the presence of a general social malaise impacting on all members of that society.

2.6   Fertility

Patterns identified in empirical studies

The childbearing years are considered one of the more stable stages of the human life-cycle (Stack 2000c). A time-series analysis of suicide in 27 industrialised countries for the years 1970 and 1980 found that suicide rates in the 25–44 years age group (the childbearing years) were generally lower than in other age groups. An overall decline in suicide rates was also evident for the mid-life age groups (Lester 1991, cited by Balance and Leenaars 1991).

In a time-series multiple regression analysis of US suicide rates for the years 1933 to 1984, Lester and Yang (1992) showed that the higher a country's fertility rate, the lower the suicide rate for both men and women in the mid-life age group.

After conducting a time-series analysis of suicide and fertility in 21 nations using crude birth rates (the best data that could be obtained for all 21 countries), Lester (1994a) concluded that the correlation between the birth rates and suicide rates was inconsistent and showed no significant trend. However, New Zealand was one of the six countries in the study where birth rates and suicide rates ran in the predicted direction.[9]

Possible explanations for patterns

An increased fertility rate theoretically reduces suicide risk by increasing both domestic and social integration. A study by Kozak and Gibbs (1979, cited by Hassan 1995) suggests that the presence of dependent children, and a larger mean number of dependent children in marriage, lowers suicide risk. Hassan contrasts these findings with clinical evidence suggesting that the strain of caring for young children may be a contributing factor in suicidal behaviour for younger people endeavouring to establish their careers, and for middle-aged and older couples when it adds to their existing responsibilities (Hassan 1995).

Lester (1994a) has theorised that having children in a marriage may be protective against suicide only in countries with relatively high marriage and birth rates.

The New Zealand context

During the Great Depression of the 1930s, marriage and birth rates fell and the consumption of goods decreased by 27 percent (Sutch 1969). After World War II came full employment and 40 years of relative economic prosperity. Marriage rates soared. Both younger couples, and older couples who had delayed marriage or having a family because of the war, started having

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[9]   Lester notes that there is a paucity of studies dealing with the relationship between fertility and suicide. The search for this literature review found very few relevant studies.

children, creating the post-war baby boom. During this period, people married at a younger age than ever before and had bigger families (Zodgekar 1994).

In the decades after 1970, fertility rates declined, creating a baby bust. This situation has continued until the present day, reflecting the impact of a diverse array of social and economic factors encouraging delayed marriage and reduced family size (Zodgekar 1994; Zodgekar and McClellan 1986).

Summary

As well as marriage and divorce rates, the birth/fertility rate is considered to be a key indicator of Durkheim's concept of domestic integration. Durkheim held that countries with high fertility rates (along with high marriage and low divorce rates) would have lower suicide rates. Low fertility was considered indicative of a weakening in a society's safety net, which in turn promoted higher suicide rates.

2.7 Spatial factors

Patterns identified in empirical studies

Cross-national patterns

Different countries show considerable variation in their respective suicide profiles, particularly in relation to age and gender. For instance, male suicide rates in Western developed countries are generally about three times higher than female rates (Diekstra and Gulbinat 1993). Yet the situation is reversed in some developing countries such as China (Yip et al 2000) and Western Samoa (Booth 1999), where female suicide rates are significantly higher than male rates.

Up until recently the suicide rates of most countries tended to increase with age, particularly for males, but now there is considerable variation in the age distribution of suicide between countries. Some similarities remain, however. In many Western countries over the past 25 years suicide rates in the younger age groups (15–24 years) have increased more substantially than in the other age groups, creating a secondary suicide peak (Lester 2000).

Suicide is a major cause of death in many New World countries, where suicide profiles show strong similarities that differ substantively from those of most Old World countries. Interestingly, the suicide pattern in Australia and New Zealand, the two Australasian New World countries, are quite similar, but this Australasian suicide pattern is different from that found in Canada and the United States, the two North American New World countries, where the suicide profiles are also similar to each other (Cantor et al 1996).

Mākinen's (1997) cross-national study indicates that the suicide rates of 'modern countries' appear to have stopped increasing, while the rates of 'less modern' countries' have continued to rise. Many of the modern countries experienced their suicide boom in the 1960s. As these suicide rates waned, those in less modern countries have increased (Mākinen 1997).

Inter-state and inter-regional differences

Wasserman and Dankowicz (1998) found considerable variation in the distribution of suicide in the former Soviet Union countries during the upheaval of the *perestroika* period of modernisation (1984–90). Suicide rates ranged from 3.5 per 100,000 in the Caucasus region to 28.0 per 100,000 in the Baltic region. Rihmer et al (1990) similarly observed 'extreme' regional differences within Hungary, ranging from 24.5 to 60.9 per 100,000 suicides. In Sweden, regional differences were comparatively small (Wasserman and Dankowicz 1998). Lester's multivariate analysis (1995b) also found considerable variation in the suicide rates of America's 48 continental states.

Rural–urban differences

Cross-country analyses in Australia for 1990–92 (Hassan 1995) and in England and Wales for 1989–92 (Saunderson et al 1998) found that, in general, male suicide rates were significantly higher in most small rural areas compared to urban areas.

Other historical and cross-national studies have identified positive associations between *urbanisation* and suicide rates. For instance, in New South Wales between 1985 and 1991, particularly high suicide rates were found in inner areas of metropolitan Sydney, as well as in inland non-metropolitan areas (Hassan 1995). Hassan reported that the suicide rates for ethnic groups living in Australia but born overseas were significantly higher than those for Australian-born residents. However, some immigrant groups had higher suicide rates than others. Morrell et al (1993) found suicide among migrant males living in non-metropolitan areas accounted for most of the excess male suicides in rural New South Wales, although this pattern did not apply to migrant women.

Possible explanations for patterns

Cross-national and interstate differences

Changes in access to potentially lethal suicide methods such as guns (Morrell et al 1993; Diekstra and Gulbinat 1993) and agricultural poisons (Booth 1999) have been strongly linked to sudden changes in a country's suicide rates. In Western Samoa in the 1970s, sudden, dramatic increases in suicide followed an increase in access to paraquat (Booth 1999). In England and Wales, suicide rates took a steep dive when domestic gas supplies were modified so that they were no longer toxic (Murphy et al 1986).

Variations in gun control restrictions and drug-prescribing behaviour may explain some of the differences observed between nations, and also inter-state suicide patterns (Diekstra and Gulbinat 1993).

Mākinen (1997), replicating an early cross-national study conducted by Sainsbury et al (1990), confirmed that countries with high suicide rates continued to have high divorce rates, more females in paid employment, more homicide and fewer children. The evidence from both the Mākinen and Sainsbury studies suggests that suicide rates are highest in countries where the erosion of the traditional family is most evident.

A study by Wasserman and Dankowicz. (1998) concluded that the considerable variation in the distribution of suicide between the regions of the former Soviet Union were related to differences in levels of alcohol consumption, and the way in which both alcohol consumption and suicide were influenced by culture and religion.

Different cultural, religious and legal attitudes towards suicide may also play a role in cross-national differences (see Part 1 of this report).

Regional differences

Stack (2000a and b) proposed three possible explanations for differences in suicide rates within a country:

- *Selective migration* – some regions may attract migrants at higher risk of suicide than other regions. In the US, Lester (1995b) found an association between states with a high proportion of long-distance and overseas immigrants and higher suicide rates. Hassan (1995) in Australia also found overseas migrants had significantly higher rates than Australian-born residents, although some migrant groups had higher rates than others.

- *Composition of population* – the population pyramid of particular regions may consist of more 'suicide risk' sub-populations, such as the divorced, or younger or older people.

- The *local social environment* could feature low levels of social integration or provide inadequate or unsuitable social and health services for those with a higher suicide risk.

Rural and urban differences

High *rural suicide* rates, particularly for males, have been associated with downturns in the rural economy and rural poverty (Hassan 1995; Saunderson and Langford 1996), isolation (Morrell et al 1993; Yip et al 2000), lack of employment opportunities (Yip et al 2000), lack of educational opportunities (Yip et al 2000), low education levels (Hassan 1995), greater availability of lethal suicide methods such as firearms (Morrell et al 1993; Hassan 1995) and agricultural poisons (Booth 1999), poor access to mental health services (Saunderson et al 1998), failure of mental health services to target rural youth (Morrell et al 1993), and reluctance to seek professional help (Samuels 1998).

Saunderson and Langford (1996) identified a number of possible factors influencing the high *urban suicide* rates found for both sexes in England and Wales, including high population density and psychiatric morbidity (particularly alcoholism). In Australia, Hassan (1995) found that high suicide rates in metropolitan areas were associated with a higher density of deprived families, a greater prevalence of mental illness, higher crime and divorce rates, and a range of population and socio-demographic characteristics covering age and marital status. Hassan also found an association between high suicide rates in some metropolitan areas and the presence of a high proportion of non-English-speaking migrant groups. He suggests that contributing factors to suicide in these areas could include loss of established social ties, downward social mobility, a high incidence of mental illness (especially alcoholism), unemployment and social isolation.

Stack (2000b) suggests that the inconsistent results of many of the cross-national studies comparing the distribution of urban and rural suicide rates may stem from differences in the timing of the urbanisation process. He hypothesises that suicide rates in the early phases of mass rural to urban migrations will increase. Thereafter, suicide rates will plateau and subsequently decline as urban dwellers become adjusted over generations to living in an urban environment.

The New Zealand context

New Zealand has always been a relatively urbanised country. Even in 1881 40 percent of Pākehā lived in urban areas, and by 1926, 68 percent of all New Zealanders lived in urban areas (Belich 2001). At the close of the century, the figure was 85 percent (Statistics New Zealand 2002).

Six main features characterised the urbanisation process in New Zealand in the 20th century (ESCAP 1985):

- increases in the number and size of towns and larger cities
- Māori urbanisation
- growth in the regional centres (especially the five main centres)
- the growth of Auckland
- the drift north (from the South Island to the North Island, and *within* the North Island)
- the concentration of people in the suburbs.

At the latest census in 2001, only 8.3 percent of employed people worked in the 'agriculture, forestry and fishing' industry division (Statistics New Zealand 2002). Exports of agricultural products have now declined to 33 percent, and manufactured goods, machinery and transport equipment now make up 29 percent of total exports (compared with slightly more than 1 percent in 1950) (Statistics New Zealand 2000).

Summary

Different countries show considerable variation in their respective suicide profiles, particularly in relation to age and gender. The differences between Western industrialised and developing nations – 'modern' and 'less modern' – are particularly striking, as are those between New World and Old World countries.

Focusing solely on the total population suicide rates of a nation obscures the considerable variation that often exists at the state or regional level. Social mapping approaches have even found considerable variability in suicide patterns within major metropolitan areas.

Some studies have found a significant association between 'rurality' and suicide, particularly in remote and economically depressed rural areas. Access to lethal suicide methods such as agricultural poisons and guns, and the limited availability of mental health services are thought to be some of the key influences on rural suicide rates.

2.8   Migration

Patterns identified in empirical studies

Internal migration

Increasing migration from rural to urban areas (urbanisation) can result in (at least temporary) rises in urban suicide rates (Stack 1982b). Aggregate (area)-level studies have shown a positive relationship between rates of suicide and internal migration (ie, higher rates of internal migration are associated with higher suicide rates) (Stack 1980a, cited by Stack 1982b, 2000c).

International migration

Countries with high rates of *immigration* tend to have high rates of completed suicide (particularly among young males and among females) (Hassan 1995; Stack 1981, cited by Stack 1982b; Linden and Breed 1976, cited by Stack 1982b; Trovato and Jarvis 1986, cited by Stack 2000c). Countries with higher rates of suicide characteristically have lower rates of *emigration* (Lester 2000).

International migrants tend to have higher suicide rates than the people living in their country of origin (Taylor et al 1998; Retterstol 1993). A large number of studies have also found that the suicide rates of immigrants are higher than the rates among people born in the migrants' country of destination (Hassan 1995; Kliewer 1991; Lester 1997b, 2000; Retterstol 1993; Sainsbury and Barraclough 1968, cited by Lester 1997a). However, in general the suicide rates of immigrants appear to depend primarily on the suicide rates in their country of origin. If, for example, the country of origin of a group of migrants has lower suicide rates than their country of destination, then the immigrants' rates will tend to remain lower than those of the native-born in their country of destination (Hassan 1995; Kliewer 1991). Female suicide rates may be more adversely affected by migration than male suicide rates (Kliewer 1991).

According to the so-called convergence hypothesis, the suicide rates of international migrants tend to 'converge' with those of the population of their country of destination, especially if their country of origin has higher suicide rates than their country of destination (Kliewer 1991; Taylor et al 1998). Migrants also tend to change their suicide methods to those used in their country of destination (Lester 1997b).

The socioeconomic status of immigrants can affect their suicide rates, especially for males from certain countries (eg, English-speaking and Asian) (Taylor et al 1998). Immigrants from Roman Catholic, Southern European and Moslem countries tend to have lower suicide rates than other immigrants, while those from Eastern Europe tend to have high rates (Hassan 1995; Taylor et al 1998; Retterstol 1993; Trovato and Jarvis 1986, cited by Stack 2000c).

National immigration policies and the levels of social support provided for migrants can also affect their suicide rates in different countries (Hassan 1995; Kliewer 1991).

Studies on *attempted* suicide among international migrants have shown mixed results. Being foreign-born is a risk factor in some analyses but not in others. Higher population density in the place of destination may increase suicide attempts among migrants (Bayard-Burfield et al 1999).

Possible explanations for patterns

Durkheim proposed that migration tends to reduce the levels of 'social integration' and 'social regulation' experienced by migrants (Hassan 1995; Yang and Lester 2001). Many migrants move to cities, which, compared to rural areas, tend to have lower levels of social integration (Hassan 1995).

Internal migration

Internal migration can involve the breaking of family, friendship and co-worker relationships, and social and religious networks (Stack 1982b, 2000c; Yang and Lester 2001).

International migration

Migrants may experience high levels of stress because of changes in a large number of aspects of life, including cultural (eg, language, values, customs, dress, dominant religion), physical environment (eg, accommodation, climate, food) and economic (eg, change in employment) aspects (Bayard-Burfield et al 1999; Stack 2000c; Lester 1997a). Women migrants may have higher increases in suicide rates than men because they are more isolated and less likely to be proficient in the language of the destination country (Kliewer 1991).

Young migrants may have relatively high suicide rates because they experience conflict from belonging to two cultures, they have the burden of helping their parents cope with the new culture (eg, assisting with the language), and may have difficulties obtaining suitable education and employment (Kliewer 1991; Retterstol 1993). On the other hand, elderly migrants may have higher suicide rates because they find it harder to adapt to new life-styles, and are more isolated than native-born people when they retire or lose a partner (Kliewer 1991).

Refugees may be at particular risk of suicide because of traumatic experiences in their country of origin, pre-existing depression, living in refugee camps, and having to go through an asylum-seeking process (Bayard-Burfield et al 1999; Retterstol 1993).

People who migrate may be more likely than others to use 'escape' strategies to deal with problems, have a higher rates of psychological problems, have 'suicidal tendencies' and have higher levels of alcohol consumption (Hassan 1995; Kliewer 1991; Lester 1997a).

International migrants become part of a statistically small 'minority' group in their country of destination, leading to higher suicide rates (Gibbs and Martin's 'status integration' theory, Lester's 'deviance' theory) (Lester 1997b). Convergence of migrant suicide rates with the rates of their country of destination may be due to acculturation (for instance, English-speaking migrants in Australia) (Hassan 1995).

Roman Catholic and Southern European migrant communities tend to give strong social support to other migrants in destination countries, and they tend to have lower suicide rates in their countries of origin (Hassan 1995). The way in which death, 'object-loss' and mourning are dealt with and ritualised in the country of origin may influence the suicide rates of international migrants (Hassan 1995; Kushner 1984; cited by Stack 2000c).

The New Zealand context

Internal migration

New Zealanders are a highly mobile population. Very nearly half (49 percent) of the people who were living somewhere in New Zealand in 1996 had shifted house at least once by 2001 (Statistics New Zealand 2002).

International migration

International migration has been a dominant factor shaping New Zealand's history and social life (Zodgekar 1994). Belich (2001: 223) describes the 1840s to the 1880s as 'the great peopling period' of New Zealand, with further peaks in migration between 1903 and 1914, and 1920 and 1927. Over the last 100 years net gains of around 5000 people each year have been made through immigration (Statistics New Zealand 2000). Initially most migrants were English or Scottish, with Northern Europeans the second-most-favoured group. In more recent decades migrants have come from the Pacific Islands (especially from the 1950s onwards), Asia and South Africa (Statistics New Zealand 2000, 2002). The 2001 census showed declines in the numbers of overseas-born people from Europe (including the UK), and increases in those from Asia, Africa and the Middle East (Statistics New Zealand 2002).

At the 2001 census, nearly one-fifth (19.5 percent) of people usually resident in New Zealand were born overseas (up from 17.5 percent in 1996). Seven percent of people resident in New Zealand in 2001 (and already born by the 1991 census) were living overseas five years previously (Statistics New Zealand 2002).

Refugees have been accepted into New Zealand in increasing numbers. They are generally regarded to be at high risk of experiencing mental health problems, for a variety of reasons (Abbott 1997).

Summary

Higher rates of migration *within* a country (including rural to urban migration) are associated with higher suicide rates.

Countries with higher rates of international immigration (and low rates of emigration) have higher suicide rates. International migrants may have higher suicide rates than people in both their country of origin and their country of destination (unless their country of origin has particularly low suicide rates). The suicide rates of international migrants also tend to 'converge' with those of their country of destination. Other influences on the suicide rates of immigrants include their socioeconomic status, the religion of their country of origin, and the immigration policies and support services of their country of destination.

Relatively high rates of suicide among both internal and international migrants have mainly been attributed to a loss of social integration (eg, loss of networks, social isolation and living in unfamiliar cultures, physical environments and lifestyles. Migrants, especially refugees, may have experienced traumatic life events and be more likely to have various psychological problems. Being a member of a statistically small population group may also play a role.

2.9   Education

Patterns identified in empirical studies

Some studies have found that groups of people with higher education levels have higher suicide rates (Barnes 1975, cited by Stack 1982b; Gillis 1994; Kowalski et al 1987, both cited by Stack 2000c; Lester and Yang 1997). On the other hand, some studies (including one in New Zealand) examining individual risk factors have found that people who commit suicide tend to have lower levels of education than those who do not commit suicide (eg, Blakely et al 2001; Li 1972, cited by Stack 1982b).

The apparently protective effect of education may be stronger for different genders and ethnic groups. One US study showed that higher education was associated with lower suicide rates among Caucasian men, but higher rates among African-American men (Stack 2000c).

Other studies have suggested there is no relationship between education levels and suicide rates (eg, Breault 1988, cited by Stack 2000c; Gove and Hughes 1980, cited by Stack 1982b; Labovitz and Brinkerhoff 1977, cited by Stack 1982b).

Possible explanations for patterns

Higher suicide rates at least during the initial stages of urbanisation may be partly due to higher levels of education being required for occupational differentiation (necessary for industrialisation). Increased education tends to be associated with lower adherence to religious beliefs, and with increasing value being placed on materialism and individualism, thus weakening the bond between individuals and society – Durkheim's theory of social integration) (Stack 1982b). However, according to Stack (2000c), the effect of education on secularisation may now be saturated in developed countries.

Education may protect some people against suicide by leading to better jobs and higher incomes, implying that education and suicide may be related *indirectly* through socioeconomic factors such as employment status, and that there is no *independent* relationship (Blakely et al 2001; Stack 2000c). Higher education may also be an indicator of better social integration of an individual (Li 1972, cited by Stack 1982b).

Minority groups, and women who are highly educated but discriminated against, may have higher suicide rates because of higher levels of frustration (Stack 1982b). Also, increasing educational competition among school and university students in some countries may cause high stress levels and more suicides among these groups (Williams 1997).

The New Zealand context

The Education Act 1877 saw the introduction of free, secular and compulsory education for European children in that year, and for Māori children in 1903. From 1936 free secondary schooling was available for all children under the age of 19. At the beginning of the twentieth century only a tiny proportion of school pupils went on to university, but participation in tertiary education increased steadily over the next hundred years, to the point where almost one in four 16–24-year-olds were participating in some form of post-secondary education in the late 1990s (Statistics New Zealand 2000). This reflected an increasing emphasis on educational qualifications as a prerequisite for employment.

Summary

Results from studies examining the relationship between levels of education and suicide are mixed. While studies of individuals tend to show that people with lower educational achievement have higher suicide risks, studies at the group level sometimes show the opposite, or no association.

Higher levels of education may protect against suicide by providing economic security. However, higher levels of education are also associated with reduced religiosity, greater individualism and greater urbanisation, all of which are considered to be indicators of reduced social integration (and thus higher suicide rates).

2.10 Religion

Patterns identified in empirical studies

In general, both between and within countries, populations with higher levels of religiosity or religious affiliation generally have lower rates of suicide. Higher levels of religiosity are more commonly associated with reductions in female suicide rates rather than male rates. Over time, as levels of religious participation or church attendance decline, so rates of suicide increase (Stack 1983b; Kelleher et al 1999).

Durkheim contended that Catholicism was protective against suicide and Protestantism aggravated it. However, studies that take a more sophisticated approach to the definition and identification of religious groups and religious commitment have concluded that variations in suicide are generally unrelated to the proportion of Catholics and Protestants in a population, especially after controlling for socioeconomic differences and indicators of modernisation (Stack 2000c; Simpson and Conklin 1989).

Other studies have found that the greater the percentage of followers of Islam in a nation, the lower the suicide rate (Simpson and Conklin 1989), even after controlling for economic, social and demographic modernity. As well, certain religious *denominations* appear to be more protective against suicide than others. US studies suggest that so-called 'mainstream' or 'liberal' Protestant denominations are most strongly associated with high suicide rates, whereas fundamentalist or evangelical Protestant denominations are associated with comparatively low suicide rates (Pescosolido 1990).

Possible explanations for patterns

It has been suggested that certain religions are more effective than others at promoting social integration and subordination of the individual to the group. Islam, for example, emphasises the daily ritual of prayer, 'submersion of the self to the collective will' and a strict code of conduct (Simpson and Conklin 1989: 961).

It has also been theorised that religious denominations that develop and maintain effective networks among their members offer more protection from suicide than denominations where networking among members is minimal. Religious structures that are non-ecumenical, non-hierarchical, conservative and in tension with mainstream society are thought to be especially effective in promoting friendship and solidarity among church members (Stack 2000c). In the US, at least, these kinds of integrative religious structures may play a particularly important role in mid-sized urban areas, which lack the kinship-based integrative structures of rural areas and the large range of voluntary organisations available to promote integration in highly urbanised settings (Faupel et al 1987).

Other theories propose that religion is protective against suicide because belief in an all-knowing God and an after-life makes worldly suffering more endurable and less life-threatening (Stack 2000c). As Stark et al (1983: 123) observe, 'the belief that earthly suffering is but the prelude to immortality has sustained many who might otherwise have lost heart'.

Traditional religious values and expectations concerning marriage and the family are also argued to have an indirect effect on suicide in that they minimise the divorce rate, which in turn lowers suicide risk (Burr et al 1994; Stack 2000c). US studies of personal values have found rates of religious attendance to be inversely related to acceptance of both pro-suicide beliefs and feminist values (Stack 1994).

Several studies contend that the lower suicide rates found in national or sub-national populations where religious beliefs strongly condemn suicide may simply be the result of suicides being disguised by family members or officials as accidents or illnesses, to avoid stigma or punishment (van Poppel and Day 1996; Day 1987). Historically, many religions (eg, Catholicism, Islam) placed strong prohibitions on suicide, which probably deterred certain people from attempting it (Stark et al 1983). For Catholics, suicide was considered a mortal sin. Reflecting these religious injunctions, suicide and attempted suicide remained a criminal offence in several countries until the middle of the twentieth century. It was illegal in Ireland until 1993, and not decriminalised in England and Wales until 1961 (Neeleman 1996). Suicide was decriminalised in New Zealand in 1893 (McManus 2000).

Other investigators have concluded that measures of religiosity and religious affiliation may simply be markers of broader social features or processes, such as whether a society or community is characterised primarily by collectivist or individualistic values (Stack 2000c). Halbwachs, a student of Durkheim, argued that other cultural attributes apart from those directly related to religion were more likely to generate social solidarity and restrain suicide (Bankston et al 1983). More recent studies consider measures of modernisation – not religious affiliation – to be the key to understanding variations in suicide rates (Simpson and Conklin 1989).

The New Zealand context

New Zealand has been described as a largely secular society. While the majority of the population – perhaps as many as 75 percent – profess to belonging to a religion of some kind, rates of actual churchgoing are much lower than this, and probably have been since the mid-nineteenth century (Hill 1994). Studies in the 1980s indicated that every week only about 15–16 percent of the adult population attended church, and there is no reason to believe these figures are any higher today.

Anglicans, Presbyterians, Methodists and Roman Catholics comprise a large proportion of the active churchgoers. Recent decades have seen a significant growth in popularity of the fundamentalist churches, which appear to be largely resilient to the impact of secularisation, maintaining high levels of commitment from their members. The same period has also seen a rise in the so-called 'New Age' or alternative religions, which in the main are individualistic in their outlook, emphasising objectives such as personal growth and the fulfilment of human potential (Hill 1994).

Summary

Various population-level studies have examined the hypothesis that belonging to certain religious denominations, or living in a community where certain religions predominate, is protective against suicide. Generally the results of these studies show that variations in suicide rates are linked to measures of religious belief, commitment or participation. However, diverse explanations have been offered for why this should be the case. Some theories contend that it is religious belief or faith itself that is protective, while others conclude that it is primarily the practical social support provided by religious groups that is important.

2.11 Socioeconomic status, occupational status, social class, social mobility and income inequality

Patterns identified in empirical studies

Studies in many countries have found that people with low occupational status, low occupational 'prestige', low socioeconomic status (SES), low occupational class or low incomes have higher rates of suicide (Boxer et al 1995; Hamermesh and Soss 1974, cited by Stack 1982b; Langley and Johnston 1990, cited by Lester 2000; Lester 1997a, 2000; Lester and Yang 1997; Lewis and Sloggett 1998; Schony and Grausgraber 1987, cited by Stack 2000b; Stack 1980b, 1982b).

Studies in certain countries, such as the US and Canada, have found that people with high occupational or socioeconomic status have relatively low rates of suicide (Boxer et al 1995; Maris 1969, cited by Stack 1982b; Platt 1992, cited by Stack 2000b; Stack 1980a, cited by Stack 1982b; Williams 1997). However, the opposite is the case in other countries such as the UK and New Zealand, where studies indicate that people from high occupational or socioeconomic groups have relatively high rates of suicide (Lewis and Sloggett 1998; Porterfield and Gibbs 1960, cited by Lester and Yang 1997; Stengel 1964, cited by Lester and Yang 1997; Williams 1997).

People who commit suicide have often recently experienced some form of downward social mobility. However, upward social mobility has also been associated with high suicide rates in some studies (Breed 1963, cited by Lester 1997a; Porterfield and Gibbs 1960, cited by Lester 1997a). Theorists hypothesise that rapid economic expansions and contractions can affect the social mobility and suicide rates of people from the higher and lower socioeconomic groups in different ways (see section 2.15 on the economic business cycle) (Lester and Yang 1997; Yang and Lester 2001).

An Australian study of local government areas in metropolitan Adelaide suggested that a number of macro-level socioeconomic indicators (such as income and home ownership) were not related to the local suicide rates, although social deprivation was inversely related (Hassan 1995). However, a study of British parliamentary constituencies found that suicide rates were more strongly associated with measures of social fragmentation (such as private renting, single-person households, unmarried people and mobility in the previous year) than with deprivation (Whitley et al 1999).

Another ecological study in the US found that higher levels of income *inequality* were associated with higher suicide rates, particularly in urban areas (Kowalski et al 1987, cited by Stack 2000b). However, a second US study found no such association (Breault 1988, cited by Stack 2000b).

A New Zealand study found that attempted suicide was highest among middle-class people (Langley and Johnston 1990, cited by Lester 2000).

Possible explanations for patterns

Theorists generally conclude that low occupational status, low socioeconomic status and poverty are associated with higher rates of suicide as a consequence of the impact of factors such as lack of job security, lack of job autonomy, hazardous work environments, economic deprivation, stress, family instability, and psychological problems (Stack 1982b). People experiencing poverty experience a high degree of material pressure so that the perceived costs of continuing their lives are more likely to outweigh the benefits of committing suicide (the cost–benefit theory of suicide) (Lester and Yang 1997). These types of explanations are not consistent with Durkheim's theory that poverty acts as a 'social restraint' that protects against suicide (Boxer et al 1995; Stack 1982b, 2000b).

Other commentators have suggested that the link between suicide and low socioeconomic status may be due to confounding and mediation by factors such as labour-force status (unemployment) and marital status (Blakely et al 2001; Lewis and Sloggett 1998; Stack 2000b). In addition, downward social mobility and suicide may be linked to psychological difficulties (Lester 1997a).

Certain types of high-status occupations may be particularly prone to suicide, which in turn may account for the generally high suicide rates found among high-status occupational classes in some countries (see section 2.12 on specific occupations). It is also hypothesised that people who move from one social class to another may be more likely than others to become socially isolated. Those moving rapidly up the social spectrum may experience – or anticipate experiencing – failure particularly strongly (Lester 1997a).

The New Zealand context

Income inequality has increased substantially in New Zealand since the mid-1980s, especially from 1986 to 1991, rising faster and higher than in other developed countries (Howden-Chapman and Tobias 2000). Māori and Pacific peoples, and working-class families on low wages or receiving benefits, have been the groups most negatively affected by these changes.

The last decades of the 20th century were also marked by a rise in the proportion of couples with both partners employed, and a corresponding rise in the proportion of couples with *neither* partner employed (Statistics New Zealand 2000).

Summary

In most countries, low occupational status/prestige, low socioeconomic status (SES), and low income are associated with high suicide rates. However, while high occupational status and SES are correlated with low suicide levels in some countries, they are associated with high suicide levels in others.

People who have committed suicide have often recently experienced some kind of upwards or downwards social mobility. The effect of rapid economic changes may affect people with different SES in different ways. Greater degrees of income *inequality* in certain geographic areas may also be associated with higher suicide rates.

The association between higher suicide rates and low SES may be due to stress and insecurity associated with economic deprivation and unstable work situations. This may lead to the costs of living being perceived as outweighing the benefits. The association between high SES and high suicide rates may be due in part to some high-status occupations having particularly high suicide rates. The correlation between social mobility and suicide may exist because of social isolation and fear of failure.

2.12 Specific occupations

Patterns identified in empirical studies

Various studies indicate that people who work in certain occupations have higher suicide rates than people in other occupations (Boxer et al 1995; Hassan 1995; Lester 1997a, 2000; Lester and Yang 1997; Retterstol 1993; Stack 2000b, 2001). Occupations associated with high suicide rates include:

- physicians
- dentists
- nurses
- psychiatrists
- pharmacists
- psychologists
- artists
- electrical workers
- police
- actors
- students
- military personnel
- farmers
- scientists
- mathematicians
- auto mechanics
- forestry workers.

There appear to be significant differences between male and female suicide rates for certain occupations. For example, studies have found comparatively high suicide rates among female physicians, psychologists and chemists (eg, Boxer et al 1995).

Possible explanations for patterns

Factors thought to be important in explaining occupation-related variations in suicide rates include:

- occupationally related stress, including strained client relations, lack of job autonomy and low occupational prestige (Boxer et al 1995; Hassan 1995; Lester and Yang 1997; Stack 2001)

- occupationally related knowledge of, and access to, the means of suicide – the so-called 'opportunity theory' (Boxer et al 1995; Lester and Yang 1997; Stack 2001)

- occupationally related exposure to chemicals thought to be associated with depression and suicide (eg, some pesticides) – a biological theory (eg, Boxer et al 1995)

- situations where people work in 'infrequent role sets' (eg, female chemists), meaning they may experience low 'status integration' and role conflicts (Gibbs and Martin's theory) (Boxer et al 1995; Stack 2001).

There also may be confounding socio-demographic influences (eg, gender, marital status). For instance, high suicide rates among police are likely to be at least partially due to the fact that most police are males, and males generally have higher suicide rates than females (Boxer et al 1995; Stack 2001).

While features of certain occupations may contribute to the development of mental illness, and perhaps ultimately suicide, it is also possible that people already prone to suicide, mental illness or with certain personality types may choose or gravitate towards certain occupations – the so-called 'health selection effect' (Boxer et al 1995; Lester and Yang 1997; Stack 2001).

The New Zealand context

Data on specific occupations is collected by Statistics New Zealand at the census and categorised under broader occupational groups in published statistics. Trends show that with successive censuses there has been a decline in the proportion of blue-collar, manual occupations (eg, agricultural and fisheries workers, trades workers and labourers) and a rise in the proportion of white-collar occupations (especially the 'professional' group) (Statistics New Zealand 2002). It is not clear what this means for the relationship between occupation and suicide in the New Zealand context.

Summary

People working in certain occupations, such as in the health care professions and enforcement agencies, have higher suicide rates than other workers. Women in a few professions (eg, those that are male-dominated) appear to have much higher rates than their male counterparts.

Occupational-related factors such as stress, access to means, exposure to chemicals and being in a minority group within a profession may contribute to these patterns. There may also be confounding factors (eg, gender and marital status) and health selection effects (through mental illness).

2.13 Unemployment

Patterns identified in empirical studies

Men who are unemployed are around two to three times more likely to commit suicide than other men (Blakely et al 2001; Keefe et al c.2002; Lewis and Sloggett 1998; Rose et al 1999). People who commit suicide are also more likely to be unemployed than the general population or those who die from other causes (Lester 2000; Platt 1984, cited by Jin et al 1997).

People who are unemployed have higher rates of suicide *attempts* than other people (eg, Ostamo et al 2001; Platt 1984, cited by Lester and Yang 1997; Langley and Johnston 1990, cited by Lester 2000; van Heeringen and Vanderplasschen 1999). A longitudinal New Zealand study also suggested that suicidal ideation was associated with unemployment among young people (Fergusson et al 2001).

The association between unemployment and suicide is also demonstrated in cross-sectional ecological studies (eg, Lester 1994d; Williams 1997). However, the association tends to be weaker for larger areas, like countries (eg Jin et al 1997; Stack 2000b; Williams 1997).

In many countries, periods of high national unemployment are commonly associated with increasing rates of completed suicide among young men (eg, Chuang and Huang 1996; Hassan 1995; Lester 2000; Morrell et al 1993; Pritchard 1995). Periods of high national unemployment also tend to be associated with higher rates of *attempted* suicide, especially among men (Platt and Kreitman 1985, cited by Lester and Yang 1997).

Studies do not always confirm these trends, however. Periods of high unemployment have been found to be *not* associated with an upsurge in suicide in some countries (Stack 2000b; Williams 1997). Unemployment rates were also not associated with suicide rates in 23 metropolitan areas in the US (Lester 1992, cited by Lester 2000). In some studies, people living in places with *low* levels of unemployment have been found to be *more* likely to commit suicide than people living elsewhere (Lester 1970, cited by Lester and Yang 1997; Lester 2000; Platt 1984, cited by Jin et al 1997). As well, an ecological study in England examining trends in the 1980s showed that places with the greatest *increases* in unemployment had the smallest increases in suicide (Crawford and Prince 1999).

Some studies have suggested that the contribution unemployment makes to increasing suicide rates is actually quite small (eg, Crombie 1990).

Most studies suggest that female suicide rates are less affected by unemployment than male suicide rates, although the reverse has been found in some studies. Analysis of data from the US National Longitudinal Mortality Study found that unemployed women were at higher risk of suicide than men, especially in the longer term (Kposowa 2001).

Possible explanations for patterns

Reflecting Durkheim's view that high rates of unemployment reflect a lack of social cohesion, it is commonly observed that unemployment makes people more vulnerable to suicide or suicide attempts due to the impact of factors such as loss of status, loss of self-esteem, loss of social contacts, stress, economic deprivation, economic insecurity, and mental illness (Blakely et al 2001; Jin et al 1997; Stack 2000b). By the same token, being a member of the organised labour force increases an individual's level of social integration and protects against suicide (Hassan 1995).

Other theories propose that people who are looking for work move to places with low unemployment, thus reducing the suicide rates in their place of origin and increasing the rates in their place of destination (Platt 1984, cited by Stack 2000b).

It is has also been suggested that unemployed people living in areas or times where unemployment is very common, or who are made redundant along with many other workers, may be less prone to commit suicide because they feel less stigmatised, more socially integrated, and less likely to unfavourably compare themselves with others (eg, Williams 1997).

Explanations for the connection between unemployment and suicide have also been couched in terms of health selection effects, the suggestion being that people who are more likely to commit suicide (eg, because of psychiatric illness) are also more likely to become unemployed (eg, Jin et al 1997; Lester and Yang 1997; van Heeringen and Vanderplasschen 1999). In this context, other studies suggest that common or correlated factors (such as psychiatric disorder) may be linked to both unemployment and suicidal behaviour (Beautrais et al 1998; Jin et al 1997; Lewis and Sloggett 1998; van Heeringen and Vanderplasschen 1999).

It has been observed that unemployment may have less impact on female suicide rates because in general women are more likely to be 'socialised' into domestic roles, whereas men are more likely to be 'socialised' into paid work roles and therefore more likely than women to be directly affected by the loss of paid employment (Hassan 1995).

The New Zealand context

New Zealand has experienced two distinct periods of severe unemployment in the 20th century. The first was in the early 1930s. Estimates suggest that at least 12 percent of the labour force were unemployed at the peak of this period, especially men in manual occupations related to construction or public works (Statistics New Zealand 2000). There were also substantial wage cuts for other workers.

The second period of severe unemployment, which started in the late 1970s, accelerated after the international stock market crash of 1987 and peaked at over 10 percent of the labour force in 1992 (Statistics New Zealand 2000). Young people have been particularly affected, as well as Māori and Pacific people of all ages. Long-term unemployment has been a prominent feature, with over half the unemployed out of work for more than six months during the early 1990s. The period has also been marked by significant levels of under-employment or 'marginal attachment' to the labour force.

However, in recent years the unemployment rate in New Zealand has fallen markedly, providing an opportunity to further study the relationship between unemployment and suicide rates here.

Summary

In studies examining individual risk factors for suicide, males who are unemployed have much higher rates of completed and attempted suicide than other males. However, most studies suggest that unemployment does not affect female suicide rates to the same extent.

Ecological studies have generally identified weaker correlations between unemployment and suicide. In most countries, periods of high national unemployment are commonly associated with increased rates of *completed* and *attempted* suicide, especially among young men. The common explanation proposed for this is that during periods of high unemployment, social cohesion decreases and individuals become less socially integrated (eg, by losing financial status, self-esteem and social contacts), and also may develop mental illness. Health selection effects are also claimed to be important, with people who have mental health problems, or who are suicidal, being more likely to lose their jobs or to find it difficult to get a job during a period of high unemployment.

Results from a few ecological studies in small areas have identified an *inverse* relationship between unemployment and suicide. One explanation for this feature may be that unemployed people feel more socially integrated when they live in places where a high proportion of the people they associate with are also unemployed.

2.14 Female labour-force participation (FLFP)

Patterns identified in empirical studies

Most early studies of female labour-force participation conducted before or during the 1970s showed that countries with higher FLFP had higher male and female suicide rates, and that increasing FLFP was associated with increasing female suicide rates (Lester and Yang 1997; Stack 1978, cited by Stack 1998). However, studies conducted in the same period examining suicide rates at the city-level found conflicting evidence (Lester and Yang 1997), as did studies in the US and Canada comparing the suicide rates of employed women and non-employed women (Cumming et al 1975; Stack 1979, both cited by Stack 1982b).

Later research in the 1980s suggested that in nations with low FLFP, increased FLFP was still associated with increasing suicide rates in both sexes. However, in countries with high levels of FLFP, no association was found between FLFP and *female* suicide rates, but the positive association between FLFP and *male* suicide rates persisted (Stack 1998).

In a more detailed study of US states, suicide rates of married men and married women were found to be positively associated with FLFP. However, no association was found between FLFP and suicide rates among unmarried men and women (Yang and Lester 1988, cited by Lester and Yang 1997). Other research in urban areas in the US found that high FLFP in the 1970s was associated with high male suicide rates, but there was no association with female rates. By the 1980s FLFP was inversely associated with both male and female suicide rates in urban areas (Burr et al 1997).

Possible explanations for patterns

It is theorised that the high rates of male and female suicides associated with high FLFP may be due to 'role conflict'. Women experience stress because of conflict between the roles of spouse, parent and work, the difficulty of coping with a 'double day of work', and guilt about parental roles. Males are stressed because they lose kin and social support (which predominantly is mediated by their wives), power in decision-making, leisure time, and the positive sense of identity tied up with being the key breadwinner (Stack 1982b; 1998, 2000c; Yang and Lester 1997).

It also theorised that the subsequent decreasing rates of suicide found among working women may be due to 'role accumulation' or 'role enhancement' factors, where the direct and indirect benefits of working outweigh the costs. Benefits include job satisfaction, relationships with co-workers, a chance to succeed in an additional sphere, financial gains, better mental health and increased social integration (Burr et al 1997; Cumming et al 1975, cited by Stack 1982b; Hassan 1995; Yang and Lester 2001; Stack 1998).

It has been argued that the effects of FLFP on suicide rates may very much depend on the cultural context in which it occurs. For instance, lower suicide rates may be the more likely outcome in contexts where there is widespread cultural support for FLFP, such as the industrialised countries, where there is considerable institutionalised support for the emancipation of women.

Decreasing rates of suicide among working women also may be due to 'status integration' factors. As an increasingly large number of women become workers/parents/spouses, this particular role/status configuration becomes more common and less isolating (Gibbs and Martin's theory) (Lester and Yang 1997; Yang and Lester 2001). In this regard it has been suggested that there may be a 'threshold' level for the suicidogenic effects of FLFP, above which FLFP has no association – or an inverse association – with female suicide rates.

Early increases in female suicide rates associated with increases in FLFP may have been due to a reduced ability to conceal female deaths as suicides, because women were in the public domain to a greater extent than before (Hassan 1995).

The New Zealand context

It has been observed for New Zealand that 'the redefinition of women's lives, particularly their increasing participation in education and employment, has been one of the most notable social transformations of the 20th century' (Statistics New Zealand 2000: 114). In 1901, 27 percent of women were employed in the paid workforce, compared to 53 percent in 1996 (Statistics New Zealand 2000). The share of married women in the female labour force also increased markedly over this period. During World War II women took over jobs left vacant by soldiers serving overseas and then moved to the many new jobs opening up in the cities during the post-war economic expansion.

In the last third of the 20th century, the increasing emphasis on equality of educational opportunities saw more women than ever before obtaining tertiary qualifications, so that by 1997 more than half of all university students were women.

Summary

Although the findings of empirical research are somewhat inconsistent in this area, on the whole it appears that increasing female labour-force participation (FLFP) is initially associated with increased national-level suicide rates among both sexes. Subsequently, male suicide rates continue to increase with increasing FLFP, but females appear to benefit from the changes, with their suicide rates stabilising and then later *decreasing* with increased FLFP. Eventually, males, too, experience a gradually reducing negative effect of FLFP on their suicide rates. These patterns appear to be affected by factors such as marital status and urbanisation.

It is theorised that female role conflict may initially cause stress and higher suicide rates when FLFP starts increasing. However, once there is greater support in society for FLFP, and the benefits of being employed outweigh the costs, rates start to decrease.

2.15 Economic cycles

Patterns identified in empirical studies

Unfavourable financial crises (eg, economic depressions), as measured by trends in indicators such as stock prices, the Ayres Index and gross national product, have usually been found to be associated wit*h increased nation*al suicide rates (Chuang and Huang 1996; Hassan 1995; Henry and Short 1954, cited by Lester and Yang 1997; Marshall and Hodge 1981, cited by Lester and Yang 1997; Lester and Yang 1997; Pierce 1967, cited by Lester and Yang 1997).

Some studies have also found that *favourable* financial situations (eg, economic expansions or booms) are associated with increased national suicide rates (Hassan 1995; Pierce 1967, cited by Lester and Yang 1997; Lester and Yang 1997). These findings are not consistent, though, with other studies finding that favourable financial situations are associated with decreased national suicide rates (Henry and Short 1954; Marshall and Hodge 1981, both cited by Lester and Yang 1997).

Possible explanations for patterns

Durkheim believed that both unfavourable and favourable financial circumstances (depressions or booms) result in a loosening of social restraints, thereby promoting a state of 'anomie' or normlessness and thus suicide (Lester and Yang 1997).

Henry and Short (1971) argued that unfavourable financial crises increase the levels of frustration and aggression expressed against the self, particularly by people who, in childhood, had the external expression of aggression suppressed. Hassan 1995 argues that unfavourable financial crises produce economic hardship and stress, leading to more suicides (Hassan 1995). Ginsberg theorised that favourable financial crises produce large discrepancies between people's aspirations and their actual rewards, leading to unhappiness, dissatisfaction, loss of normative control, 'anomie', and increased suicide rates (Ginsberg 1966, cited by Lester and Yang 1997).

Explanations advanced for the decreased suicide rates observed during favourable financial crises include a general lessening of economic hardship, as well as a reduction in levels of frustration and self-aggression related to loss of status (Henry and Short 1954, cited by Lester and Yang 1997).

The New Zealand context

Pastoral products were New Zealand's sole major export earner until relatively recently and are still important. Economic returns from this source are vulnerable to economic fluctuations related to changes in export prices for primary products and the agricultural protectionism adopted by many industrialised countries. (Belich 2001; Sinclair 1976; Sutch 1969).

New Zealand experienced two major economic downturns in the 20th century. The first was the Great Depression of the 1930s, when export prices fell by 40 percent, half the farmers were reportedly bankrupt, unemployment exceeded 100,000 at its highest point, and large sections of the society were destitute (Sinclair 1976; Sutch 1969).

New Zealand experienced reviving prosperity stimulated largely by very high export prices following the Depression and particularly after the Second World War. Real income per head rose to a point where New Zealanders enjoyed one of the highest standards of living in the world, a situation that continued relatively unchanged through to 1972 (Sinclair 1976).

The second major decline in New Zealand's fortunes began with Britain's entry into the EEC, resulting in a decisive drop in exports to that country in the 1970s (Belich 2001). Unemployment rose steadily after this, impacting most severely on young people. Their relative economic position deteriorated markedly compared to that of young people in the earlier post-war period (Easton 1997; Thomson 1991).

The sharemarket crash of 1987 was also a significant economic event.

Summary

Studies examining the relationship between suicide and cyclical trends in economic indicators (such as gross national product and stock prices) have generally concluded that economic depressions are associated with increased rates of suicide. However, results from studies examining the effects of economic expansions are less clear, with some studies concluding that economic expansions are associated with lower suicide rates, and others concluding they are not.

Various theories attempt to predict and explain these patterns. Most contend that rapid economic changes at the national level affect social regulation and the aspirations, status and economic position of individuals.

2.16 Modernisation, economic development and economic reform

Definitions

'Modernisation' and 'economic development' are terms referring to large-scale, macro-level changes in the economic, social and demographic structures of countries (or parts of countries). Features commonly associated with modernisation include industrialisation, urbanisation, secularisation, formalised systems of education, increased individualism, higher female labour-force participation, high levels of economic activity, changes in family structure, lower infant mortality rates, long life expectancy and a higher 'quality of life' (see separate discussions of some of these issues in other parts of this report) (eg, Stack 2000c; Zhang 1998).

The term 'economic reform' commonly refers to the move towards increasingly market-driven economies, with a corresponding reduction in state provision, regulation or control. While some commentators have identified economic advantages resulting from these changes, others cite disadvantages such as reduced social welfare support, higher rates of unemployment, and increasing social and economic inequalities (eg, Hazledine 1998; Kelsey 1995; Langford et al 1998).

Patterns identified in empirical studies

Economic activity

At least two studies have shown positive associations between suicide and gross national product (GNP) per capita across different nations (Stack 1983a, cited by Lester and Yang 1997; Zhang 1998). Another study found positive but statistically insignificant associations (Lester 1987a, cited by Lester and Yang 1997). Historical increases in GNP per capita have also been shown to be associated with higher suicide rates (Stack 1982a, cited by Lester and Yang 1997).

In Japan, GNP and changes in GNP have been shown to decrease the seasonality of suicide (Abe 1987, cited by Lester and Yang 1997), although similar results were not found in the US (Lester 1993, cited by Lester and Yang 1997).

One cross-sectional ecological study examining state-level data in the US found that gross state product per capita was inversely associated with suicide rates. In other words, states with a higher gross product per capita had lower rates of suicide (Yang and Lester 2001). However, another ecological study, this time of regions in Italy, found a positive association between regional suicide rates and wealth as measured by GDP (gross domestic product), regional consumer expenditure per capita and expenditure rate on entertainment per capita (Preti and Miotto 1999).

Industrialisation

In Canada, analysis of historical data suggests that as the proportion of secondary (versus primary) industries in the country increased, so too did the rates of suicide (Labovitz and Brinkerhoff 1977, cited by Lester and Yang 1997 and Stack 1982b).

Urbanisation

Historically, increasing levels of urbanisation have been associated with increasing levels of suicide in countries such as Finland and Canada, although this association appears to have weakened more recently (Labovitz and Brinkerhoff 1977, cited by Lester and Yang 1997; Stack 1993).

Other cross-national studies, as well as studies of US states and counties, have found no relationship between the degree of urbanisation and rates of suicide (Breault 1986; Stack 1982a; Zimmerman 1987; all cited by Lester and Yang 1997). In fact, one study of US counties found that higher levels of urbanisation were associated with *lower* rates of suicide (Kowalski et al 1987, cited by Lester and Yang 1997).

Population growth

A study comparing 10 indicators of modernisation across 60 different countries in the 1980s found that developed countries had higher suicide rates than developing countries. In the developed countries, only natural population increase was significantly (negatively) associated with suicide rates. In the developing countries, four variables were (all negatively) associated with suicide rates: natural population increase, birth rates, fertility rates and the percentage of the population younger than 15 years old. Population growth variables (rather than quality of life variables) were the best predictors of suicide rates in all countries (Zhang 1998).

Quality of life

An early study of 100 indicators of the 'quality of life' in US states concluded that suicide rates were higher and homicide rates lower in states with a higher quality of life as measured by wealth, education, health and public order (Angoff and Mencken 1931, cited by Lester and Yang 1997). A similar study of major US metropolitan areas showed mixed results for quality of life indicators, but *higher* suicide rates were found in areas with higher economic index values (Boyer and Savageau 1981, cited by Lester and Yang 1997).

Economic reforms

Economic reforms have coincided with increased suicide rates in some countries, including among youth New Zealand as well as other Western countries, among rural women in China, and among certain groups and populations in some of the former Eastern-bloc countries (Chan et al 2001; Langford et al 1998; Phillips et al 1999; Mākinen 2000).

One study indicates that male and female suicide rates decreased in the former USSR during the perestroika reforms of the 1980s (Vārnik et al 1998). However, a study using data from all the former Eastern-bloc countries (Mākinen 2000) and another using data for Latvia (Rancans et al 2001) were both unable to find any consistent associations between economic development and suicide during the period of political and economic transition in the 1980s and 1990s.

Possible explanations for patterns

Following Durkheim, it is hypothesised that the processes of modernisation, economic development and reform tend to reduce the levels of social integration in a number of spheres, thus increasing suicide rates (Stack 1982b, 2000c). Refining this theory, some investigators have proposed that where populations are already highly urbanised, further increases in the level of urbanisation may not necessarily be associated with increases in suicide (Halbwachs's 'law of convergence') (Stack 2000c).

High rates of suicide among rural women in China have been attributed to rural areas not benefiting from recent economic reforms, the removal of health benefits (leading to more suicide among people with physical illnesses), the removal of rural co-operative systems, rapid downward mobility, and illiteracy (Chan et al 2001).

It has been postulated that the variations in the rates of suicide identified in Eastern-bloc countries during perestroika were influenced considerably by changes in alcohol availability and consumption. For example, male suicide rates in the former Soviet Union reduced markedly in the context of tight restrictions on the availability of alcohol (Wasserman and Vārnik 1998).

The New Zealand context

See the New Zealand context sections for 2.7 Spatial Factors, 2.9 Education, 2.10 Religion, 2.14 Female Labour-Force Participation, and 2.15 Economic Cycles.

Summary

Empirical studies generally indicate that processes of modernisation, economic development and structural economic reform are associated with increasing rates of suicide, at least over the time these social changes are occurring. Some indicators of modernisation (such as population growth and gross national product) are possibly more strongly correlated with increases in suicide than others, but this is difficult to know for sure because various indicators of modernisation are highly correlated with one another.

Following Durkheim, processes of modernisation, economic development, and economic reform are hypothesised to increase suicide rates by reducing social integration.

2.17 Availability of suicide methods

Patterns identified in empirical studies

Statistics for most countries indicate clear differences in the choice of suicide methods between the sexes, with males tending to employ more violent and lethal suicide methods (eg, firearms) than females (Canetto and Sakinofsky 1998; Hassan 1995; Lester 1997a; Denning et al 2000; Stack 2000b).

Firearms

Cross-sectional studies indicate that the greater the gun availability, the higher the gun-related suicides (Lester 1997b). The US has the highest rate of firearm ownership of any country in the world and also the highest rate of firearm-related suicides (as well as homicides) (Kaplan and Geling 1998).

Lester's (1996, cited by Stack 2000b) review of 19 findings from six of his 'most salient' cross-sectional studies of American and Australian states and 20 other nations, found in all cases the greater the availability of gun ownership the higher the firearm-related suicide rate. Note, however, that some of these studies have been criticised for not using appropriate control variables (Stack 2000b).

Between 1953 and 1978, a period in which gun control restrictions were progressively relaxed in the US, firearm-related suicides in that country increased from 4.9 to 7.1 per 100,000. Over this same period, non-gun suicide rates decreased from 5.9 to 5.4 per 100,000 (Boyd 1983, cited by Stack 2000b).

The introduction of laws restricting access to hand-guns has been followed by significant reductions in gun-related suicides in several jurisdictions, including Canada (Carrington 1998; Carrington and Moyer 1994, cited by Stack 2000b), Queensland, South Australia and Tasmania (Hassan 1995), and in Washington DC (Loftin et al 1991, cited by Stack 2000b).

In New Zealand, a case control study of suicides found that access to firearms did not raise the overall risk of suicide, although availability did increase the likelihood that firearms would be used as a suicide method (Beautrais, Joyce and Mulder 1996a). A subsequent review by Beautrais (2000a: 36) concluded that New Zealand exerts comparatively tight controls on firearm ownership and 'that access to firearms plays a relatively small, and perhaps inconsequential, role in the aetiology of suicide in New Zealand'.

Domestic gas

A switch from toxic to non-toxic domestic gas in Wales and England in the 1970s saw the domestic gas-related suicide rate decline significantly, with a parallel decrease in overall suicide rates in both countries (Murphy et al 1986). In Britain (Clarke and Mayhew 1989, cited by Stack 2000b) and in Switzerland (Lester 1990a), the switch was followed by a reduction in total suicide rates in both countries, with no apparent displacement to other methods. In the Netherlands, however, the same switch brought no change to the total suicide rate. In the United States the switch was followed by a decrease in domestic gas-related suicides, but an increase in car-exhaust-related gas suicides (Stack 2000b).

Prescription and non-prescription drugs

Suicides by self-poisoning continue to play a large role in suicidal behaviour, despite the fall off in the use of poisons in recent years (Buckley et al 1995, cited by Beautrais 2000a).

Paracetamol has become an increasingly favoured method for self-poisoning. Weir and Ardagh (1998) found that 17 percent of deliberate self-poisonings presented at the Christchurch Emergency Department over a 12-month period were the result of paracetamol ingestion. Other commonly used drugs included antidepressants (20 percent) and hypnotics/anxiolytics (16 percent).

Studies in various countries show that placing restrictions on the availability of prescription and non-prescription drugs is followed by decreases in suicides using these kinds of drugs (Hassan 1995; Dukes et al 1992; Beautrais 2000a). However, these decreases are often accompanied by a rise in suicides using other kinds of more readily available drugs (method substitution).

Few studies have been conducted in New Zealand assessing the impact of restrictions on particular agents used for self-poisoning. Dukes et al's (1992) analysis of 239 Wellington regional autopsy reports for 1970–89 concluded that self-poisonings from barbiturates following restriction of these agents in 1979 were displaced by an increase in the use of trycyclic antidepressants and dextroproxyphene plus paracetamol, a pattern also found in other countries (Wilkinson and Gunnell 2000; Beautrais, Joyce and Mulder 1996a).

Hanging

Time-series analyses show that the rates of suicides by hanging have increased significantly for both males and females in several countries over the last few decades, including New Zealand (Beautrais 2000a; New Zealand Health Information Service 2001), Australia, England and Wales (Wilkinson and Gunnell 2000). Reducing access to rope or other similar materials in order to reduce hangings is not regarded as a viable hanging prevention technique, other than in controlled situations such as prisons and psychiatric facilities (Beautrais 2000a).

Possible explanations for patterns

Females are thought to prefer less violent and lethal suicide methods than males for several reasons, including differences in socialisation patterns, greater fear of mutilation and disfigurement, and because they have less access to and familiarity with guns (Denning et al 2000; Lester 1997a).

It has been suggested that the switch to non-toxic domestic gas had a high impact on total suicide deaths in Britain and Sweden but not the Netherlands because at the time the Netherlands was experiencing a marked deterioration in the socioeconomic climate and an elevation in 'suicidogenic' conditions (Stack 2000b).

Pounder (1993) claims that the increase in suicide by hanging in Britain is linked to the abolition of capital punishment by hanging, which has destigmatised the act and made it a more 'socially acceptable' choice of suicide. Other studies suggest the increase is the result of greater media coverage of suicides by hanging, which in turn encourages people to use hanging instead of other less violent and lethal methods of suicide.

In a published letter to New Zealand suicide researchers (Beautrais, Joyce and Mulder 1996a), Cantor (1997) pointed to a strong relationship between rurality and firearm-related suicides in Australia, and questioned whether the researchers had considered this finding in relation to the use of firearms as a suicide method in New Zealand. The New Zealand researchers' response suggested that the association was not as apparent in the New Zealand analysis, most likely due to the Christchurch Suicide Study subjects having been urban residents.

Skegg and Cox (1991b) suggest that changes to barbiturate prescribing practices introduced in the 1970s are the most likely explanation for the *period effect* they identified in New Zealand female suicide rates for the years 1957–61 and 1962–66.

The New Zealand context

Compared with countries like the US, access to firearms by the general public in New Zealand is relatively restricted, with gun ownership having been controlled by gun control regulations in the Arms Act 1983 and an Amendment Act in 1992. Beautrais (2000a) considers that these relatively stringent laws mean there is little potential for further firearm regulations to help reduce suicide rates in this country.

Skegg and Cox (1991b) indicate that New Zealand appears to do very little monitoring of drugs impacting on suicide rates, with barbiturates being the one exception. Beautrais (2000b) found that rates of self-poisoning by potentially lethal drugs has declined over the past two decades.

Summary

Studies indicate that the greater the availability of a particular method of causing death (eg, firearms, toxic household gas, medicines), the more likely it is to be used to commit suicide. Similarly, when access to a particular suicide method is restricted, this is followed by a reduction in the proportion of suicides undertaken using this method.

There is conflicting evidence as to whether restricting the availability of a particular suicide method leads to an overall reduction in suicides. Switching from toxic to non-toxic domestic gas appears to have been effective in reducing suicides in some countries. However, several studies indicate that when one method of suicide is restricted (eg, firearms or types of medicines), other methods tend to be used instead (a response known as 'method substitution').

2.18 The media, imitation, copy-cat suicides and suicide clusters

Patterns identified in empirical studies

Imitation and copy-cat suicides

A copy-cat suicide uses the same type of method of a previous suicide in much the same circumstances. The quasi-experimental design used by Phillips (1974, cited by Stack 2000b) is regarded as one of the more robust approaches for measuring media-related copy-cat suicides (Lester 2000; Davidson 1989). Phillips found that when suicide stories were given prominence in the mass media, imitative copy-cat suicides were likely to occur very soon after. The stories most liable to trigger copy-cat suicides were those involving well-known personalities, particularly political and entertainment celebrities (Phillips 1974, cited by Stack 2000b; Phillips 1996; Phillips et al 1989; Lester 2000).

DP Phillips (1996) found that the copy-cat suicides' effect (what he termed the 'Werther effect') was strongest in the geographic areas where the media suicide stories were first featured and concentrated.

The young and the very old are more susceptible to imitative suicidal behaviour (Phillips et al 1989; Davidson 1989; Hassan 1995). Males appear more receptive than females (Phillips et al 1989). A review by Stack (2000b) concluded that high-profile, media-promoted suicide stories tended to generate mainly 'less serious suicide attempts', rather than more serious attempts or fatal suicides.

Cluster suicides

A suicide cluster is a series of deaths by suicide that are grouped together in time and place. The method may or may not be a 'copy-cat' imitation of other suicides. Cluster suicides are not a new phenomenon, and have been documented throughout history (Davidson 1989). They are more likely to occur when people are resident in closed environments such as psychiatric hospitals, prisons and police cells (Lester 2000). Evidence of suicide clusters has been documented in New Zealand prisons and police cells (Cox and Skegg 1993; Skegg and Cox 1991a; Thomas et al 1992) and in hospital facilities (Thomas et al 1992).

Studies show young people are most susceptible to imitative suicide and suicide clustering (Davidson 1989; Hazell 1993). Phillips and Carstensen (1986, cited by Phillips et al 1989) found a significant association between the daily occurrence of suicides in the United States over the period 1973 and 1979 and cluster suicides in the 10- to 19-year-old age group. The cluster suicides occurred after the broadcasting of high-profile suicide stories, usually within zero to seven days of when the stories were first publicised.

A review by Stack (2000a) identified considerable inconsistency in the results of media-suicide-impact studies, which he put down to differences in the types of research methodologies used. He concluded that it is difficult to attribute suicide clustering effects to the impact of media portrayals of suicide. Davidson (1989) also noted the inconsistency in the results of studies of suicide clusters, concluding this is an outcome of methodological problems such as the absence of a single, universally accepted definition of the term 'cluster suicides'.

Possible explanations for patterns

Phillips et al (1989) suggest a range of possible explanations for the existence of copy-cat suicides, including:

- the suicide stories influenced local coroners to interpret and record otherwise 'dubious deaths' as suicide rather than murder or accidents
- the stories precipitated a pending suicide, causing it to occur sooner rather than later
- the copy-cat suicides were a grief response to a high-profile suicide, rather than imitative
- particular social contexts produced a 'mood ripe for copy-cat suicides' (eg, the death of a youth icon, 'star' or role model).

In a subsequent study, DP Phillips (1996) also found that some prior factor may have triggered both the high-profile and the copy-cat suicides (eg, a stock market crash).

Hassan (1995) suggests that the relatively low impact of media-related 'suicide stories' on females could be because the suicide stories mostly involve male suicides, with whom females would be less likely to identify. He also suggests that the gender difference may be the result of 'differential exposure' by males to the media suicide stories, plus the higher lethality of the suicide methods used by the male suicides featured in the media.

Another suggestion is that youth and older people may be more receptive to copy-cat and cluster suicides, because they are known to be more prone to social isolation than other people (Hassan 1985; DP Phillips 1996).

Davidson (1989) contends that those individuals susceptible to imitative suicidal behaviour are more likely to have had a previous history of depression and other mental illnesses. She considers imitation on its own to be insufficient to trigger suicidal behaviour.

The New Zealand context

The issue of imitative or copy-cat suicides and its implications for the New Zealand media have been raised in various government policy documents on suicide prevention published since 1992 (Ministry of Health et al 1998; Ministry of Health 2001a). The Ministries of Health and Youth Affairs have also issued guidelines to the media on the reporting of suicides (Ministry of Health and Ministry of Youth Affairs 1999). It is unclear, though, what if any impact these and other initiatives have had in altering the manner in which the broadcast and print media portray or report information on suicide, whether in news or entertainment programmes.

Summary

Imitative and cluster suicides are not a modern phenomenon. Their history dates back to antiquity. When suicide stories are extensively covered in the mass media, this can be closely followed by imitative 'copy-cat' suicides in the localities where the suicide stories were publicised. This leads to a clustering of deaths by suicide. Such suicides usually occur within zero to seven days of a prominently publicised suicide story. Young and late-age males are especially vulnerable to imitative suicide, particularly if they are socially isolated, have a previous history of depression or other mental illness, or 'would have been' suicides in due course. Males may also be more vulnerable because the suicide victims publicised in the media are generally male. Attempted suicide – rather than completed suicide – is the most common form of copy-cat suicidal behaviour. Cluster suicides have also occurred in closed environments such as prisons, police cells and psychiatric hospitals. In this instance they are usually triggered by the suicide of a fellow inmate or inpatient.

2.19 Temporal factors, seasons, weather and climate

Patterns identified in empirical studies

Suicide rates tend to vary according to the seasons in many countries. Higher rates are commonly found in spring (the so-called 'spring peak'), and also in summer, especially in less industrialised countries and countries with temperate climates (Souêtre et al 1987; Lester 1997a, 2000; Hassan 1995). In some countries, such as Portugal, Finland, Italy, Ireland and Spain, suicides peak in spring at rates 30–70 percent higher than in winter (Chew and McCleary 1995).

A time-series analysis of New Zealand suicide mortality data for the years 1975–95 found rates of suicide peaked annually in November, officially the last month of spring (Granberg and Westerburg 1999).

Studies in Europe, the US and Australia have found that suicides tend to rise in the days immediately after weekends. Monday is the most popular day of the week for suicide, especially for adult males (Jessen and Jensen 1999; Lester 1997a, 2000; Hassan 1995). Sunday is generally the least popular day. Suicide rates also frequently decrease just prior to and during major public holiday periods (eg, Christmas), but increase just after (Phillips and Wils 1987; Stack 2000c; Jessen and Jensen 1999). In a Los Angeles study, the most popular time of the day for suicide was the afternoon (between midday and 6 pm). The least popular time was between midnight and 6 am (Jessen and Jensen 1999).

A Danish study found higher rates of suicide on the first day of each month, on 2 January each year, and on the Saturday after Good Friday (these two days being especially popular death days for males) (Jessen and Jensen 1999). There is also some evidence that people are more likely to commit suicide on or around their birthday month (Jessen and Jensen 1999). Certain birthdays may carry greater significance than others. Research in California found an excess of male suicides for the ages 20, 25, 30, 35, 40, 45, etc (what might be called boundary or marker ages), although the excess was only statistically significant for married men (Lester 1997a).

Suicide rates have also been shown to decline in months when conception rates are high (Lester 2000). Months with the lowest conception rates also have the highest female suicide rates.

In general, studies of the relationship between weather and rates of suicide have confirmed few, if any, consistent associations (Jessen and Jensen 1999). Detailed empirical research by Pokorny and associates in Houston, Texas, found no significant relationships between weather variables and rates of either completed or attempted suicide (Lester 1997a). However, studies in other places have found positive relationships between suicide and days with above average sunshine hours or high numbers of daylight hours (Salib 1997; Lester 2000). In a Bucharest study, suicides were found to peak in three distinct periods of the year, all of which were marked by very hot and very windy weather (Lester 2000).

Possible explanations for patterns

Durkheim theorised that holidays or weekends are generally socially integrative, providing more opportunity than other times of the year or week for people to enjoy each other's company and renew relationships, which in turn is protective against suicide (Stack 2000c; Jessen and Jensen 1999). Suicides are thought to rise immediately after holidays because expectations for the holiday period have not been fulfilled (Gabennesch's so-called 'broken-promise effect'), or because the prospects for the time ahead appear so much less attractive (Lester 1997a; Stack 2000c; Jessen and Jensen 1999; Gabennesch 1988).

Modernisation factors are thought to be the key to explaining seasonal variations in suicide. Marked seasonal variations in suicide, including the spring peak, are more common in countries with a high percentage of the labour force involved in agriculture (Lester 1997b; Stack 2000c).

The New Zealand context

Temporal and seasonal patterns of suicide have not been studied in New Zealand.

Summary

Suicide rates tend to vary according to the time of year and day of the week. Several possible explanations have been advanced for this, including the relation between the seasons and levels of social and economic activity.

2.20 War and political events

Patterns identified in empirical studies

Suicide rates often decrease during popular wars (Stack 2000c; Biro and Selakovic-Bursic 1996). During World War I and World War II, suicide rates declined in most of the participating countries (Lester 2000). Time-series analysis for the years 1933–86 in the US found that during periods of increased militarism (measured in terms of the size of the defence budget and military participation rates), suicide rates, as well as rates of divorce and unemployment, declined (ibid).

Analysis of US suicide rates for the period 1952–84 found fewer suicides in the month of presidential elections (November) compared to non-election Novembers (Lester 2000). However, other studies have found that these election effects disappear when variations in unemployment are controlled for (Stack 2000c); unemployment levels often drop near the time of elections.

A survey of people in eight Western European countries undergoing political unification (before the EU was established) found that countries with high levels of popular support for unification (ie, high levels of political integration) had lower suicide rates (Fernquist 2001).

Possible explanations for patterns

Durkheim regarded wars, political crises or large-scale political activity to be protective against suicide, since they promote collective action and socially integrative sentiments. Other theorists suggest that the key determinant of wartime reductions in suicide may be the increased employment opportunities generated by wartime economic activity, rather than the war itself (Stack 2000c). An alternative theory is that certain cultures are more tolerant of the externalisation of aggression (Biro and Selakovic-Bursic 1996). Linked to this, the reduction in suicides during wartime may be because wars offer more opportunity to externalise aggression in a socially desirable manner.

The New Zealand context

New Zealanders went to war on several occasions during the 20th century, with World War I and World War II being the most significant in terms of casualties and the level of civilian mobilisation.

Examples of notable political or social crises include the 1951 waterfront dispute and the 1981 Springbok tour protests.

Parliamentary elections are held in New Zealand usually once every three years, preceded by an official election campaign period.

Historically, key sporting events, such as Americas Cup yachting and All Black rugby internationals may also have been instrumental in promoting a sense of collective solidarity.

Summary

Suicide rates are generally found to decline during large-scale national and international events such as wars and political crises. Some theories propose that this is because these kinds of events provoke unified collective action, so strengthening social integration. Others consider the primary cause to be associated falls in unemployment, or the greater opportunities available to legitimately externalise aggression or protest.

2.21 Crime, murder and violence

Patterns identified in empirical studies

Murder and suicide

Although suicide and murder are frequently studied in isolation from one another, there is a long-standing history of scientific thought suggesting a link between the two. Some theorists position suicide and murder at separate ends of a continuum of lethal violence (Unnithan and Whitt 1992). Durkheim postulated that there was an inverse relationship between suicide and murder (ie, countries with high murder rates will be more likely to have low suicide rates) (McKenna et al 1997).

Lester's (2000) review of the considerable body of empirical research examining the connections between murder and suicide concludes that the findings of these studies are largely inconsistent. This is unsurprising, he says, given that the relationship between the two acts appears to be exceedingly complex.

Henry and Short theorised that lower socioeconomic groups would have lower suicide rates and higher murder rates, but that higher socioeconomic groups would have higher suicide rates and lower murder rates. Lester's (2000) review found this hypothesis was supported in several empirical studies (Lester 1989a; Littunen and Gaier 1963. However, contrary to Henry and Short's theory, a study by Maris (1967, cited in Lester 1997a) found that lower-class people were more likely to commit suicide than murder, while the upper classes were more likely to commit murder than suicide.

A time-series analysis of the relationship between murder, suicide and indictable crime rates in Northern Ireland and the Republic of Ireland by McKenna et al (1997) for the period 1950 to 1990 found a positive relationship between the three phenomena. However, in an analysis of trends in murder and suicide from 1950 to 1985 in Australia and New Zealand, Lester (1998) found that, for both countries, patterns of association for murder and suicides were not consistent and were largely opposite to Henry and Short's theory.

Murder-suicides

A study by West (1996, cited by Lester 1997a) found murder-suicides to be relatively common in England, with about a third of the perpetrators of murder committing suicide after the murder was completed. On the other hand, in a study of suicide in Philadelphia, it was estimated that in about 26 percent of murder cases the victim had precipitated his or her own murder (Wolfgang 1959, cited by Lester 1997a). In New Zealand, murder-suicides have increased as a proportion of the total number of murder indictments, rising from 1.5 percent over the period 1860–71, to 8.2 percent between 1899 and 1908, and to 19 percent between 1959 and 1962 (Madle 1996).

Criminal behaviour, violence and suicide

In a New Zealand study, Skegg and Cox (1991a) found a steep increase in the relative risk of suicide in male prison inmates compared with the non-confined male population (from 1.6 to 8.2) for the years 1973 to 1982. A history of juvenile offending and contact with statutory social welfare agencies is a significant suicide risk factor for young New Zealanders. The risk of medically serious suicidal behaviour is 23 times higher in young female offenders and five times higher in young male offenders than in their non-offending counterparts (Beautrais et al 2001).

A study by Dooley (1990, cited by Lester 2000) examined suicide in English prisons over the period 1972–75 by comparing prisoners who completed suicides with all other prisoners. Prisoners who suicided were more likely to have been imprisoned for violent crimes rather than crimes against property.

A study comparing violent and non-violent psychiatric patients found an association between the risk of violence and suicide risk in both groups. After controlling for the risk of violence, the suicide risk was predicted in both groups by the presence of similar variables; namely, impulsivity, anger, state and trait anxiety, fear and sadness (Apter 1991, cited by Lester 2000).

Possible explanations for patterns

Murder and suicide

The positive relationship McKenna et al (1997) found between murder, suicide and indictable crime in Northern Ireland and the Republic of Ireland was considered to largely reflect the high level of civil disorder and unrest evident in Northern Ireland at that time. The association between these variables was predicted to be strongest within countries where war-like situations prevail.

Henry and Short (1954, cited in Lester 2000) contended that rates of suicide will be higher among members of social groups with relatively few constraints governing their behaviour and lower among groups whose conduct is constrained by peer and societal pressures. Other theorists suggest that suicide and other social problems (eg, crime) tend to occur more often at times when large sections of the population find it impossible to achieve societal and personal goals, because the means to achieve them are no longer available, as in times of mass unemployment (Pratt 1994).

Carrington (1998), critical of the methodology used in Leenaars and Lester's (1996a) analysis of comparative gun control legislation, reanalysed the data from the study and found that enactment of gun control legislation in Canada in 1977 was followed by a significant fall in that country's rates of both suicide and murder.

Theories seeking to account for why murder perpetrators are more likely than other people to commit suicide include: (1) they are more prone to suicide in the first place; (2) they may differ in the extent to which they have internalised the behavioural standards that govern the rest of society's behaviour; and (3) they have different ethical standards governing their behaviour compared to the rest of the population.

US research indicates that guilt and self-punishment are important motivations underlying the decision to commit suicide after killing another person (Lester 2000). In England, West (1996, cited by Lester 1997a) found longstanding histories of violence and high levels of aggression among the perpetrators of murder-suicides. It has been observed that similar 'needs', such as revenge, self-punishment, and the release of hostility, may be satisfied by killing another or by killing oneself (Lester 1997a).

Few of the perpetrators of murder-suicides were considered to have committed suicide to escape from punishment. Instead, the strongest motivator appeared to be despair. Lester (2000) found murder-suicides usually involve spouses, particularly spouses who have recently left their marriage. Men are usually the perpetrators of murder-suicides, first killing their wives and then going on to kill themselves. Firearms are commonly involved.

Hassan (1995) observes that suicide methods have become more violent in recent times. In support of this he points to evidence from the US showing a strong correlation between increases in fatal suicides among adolescents since the 1950s and the increasing presence of firearms in the home. Hassan also suggests that the upsurge in youth suicide may be the result of greater exposure to violence through the print and electronic media.

A recent study of suicide in criminal offenders in New Zealand under the age of 16 identified multiple risk factors, including a history of parental violence and childhood physical, sexual, and emotional abuse (Beautrais et al 2001). Steep increases in youth suicide are thought to reflect the growth in the other serious problems among youth, including murder, and drug and alcohol abuse (Hassan 1995).

Suicide in prisons

In New Zealand, a steep increase in prison suicides in the Auckland area was observed following the introduction of a policy in 1983 which reduced mentally disturbed inmates' access to psychiatric hospitals (the policy did not apply to the rest of New Zealand). The New Zealand prison suicide rate rose from 27.3 per 100,000 man-years for 1973–82 (pre-policy change) to 178.0 in the period 1983–87 (post-policy change). The study found Auckland prison suicide rates accounted for most of the observed increase, with the rate increasing there from 37.0 to 549.0 between these two time periods (Skegg and Cox 1991a).

The New Zealand context

The last 40 years have seen a substantial increase in reported crime in New Zealand. Between 1964 and 1992 the rate of reported crimes per 1000 mean population more than trebled (Pratt 1994). The number of convictions for violent crimes increased by 61 percent between the years 1983 to 1992, compared to a 17 percent increase in crimes against property (Spier and Norris 1993).

Some of the lowest rates of imprisonment ever recorded in New Zealand were during World War II and in the decade immediately following. However, the rates rose steadily again from 1960, with a substantial increase occurring after the mid-1980s. Nowadays New Zealand's imprisonment rates are the highest they have ever been in the country's history and, among Western societies, second only to the United States (Statistics New Zealand 2000; Pratt 1994). Some investigators have concluded that this reflects New Zealand's 'deeply ingrained and very unforgiving culture of punishment' (Pratt 1994: 233). The overwhelming majority of New Zealand prison inmates are male, and over 40 percent are Māori.

Summary

Durkheim found an inverse relationship between suicide and murder. That is, countries with high murder rates are more likely to have low suicide rates. A considerable body of research has built up testing this relationship, but the results of these studies have been largely inconsistent.

About one-third of the perpetrators of murder suicide have been found to commit suicide after having murdered someone. Spouses who have recently left a marriage are one of the more common targets of murderers who subsequently commit suicide. Men are most commonly the perpetrators of this type of crime. Firearms are one of the more common instruments used in murder-suicide cases.

Various explanations have been proposed for the connection between suicide and criminal behaviour such as murder. One is that anti-social behaviours, such as crime, are more likely to occur in periods when large sections of the population find it impossible to achieve societal and personal goals, because the means for achieving them are no longer available. Rates of suicide may be higher in groups with relatively few constraints governing their behaviour and lower in groups whose conduct is constrained by peer and societal pressures.

2.22 Mental disorders (including substance-use disorders) and other related factors

Patterns identified in empirical studies

Suicide and mental disorders are strongly correlated at an individual level. While usually thought of as individual-level rather than population-level factors, mental disorders have been included in this part of the report because of their interaction with socioeconomic factors. Both suicide and mental health disorders may be affected by biological and genetic factors, but they are also influenced by aspects of the wider social and economic environment (eg, see Collings and Ellis 1997; Disley 1997).

The discussion below is just a brief overview of the relationships between mental disorders and suicide. It should not be regarded as an attempt to fully describe individual mental health risk factors for suicide, which have been covered extensively elsewhere (eg, Beautrais, Joyce, Mulder, Fergusson, et al 1996; Lester 1988).

Mental disorders

Studies conclude that a high proportion of suicide completers and attempters (in some studies 90 percent or more) had some kind of serious mental health complaint or disorder at the time they died or were treated for suicide attempt. Generally the most common disorders are mood disorders (depression), substance-use disorders (alcohol and drug dependence and abuse), and antisocial behaviours. Substance-use disorders appear to be increasingly a factor in suicides in people under the age of 30 (Murphy 1995; Hassan 1995).

Based on the work of Aaron Beck, Lester (1997a) concludes that depression, especially strong feelings of hopelessness in the midst of depression, is possibly the strongest predictor of suicide. As he puts it, 'seriously depressed people see the world as a totally uninviting place' (1997a: 143).

Other risk factors

Lester (2000) summarises the many different risk factors for suicide, suicide attempt or suicidal ideation examined in psychological studies published since 1990. Alienation, anger, burn-out, hostility, feelings of being an imposter, impulsivity, loneliness, socially prescribed perfectionism, and less versatile problem-solving are just some of the many risk factors he lists. However, even with the present knowledge of the risk factors for suicide it is still very difficult to reliably predict which individuals will attempt or complete suicide, although predicting which special populations or circumstances carry increased suicide risk is easier (Range et al 1997).

Along with psychiatric disorder, other key risk factors for suicide or suicide attempt among New Zealand youth include social and educational disadvantage; childhood and family adversity; individual and personal vulnerabilities; exposure to stressful life events and circumstances; and social, cultural and contextual factors (Beautrais 2000b).

Family difficulties and disruption

Studies generally indicate that suicide in adulthood is more likely if people have had a childhood characterised by economic hardship or deprivation, neglect, rejection, conflict and parental disharmony, and where parents had mental health problems and were themselves suicidal. A history of physical or sexual abuse also appears to be important (Lester 1997a).

It is theorised that growing up in a family that has a history of suicidal behaviour will have a profound effect on a child. A child's early psychological development may be disrupted if they are living in an environment where parents or other family members make suicide attempts. The child may also be more likely to develop a strong belief that they are personally susceptible to suicide, or adopt coping strategies that involve expressing suicidal intentions (Lester 1997a).

Experiencing the loss of a parent or close caregiver through death or divorce in childhood may be significant risk factor for suicide later in life, possibly because the loss inhibits a person's ability to establish and maintain other close relationships with adults, or deal with future loss (Lester 1997a).

Stressful life events

Completed and attempted suicides appear to occur most often during a major crisis in a person's life (Lester 1997a). A US study comparing suicide attempters with normal controls found that both groups had a similar overall number of stressful life events, but suicide attempters had a higher number of *major* stressful events, especially stressful events involving interpersonal relationships and isolation (Lester 2000).

It has been observed that the negative impact of a life crisis on suicidal thinking and acts may be exacerbated by a lack of culturally sanctioned behaviours or outlets for expressing rage or other forms of intense emotion (Lester 1997a). A case-control study of older people in southwest Sweden found mental disorder and family discord, including troubled relationships, to be the two main risk factors for suicide. Protective factors included active involvement in an organisation and having a hobby (Rubenowitz et al 2001).

Case-control research by the Canterbury Suicide Project indicates that people who undertake medically serious suicide attempts have a much greater history of significant life events in the year preceding their suicide attempt, especially events involving interpersonal relationships or conflict (Beautrais 1997; Beautrais 2000b).

Population-level rates of mental health disorder and substance abuse

Research has examined the relationship between rates of suicide and the prevalence of mental health problems such as depression or alcohol and drug dependence within different ethnic groups. One recent empirical study found that ethnic groups with a similar prevalence of a major mental health disorder, such as depression, do not necessarily have similar rates of suicide (Oquendo et al 2001).

Other empirical studies have found that the correlation between aggregate measures of alcohol consumption and suicide rates is not consistent between countries (Wasserman et al 1998). Higher levels of alcohol consumption have been linked to higher rates of suicide only in some countries, such as Canada, Czechoslovakia, France, Hungary, Sweden and the US (Stack 2000c; Lester 1995a). In a study of 13 nations by Lester (1995b), New Zealand was found, along with Switzerland, to have lower suicide rates in years when rates of alcohol consumption were higher. Similarly, in Australia, increases in aggregate-level alcohol consumption were found to be associated with reductions in suicide (Stack 2000c).

A recent comprehensive time-series analysis by Ramstedt (2001) of per capita alcohol consumption in 14 western European countries concluded that suicide rates are more responsive to changes in per capita alcohol consumption in so-called 'dry' drinking cultures than in 'wet' drinking cultures. The 'dry' drinking cultures include those in the northern European countries of Finland, Norway and Sweden. In these countries, per capita consumption is low, alcohol control policies are restrictive, and the prevailing drinking style is one involving explosive, high-intoxication 'binge-style' drinking on weekends. The 'wet' drinking cultures include mainly

southern European countries such as France, Italy, Spain and Portugal. Here per capita alcohol consumption is high, there are few restrictions on the availability of alcohol, and drinking typically occurs regularly throughout the week, including at meal times.

An earlier time-series analysis by Norström (1995) found that suicide rates were much more responsive to changes in rates of alcohol consumption in Sweden than in France: the higher the levels of per capita consumption, the weaker the effect of alcohol on suicide.

A US study of suicide rates and beverage-specific measures of alcohol consumption for the years 1970–89 suggests that variations in suicide may be most closely associated with variations in the proportion of total absolute alcohol per capita consumed as *spirits*, rather than all beverage types. Increases in the consumption of spirits were positively associated with suicide, whereas increases in the consumption of beer and wine were not (Gruenewald et al 1995).

Gambling

In the US, a study by Phillips et al (1997) examined suicide levels among visitors to, and residents of, three popular gambling locations (Las Vegas, Reno and Atlantic City). The study used mortality data for US Standard Metropolitan Statistical Areas for the years 1969–91, including mortality data for out-of-state visitors and residents. The study found statistically significant, atypically high suicide levels among visitors to and residents of all three of the gambling locations. Las Vegas had the highest rates of suicide of any area in the US.

Possible explanations for patterns

Studies have theorised that certain ethnic groups may have particular biological or cultural features that better protect individuals with depression, or other mental health problems, from going on to commit suicide (Oquendo et al 2001). Possible cultural features could include a strong emphasis on supportive contact with extended kinship networks, or a generally fatalistic attitude to adversity and life problems. Other studies contend that differences in national character and culture lie at the heart of variations in suicide rates. For example, it has been argued that Sweden has substantially higher suicide rates than Norway because Swedes typically have more strongly competitive personalities and a comparatively high degree of difficulty dealing openly with emotions (Stack 1982b).

Explanations advanced for the association between alcohol use and suicide include alcohol's role as a depressant; the disinhibition, recklessness and impulsivity often associated (at least in some cultures) with alcohol intoxication; and the deteriorating impact of alcohol dependence on work and family relationships and social networks, which in turn may increase a person's isolation from others and a sense of hopelessness (Norström 1995; Stack 1993). In many cases, too, depression may be the precursor to alcohol abuse, with drinking or other drugs used to relieve the symptoms of depression (Lester 1995a).

Cultural factors are thought to be highly important for shaping the population-level relationship between overall drinking levels and suicide. Drinking is recognised to be a social behaviour, with individual drinkers influencing each other's drinking habits (Norstrōm 1995). In some cultures, drinking may be highly socially integrative, while in others the emphasis may be on styles of consumption oriented more towards catharsis and freedom from social restraints. Ramstedt (2001) suggests that cultures in which drinking patterns are less intoxication-oriented may provide more protection against suicide risk, at least for younger age groups.

Other research points to a high correlation between alcoholism and divorce, or, more broadly, between not being married and alcohol abuse. Stack and Wasserman's 1993 analysis of aggregated time-series data for the US concluded that divorce generally precedes alcoholism, rather than vice versa (Stack and Wasserman 1993). However, other studies conclude that excessive drinking typically occurs *before* serious problems start to develop with social relationships (Norstrōm 1995).

Gambling settings may encourage or provoke certain people to commit suicide, or attract people predisposed to suicide (Phillips et al 1997).

The New Zealand context

Most available official mental health statistics are not very helpful for assessing the incidence and prevalence of mental health problems in New Zealand. This is because they mainly relate to hospitalisations, whereas most mental health problems are treated at community-based (mental) health services.

However, various local studies have explored the prevalence of mental health disorders in samples of the population, including two longitudinal studies: the Dunedin Multidisciplinary Health and Development Study and the Christchurch Health and Development Study. The Dunedin study found, among 18-year-olds, a one-year prevalence of selected disorders of 36.5 percent (compared with 20 percent three years earlier). Major depressive episodes (16.7 percent), alcohol dependence (10.4 percent) and social phobia (11.1 percent) were the most common mental health problems (Disley 1997).

The Christchurch Psychiatric Epidemiology Study has also provided detailed data on the prevalence of mental illness in adults. It found that the lifetime prevalence for all major categories of mental disorders is 63.0 percent for males and 68.5 percent for females. The lifetime prevalence for major depressive disorders is 13 percent and for generalised anxiety 31 percent, and the six-month prevalence for mild to severe impairment is 28 percent (Disley 1997).

In the New Zealand 1996/97 Health Survey, the age-standardised mean score for self-reported mental health (SF-36 profiles) was 80.0 for males and 76.2 for females. Looking at three age groups (15–24, 45–64 and 75-plus years) mental health scores for men improved with age. Female mental health scores were best in the middle age group, with 15–24-year-olds having the worst score (72.4). European/Pākehā people had better mental health scores than both Māori and Pacific peoples (Ministry of Health 1999).

Alcohol and drug problems

The Christchurch Psychiatric Epidemiology Study identified a lifetime prevalence rate of 19 percent for alcohol abuse/dependence (Disley 1977). Men drink around 73 percent of the total alcohol consumed in New Zealand, with young men in particular being considered prone to frequent binge drinking (Ministry of Health 1999). The 1996/97 New Zealand Health Survey measured hazardous drinking by AUDIT questionnaires. Among adults, 27 percent of Māori, 17 percent of European/Pākehā and 16 percent of Pacific peoples had AUDIT scores of 8 or more, indicating hazardous drinking (Ministry of Health 1999).

The Dunedin Multidisciplinary Health and Development study found a 5.2 percent prevalence of marijuana dependence in its cohort of 18-year-olds (Ministry of Health 1999).

Summary

Most people who commit or attempt suicide were experiencing some kind of psychiatric disturbance or disorder at the time, especially depressive states. People who commit suicide also commonly have some kind of alcohol- or drug-related disorder.

2.23 Quality and availability of mental health services

Patterns identified in empirical studies

A systematic review by Pirkis and Burgess (1998) found evidence suggesting that up to 41 percent of people who commit suicide have had contact with psychiatric services in the preceding 12 months, while 9 percent commit suicide within one day of discharge from psychiatric care. Over 80 percent of victims visit a general practitioner (GP) in the preceding 12 months, while about 20 percent have contact with a GP one week before their death.

Hassan (1995) examined psychiatric service utilisation rates in South Australian public hospitals for 1986, and found that youth had the lowest rates of use. He also found the age groups with the highest utilisation rates tended to have the lowest admission rates for attempted suicide. While Hassan concedes that while no causal relationship can be drawn from these finding, he suggests that greater access to psychiatric care may serve to moderate suicidal behaviour.

Hassan (1995) also reports the findings of a study indicating that 22 percent of adolescents who committed suicide had serious psychiatric illnesses at the time of their deaths. The young suicide victims were less likely than a control group of adolescent psychiatric inpatients to have had any kind of contact with mental health service providers over their lifetimes.

A US study by Lester (1990b, cited by Lester 2000) found that the higher the number of hospital inpatient beds per capita in a state, the lower the suicide rates. However, no correlation was found between the suicide rates and the number of physicians per capita. Lewis et al (1994, cited by Lester 2000) found no relationship between suicide rates and the bed availability in mental health services, or between suicide and the availability of psychiatric consultants and nurses after adjustment for socioeconomic variables. In New Zealand, Neame (1997) found an association between historical changes in the delivery and funding of psychiatric care, reductions in inpatient psychiatric hospital beds, and rises in the male suicide rates.

Multivariate analyses conducted by Zimmerman (1990, 1995; both cited by Lester 2000) showed that suicide rates were negatively associated with levels of state spending on hospitals, although the association disappeared after controlling for other variables.

Possible explanations for patterns

Hassan (1995) offers several explanations for why rural youth in Australia have higher suicide rates than urban youth. These include the limited availability of health and welfare services in rural areas, and lack of knowledge about where and how to access services.

It has been concluded that a longstanding history of community negativity and stigmatisation towards mental illness may deter mentally ill people from seeking professional help (National Mental Health Consortium 1989).

Various official reports have indicated that gaps in the health system are a factor contributing to New Zealand's high rates of youth suicide. Problems identified include shortages of specialist mental health staff, inadequate supplies of specialist mental health services, and poor recognition of depression in the adolescent population by primary care providers and the community generally (Ministry of Health 2001a; Ministry of Health et al 1998; Steering Group on Youth Mental Health and Suicide Prevention 1994; Beautrais 1995, 1997; Department of Health 1992).

The New Zealand context

Since the early 1970s, changing policies relating to the provision of community-based mental health treatment and care have led to a substantial reduction in the number of people living in psychiatric institutions. Over this period, various official reports have drawn attention to problems with the resourcing and provision of community mental health services. These include a lack of sheltered housing and other patient and family support services, as well as a lack of education, recreation and work opportunities for people recovering from mental illness (National Mental Health Consortium 1989). The Mason Report (Committee of Inquiry 1988) was especially critical of the move to community care, concluding that it had not been backed up by sufficient expansion of community support services. A severe lack of services was also identified for prison inmates in need of psychiatric care.

Summary

Several studies indicate that a relatively high proportion of suicide victims access psychiatric services in the 12 months prior to their death, while a smaller proportion commit suicide within a day of discharge from psychiatric care. Other studies suggest that suicide victims have very low rates of use of mental health services, particularly young suicide victims.

Studies in various countries examining the relationship between suicide rates and variables such as funding per capita for psychiatric services, psychiatric bed availability, and the availability of specialist psychiatric medical and nursing staff have shown conflicting results.

Limited availability of health and welfare services and lack of knowledge about where and how to access services are thought to be some of the reasons why suicide rates are higher in rural youth than urban youth in some countries. Gaps in New Zealand's current health system are thought to be factors contributing to this country's high rates of youth suicide.

2.24 Physical illness

Patterns identified in empirical studies

In their comprehensive meta-analysis, Harris and Barraclough (1994) found that the results of studies examining the relationship between particular *physical* illnesses and suicidal behaviour were largely inconclusive. They attributed this to the fact that most of the studies were primarily cohort based, had small samples, and lacked comparison groups.

Nonetheless, certain studies found an association between suicide risk and the following medical disorders: HIV/AIDS, and HIV/AIDS with haemophilia, Huntingdon's disease, malignant neoplasms (irrespective of site), multiple sclerosis, peptic ulcer, renal diseases (particularly those requiring haemodialysis and involving transplantation), spinal cord injuries, and systemic lupus erythemosus. Evidence was inconclusive or unclear regarding the relationship between suicide and the following medical disorders: amputations of the arms or legs, heart valve replacement, hormone replacement therapy, intestinal disease (including Crohn's disease, ileostomy and ulcerative colitis), liver disease, neurofibromatosis, Parkinson's disease and systemic sclerosis. A WHO (1990) report cites US data suggesting that the relative risk of suicide among adult men with AIDS is up to 36 times higher than for those without the disease.

Late-life depression has been associated with an increased prevalence of somatic preoccupations among the elderly and physical illnesses (Bharucha and Satlin 1997).

Valente and Trainor's (1998) review of studies examining rational suicide among terminally ill patients found estimates suggesting that approximately 2 to 5 percent of the terminally ill commit suicide.

Possible explanations for patterns

The presence of acute or chronic physical illnesses may influence a person's mood, perhaps through fear of death, pain or surgery. In some circumstances ill people may perceive themselves to be an unacceptable physical or economic burden on their families (Moscicki 1995).

Some illnesses such as cancer may induce clinical depression and increase the risk of suicidal behaviour. Depression in cancer patients has been found to increase in severity as the cancer progresses. Lack of physical and social support and the number and frequency of recent losses to cancer among significant others can also increase psychiatric morbidity, especially depression (Holland 1978; Pettingale et al 1998, cited by Pugh, Catalan and O'Donnell 1993).

The availability of rational suicide (euthanasia and assisted suicides) for the terminally ill is thought to contribute to increases in the suicide rates in some countries (Valente and Trainor 1998).

The New Zealand context

Self-assessed general health, vitality, and physical and social functioning tend to decrease with age, and experience of pain increases (Ministry of Health 1999). As the New Zealand

population is expected to age in the future (see above), the influence of poor physical health on suicide rates may increase.

Summary

Studies estimate that between 2 and 5 percent of people with a life-threatening physical illness commit suicide.

There is evidence suggesting that suicide risk may increase in people with medical disorders such as HIV/AIDS, and HIV/AIDS with haemophilia, Huntingdon's disease, malignant neoplasms, multiple sclerosis, peptic ulcer, renal disease, spinal cord injuries and systemic lupus erythemosus.

The presence of acute or chronic physical illnesses may influence a person's mood, perhaps through fear of death, pain or surgery.

Part 3: New Zealand Suicide Statistics

3.1   National and international comparisons

Suicide in the total population

Figure 3.1 presents annual age-standardised suicide rates for the years 1978–99. The male suicide rate increased by 72 percent between 1978 and 1997, while the female rate has remained relatively stable since 1986. The data for 1999 shows a lower rate for males compared to previous years, though it is too early to say if this is the beginning of consistent downward trend.

**Figure 3.1:** New Zealand suicide rates 1978–99, by sex
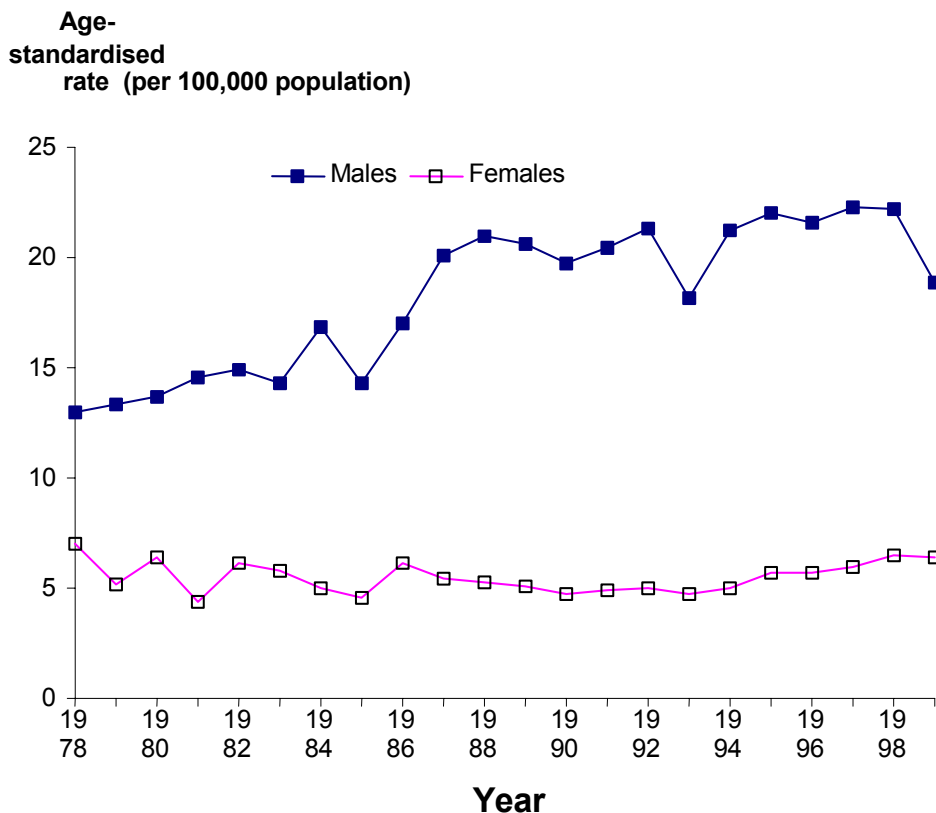
Source: Data from New Zealand Health Information Service 2001

Youth suicide

Figure 3.2 shows annual male and female youth (15–24 years) suicide rates for the period 1978–97. The rate for males more than doubled over this period, while there was a fourfold increase in the female rate. There were 142 youth suicide deaths in 1997, one-quarter of all suicide deaths for that year (New Zealand Health Information Service 2001).

Figure 3.2: New Zealand youth (15–24 years) suicide rates 1978–97, by sex
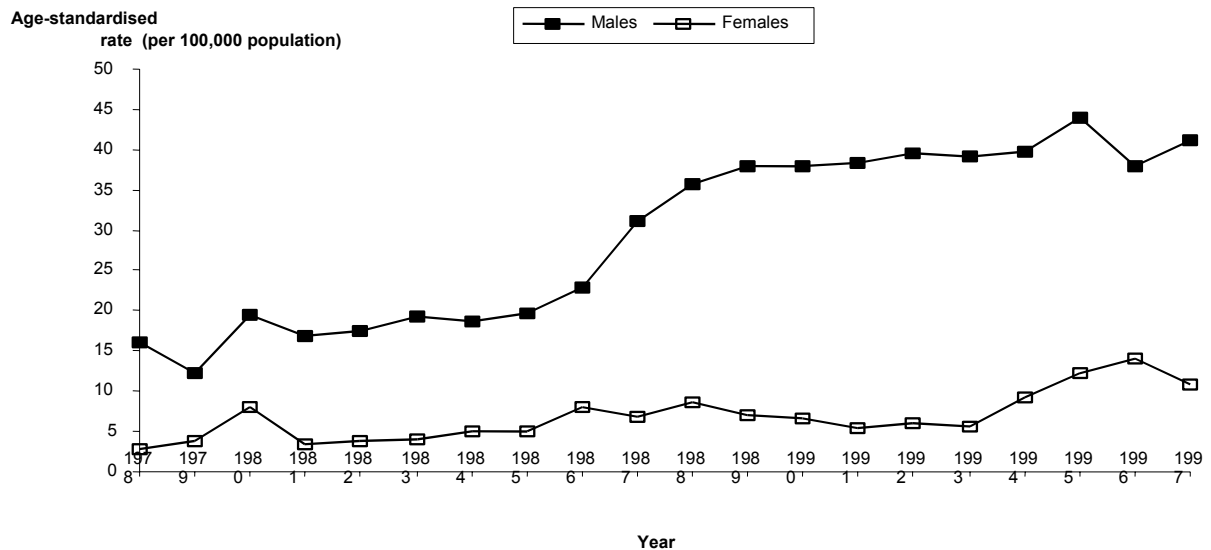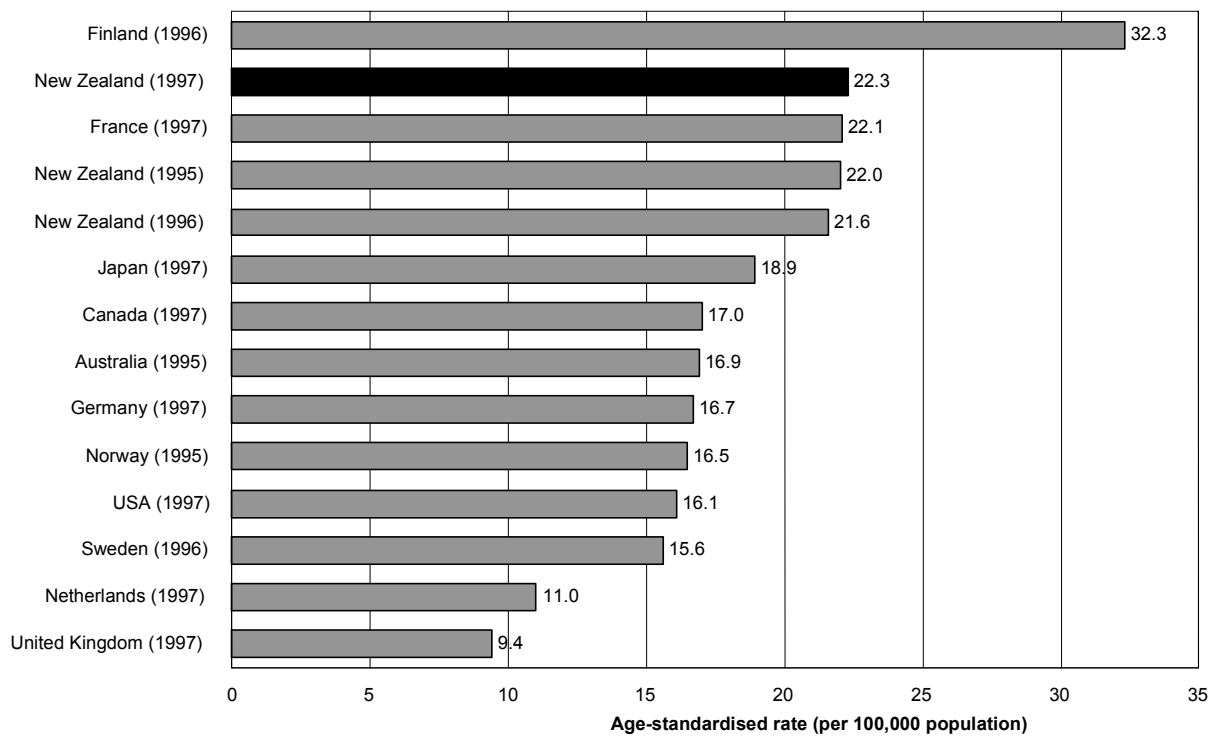

Source: Data from New Zealand Health Information Service 2001

International comparisons

Figure 3.3 presents age-standardised suicide rates for males in selected OECD countries. This data should be interpreted with caution as different countries use different approaches to determine the cause of death (New Zealand Health Information Service 2001). New Zealand's male suicide rate was one of the highest of the selected countries, second only to Finland.

Figure 3.3: Male suicide rates for selected OECD countries

Country (Year)	Age-standardised rate (per 100,000 population)
Finland (1996)	32.3
New Zealand (1997)	22.3
France (1997)	22.1
New Zealand (1995)	22.0
New Zealand (1996)	21.6
Japan (1997)	18.9
Canada (1997)	17.0
Australia (1995)	16.9
Germany (1997)	16.7
Norway (1995)	16.5
USA (1997)	16.1
Sweden (1996)	15.6
Netherlands (1997)	11.0
United Kingdom (1997)	9.4

Source: Data from New Zealand Health Information Service 2001

Figure 3.4 shows age-standardised suicide rates for females in selected OECD countries. New Zealand's female suicide rates were the fifth highest of the selected OECD countries. Again, this data should be interpreted with caution as different countries use different approaches to determine the cause of death (New Zealand Health Information Service 2001).

Figure 3.4: Female suicide rates for selected OECD countries
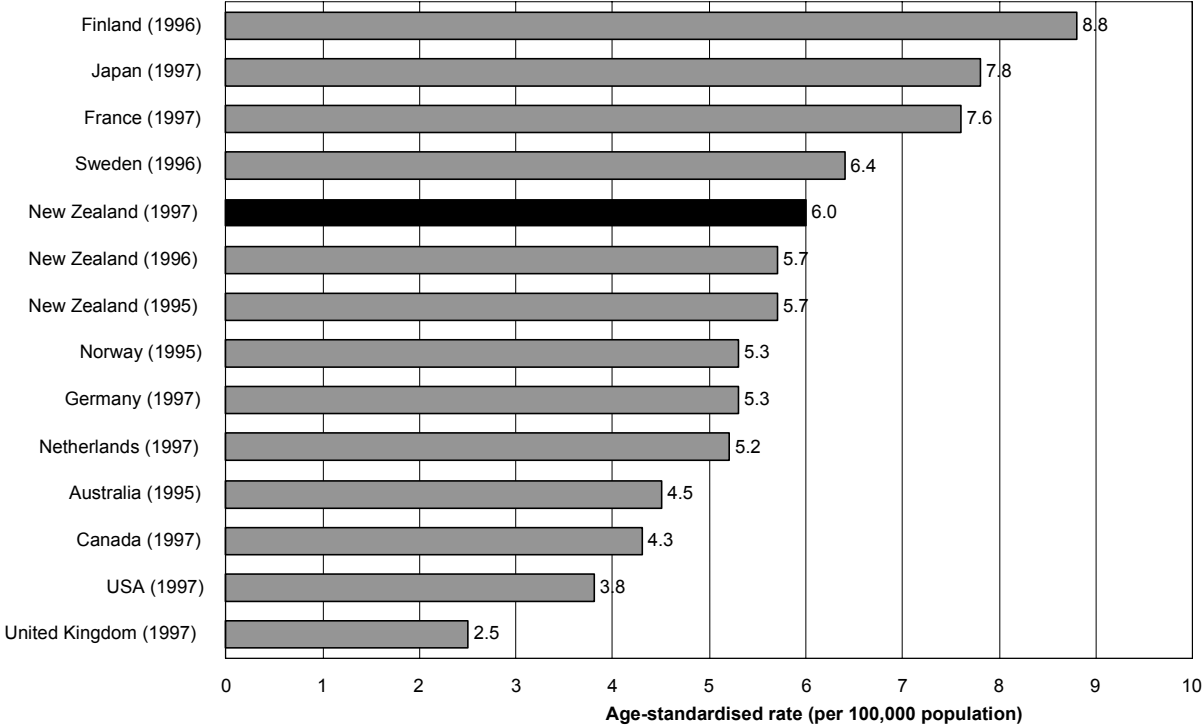
Source: Data from New Zealand Health Information Service 2001

3.2   Trends in New Zealand suicide rates from 1889 to 1988

An analysis by Deavoll et al (1993) of crude New Zealand suicide rates shows that male suicides remained consistently and markedly higher than female rates throughout the 100 years from 1889 to 1988. Male rates peaked during the Great Depression of the 1930s, falling thereafter until the mid-1960s. After this they began climbing again, a trend that continued throughout the period 1971–88.

During the Great Depression the highest male suicide rates were in middle-aged and older men (25–64 years). However, rises in the period after 1971 were due mainly to increasing suicides in men under the age of 45, and in particular young men in the 15–24 years age group.

Explaining the increase in the Great Depression, Deavoll et al (1993) point to the enormous social upheaval, high unemployment and widespread poverty of the time. For the more recent increase, they highlight the effects of economic recession and high unemployment. With respect to youth, they suggest that young people born in the decades immediately after World War II were raised with high expectations due to increasing prosperity and rising living standards, which 'may have made them particularly vulnerable to anomie' (1993: 84). Deavoll et al add that rates of depression appear to be steadily increasing in each successive generation of young people.

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