UNIVERSITY OF SOUTHAMPTON

FACULTY OF MEDICINE

A STUDY OF VIOLENT DEATH AND MENTAL ILLNESS
IN A CATCHMENT AREA POPULATION

by Elizabeth Anne King

Thesis submitted for the degree of Doctor of Philosophy, 1990

CONTENTS

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ABSTRACT

FACULTY OF MEDICINE

PSYCHIATRY

Doctor of Philosophy

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The relationship between suicide and mental illness is well established.
A majority of suicides show signs of mental illness at the time of their
death and suicide is a major cause of mortality in the mentally ill.
Psychiatrists are interested in identifying patients at highest risk of
suicide . The degree of proof required for a suicide verdict results in
the self-inflicted violent death rate of patients being underestimated.
A review is made of the ways in which the relationship between violent
death mortality and mental illness has been studied.
   The main part of this study is based on a total population of 412
residents of a defined catchment area who died potentially self-
inflicted violent deaths in England or Wales in the period 1974-1981.
Suicide verdicts were returned on 59% of the deaths, 31% were found to
be accidental and 10% undetermined. Another 21 residents were murdered.
 Results are presented descriptively in terms of when, where and how the
deaths occurred, and of the lifetime history of psychiatric referral;
and quantitatively in terms of mortality rates. Remarkable similarities
were found between the verdict groups. At least half of each group had
been referred to a psychiatrist and a third admitted to a mental
hospital. Two thirds of the patients in each group were recent patients
having a psychiatric contact less than 365 days before the event leading
to their death and a fifth were current patients when they killed
themselves. A verdict of suicide was returned on the majority of
patients with a psychotic illness but a non-suicide verdict was returned
on a majority of patients with personality, drug and alcohol related
disorders, and on females with schizophrenia.
 The excess mortality of these recent patients is presented in terms of
rates and relative risk for the three verdict groups and for different
diagnostic groups, and the risk of violent death attributable to severe
mental illness calculated. The risk of all forms of self-inflicted death
was significantly higher for recent patients than for other residents in
the same population.
   An 'epidemic' of inpatient deaths followed the opening of a new DGH
Psychiatric Unit. A comparison of the total number of patients who
killed themselves in the 3 year periods before and after the change in
service shows no significant increase in the total number of recent
patient deaths in the under 65 agegroup compared with the over 65
agegroup whose service was unchanged. A large increase was found in the
number of deaths of residents never referred to the psychiatric service.
The characteristics of the inpatients are described.
   Highest rates of violent death for both suicides and non-suicides were
associated with not being married, not working and living alone.
Referred and non-referred victims, and suicides and non-suicides among
patients could not be differentiated in terms of social variables but
the social characteristics of the patients varied with diagnostic group.
   A brief description of the homicide victims and assailants is given.

x

FIGURES

ACKNOWLEDGEMENTS

CHAPTER 1: INTRODUCTION

BACKGROUND

In May 1979 a District General Hospital Psychiatric Unit, the Department of Psychiatry (DOP), was opened in Southampton to provide a comprehensive psychiatric service for residents of the catchment area aged 16-64. Juvenile and psychogeriatric services were unaffected. The new adult service replaced that provided by Knowle Hospital, a traditional mental hospital built in the mid-nineteenth century and situated 13 miles from the city of Southampton.

Within two years of its opening 12 patients died following admission to the new Unit. During the previous five years only two patients from the same catchment area population had died in Knowle Hospital.

Comments by the Southampton Coroner, and the local press, raised the suspicion that this 'epidemic' of suicides was directly related to the opening of the new Unit. Was the apparent increase in psychiatric patient deaths a fact or an artefact?

AIMS AND OBJECTIVES

I: This study was initiated to discover:

A) whether the opening of the Department of Psychiatry had caused a significant increase in the number of violent deaths of catchment area residents;

B) whether current psychiatric patients among the violent death victims are over-represented among catchment area residents under the age of 65 in the period when treatment was provided by the new service;

C) how violent death victims, and in particular psychiatric patients, who died from the same causes as suicides, but on whom non-suicide verdicts were returned, differed from those on whom suicide verdicts were returned.

To achieve these objectives answers to the following questions were sought.

1. How many residents of the catchment area population suffered actual or potential self-inflicted deaths from the same causes as used by suicides in the eight year period 1974-1981? The investigation was not restricted to deaths on which suicide verdicts were recorded since non-suicide verdicts were returned on two of the inpatients whose deaths were self-inflicted.

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2. How many of these residents had received psychiatric treatment during their lifetime; what was the temporal relationship of that care to their violent death; and what was their patient status at the time of the event leading to their death?

3. Was there a statistically significant increase in the number of violent deaths of current patients under the age of 65 after the Department of Psychiatry had opened compared with the number of current patients who died after treatment under the old service?

II: To answer the above questions it was clearly necessary to accumulate a considerable amount of specific information. The second objective was therefore to establish a computerised database containing information on every resident of the Southampton Department of Psychiatry catchment area who died a violent death between 1.1.74 and 31.12.81 and on which an inquest verdict of suicide, accidental or undetermined death from similar causes was returned in England or Wales. Road traffic accidents were excluded unless a non-accidental verdict was returned.

The information compiled in the database is used in this study:

a) To describe the characteristics of the violent death victims in the catchment area in terms of when, where and how the deaths occurred, and to compare the pattern of violent death with that in England and Wales during the same period (Chapter 3);

b) To study the victims of violent death who had been referred to a psychiatrist before the event leading to their death in terms of their lifetime psychiatric care and patient status at the time of the event leading to death (Chapter 4);

c) To examine the difference in violent death rates and in the relative risk of violent death for victims with and without a history of recent psychiatric treatment in the suicide, accidental and undetermined verdict groups by agegroup, psychiatric diagnosis and patient status at the time of the event leading to death; and to evaluate the risk of suicide, and of any self-inflicted violent death, attributable to severe mental illness (as defined by recent contact with a psychiatrist) (Chapter 5);

d) In conjunction with additional data, collected by the same method for the period January 1982 to July 1982, to compare the number of violent deaths among recent and current patients in the three year periods 21.5.76-20.5.79 and 21.5.79-20.5.82 and to assess the effect of opening the Department of Psychiatry in 1979 (Chapter 6);

e) To describe the patients who died following admission to the

Department of Psychiatry (Chapter 7);

f) To describe the demographic and social characteristics of victims of all forms of self-inflicted violent death, including the role played by mental illness, in a complete sample of violent death victims from a geographically defined catchment area including:

i) a comparison between the social and demographic characteristics, (domicile, age, sex, accommodation and household composition, employment status, and social class), and the violent death rates, of the violent death victims in the suicide, accidental and undetermined death verdict groups with the 1981 Census population of the catchment area (Chapter 8);

iia) a comparison between the social and demographic characteristics of the violent death victims with a history of referred mental illness with violent death victims never referred to a psychiatrist;

iib) a description of the characteristics of the patients in the different diagnostic groups (Chapter 9);

h) To give a brief description of the prevalence of homicide, and characteristics of the victims and assailants (Chapter 10).

OTHER STUDIES AND DIFFICULTIES OF COMPARISON

The relationship between violent death and mental illness has been studied extensively but the many definitions both of violent death and of mental illness make comparisons between studies difficult.

Methods used fall into two main categories:

i) the assessment of the proportion of victims of violent death who have shown evidence of mental illness before their death in a defined study population;

ii) the study of the violent death mortality of a population of psychiatric patients.

Definition of violent death

What is a violent death? There is no legal definition of violent or unnatural death but in general **violent** deaths are the result of injuries such as those caused by cutting/stabbing, falling from heights, or railway/road traffic accidents. Unnatural deaths include those due to poisoning or asphyxia (Thurston, 1976).

This study is restricted to violent or unnatural deaths from causes which were obviously self-inflicted, and to deaths from the same causes which could have been self-inflicted ('potentially self-inflicted') but where the evidence showed that the death was actually caused

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accidentally by the victim or another person. For example, deaths from falls between levels, which correspond to suicide by jumping from a height, were included, even though this included one death of an elderly patient who fell out of bed in hospital. Falls on a level surface caused by tripping were excluded. Similarly, deaths from burning were restricted to those caused by ignition of clothing which correspond to suicides from self-immolation. Unnatural deaths from self-neglect, or starvation, were not included although it was recognised that mental illness may predispose to other forms of death than violence because of abnormal conduct.

A factor common to all violent deaths is that they have to be reported to, and investigated by, a coroner in order to determine the cause and mode of death. The classification of violent deaths into various modes derives from ancient custom and legal procedures which aimed to assign the 'responsibility' for the death in the moral and legal sense. The mode of death is determined from the evidence presented at the inquest and stated in the coroner's verdict. Possible modes of death are **N**atural, **A**ccident, **S**uicide, **H**omicide (collectively represented by the acronym **NASH**). A fifth mode of death, where evidence is insufficient to distinguish between the other four, is **U**ndetermined. By definition, violent deaths can never be Natural.

Prevalence of violent death

Suicide is generally thought to be a rare event, but statistics for England and Wales for the years 1974 to 1982 (OPCS 1974-1982) show that similar proportions of the population died from suicide (0.7%) and from road traffic accidents (0.9%). A comparison with numbers of deaths from natural causes (physical disease) shows that a similar proportion of the population died from diabetes (0.9%), a relatively common disease. However, whereas diabetes accounts for the same proportion of deaths in both the under and over 65 agegroups (0.9%), the proportions of the populations in the 15-65 agegroup dying from suicide (S) and road traffic accidents (RTA), (2.3% S; 3% RTA), are ten times higher than in the 65+ agegroup (0.2% S; 0.3% RTA).

Definition of suicide

"Every act of self-destruction is, in common language, described by the word **suicide**, provided it be the intentional act of a party knowing the probable consequences of what he is about." stated Rolfe B in Clift v Schwabe (1846).

The necessity for proof of intent to die before a suicide verdict can be returned has the inevitable result that, in England and Wales, official suicide statistics are an under-estimate of the number of deliberately self-inflicted deaths. Evidence must be available to prove that the deceased **not only** deliberately committed the act that killed him **but also** intended that the act should be fatal.

Standard of proof required for a suicide verdict

Before the de-criminalisation of suicide (Suicide Act, 1961), the standard of proof required for a suicide verdict was that required for a criminal offence, 'beyond reasonable doubt', and a decision based on a balance of probabilities was not enough. In 1944 it was stated that 'It is not enough probability which determines verdicts but proved facts, and if facts which justify a specific verdict are not proved at an inquest, there is no alternative but to return an open verdict' (R v Huntbach, 1944). This was reiterated in 1967: 'Suicide is not to be presumed. It must be affirmatively proved to justify the finding. Suicide requires an intention' (Davis in re, 1968).

Clarification of what constitutes 'proof' of intent was made after a coroner had failed to draw a jury's attention to the fact that they must be satisfied that the deceased intended to take his own life; being satisfied that he 'deliberately took his own life' was insufficient on its own. The form of words suggested for use are those used by James J in R v Cardiff City Coroner (1970).

'Suicide is voluntarily doing an act for the purpose of destroying one's own life while one is conscious of what one is doing, and in order to arrive at a verdict of suicide there must be evidence that the deceased intended the consequences of his act.'

The conclusion drawn from this judgement by coroners (Burton et al, 1985) is that 'In the case of bodies found in the river and in falls from high rise flats, (notwithstanding the obstacles overcome in making the exit), the usual outcome is an open verdict'.

Coroners were reassured in 1975 that the return of an open verdict will not be interpreted as a failure on their part. 'If suicide is not proved by the evidence, it is the duty of the coroner not to find suicide but to record an open verdict. If they find themselves compelled to return an open verdict it does not suggest that they are not doing their job properly or are 'insufficiently perceptive' (R v City of London Coroner, 1975).

The current degree of proof of intent to die required to justify a suicide verdict means that non-suicide verdicts are increasingly likely to be returned on psychiatric patients who are suffering from overt mental illness at the time of their death. It is for this reason that it has been considered essential to include open verdict (undetermined) and accidental death victims in this study.

Violent death and mental illness
Suicide

Suicide has traditionally been associated with pre-existing mental illness as evidenced by the rider attached to the majority of suicide verdicts that 'the deceased killed him/herself while the balance of the mind was disturbed.'

Studies investigating the factors associated with suicide have established a close relationship between mental illness and violent death as summarised by the following quotations:

'Mental illness is an essential component of suicide - in Western society suicide in the healthy person is a rare event' (Barraclough et al, 1974);

'Although mental illness is not a sufficient cause of suicide, it is, for all practical purposes in modern Western culture probably a necessary one' (Brown, 1979);

'Suicide rarely occurs in the absence of psychiatric illness' (Murphy, 1983).

Causation or consequence

Whether mental illness is the cause of suicide, or whether a suicide verdict on a self-inflicted violent death victim is the consequence of proven mental illness at the time of death is a matter which has been widely debated in the literature.

Atkinson (1978) suggested that the 'causation hypothesis' which has traditionally associated factors such as mental illness, alcoholism, and social isolation with suicide may be an artefact of the way in which decisions about whether a death is suicide are made. His 'social construction' hypothesis argues that the presence of these factors is the criterion which predispose a suicide verdict and reflect the societal meaning associated with suicidal action. However, there is abundant evidence to suggest that the fact of current mental illness in a violent

death victim is not in itself sufficient to guarantee a suicide verdict.

The fact that suicide verdicts are not always returned on deaths which others, and psychiatrists in particular, regard as 'suicide', in the sense that the deaths are self-inflicted, led researchers to look at the role played by mental illness in other violent deaths.

Non-suicidal self-inflicted deaths

A study of verdicts returned on poisoning deaths (Barraclough, 1974) revealed that accidental verdicts are returned on many deaths that, to the layman, appear anything but accidents. Barraclough felt that "it could reasonably be assumed that swallowing a number of tablets of different drugs, or the swallowing 'by accident' of the large number of tablets required to produce death from the drugs which are so safe in clinical practice is a measure of intent to die." Barraclough concluded that most deaths from poisoning are in reality instances of suicide although they cannot be classified as such by the coroner. 95% of these deaths were caused by psychotropic drugs, suggesting that many of the victims were being treated for mental illness at the time of their death. This finding led Barraclough to point out that 'Medical interest is more in the relation between mental disease and violent death in which there is a component of self-infliction than in the results of applying a stringent legal definition to ambiguous evidence.'

In response to a personal communication from a London coroner, (Thurston, 1971), who suggested that up to 90% of undetermined deaths are suicides that cannot be proved, Holding and Barraclough (1975) in-vestigated 110 persons who died from the same causes as suicides but on whom verdicts of undetermined death were returned. Their results showed that 73% of the undetermined death victims were mentally ill at the time of their death. The conclusion drawn from this finding was that, al-though "the mortality of mental disorder is usually regarded as death from suicide...; studies of the mortality of mental illness should con-sider deaths recorded as open verdicts." A similar study of 110 acci-dent victims who died from the same causes as suicides revealed that 60% showed signs of mental illness (Holding and Barraclough, 1977, 1978). These two studies confirmed that these victims are in the main drawn from the same population as suicides - the mentally ill. The authors concluded that deaths from self-poisoning, solitary drowning and falling which were given accidental verdicts should also be considered when the mortality of mental disease is investigated.

Other studies, based on populations of suicides as defined by the coroner, but where evidence of mental illness has been looked for in violent death victims on whom non-suicide verdicts were returned also reported mental illness to be a factor in these deaths (Jacobson and Jacobson, 1972; Seager and Flood, 1965; Ovenstone and Kreitman, 1974; Jacobson et al, 1976; Platt et al, 1988).

The fact that non-suicide verdicts are returned on a proportion of current or recent psychiatric patients has been confirmed in a number of studies. Nuttall and Evenson (1980) reported that in 4% of psychiatric patients with a common history of previous psychiatric care an undetermined verdict was returned instead of a suicide verdict, and more recently, Shaw and Sims (1984) found that the suicide:undetermined ratio in a sample of recently discharged inpatients who died from unexpected violent deaths was 50%.

The 'social construction' hypothesis was tested by Jacobson et al (1976). Officially defined suicide, undetermined and accidental deaths were compared in respect of sources of evidence which were presumed to have a bearing on whether or not suicidal intent could be imputed to the victim. This study reported no difference between 'suicide' victims and 'open verdict' victims in respect of previous suicidal behaviour, prior psychiatric treatment, or symptoms of depressive illness at the time of death. Holding and Barraclough (1978), in a comparative study of suicide, accidental and undetermined death victims matched for age, sex and method, found significant differences between suicides and the other verdict groups; suicides were more likely to have made a previous attempt and were more likely to have been depressed.

In a recent Scottish study into differences between suicide and undetermined death victims, Platt et al (1988) report findings similar to those of Jacobson et al (1976). The victims in the two verdict groups could not be distinguished on the basis of marital status, previous psychiatric contact or social class, nor by the interval between last psychiatric contact and death. Method of death, and the degree of intent to die associated with that method was found to be the most powerful discriminator. No support was found for the 'social construction' hypothesis and the authors concluded that, although prior para-suicide and psychiatric illness does not enable suicides and undetermined deaths to be dif-ferentiated, they agree with Jacobson et al (1976) that psychiatric illness and previous suicide attempts remain important factors in self-inflicted violent deaths.

Operational definitions of 'suicide'

In recognition of the fact that the officially reported number of suicides is an underestimate, operational definitions of 'suicide' have been used, particularly in studies into the relationship between mental illness and violent death where the number of premature violent or unnatural deaths among psychiatric patients is known to exceed the number of patients on whom suicide verdicts are returned.

These definitions include **not only** 'deaths on which a coroner returned a verdict of suicide', or 'deaths coded to suicide under the relevant ICD Code' or 'official suicides' (Adelstein and Mardon, 1975), **but also**, 'deaths which the researcher considered were 'suicides' in that they were the sequel to a deliberately initiated act of self-damage' (Ovenstone and Kreitman, 1974); and all deaths on which verdicts of suicide and undetermined death verdict were returned' (Platt et al, 1988; Sundqvist-Stensman, 1987a, 1987b, (the latter were called 'undetermined suicides' by Borg and Stahl, 1982a) and 'controversial cases' by Beskow, 1987); and 'deaths from all causes which were self-inflicted' (McCarthy and Walsh, 1966); and 'deaths listed as such by the coroner, and those where, despite an official verdict of accidental death, the attending psychiatrist had evidence that the patient had taken his own life' (Morrison, 1982); and 'possible suicides' where 'suicide was considered to have been the most likely cause of death, even when an open verdict was returned by the coroner, in the opinion of the medical staff who knew the patient during his/her last illness' (Fernando and Storm, 1984). Sims (1973) described deaths which, although not recorded as suicide, had features which suggested that the deceased's psychiatric condition was a contributing factor, as 'quasi-suicides'. Odegard (1952) included 'definite suicides'+'unnatural deaths which were 'probable suicides' Even the Medical Statistics Division at the Office of Population Censuses and Surveys (OPCS), (Adelstein and Mardon, 1975), accepts that the true number of deliberately self-inflicted deaths, ie the number of 'estimated suicides', should include not only 'official suicides' but also undetermined deaths and accidental poisonings. Patel (1973), in a study of the pathology of 764 'completed suicides' (28% of whom died from poisoning), found a coroner's verdict of suicide was returned on 81%. Borg and Stahl (1982) described deaths from "intoxication with drugs alone, or in combination with alcohol, as 'strongly suspected suicides'" and included them in their population of 'suicides'.

Definition of mental illness/psychiatric morbidity

Definitions of psychiatric morbidity have ranged from the most restrictive 'ever treated as an inpatient' (James and Levin, 1964), through 'referred to a psychiatrist' (Innes and Millar, 1970), to the loosest retrospective diagnosis of 'mentally ill at the time of death' based on information obtained by interviewing given by relatives (Robins et al, 1959b; Barraclough et al, 1974; Dorpat and Ripley, 1960; Bagley et al, 1976; Chynoweth et al, 1980; Arato et al, 1988).

METHODOLOGY OF SUICIDE RESEARCH

The prime motivation for suicide research is to identify potential suicide victims at a stage when intervention may prevent their death. If one of the symptoms of a mental illness is the wish to die it follows that effective treatment of the illness should alleviate that symptom. This was recognised by Murphy (1972) who asserted that physicians have a very important role in preventing deaths from suicide among depressed patients. However, he pointed out that, 'while the opposite of psychiatric illness (no psychiatric illness) is a virtual guarantee of no suicide, the same is not true for demographic predictors'. For any effective reduction in the number of violent deaths other risk factors must be recognisable by, and actually recognised by, the physician. This involves identifying persons at high risk of suicide in terms of their personal characteristics, their social environment, and their physical and mental health.

Identification of individuals

The simplest, from a methodological point of view, retrospective studies of the individual characteristics of suicide and other violent death victims have used coroners' records as the primary source of names of violent death victims (Sainsbury, 1955; Seager and Flood, 1965; Jacobson and Jacobson, 1972; Holding and Barraclough, 1975, 1977, 1978; Barraclough et al, 1974; Dorpat and Ripley, 1960; Jennings and Lunn, 1962; Kraft and Babigian, 1976; McCarthy and Walsh, 1966; McCullogh et al, 1967; Myers and Neal, 1978; Robins et al, 1959b; Walsh et al, 1975 ; Chynoweth et al, 1980).

In other studies (Nuttall et al, 1980; Perris et al, 1980), populations of suicides have been restricted to persons whose death was assigned the ICD code for suicide (depending on the current edition).

Sources of information

Personal, social and medical information on violent death victims has been obtained from:

i) personal interviews with relatives of suicide victims who have been identified from coroners' records;

ii) inspection of coroners' records and/or medical/psychiatric notes.

i) Personal interviews

Retrospective studies based on interviews with families of suicide victims have reported that over 90% of suicide victims were diagnosed as 'suffering from a mental illness' at the time of their death even if it had not actually been medically diagnosed before the fatal event. (Barraclough et al, 1974; Robins et al, 1959b; Chynoweth et al, 1980; Dorpat and Ripley, 1960; Arato et al, 1988; Bagley et al, 1976; Rorsman et al, 1982).

ii) Coroners records/medical records

Other studies, which have relied entirely on documentary evidence recorded in coroners inquest files and medical notes have confirmed that the majority of suicide victims have shown evidence of mental illness before their death (Sainsbury, 1955; Seager and Flood, 1965; Jacobson and Jacobson, 1972; Holding and Barraclough, 1975; Patel, 1974).

Despite the similarity of method used the results of these studies are difficult to compare, not only because of the definitions of what constitutes mental illness, but because the populations from which the violent death victims are drawn differ.

Populations studied

i) General populations

Populations identified from coroners' files have included: a series of consecutive suicides irrespective of the usual place of residence of the victim (Holding and Barraclough, 1978), only suicides who were resident in the coroner's district (Jacobson and Jacobson, 1972; Barraclough et al, 1974), or all suicides who died in the coroner's district wherever they were usually resident (Robins et al, 1959b. No previous study has identified all suicides, and all other violent death victims who died from similar causes, who were usually resident in a defined geographical area, but who died outside the relevant coroner's (or coroners') district(s).

Unless the details of all violent death victims in a given population are known it is impossible to make accurate comparisons between

the social and demographic characteristics of the deceased residents and the general population of which they were members; those dying outside the area may exhibit different characteristics from the others (Lester, 1969).

ii) Psychiatric patient populations

The mortality of psychiatric patients has been investigated in both descriptive and comparative studies. Differences are found in both the populations under study, and the way in which the mortality is expressed.

Descriptive studies

Study populations have included: consecutive inpatient deaths at a single hospital (Salmons, 1984; Sims and O'Brien, 1979; Beisser and Blanchette, 1961; Lipschultz, 1942; Levy and Southcombe, 1953; Banen, 1954, Medlicott and Medlicott, 1969; Langley and Bayatti, 1984; Modestin and Kopp, 1988; Nathan and Rousch, 1984); inpatients from a number of hospitals (Goh et al, 1989; Gale et al, 1980; Farberow et al, 1971; Schwartz et al, 1975); patients who died in or after discharge, irrespective of how long the death occurred after discharge (James and Levin, 1964; Pokorny, 1960; Perris et al, 1980; Jamieson and Wall, 1936; Eastwood et al, 1975; Roy and Glaister, 1984; Breier and Astrachan, 1984); random sample of first admissions to one hospital (Eastwood et al, 1982); patients treated at a single hospital during one year (Sims, 1973); inpatients and patients dying within seven days of discharge (Sundqvist-Stensman, 1987a, 1987b; Beskow, 1979); recent psychiatric patients, ie either current or patient who died within three months of discharge from psychiatric care, (Fernando and Storm, 1984); patients treated in a single town's hospitals (Jones, 1965); patients ever in contact with a Psychiatric Case Register (Gardner et al, 1964; Kraft and Babigian, 1976) or state mental health care system (Nuttall et al, 1980); 'suicidal patients' referred for psychiatric consultation because of suicide attempts, suicide threats, or suicidal ideas (Pokorny, 1966); first referrals irrespective of how they were incepted into the psychiatric service (Hoenig and Hamilton, 1966); first referrals to an Outpatient Clinic (Borg and Stahl, 1982); patients who died 'within a year of last contact with the psychiatric service' (Walk, 1967); all patients with a diagnosis of neurosis (Sims and Prior, 1978).

Comparative studies

Comparisons between patients who killed themselves and live controls have been made between: consecutive patients admitted to the same hospital (Pokorny,1983); patients with the same diagnosis (Breier and Astrachan, 1984; Roy, 1982a (schizophrenics); Barraclough and Pallis, 1975; Roy, 1983 (depressives)); inpatients and ex-inpatients (Medlicott and Medlicott, 1969); discharged inpatients with patients who were discharged at the same time (Hoffmann and Modestin, 1987); 'ever inpatients' with 'never inpatients' in the same general population (Temoche et al, 1964); former patients with non-patients (Perris et al, 1980); persons ever in psychiatric contact with persons never in contact (Kraft and Babigian, 1976; Sundqvist-Stensman, 1987a); consecutive out-patients and the general population (Koranyi, 1977); persons ever in contact with a Psychiatric Case Register and the general population (Babigian and Odoroff, 1969); other patients from the same population (Sletten et al, 1972; Roy, 1982b; Borg and Stahl, 1982); hospitalised suicide patients with hospitalised patients who did not commit suicide and with persons who committed suicide and were not hospitalised (Beisser and Blanchette, 1961); hospitalised psychiatric patients with surgical controls (Tsuang, 1978).

Comparison of mortality of psychiatric patients

Most studies are retrospective, and since the 1970's, a number of prospective studies have been undertaken (Thomson, 1970; Rorsman et al, 1982; Borg and Stahl, 1982; Pokorny, 1983; Black et al, 1985a, 1985b, 1985c, 1985d, Black et al, 1987; Martin et al, 1985a, 1985b; Sims and Prior, 1978).

The mortality of psychiatric patients has been expressed in terms of the observed number of deaths in the psychiatric population compared with the expected number as determined by the rate observed in the general population (Innes and Millar, 1970; Rorsman, 1974; Black et al, 1985a, 1985b, 1985c, 1985d; Black et al, 1987; Martin et al, 1985a, 1985b; Tsuang, 1978; Tsuang and Woolson, 1978b); in terms of the relative risk of violent death among psychiatric patients compared with the general population, and in terms of rates. Denominators for rates have included: numbers of admissions (Farberow et al, 1971); numbers of discharges (Salmons, 1984; Gale et al, 1980; Garvey, 1985); numbers of patients admitted or patient-years at risk (Sletten et al, 1972); daily inpatient census (Farberow, 1981); first admissions (Pokorny, 1964); general population (Langley and Bayatti, 1984).

THE PRESENT STUDY

From the above review of studies into the relationship between mental illness and violent death it is clear that deaths on which non-suicide verdicts are returned must be included if the self-inflicted violent death mortality associated with mental illness is to be accurately assessed. This study therefore includes all violent death victims who died from causes which could have been self-inflicted, irrespective of the inquest verdict. The difficulties of determining accurate rates of violent death, and of making comparisons between violent death victims and the host population, are minimised by using an officially defined geographical catchment area and studying **all** the violent death victims from that area, wherever they died in England or Wales. The methodology adopted in this study is described in Chapter 2.

CHAPTER 2: METHOD

THE CATCHMENT AREA

The catchment area of the Royal South Hants Hospital Department of Psychiatry comprises the City of Southampton, its suburbs to the east and west, and part of the New Forest (Figure 1.1).

The 1981 Census population of the Southampton Department of Psychiatry catchment area (CA) was 297,000, of whom 80% were aged 15 or over (15+). The age-sex distribution of the CA population (OPCS 1981a) was very similar to that of England and Wales (Appendix 1). Unlike Brighton, another south coast university town, where 16% of the male and 26% of the female resident population are over the age of 65, Southampton is not a retirement centre and has no obvious excess of elderly residents.

The similarity in age structure enables a direct comparison between the catchment area and England and Wales rates to be made for both the total populations and the individual agegroups.

The total population of the catchment area remained essentially constant over the 8 year study period although there was a slight drift from the urban to the less urban areas.

The psychiatric service

From January 1974 until May 1979 Knowle Hospital, a traditional county mental hospital, situated 13 miles east of Southampton, provided the psychiatric service for adults. In May 1979 a new District General Hospital unit, sited in the centre of Southampton, started a comprehensive service for residents aged 16 to 64. The service for children, adolescents and the elderly remained unchanged.

From 1st January 1974 the Southampton Psychiatric Case Register collected demographic, social and medical data on every resident of the City of Southampton in contact with the psychiatric service and also recorded details of every contact by that resident. Information was not recorded for patients resident in the catchment area but with an address outside the City.

The study population

The study population comprised every resident of the catchment area who committed suicide, or died a potentially self-inflicted death, between 1st January 1974 and 31st December 1981 inclusive, whose death was registered in England or Wales, together with persons of no fixed address (NFA's) whose deaths were registered in the catchment area.

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FIGURE 1.1: THE SOUTHAMPTON DEPARTMENT OF PSYCHIATRY (DOP)
CATCHMENT AREA AND CORONERS' DISTRICTS
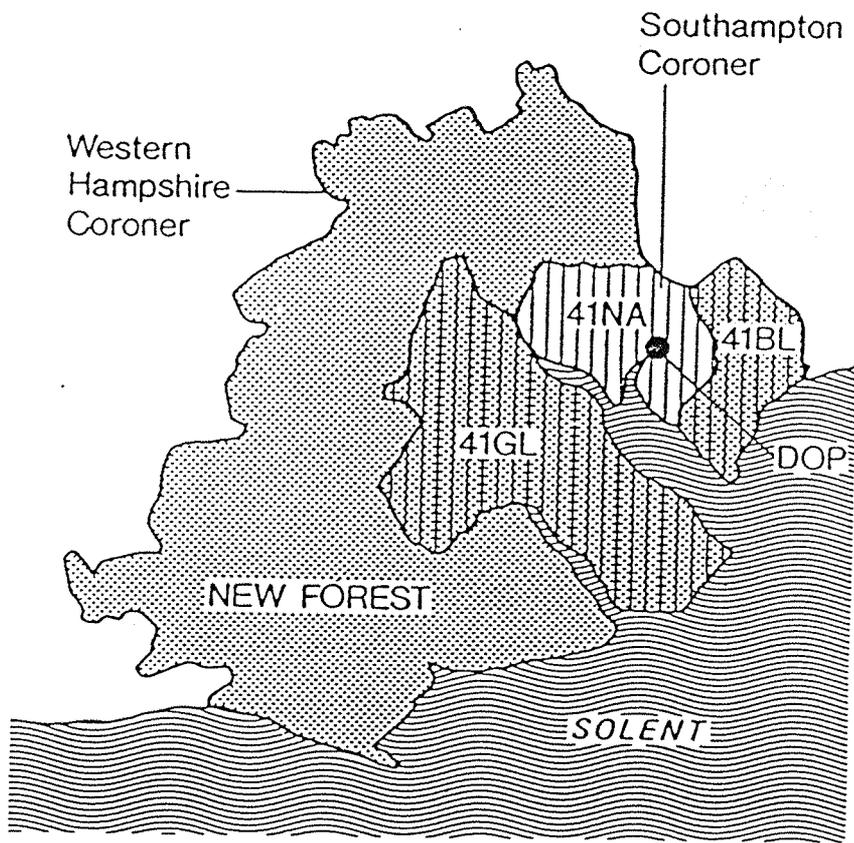
ADMINISTRATIVE DISTRICTS

41NA *Southampton CB*
41BL *Part of Winchester RD*
41GL *Part of New Forest RD*

Identification of the study population

The methodology by which the study population has been identified, and which may be applied to any retrospective mortality study, was designed to overcome the four methodological problems involved in epidemiological studies summarised by Shepherd and Cooper (1973):

1: population definition,
2: case definition,
3: case finding and case identification,
4: comparability of findings with national statistics.

These four criteria were applied in two contexts:

A) definition and identification of **violent death victims** in the total catchment area population, and

B) definition and identification of **referred psychiatric patients** in the defined population of violent death victims.

A: VIOLENT DEATH VICTIMS

Definition

The definition of violent death adopted in this study is based on a coroner's finding after inquest.

A Coroner's inquest must be held on all violent or unnatural deaths to determine the mode and cause of death (Coroners (Amendment) Act 1926). The coroner's findings after inquest, commonly known as the 'verdict', record the medical cause of death, the antecedent external cause and the mode of death, eg:

```
CAUSE OF DEATH    : ex-sanguination          (medical cause)
ANTECEDENT CAUSE  : cutting of carotid artery (external cause)
'VERDICT'         : killed himself/suicide    (mode)
```

The inter-relationship between cause of death (**COD**) and mode of death (**MOD**) is shown in Appendices 2 and 3.

A death from the external cause could have been:

<u>self-inflicted</u> leading to a **suicide** verdict;

<u>accidental</u> (by self or another) leading to a verdict of <u>accident</u> or **misadventure**;

<u>deliberately inflicted</u> by another leading to a verdict of <u>homicide</u>' or '**unlawfully killed**';

'open' / <u>undetermined</u> whether deliberately or accidentally <u>inflicted</u> (by self or another) leading to an open or undetermined verdict.

A person was deemed to be a 'violent death victim' if the inquest returned one of the following verdicts:

1: **Suicide**

A suicide verdict may only be recorded consequent on the coroner's unequivocal finding that the deceased intended to kill him/herself. Suicide must never be presumed (R v Huntback, 1944). The standard of proof required is discussed in Chapter 1.

2: **Accidental Death**

Coroner's findings of 'accidental death' and 'death by misadventure' are regarded as synonymous since there is no legal distinction between the two verdicts (R v Coroner for City of Portsmouth, 1987).

3: **Undetermined Death** (or **Open Verdict**)

Deaths from the same causes as suicide, but where the 'near perfect evidence of self-murder' (Patel, 1973) is lacking, and accidental death is ruled out, are called undetermined deaths and an open verdict returned (Mode of death is unknown).

An 'open verdict' may also be returned where the death was found to be unnatural but where, for example, decomposition of the body allowed no cause of death to be established (Cause of death is unknown).

For the purposes of this study, undetermined and open verdict deaths are included in the same category, and the terms are used interchangeably.

The inclusion of all violent deaths in this study renders irrelevant the questions of how many undetermined deaths or accidents are really 'hidden suicides' and of what effect the under-reporting of suicides in the official statistics might have on the conclusions drawn from the statistical data.

METHODOLOGY

The methodology was based on the statutory death registration procedure in England and Wales. Under the Births and Deaths Registration Act 1953, every death occurring in England or Wales, and its cause, must be registered in the District in which it occurred within five days; where an inquest is required to be held, the Registrar is notified of the fact of death by the coroner within the five day period.

Before the death can be registered a certificate stating the cause of death and signed by a registered medical practitioner (Appendix 4), or a coroner after post-mortem examination (Appendix 5), or after inquest (Appendix 6), must be produced. Statutory regulations (SI 1968,

Coroners Rules 1953) prescribe the particulars relating to the deceased which must be recorded at the time of registration. These social and demographic particulars, together with the cause of death as stated by the doctor certifying death, or the coroner to whom the death was reported, are recorded on a Draft entry form (FORM 310) (Appendix 7) and verified as correct by the person registering the death, usually a relative, before a copy is made in the Death Register (Appendix 8). After registration, the informant is given a certified copy of the entry in the Death Register and FORM 310 is posted to the Vital Statistics Branch of the Office of Population Censuses and Surveys (OPCS). Under the National Health Service Act 1977 a photocopy is sent at the end of each week of all the new entries in the **Death Register** (Appendix 9) to the Medical Officer of the District Health Authority in which the Registration District or Sub-District lies. Community Health Centres also receive photocopies.

OPCS staff convert the information contained in FORM 310 into numeric codes and store it on magnetic tape (**Mortality File**). Drafts are coded with respect to the cause of death, usual address of the deceased, place of death (actually the place where the death was cert-ified) and the Health District in which the death was registered.

The vital statistics for each Region and Health District are generated from this Mortality File. Of particular relevance to this study are the International Classification of Diseases (ICD) code (WHO, 1977), representing the cause of death and the Area of Residence codes representing the usual address of the deceased (OPCS, 1974).

Cause of death coding

The cause of death is designated by an International Classification of Diseases (ICD) code number. The classification is revised every ten years and the current revision, the 9th, has been in use since 1979 (WHO, 1978). Deaths for which the underlying cause was due to injury or poisoning are distinguished by an E preceding the code number. Since all such deaths are subject to inquest, the coroner's verdict and external cause of death can be deduced from the code number.

ICD codes E950-59 denote the different methods of self-destruction used by suicides. The first two digits confirm that the injury or poisoning was deliberately self-inflicted (suicide) while the third digit indicates the method. For example, suicide by drug overdose is coded E950 while suicide by hanging, strangulation or suffocation is coded E953. Accidental deaths due to poisoning are coded E850-869. Where the fatal injury was deliberately inflicted by another the deaths

are coded E960-69 depending on the method. The ten codes E980-89 denote deaths from the same causes but where either the intention of the deceased to commit self-murder was unproved, or the circumstances surrounding the death were undetermined. In the latter case the uncertainty could have been whether the fatal injury or poisoning was self-inflicted or inflicted by another person. The terms 'open verdict' and 'undetermined death' are used synonymously in connection with codes E980-989.

Slight changes were made in the Suicide and Open Verdict codes between the 8th and 9th revisions of the ICD code but more fundamental changes were made in the coding of deaths due to accidental poisonings (Appendix 10).

Address at time of death coding

Great Britain uses a 'de jure' (usual address) basis of recording residence at the time of vital events rather than the 'de facto' (where person was at the time of the event) basis. Each death is allocated a four-character area of residence code which identifies the local government area at county district level and the NHS area at health district level in which the usual address of the deceased is located (OPCS, 1974). Persons who have no fixed address at the time of death are assigned the area of residence code of the Registration District.

SOURCES OF DEATH REGISTRATION INFORMATION

The information recorded at death registration and held by OPCS and District Health Authorities can be obtained in the form of photocopies of FORM 310 and of the Death Register entries. In addition, a print-out of the coded information on the Mortality File is available from Regional Health Authorities. The Mortality File contains all the information relating to residents of the Region which is recorded on the Death Register except the name of the deceased.

Appendix 11 shows the information available from each of the four sources of information.

The information collected under, and emanating from, the death registration procedure has been used as follows.

1: POPULATION DEFINITION

The population at risk was defined as every person aged 15 or over (15+) whose usual address was in the catchment area (CA) of the Southampton Department of Psychiatry (DOP).

The catchment area, which forms part of the Southampton and South

West Hampshire Health District, administered by the Wessex Regional Health Authority (WRHA), is made up of three contiguous geographic and administrative areas. These are designated by the OPCS Area of Residence codes: 41NA (Southampton CB), 41BL (part of Winchester RD) and 41GL (part of New Forest RD) (Figure 1.1).

The three areas will be referred to as 'Southampton' or 'City of Southampton' (=41NA), 'Eastleigh' (=41BL) and 'New Forest' (=41GL), or 'City' (=41NA) and 'Non-City' (=41BL+41GL).

2: CASE DEFINITION

A 'violent death case' was defined uniquely in terms of the numeric codes used in the preparation of vital statistics by the following parameters:

Area of residence: 41NA, 41BL or 41GL

Date of death: 1.1.74 – 31.12.81 inclusive

The date of death recorded on the death certificate is that on which the death was certified, not the date on which the event leading to death (ELD) occurred. The discrepancy between the two dates may be several months if a body is found in a submerged car. The high number of suicides reported to occur on Mondays as part of the 'Monday blues' syndrome may be an artefact of weekend deaths not being discovered, and the death being certified on the following Monday. In this study the date of the ELD, as determined from evidence in the inquest files, and not the date of certification, has been used wherever possible.

Age at death: 15 or over

Cause of death: ICD-9 codes E950-59; E960-69; E980-89; E804,5;
                                    850-69; 882,4; 893; 910; 911; E922 or 925.

(Deaths registered under ICD-8 during the years 1974-1978 were recoded under ICD-9.)

The selected E-codes representing accidental deaths were chosen to correspond with the 10 causes of suicide. As with the coding of undetermined deaths, no distinction is made in the ICD code between self-inflicted accidents and those caused by another person.

The definition of accidental death was widely interpreted. In addition to the accidental causes of death which correspond to the ten categories into which suicides are classified, deaths resulting from asphyxia due to inhaled vomit or food (E911) have been included. The inclusion of this code may be considered to be controversial. The justification lies in the fact that, in the under 65 agegroup, the majority of these deaths are the sequel to drug and/or alcohol use or

abuse in sub-lethal quantities and should, therefore, be included as accidental poisoning deaths. Such deaths also involve an element of self-infliction when they are associated with the habitual use or abuse of alcohol and/or drugs, and the victims of such deaths could be regarded as 'chronic suicides' (Menninger, 1938).

Unless an inquest verdict of suicide or 'undetermined whether suicide or accident' was returned, deaths resulting from road traffic accidents were excluded. Although the choice of these accidental deaths codes was obviously subjective, the choice once made, enabled direct comparisons with the same codes in the national statistics to be made.

The correspondence between verdict and ICD-E coding for potentially self-inflicted deaths is given in Appendix 10.

3: CASE FINDING AND CASE IDENTIFICATION

The importance of identifying every member of the given population was emphasised by Lester (1969) who showed that untraced persons may differ significantly from those traced.

A total of 412 **cases**, or CA victims of violent deaths, were found by accessing and combining information generated by the statutory death registration procedures. Appendix 12 shows the inter-relationship between the four sources of information.

The actual method used is now discussed.

The identification of the residents was completed with minimum use of coroners as a source of names.

Populations for mortality studies into unnatural deaths have traditionally been identified from coroners' records since all unnatural, violent or sudden deaths of which the cause is unknown must be reported to the coroner in whose jurisdiction the body is found. The coroner therefore has listed information of all victims of such deaths, 85% to 90% of whom are local residents (Jacobson and Jacobson, 1972).

Much of the information available from coroners is available elsewhere, and in view of the considerable pressure of work on coroners, it was felt that, in the first instance, alternative sources of information should be explored. The coroners were then presented with a list of names and dates of death so that the files could be easily located, and permission was sought to examine the inquest files for the named individuals.

The names of the violent death victims were found by the following means:

i) For deaths occurring between 1974 and 1978 inclusive photocopies of **Draft Entry Forms** (FORM 310) were purchased for all CA residents whose death satisfied the case definition. This provided the names of every resident wherever the death occurred in England or Wales.

A slight complication was introduced by the fact that, although the addresses of all CA residents living in the New Forest were coded 41GL, not every address coded 41GL was in the catchment area. Postcodes were used to discriminate between CA residents and others from among the 41GL coded addresses.

ii) Residents whose death occurred during 1979 and 1980 were identified by inquest verdict and address from the photocopies of the Death Register entries sent to the District Health Authority. Also available were the photocopies of the FORM 310 for residents of the District who died outside the District and whose deaths were 'transferred'.

iii) Only in 1981 were coroners' records used as primary source of data when industrial action by Registration Officers made alternative sources unavailable. Deaths which occurred outside the Districts of the local coroners in 1981 were subsequently traced through the the other sources when these became available.

iv) The total number of violent and unnatural deaths registered outside the Health District since 1st January 1979 were found from the Mortality File listing and checked against the number of residents for whom trans-ferred FORM 310's had been inspected. Although the Mortality File print-out available from Regional Health Authorities contains no names, it played a vital part in the identification of residents who died outside the catchment area. For example, when a print-out for all residents of area of residence codes 41NA, 41GL and 41BL who died from E-coded causes of death was requested, the information showed the Registration Districts (as a code) in which the deaths were registered, together with the Register Entry number, all personal particulars and the cause of death (E-code). From this print-out the total number of violent deaths of the residents was obtained, together with the age and sex of the victims. Where a resident's death had been registered in another District, the Registration District Code (OPCS 1981b) was used to

identify the coroner in whose jurisdiction that District lay, and a request made for further information relating to that death.

In addition, the Mortality File print-out was used to find the official ICD-E codes for the cause of death of residents whose names were found using Death Register returns or coroners' records. This was done by matching either the Death Register entry number, or the personal data collected from the Coroner's file, with the corresponding entry on the Mortality File listing which was supplied by the WRHA.

Limitations to use of Mortality File

When using the Violent Deaths (all E coded deaths) listing of the Mortality File, it had to be borne in mind that not all deaths classified to E-codes have been subject to an inquest although they will have been reported to the coroner as having a 'violent' element in the cause. For example, deaths of elderly people from pneumonia consequent upon prolonged bed-rest following a fall resulting in a broken leg are technically 'violent', (eg fall on or from stairs or steps; fall on same level from slipping, tripping or stumbling) and must be reported. Some coroners do not hold inquests into such deaths unless the fall occurred in a hospital or old people's home.

A further limitation applies to the place of death. This coding is hopelessly unreliable as a source of information on inpatient deaths because:

> i) The code indicates the nature of the place where death was certified - not where the event leading to death, or in fact the death itself occurred. (Deaths are not always recorded as 'Dead on arrival at ... Hospital' but often recorded as 'Died in ... Hospital' when resuscitation techniques were unsuccessfully applied before death was certified);
> ii) Deaths in general hospital psychiatric units are designated as NHS non-mental deaths;
> iii) Inpatients who are transferred from mental hospitals to intensive care units in general hospitals are recorded as 'NHS non-mental' deaths;
> iv) Psychiatric or mental hospital inpatients who die after absconding are recorded as dying 'at home' or 'elsewhere'.

It is impossible to assess the number of psychiatric or other in-patient deaths from OPCS statistics on the place of death, although the number of 'NHS-mental deaths' given is a minimum. Hence the need for a more rigorous determination of the place of death by an examination of

the inquest notes.

Since about 13% of suicides kill themselves outside the coroner's district in which they are usually resident (Jacobson and Jacobson, 1972), the identification of 100% of suicide victims from a defined population requires the co-operation of more than one coroner. The offices of HM Coroners for the following districts were visited for the inspection of files: City of Southampton, Western Hampshire, Central Hampshire, Southern Hampshire, the Isle of Wight, Portsmouth and Wiltshire (Appendix 13). Photocopies of inquest files were bought from HM Coroners for Avon, Devon, East and West Dorset, Kent, Surrey, Sussex, Hertfordshire, Cornwall, Inner West and Inner North London, Western London, Dyfed, and Anglesey.

Appendix 14 shows the geographical distribution of the violent deaths of CA residents between 1974 and 1981 inclusive.

4: COMPARISON WITH OFFICIAL STATISTICS

The use of the same sources of information as used in the compilation of official vital statistics to define and identify both the population at risk and the cases forming the study population, ensures the comparability of the findings with both local and national statistics.

In addition, the definition of the population at risk in terms of residence within one of three administrative boundaries enables it to be enumerated from the 1981 local Census. Comparisons can also be made between the component areas of the catchment area.

Eight year average violent death rates for the period 1974-1981 inclusive have been calculated for the three verdict groups (suicide, accident and undetermined), for both the catchment area and England and Wales.

B: REFERRED PSYCHIATRIC PATIENTS
1 and 2: POPULATION AND CASE DEFINITION

Having identified all victims of violent death, two subgroups were defined corresponding to those with and without a history of mental illness. In this study the distinction was based on the concept of a 'referred psychiatric patient' who is one for whom a record exists on a hospital record file confirming referral to a consultant psychiatrist. Kraft and Babigian (1976) used a similar definition of a recorded contact on a local Psychiatric Case Register. This is a stricter definition of mental illness than that used in studies assessing psychiatric morb-

idity at the time of the event leading to death since those posthumously diagnosed as mentally ill had not necessarily been treated by, or even referred to a consultant psychiatrist. It is, however, less strict than that used by James and Levin (1964) in which a prior admission to a psychiatric hospital was used as a measure of overt psychiatric disorder. The total group of 'referred psychiatric patients' includes three persons whose GP had diagnosed a mental illness serious enough to warrant consultant referral but whose death occurred before their first appointment.

3: CASE FINDING AND CASE IDENTIFICATION
Sources of information

Violent death victims with a history of psychiatric referral were identified using coroners' inquest files as the primary source of data. Social and demographic details contained in the files included the name, age and sex (presumed male in case of doubt) of the deceased, marital status (actual and legal), usual address (and place of the event leading to death), occupation and employment status (Appendix 15). Statements from witnesses interviewed by the Coroner's Officer contain information relating not only to the fatal event but to any previous acts of deliberate self-harm or predictors of suicidal intent such as a suicide threat or note. Medical reports submitted by GP's, physicians or psychiatrists describe past and present physical and mental illness and treatment. Results of any toxicological analyses performed to determine blood levels of alcohol or drugs at the time of death are included in the reports of the post-mortem (PM) examination which was carried out on every body (Appendix 16).

Hospital case notes were used as the secondary source of data and were examined wherever possible.

Local Patients

The names of all 'local' patients were found by checking the total list against the patient index files held by Knowle Mental Hospital, Fareham (which was responsible for the care of CA residents prior to May 1979), the Southampton Psychiatric Case Register, the Department of Psychiatry at the Royal South Hants (RSH) Hospital, Thornhill House Psychogeriatric Unit at Moorgreen Hospital and the Southampton General Hospitals (including the Neurological Unit which has its own record system). Records held by the local Child Guidance Service were also checked. Although this could only provide information bearing on the

lives of victims reared locally, enough additional information was obtained to justify this search.

The existence of records held by both the General Hospital and the Psychiatric Service did not necessarily indicate referral to a consultant for physical illness. Certain psychiatric patients acquired a 'medical' record only by virtue of admission following deliberate self-harm after which care was transferred to the psychiatric service. In the case of psychogeriatric patients the psychiatric and medical record numbers were identical. Some medical records related only the fatal act. Neurological records were checked when evidence suggested a contact had been made. All local hospital case notes were inspected.

From the above procedure the names of all victims known to the local services were found, whether or not evidence of previous patient status was elicited during the Coroner's Office's enquiry into the death. In fact, everybody who had a record of local psychiatric treatment could have been identified from the inquest notes alone since the fact was mentioned in every case.

Non-local patients

Inspection of the inquest notes enabled a number of persons with a history of referred mental illness or previous medical treatment who had only received treatment at 'non-local' hospitals to be identified. In such cases a request was made to inspect the case notes held by the appropriate hospital. Where case notes were 'missing' or 'had been destroyed' the information in the inquest notes was accepted at face value if the patient status was confirmed by the hospital's medical record officer. The search was complicated by changes of name by marriage and aliases used by drug addicts and alcoholics. Where case notes referred to previous care at other hospitals these notes were also traced and inspected enabling a picture of lifetime psychiatric and medical care to be compiled for each victim. Particular note was made of numbers of admissions following deliberate self-harm, total numbers of admissions to psychiatric and to general hospitals (for medical reasons).

The type of care at, and the temporal relationship of last medical and/or psychiatric care to, the event leading to death was of particular interest.

Diagnosis of referred psychiatric patients

For the purposes of this study all victims with a history of psychiatric referral have been assigned an ICD code based on the 9th Revision of the International Classification of Diseases (WHO 1978). Where the patient was known to the Southampton Psychiatric Case Register the most recent diagnosis recorded on the Register was adopted. Where no entry was found on the Register because, either the resident did not live within the city of Southampton when last in care, or the last psychiatric contact was before the Register became operational in 1974, the standard criteria used by the Register staff were adopted in making a diagnosis. The case notes of all non-Register patients were examined and a diagnosis made by one Consultant Psychiatrist after consultation with a member of the Case Register staff.

History of previous non-fatal deliberate self-harm (DSH)

Previous studies have shown that a history of previous non-fatal self-injury is present in a proportion of suicide victims, but not all deliberately self-inflicted acts of self-injury or poisoning are committed with intent to die, and are patently not 'suicide attempts'. The expression 'acts of deliberate self-harm (DSH)' as defined by Morgan et al (1975) will be used to describe such acts.

A history of previous DSH was recorded for a victim if a GP mentioned such acts in his report to the coroner, or if an admission following self-injury was confirmed by hospital case notes. Both psychiatric and medical case notes were checked; some victims had been admitted directly to psychiatric care after acts of DSH, some were transferred to psychiatric care after medical treatment and a psychiatric consultation, while others received only general hospital treatment after refusing psychiatric follow-up. No check was made on Accident and Emergency Department attendances not resulting in admission.

4: COMPARISON WITH GENERAL POPULATION

During the study period the Southampton Psychiatric Case Register collected data on every contact with the psychiatric service by residents of the City of Southampton. Using the annual statistics published by the Case Register (Jennings, 1981,1982), and population estimates for the City (OPCS, 1981c), rates of violent death for residents of the the City of Southampton have been calculated by age, sex and diagnostic group.

Unless otherwise stated, all rates are average annual rates per 100,000 population (aged 15+) at risk.

Information extracted from the inquest notes and medical case notes was recorded on questionnaires (Appendices 17A, 17B and 17C), and analysed using the Statistical Package for Social Scientists (SPSS-X and SPSS-PC+).

Statistics used are chi-square, difference between proportions, and T-test.

The CIA (Confidence Interval Analysis) Program (Gardner et al, 1989) was used to calculate confidence intervals for violent death rates, differences between proportions, and standardised mortality ratios.

SOURCES OF ERROR

The method used to identify the names of people dying unnatural deaths relies on the centralised statistics organisation of the OPCS. This method, in contrast to studies in which coroners' records have been used as the only source of names, ensures that the coroner is, whenever possible, the final and not the initial source of information. The method also circumvents the problem of 'missing' inquest notes, since social and demographic data can be obtained from either the photocopy of the death certificate or from the Regional Mortality File. The identification of every violent death victim whose death is registered in England or Wales is also ensured.

Although no method can identify residents whose bodies remain outside England and Wales the number must be very small indeed. The general impression gained while inspecting the coroners' files was that most families whose relative died abroad arranged for the repatriation of the body, following which an inquest was held in this country. This was true for a number of road traffic accident victims. No suicides fell into this category during the study period.

The identification of those dead residents with a history of contact with the Southampton services relied on matching the names of the deceased against the hospital's patient index. Error could arise from the omission of names from the index, or from the use of assumed names. Since maiden names were checked where no record existed under the married name, and all names were checked independently against the Southampton Psychiatric Case Register database, the size of this error is likely to be very small. Identifying residents with histories of

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contact with hospitals beyond Southampton relied on the coroner's inquest notes naming a hospital, or at least a place where treatment had been received. For example, one inquest file contained the following: 'ECT in Birmingham about 15 years ago'. The relevant hospital notes were located by writing to every psychiatric hospital in Birmingham and giving all the known patient details! The size of the error from this source is likely to be small because all the dead with histories of psychiatric contact in Southampton, a fact checked independently of the coroner's notes, had this fact recorded in the coroner's notes. This suggests that the coroner's enquiry systematically asks witnesses about psychiatric contact and obtains correct answers.

Error from either of these sources would underestimate the association of violent death with mental illness.

The identification of violent death victims in contact with the general hospital service before their death was less easy. As previously mentioned, the presence of a record on the medical patient fiche did not necessarily mean that the treatment was for a medical problem.

Patients treated by the psychogeriatric service were given the same hospital number for both psychiatric and general medical contacts and the presence of a general hospital record number could represent only psychiatric treatment. Similarly, a patient's only contact could have been for admissions following acts of deliberate self-harm, or even for their only admission following the self-injury or self-poisoning from which they died. All medical files were therefore inspected to determine the reason for the entry on the fiche, and this also enabled previous medical treatment at other hospitals, when mentioned in the notes, to be traced in the same way as the non-local psychiatric contacts.

The prevalence of past physical illness is likely to be an underestimate but not a serious one.

CHAPTER 3: DESCRIPTION OF INQUESTS AND VIOLENT DEATH VICTIMS

In the first part of this chapter, Section 3A, the total population of violent death victims is described in terms of the verdict distribution, and when, where and how the deaths occurred. The second part, Section 3B, contains a description of the types of evidence which are taken into consideration by the coroner in reaching his verdict as to the mode of death.

SECTION 3A: VIOLENT DEATH DATA
NUMBER AND VERDICT DISTRIBUTION OF VIOLENT DEATHS

Between the 1st January 1974 and 31st December 1981 412 catchment area residents aged 15 or over died violent or unnatural deaths on which verdicts of suicide (N=245), accidental death from the selected causes (N=126), or undetermined death (N=41) were returned. Four hundred and nine inquests were held into the deaths of the 263 males (64%) and 149 females (36%). The deaths were classified, using the ICD E-codes for external cause of death, into four verdict groups which corresponded to the three inquest verdicts (Table 3.1).

TABLE 3.1: NUMBER OF CATCHMENT AREA RESIDENTS WHO DIED VIOLENT
DEATHS IN YEARS 1974-1981 BY INQUEST VERDICT AND SEX

	INQUEST VERDICT							
	SUICIDE		ACCIDENT		OPEN VERDICT		S+A+OV	
	N	(%)	N	(%)	N	(%)	N	(%)
Males	159	(65)	78	(62)	26	(63)	263	(64)
Females	86	(35)	48	(38)	15	(37)	149	(36)
Both sexes	245	(100)	126	(100)	41	(100)	412	(100)

The characteristics of the three verdict groups are summarised in the following sections.

SUICIDE: (ICD-9 E950-959)
Inquests (N=243); Victims: (N=245: 159M(65%); 86F(35%))

Two hundred and thirty eight of the inquests which returned suicide verdicts were single and uncomplicated; five involved multiple deaths.

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Suicide pacts and multiple suicides

Two married couples (1.6% of all suicide victims) died in suicide pacts. The expected number of pacts during the study period was one (Fishbain and Aldrich, 1985; Rosen, 1981). Both couples fitted the classic picture: a middle aged or elderly couple, at least one of whom was physically and/or mentally ill and wishing to die, and the other unable to contemplate life alone (Rosembaum, 1983; Cohen, 1961).

A third double suicide inquest involved a male catchment area resident and a female from another area. They had met as inpatients at a non-local mental hospital some time before their death but no sexual relationship existed between them. Both were decapitated, outside the catchment area, by the same train. There was no evidence as to whether a suicide pact preceded this double tragedy.

Suicide preceded by homicide

Two multiple inquests returned verdicts of suicide preceded by the unlawful killing of one and three others respectively. This is the expected number given that one in every 100 suicides is coupled with murder (West, 1965).

ACCIDENTAL DEATH/DEATH BY MISADVENTURE:
(ICD-9 E 804,5; 850-869; 882,4; 893; 910; 911; 913; 920; 922; 925)
Inquests and Victims (N=126: 78M(62%); 48F(38%))

All of the 126 inquests which returned a verdict of accidental death or death by misadventure from the selected causes of death involved a single victim.

Accidents at work

Five of the 126 accidental deaths were those of men "at work". Three of these accidents were the result of electrocution from faulty equipment, one died in a construction site fall, and the fifth drowned while diving in defective Scuba gear. These five deaths have been included in the analyses to ensure comparability with national statistics.

The only pregnant violent death victim was a female drug addict who was found drowned in her bath at home. Her husband, also one of the accidental death victims, died from inhaled vomit associated with drug abuse a year later.

OPEN VERDICTS/UNDETERMINED DEATHS: (ICD-9 E980-988)

Inquests and Victims (N=41: 26M(62%); 15F(37%))

A verdict of undetermined death or open verdict was returned on 41 victims. In 10 cases both the medical cause of death and mode of death were undetermined, although in eight of these cases the external cause was established (Table 3.2).

TABLE 3.2: CLASSIFICATION OF OPEN VERDICTS AND UNDETERMINED DEATHS
BY REASON*

CATEGORY REASON FOR UNDETERMINED RULING	CASES N	UNDETERMINED	
		MOD	COD + MOD
1 Fatal injury but undetermined MOD			
i - trauma	1	1	...
ii - fire	2	1	1
iii - found in water (apparent drowning)	14	12	2
iv - fall from height	3	2	1
v - suffocation (plastic bag)	1	1	...
vi - railway death	3	3	...
vii - road traffic "accident"	2	2	...
1 - sub-total	26	22	4
2 Probably drug related: undetermined MOD			
i - 'lethal' drug level found	9	9	...
ii - no 'lethal' level	4	...	4
2 - sub-total	13	9	4
3 Decomposition and incomplete history	2	...	2
3 - sub total	2	0	2
TOTAL	41	31	10

* Based on classification used by Murphy (1979).
(MOD = mode of death; COD = medical cause of death)

TEMPORAL DISTRIBUTION OF VIOLENT DEATHS

Annual distribution

The annual number of violent deaths among catchment area residents is shown in Table 3.3. Although the individual annual figures show wide variations, 3-year averages show the numbers remained essentially constant between 1974 and 1980 for both sexes. The large increase in male suicides in 1981 was accompanied by a corresponding fall in the number of accidental deaths so that the total number of violent deaths was almost identical to the previous year. A similar excess of male suicides had occurred in 1977.

TABLE 3.3: ALL VIOLENT DEATHS OF CATCHMENT AREA (CA) RESIDENTS
1974-1981 (1.1.74 - 31.12.81 inclusive)

YEAR	SUICIDE			ACCIDENT			OPEN VERDICT			S+A+OV		
	M	F	M+F	M	F	M+F	M	F	M+F	M	F	M+F
74	23	5	28	9	5	14	1	2	3	33	12	45
75	19	12	31	5	3	8	5	2	7	29	17	46
76	14	10	24	12	5	17	5	0	5	31	15	46
77	23	12	35	9	7	16	4	3	7	36	22	58
78	12	14	26	12	11	23	1	1	2	25	26	51
79	19	10	29	10	4	14	1	3	4	30	17	47
80	18	12	30	15	7	22	4	3	7	37	22	59
81	31	11	42	6	6	12	5	1	6	42	18	60
TOTAL	159	86	245	78	48	126	26	15	41	263	149	412

Month of death

Verdict differences

The monthly distribution of all potentially self-inflicted violent deaths was very similar to that for suicides alone, with the highest numbers of deaths occurring in July and December (Figure 3.1). This summer peak is later than that reported in other studies (Sainsbury, 1955; Durkheim, 1897).

The increase in open verdict deaths in October was countered by a sharp decrease in the number of suicides and accidental deaths (Table 3.4).

FIGURE 3.1:

TOTAL NUMBER OF VIOLENT DEATHS IN EACH
MONTH BY VERDICT 1974-1981 (BOTH SEXES)

S+A+OV
ACCIDENT
OPEN
VERDICT
SUICIDE

MONTH OF EVENT LEADING TO DEATH

34
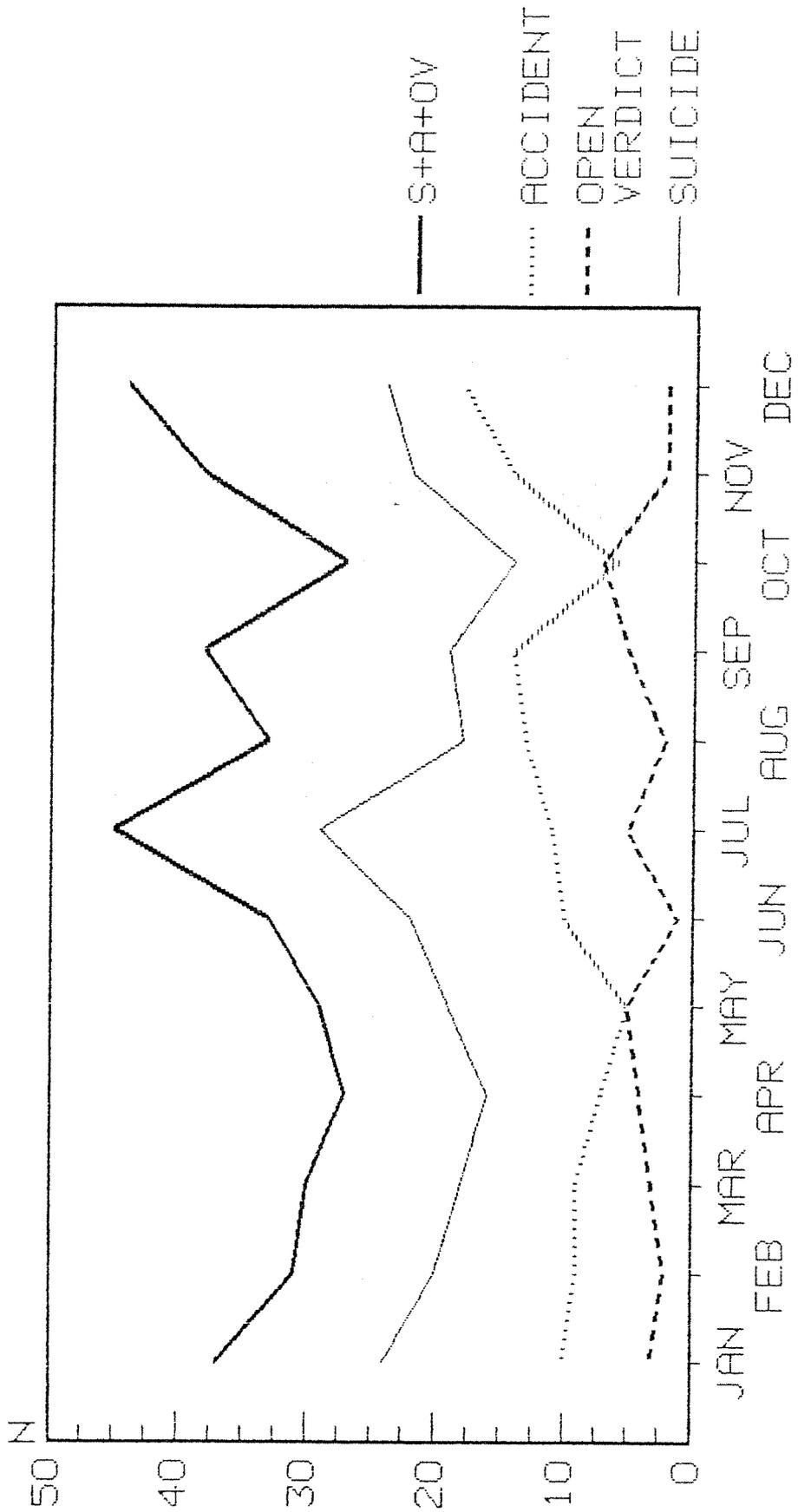
TABLE 3.4: NUMBER OF VIOLENT DEATHS BY MONTH OF EVENT LEADING TO DEATH
          1974-1981

MONTH	SUICIDE (S)		ACCIDENT (A)		OPEN VERDICT (OV)		TOTAL (S+OV+A)	
	N	%	N	%	N	%	N	%
January	24	9.8	10	7.9	3	7.3	37	9.0
February	20	8.2	9	7.1	2	4.9	31	7.5
March	18	7.3	9	7.1	3	7.3	30	7.8
April	16	6.5	7	5.6	4	9.8	27	6.6
May	19	7.8	5	4.0	5	12.2	29	7.0
June	22	9.0	10	7.9	1	2.4	33	8.0
July	29	11.8	11	8.7	5	12.2	44	10.7
August	18	7.3	13	10.3	2	4.9	33	8.0
September	19	7.8	14	11.1	5	12.2	38	9.2
October	14	5.7	6	4.8	7	17.1	27	6.6
November	22	9.0	14	11.1	2	4.9	38	9.2
December	24	9.8	18	14.3	2	4.9	44	10.7
TOTAL	245		126		41		412	

Sex differences

The monthly distribution of all violent deaths showed a bimodal distribution for males, while female deaths were more evenly distributed (Table 3.5). The peak months for male suicides, July and December/January, were a few months later than the peak months of May and November for female suicides (Figure 3.2). The seasonal cycle of male and female suicides were reversed in that numbers of female suicides increased as male suicides decreased (Table 3.5).

The seasonal variation of male suicides, based on the monthly grouping used by Jennings and Lunn (1962) (Spring = Mar, Apr, May; Summer = Jun, Jul, Aug; Autumn = Sep, Oct, Nov; Winter = Dec, Jan, Feb), was significantly different from a uniform distribution (chi-sq=7.8; 3df; p<0.05). In contrast, the seasonal female distribution was not significantly different from a uniform distribution.

FIGURE 3.2:

TOTAL NUMBER OF SUICIDES IN EACH MONTH
BY SEX 1974-1981

ALL
SUICIDES

FEMALES

MALES

MONTH OF EVENT LEADING TO DEATH
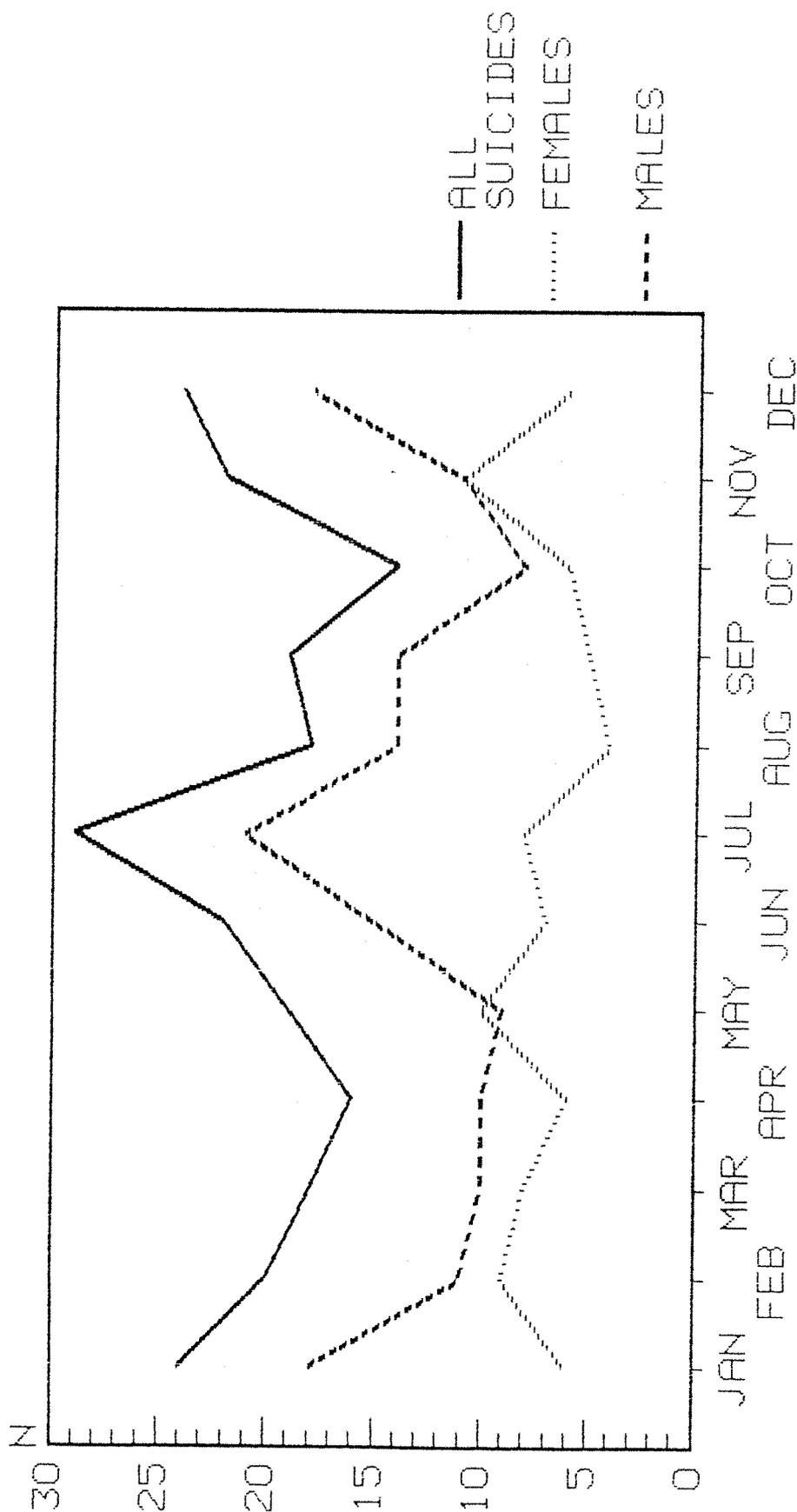
TABLE 3.5: NUMBER OF SUICIDES BY MONTH OF EVENT LEADING TO DEATH, SEX AND INQUEST VERDICT, AND NUMBER OF ALL VIOLENT DEATHS BY MONTH

MONTH	MALE SUICIDES		FEMALE SUICIDES		ALL SUICIDES		ALL VIOLENT DEATHS	
	N	%	N	%	N	%	N	%
January	18	11.3	6	7.0	24	9.8	37	9.0
February	11	6.9	9	10.5	20	8.2	31	7.5
March	10	6.3	8	9.3	18	7.3	30	7.8
April	10	6.3	6	7.0	16	6.5	27	6.6
May	9	5.7	10	11.6	19	7.8	29	7.0
June	15	9.4	7	8.1	22	9.0	33	8.0
July	21	13.2	8	9.3	29	11.8	44	10.7
August	14	8.8	4	4.7	18	7.3	33	8.0
September	14	8.8	5	5.8	19	7.8	38	9.2
October	8	5.0	6	7.0	14	5.7	27	6.6
November	11	6.9	11	12.8	22	9.0	38	9.2
December	18	11.3	6	7.0	24	9.8	44	10.7
	159		86		245		412	

Day of week of death

The daily distribution of violent deaths is shown in Table 3.6. The day of the week was not known for some deaths because the day of the **event leading to the death** (ELD) is used throughout this study, and not the day of the date when death was certified. The exact day of the ELD was impossible to establish where the body was not discovered until some time after death.

No significant excess of deaths on any day was noted in any of the self-inflicted verdict groups. More suicides occurred on weekdays than at weekends, a finding also observed in Bristol suicides (Seager and Flood, 1965). Accidental deaths were no more frequent on Saturdays and Sundays than on weekdays. In particular, there was no evidence of the 'Monday blues' syndrome suggested by Jennings and Lunn (1962) to account for an excess of suicides on Monday.

These findings in both this catchment area, and in Bristol, are in contrast with those of Elinson et al (1983) who found that the number of suicides among Toronto residents increased steadily from Thursday through Saturday before falling to a minimum on Sunday. A significant excess of deaths on Mondays was also reported by MacMahon (1983). However, in both these studies data were collected from death certificates on which the date of certification of death is recorded, and which may account for the sudden increase on Monday compared with Sunday. This does not, however, explain the excess of Monday suicides found by Jennings and Lunn (1962) who used coroners' records.

Sex differences

There was no significant difference in the daily distribution of male and female suicides.

TABLE 3.6: NUMBER OF VIOLENT DEATHS BY DAY OF WEEK OF EVENT
LEADING TO DEATH BY SEX AND VERDICT

	SUICIDE			ACCIDENT			OPEN VERDICT			S+A+OV		
	M	F	M+F	M	F	M+F	M	F	M+F	M	F	M+F
Monday	25	12	27	9	6	15	5	1	6	39	19	58
Tuesday	18	15	33	14	4	18	2	5	7	34	24	58
Wednesday	25	15	40	17	7	24	3	1	4	45	23	68
Thursday	19	11	30	7	6	13	1	0	1	27	17	44
Friday	23	12	35	9	7	16	3	2	5	35	21	56
Saturday	20	10	30	12	5	17	5	2	7	37	17	54
Sunday	19	8	27	8	7	15	4	2	6	31	17	48
NK	10	3	13	2	6	8	3	2	5	15	11	26
TOTAL	159	86	245	78	48	126	26	15	41	263	149	412

LOCATION OF EVENT LEADING TO DEATH (ELD)

Inside and outside the catchment area.

Ninety-one percent (377) of the 412 inquests were conducted by one of the two 'local' coroners; HM Coroner for Southampton or HM Coroner for Western Hampshire. Twenty 'non-local' coroners were involved in the inquests of the other 35 residents. (Table 3.7).

TABLE 3.7: CORONER'S DISTRICTS IN WHICH INQUESTS OF CATCHMENT
AREA RESIDENTS WERE HELD (SEE APPENDIX 14)

CORONER'S DISTRICT	INQUEST VERDICT		
	SUICIDE	ACCIDENT	OPEN VERDICT
LOCAL CORONER			
City of Southampton	159	99	25
Western Hampshire	68	18	8
Local Total	227	117	33
NON LOCAL CORONER			
1 Central Hampshire	5		1
2 Portsmouth	1		
3 Southern Hampshire	1		
4 North East Hampshire	1		
5 Isle of Wight	2	1	1
6 Eastern, Dorset		1	1
7 Western, Dorset	1		
8 Wiltshire	2	3	0
9 Inner North London	1		
10 Inner West London		1	
11 Western London			1
12 St. Albans, Herts	1		
13 Canterbury, Kent			1
14 Surrey	2		1
15 Avon No 2	1		
16 Truro, Cornwall			1
17 Plymouth, Devon			1
18 Carmarthenshire, Dyfed		1	
19 Pembrokeshire, Dyfed		1	
20 Ynys Mon (Anglesey)		1	
Non-Local Total	18	9	8
TOTAL	245	126	41

Place of the event leading to death and the coroner's district

No simple relationship exists between the place of the event leading to death and the coroner's district in which the inquest is held since the place of the event leading to death is not necessarily the same as the place where death occurs, or even is certified (Table 3.8).

TABLE 3.8: RELATIONSHIP BETWEEN INQUEST VERDICT, CORONER AND PLACE OF EVENT LEADING TO DEATH (ELD)

INQUEST VERDICT	PLACE ELD	CORONER					
		LOCAL N	%	NON-LOCAL N	%	TOTAL N	%
Suicide	CA	207	91	3	17	210	86
	EX-CA	20	9	15	83	35	14
		227(93%)		18(7%)		245(100%)	
Accident	CA	115	98	3	33	118	94
	EX-CA	2	2	6	67	8	6
		117(93%)		9(7%)		126(100%)	
Open Verdict	CA	32	97	0	0	32	78
	EX-CA	1	3	8	100	9	22
		33(80%)		8(20%)		41(100%)	
S+A+OV	CA	354	94	6	17	360	88
	EX-CA	23	6	29	83	52	12
	TOTAL	377 (91.5%)		35 (8.5%)		412 (100)	

CA = Fatal act committed within catchment area boundary
EX-CA = Fatal act committed elsewhere
LOCAL = Coroner for Southampton
        or Coroner for Western Hampshire (includes New Forest)
NON-LOCAL = Any other Coroner

Three suicide victims, who committed their ultimately fatal self-destructive act inside the catchment area, were transferred to hospitals outside the catchment area for specialist treatment (two for burns and one for renal failure following a drug overdose) before they died. These inquests were conducted by the coroner in whose district the hospital was situated. Three accidental burning death victims were similarly transferred out of the catchment area. Conversely, twenty three victims, 20 suicides, one undetermined death, and two accident victims, who attempted to kill themselves outside the catchment area, were transferred to hospitals in Southampton before they died.

The total number of suicides who were found dead outside the catchment area was actually 35 (14%), very similar to the expected 13% (Jacobson and Jacobson, 1972). That only 18 (7%) suicide inquests were conducted by a non-local coroner was because 17 of the deaths occurred in that part of the district of one of the local coroners, (HM Coroner for Western Hampshire), which extends beyond the CA boundary and includes the New Forest. Fourteen of these deaths were the result of exhaust gas poisoning from cars parked in the New Forest.

Although 10-15% of persons die outside the jurisdiction of their local coroner it was found that fewer than 5% actually died outside the jurisdiction of the coroners whose Districts are contiguous with that of the local Coroner.

Home or elsewhere

Most violent death victims (76% females and 52% males) instigated the event leading to their death at home. Nearly three quarters of female suicide (73%) and female accident (71%) victims, and all the female open verdict victims committed their fatal act at home, almost all inside the house. Although the same proportion (55%) of both male suicide and male accident victims died at home, over a quarter of male suicides died in their garage or garden, usually from car exhaust gas or hanging. About a quarter of males died in the New Forest, mostly from car exhaust gas poisoning. Only 5% of male accident victims who died at home did so outside the house. Three quarters of male open verdict deaths occurred away from home, and most of these were subject to inquest by a non-local coroner. More open verdicts (22.9%) were returned on the 35 potentially self-inflicted deaths that were subject to inquest by non-local coroners than on the deaths which were subject to inquest by the local coroners (8.8%), but the difference is not statistically significant.

Two men died in police stations after being taken into custody for drunkenness. Verdicts of death by misadventure were returned at both inquests.

Deaths in hospitals and deaths of hospital inpatients

Deaths of patients admitted to hospital **before** the event leading to death are classified as 'inpatient' deaths irrespective of where the fatal act was committed. Excluded from the definition are those who died in hospital after injuring themselves elsewhere.

Seventeen inpatient deaths occurred on which 13 suicide, three

accident and one open verdicts were recorded. Fourteen of these deaths (12 suicides, 1 open verdict and 1 accident) occurred in psychiatric hospitals, and three (1 suicide, 2 accidents) in general hospitals. The number of inpatient deaths, representing 4% of all violent death, and 5% of all suicides, is similar to the percentage reported in other studies (Crammer, 1984).

Seven suicides and two accidental death victims committed the fatal act on hospital premises; six in mental hospitals and three in general hospitals. Five psychiatric patients had absconded from the hospital prior to their death, and three inpatients had been given permission to leave the hospital for a purpose other than to kill themselves. All the medical ward deaths were initiated in the ward, or in an area adjoining the ward.

The characteristics of the inpatients who died are described in Chapter 7.

CAUSE OF DEATH

The external causes of CA violent deaths are shown in Table 3.9.

Catchment area residents died from roughly the same external causes of violent death as the general population of England and Wales during the same period (Table 3.10).

Approximately 80% of the 412 violent death victims in the catchment area died from one of three external causes: poisoning from solids, liquids or gases (55%), hanging or suffocation (13%) or drowning (11%). The only obvious difference between the causes of CA deaths and deaths in the population of England and Wales is the excess of poisoning victims who died from car exhaust gas in the catchment area. (Figure 3.3).

VERDICT DISTRIBUTION
Suicides (N=245:159M;86F)

Poisoning and hanging or suffocation accounted for 83% of all suicidal deaths. Two thirds of suicides died from self-poisoning (60%M; 66%F) and a fifth from hanging or suffocation (21%M; 19%F). Half of the male self-poisoners, or a third of all male suicides, killed themselves with car exhaust gas.

Accidental deaths (N=126:78M;48F)

Drugs and/or alcohol or drowning caused almost three quarters of accidental deaths (74%M; 73%F). Over half of these accident victims were poisoned (56% of each sex) and nearly a fifth drowned (18%M; 17%F).

. FIGURE 3.3

CAUSES OF VIOLENT DEATH IN CATCHMENT
AREA AND ENGLAND AND WALES 1974-1981

% DYING FROM EACH CAUSE OF DEATH

ENGLAND & WALES

CATCHMENT AREA

(SLG)   CHOKING   EXHAUST GAS   DROWNING   OTHER
                  HANGING   FALLING

EXTERNAL CAUSE OF DEATH

43
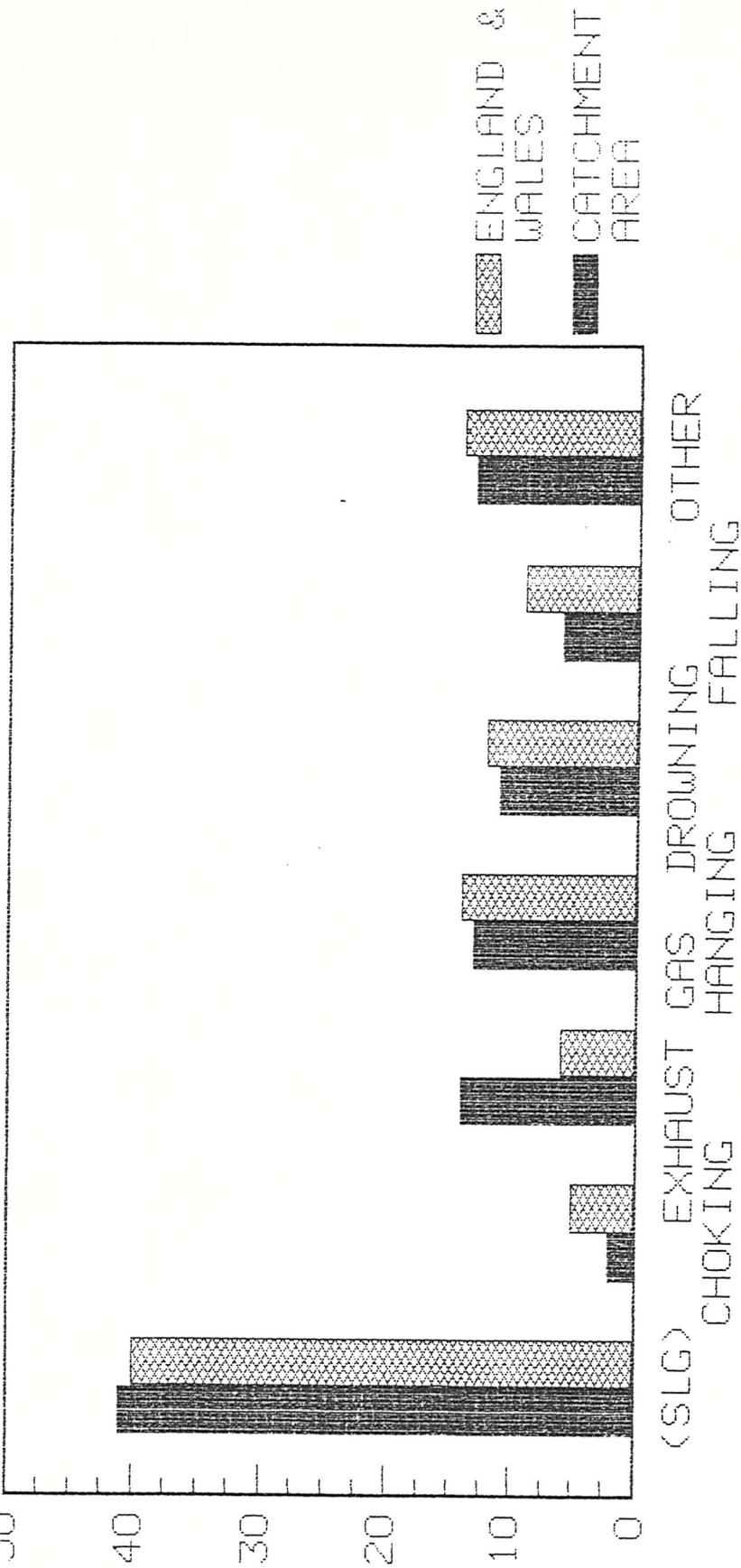
Open verdicts (N=41: 26M:15F)

The most common causes of open verdict deaths were poisonings (29%) and drownings (39%). Over half the female victims died drug-related deaths; just over a quarter drowned. These proportions were reversed for males; half were found drowned and a fifth died from poisoning in undetermined circumstances.

CHARACTERISTICS OF PARTICULAR TYPES OF SELF-INFLICTED DEATH

Poisoning

Poisoning from solids, liquids or gases killed over half of CA violent death victims; 153 (62%) suicides, 65 (52%) accidental death victims and 13 (32%) open verdict victims. Poisoning by solids, which accounted for 150 (36%) of the 412 deaths, was by far the most important single external cause of death for both the group as a whole, and for the suicides (37%) and accidental deaths (38%). All but one death from solids were caused by overdoses of either prescribed or of over-the-counter medicines. Only two suicides died as a result of domestic gas poisoning which was the commonest cause of suicide in England 25 years ago.

Poisoning comprised two major subgroups: swallowing 'solids or liquids' and inhaling car exhaust gas. The two methods are described separately.

Deaths from poisoning (solids and liquids) (E950,E850-858,E980) N=168

Solids N=150

Drugs used in fatal overdoses

The drugs taken by self-poisoners are shown in Tables 3.12(A) (Males) and 3.12(B) (females) respectively.

In each verdict group some 40% of poisoning deaths resulted from barbiturates, sedatives and hypnotics, 30% from analgesics and 25% from tranquillisers and other psychotropic drugs. However, the actual drugs used by the victims in the verdict groups differed.

Analgesics

Over three quarters (23) of the 27 suicides, but only five of the 19 non-suicide victims, who killed themselves with analgesics used aspirin or paracetamol tablets available 'over the counter'. Eight people bought the drugs specifically for the fatal overdose. The other deaths resulted from taking their own, or stealing another person's 'prescription only' drugs: Distalgesic (3S,1A,1OV), Diconal (1S,5A), Methadone (1A), DF118 (1A,1OV), Dihydro-codeine (1OV) or by purchasing illegal drugs (3A). Half the males, and a third of females, who died

from analgesic overdoses had also consumed alcohol at the time of their death.

TABLE 3.9: NUMBER OF VIOLENT DEATHS BY EXTERNAL CAUSE (ICD-9 E), INQUEST VERDICT AND SEX IN CATCHMENT AREA, 1974-1981

ICD-9 CAUSE	SEX	SUICIDE N	%	ACCIDENT N	%	OPEN VERDICT N	%	S+A+OV N	%(M+F)
911 Asphyxia caused by choking on food	M			1	1			1	
	F			2	4			2	1
911 Asphyxia caused by inhaled vomit after drugs/alcohol use	M			5	6			5	
	F			1	2			1	
950 Poisoning (solids)	M	41	26	26	33	4	15	71	
	F	49	57	22	46	8	53	79	36
951 Poisoning (liquids, gas)	M	3	2	12	15	1	3	16	
	F	3	3	4	8	0	0	7	5
952 Car Exhaust	M	52	33	1	1	0	0	53	
	F	5	6	0	0	0	0	5	14
953 Hanging/Suffocation	M	34	21	2	3	1	4	37	
	F	16	19	0	0	0	0	16	13
954 Drowning	M	4	2	14	18	12	46	30	
	F	2	2	8	17	4	27	14	11
955 Shooting	M	2	1	1	1	0	0	3	
	F	0	0	0	0	0	0	0	1
956 Cutting/Piercing	M	4	2	0	0	0	0	4	
	F	3	3	0	0	0	0	3	2
957 Jumping/Falling	M	5	3	9	12	3	11	17	
	F	6	7	3	6	1	7	10	6
958 Electrocution	M	1	1	3	4	0	0	4	
	F	0	0	3	6	0	0	3	2
958 Burning	M	2	1	3	4	1	4	6	
	F	0	0	4	8	1	7	5	3
958 Railway 'accident'	M	10	6	1	1	2	8	13	
	F	1	1	1	2	1	7	3	4
958 Road traffic 'accident'	M	1	1	0	0	2	8	3	
	F	1	1	0	0	0	0	1	1
Total	M	159	100	78	100	26	100	263	
	F	86	100	48	100	15	100	149	100

TABLE 3.10: COMPARISON BETWEEN CAUSES OF VIOLENT DEATH IN
CATCHMENT AREA AND ENGLAND AND WALES 1974-1981

EXTERNAL CAUSE	SEX	SUICIDE		ACCIDENT		OPEN VERDICT	
		CA	E&W	CA	E&W	CA	E&W
	*	%	%	%	%	%	%
Poisoning (solids, liquids or gases)	M	28	29	49	30	18	34
	F	60	61	54	38	53	58
Asphyxia caused by choking on food or inhaled vomit after drugs/alcohol use	M			7	15		
	F			6	19		
Car Exhaust	M	33	15	1		0	3
	F	6	2	0		0	1
Hanging/Suffocation	M	21	28	3	5	4	4
	F	19	16	0	1	0	1
Drowning	M	2	6	18	15	46	28
	F	2	10	17	7	27	22
Jumping/Falling	M	3	4	12	19	11	8
	F	7	4	6	22	7	4
Shooting	M						
	F						
Cutting/Piercing	M						
	F						
Electrocution Burning Railway 'accident' Road traffic 'accident'	M	12	7	9	11	20	23
	F	5	5	16	11	14	14

* Percentage of deaths in Table 3.11 below

TABLE 3.11 TOTAL NUMBERS OF VIOLENT DEATHS IN TABLE 3.10

		SUICIDE	ACCIDENT	OPEN VERDICT
England & Wales (OPCS 1974-1980)	M	16677	9252	5321
	F	11041	6546	4470
Catchment Area (OPCS 1974-1981)	M	159	78	26
	F	86	48	15

Barbiturates

Barbiturate poisoning was cited as the cause of a third of all the drug poisoning deaths but the proportion of deaths due to this drug changed dramatically over the study period (Table 3.15, page 55).

Sedatives and hypnotics

Fourteen of the 15 victims, on 10 of whom non-suicide verdicts were returned, died from overdoses of chlormethiazole (Heminevrin); six of the deaths were attributed to a fatal combination of the drug with alcohol. All six males, on whom two suicide and four accidental death verdicts were returned, had post-mortem blood alcohol concentrations (BACs) in excess of 100mg%.

Psychotropic drugs

Psychotropic drugs were involved in over 40% of female accidental poisoning deaths but in no accidental male deaths. This is because suicide verdicts were returned on 90% of males, but on only 54% of females, who died from psychotropic drugs.

Alcohol and drugs

Over 90% of deaths from suspected poisoning were subject to post-mortem blood analysis to determine drug and alcohol levels. The results indicated that males were about twice as likely to have taken alcohol in conjunction with the fatal overdose as females, a significant sex difference (OR=2.49; 95%CI 1.2-5.1;chi-sq=6.45;1df;p<0.02).

Verdict distribution

Accident or open verdicts were returned on 60 (40%) of the 150 poisonings from solids, the same proportion as found in England and Wales.

Liquids (E950,E860,E980) N=18

Poisoning by liquids resulted in 18 deaths, all from non-medical substances, including alcohol. Accidental death verdicts were returned on 11 deaths which were the direct result of excess alcohol consumption and on two deaths caused by drinking cleaning fluid. Corrosive liquids, domestic bleach (2), cyanide, and Cetavlon shampoo were the cause of four suicides, and an open verdict was returned on a man who drank Paraquat weed killer.

TABLE 3.12A: NUMBER OF MALE VICTIMS OF FATAL DRUG OVERDOSES
BY LETHAL DRUG (ICD-9) AND VERDICT

MALES	SUICIDE		ACCIDENT			OPEN VERDICT			S+A+OV	
LETHAL DRUG	N	(%)		N	(%)		N	(%)	N	(%)
Analgesics 9500	12	(29)	850	11	(42)	9800	1	(25)	24	(34)
Barbiturates 9501	15	(37)	851	7	(27)	9801	1	(25)	23	(32)
Sedatives or Hypnotics 9502	3	(7)	852	6	(23)	9802	0	(0)	9	(13)
Tranquillisers /Other psych drugs			853	0	(0)					
9503	9	(22)	854	0	(0)	9803	1	(25)	10	(14)
Other drugs 9504,07,09	2	(5)	855-8	2	(8)	9804-9	1	(25)	5	(7)
ALL DRUGS	41	(100)		26			4		71	

TABLE 3.12B: NUMBER OF FEMALE VICTIMS OF FATAL DRUG OVERDOSES BY
LETHAL DRUG (ICD-9) AND VERDICT

FEMALES	SUICIDE		ACCIDENT			OPEN VERDICT			S+A+OV	
LETHAL DRUG	N	(%)		N	(%)		N	(%)	N	%
Analgesics 9500	15	(31)	850	5	(23)	9800	2	(25)	22	(28)
Barbiturates 9501	18	(37)	851	4	(18)	9801	0	(0)	22	(28)
Sedatives or Hypnotics 9502	2	(4)	852	2	(9)	9802	2	(25)	6	(8)
Tranquillisers /Other psych drugs			853	4	(18)					
9503	13	(26)	854	5	(23)	9803	2	(25)	24	(30)
Other drugs 9504,07,09	1	(2)	855-8	2	(9)	9804-9	2	(25)	5	(6)
ALL DRUGS	49	(100)		22			8		79	

The 11 people, eight men and three women, who died from alcohol intoxication had post-mortem blood alcohol concentrations which ranged from 275 to 540 mg%, with three above the lethal threshold of 414mg% (Paterson, 1985). No alcohol was consumed by the seven individuals who drank corrosive liquids.

Inhaled vomit/food (E911) N=6

Although no element of self-infliction was suggested for the three victims over the age of 65, the six under 65 contributed to their own deaths by their abuse of alcohol (4), drugs (1) or both (1).

Inhalation of vomit during a drunken or drugged sleep accounted for six of the nine accidental deaths coded E911. Two of the six victims under the age of 65 were drug addicts and three were alcoholics. The sixth was an anaesthetist who died while using halothane as a sexual stimulant. In none of these six cases was the amount of drug or alcohol found at post-mortem sufficient to have caused death in the absence of the subsequent choking.

The medical cause of death of other drug poisoning victims was stated to be the result of inhaling vomit but in each of these cases the external cause of death was a fatal drug overdose.

The three people aged 65 or over, two females, both psycho-geriatric patients, and one male, choked on food.

Car exhaust (E952,E868,E982) N=58

Poisoning by car exhaust was the second commonest cause of death, accounting for 58 (14%) of the 412 deaths. In contrast to drug poisoning, the car exhaust deaths were, with one exception, given suicide verdicts. This method, which killed nearly a quarter (23%) of all suicides in the catchment area, and a third of male suicides, between 1974 and 1982, may account for the increased male suicide rate because evidence of intent, in contrast to drug deaths, is obvious. Most of the deaths from car exhaust fumes occurred in the New Forest.

Hanging /Suffocation (E953,E913,E983) N=53

Hanging   : Suicide (28M; 11F); Accident (1M);
Suffocation: Suicide (6M; 5F); Accident (1M); Open Verdict (1M)

Hanging or suffocation was the cause of 20% of all suicides and 12% of all violent death victims. Fifty of the 53 hanging, strangulation and suffocation deaths, where evidence of intent is easy to infer, were recorded suicides. Thirteen victims, seven of whom were aged over 60,

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died from suffocation. Eleven suicide and one open verdicts were returned on the 12 who died from re-breathing into a plastic bag. An accidental death verdict was returned on a man who suffocated with his head in a plastic bag containing a tin of glue. The only hanging on which an accident verdict was recorded was associated with auto-erotic activity by a young man.

Choice between hanging and suffocation was sex related. Eighty per cent of males died from hanging as opposed to re-breathing in a plastic bag, with no difference between those aged less than 65 and those aged 65 and over. Nine of the ten females under the age of 65 died by hanging; in contrast, two thirds of elderly females (65 and over) chose a plastic bag.

Drowning (E954,E910,E984) N=44

Despite the proximity of most parts of the catchment area to water, only 2% of suicides and 11% of all the violent death victims died from drowning.

The difficulty of deciding intent may account in part for only six suicide verdicts being returned on 44 cases of drowning. Twenty two of the deaths (58%) were recorded as accidents and 16 (30%) as open verdicts. Eight of the accident victims drowned in their bath at home. Pre-existing physical disease was cited in five reports by the pathologist as a possible contributory factor. These included three victims with epilepsy, one who suffered from obesity, and the fifth was a pregnant drug addict.

Eight of the 14 who drowned by accident in public water had been drinking alcohol. Four of the eight who drowned had a blood alcohol concentration in excess of 100mg% and the other four were not tested because of the decomposed state of the body when found. Two of the other six who died in public water and had consumed alcohol died from indisputable swimming accidents and four suffered from illnesses which made them susceptible to fainting or giddiness.

Multiple methods used by suicide victims N=34

The determination of 34 (14%) suicide victims to succeed in killing themselves is shown by their 'belt and braces' approach; if one method failed to kill them, the other, or the combination would. This philosophy is illustrated by the following report:

The body of one man was found submerged in his bath having died from a fatal overdose before the timer attached to the electric cable to

which he had wired himself switched on!

Four victims found dead in their cars, had also taken fatal quantities of drugs. In three cases the car exhaust gas killed them before the drug: in another a lady, recently arrested for shop-lifting, attempted to gas herself in her car but died from a fatal overdose before the blood concentration of carbon monoxide reached a fatal level. Two other victims who died from fatal overdoses had re-breathed into a plastic bag or cut their wrists respectively.

The combinations of methods used are summarised in Table 3.13.

TABLE 3.13: MULTIPLE METHODS USED BY SUICIDES

COMBINATION OF METHODS USED BY SUICIDES	N
A: Fatal combination of drugs and alcohol (Both stated by pathologist to be the cause of death)	9
B: Lethal overdose followed by violent method (the violent method was the stated cause of death in 6 cases, the overdose in 3)	9
C: Large quantity of alcohol before a violent method (Post-mortem BAC > 160mg%)	10
D: Two violent methods, either of which could have been fatal	2
E: Violent method + drugs + alcohol	3
F: Fatal overdose of drugs + large quantity of alcohol (Post-mortem BAC > 200mg%)	1
TOTAL	34

Changes in methods used by suicide victims

During the 1970's the proportion of suicides from different methods reported in England and Wales changed as illustrated in Figure 3.4 (OPCS, 74-81).

Because of the small numbers involved in the catchment area the study period period was divided into two four year periods: 1974-1977 and 1978-1981 (Table 3.14). A comparison between the changes in England and Wales and the catchment area is shown in Figure 3.5.

FIGURE 3.4

CHANGE IN CAUSES OF SUICIDE IN ENGLAND
AND WALES BETWEEN 1974 AND 1980 BY SEX
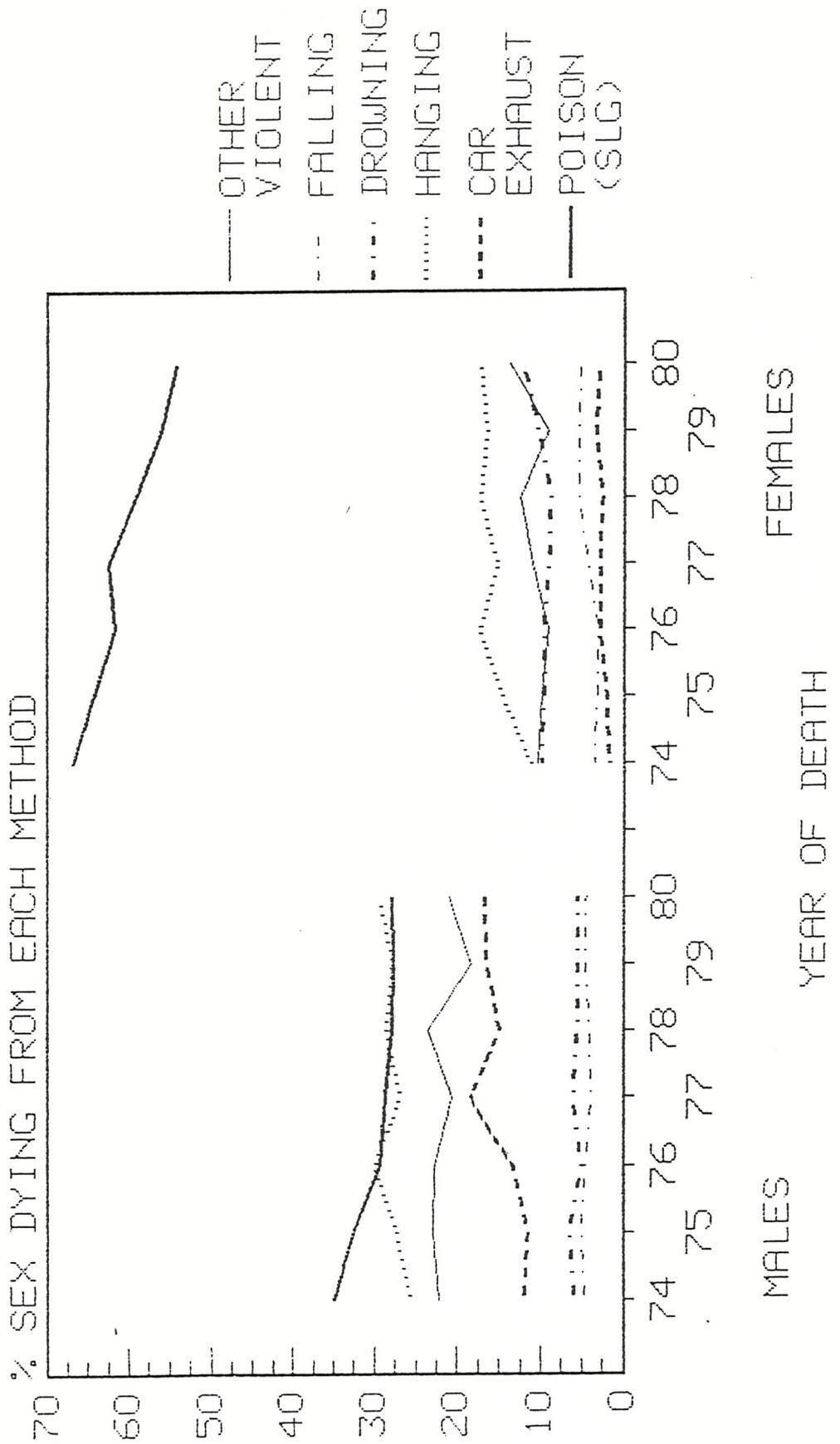
FIGURE 3.5
CHANGE IN CAUSES OF VIOLENT DEATH IN
CATCHMENT AREA AND ENGLAND AND WALES
BETWEEN PERIODS 1974-77 AND 1978-81

OTHER VIOLENT
DROWNING
HANGING
CAR EXHAUST
POISON (SLG)

% DYING FROM EACH METHOD

PERIOD

ENGLAND AND WALES   CATCHMENT AREA
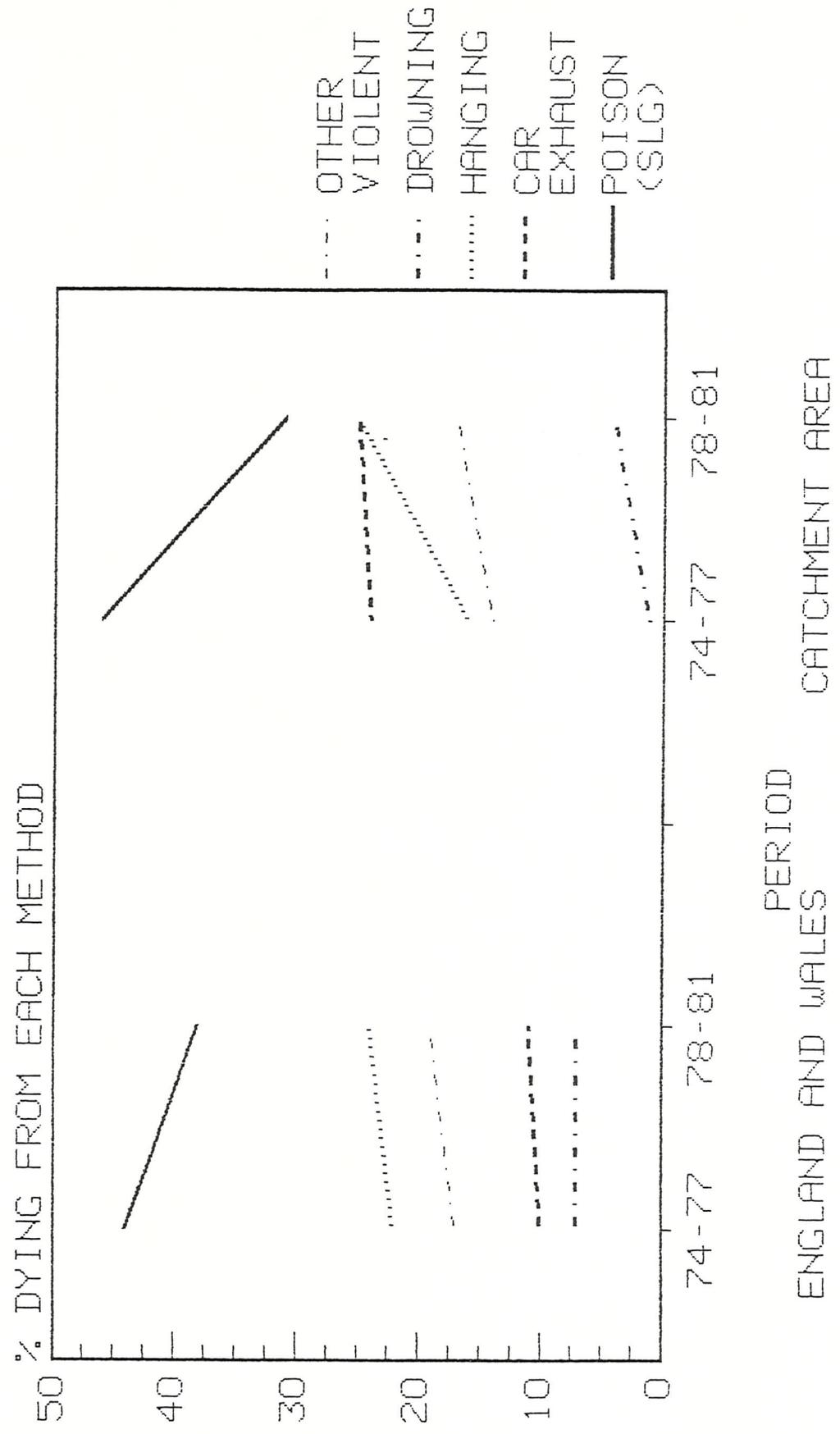
TABLE 3.14: NUMBER OF SUICIDES FROM DIFFERENT EXTERNAL CAUSES
         BETWEEN 1974-1977 AND 1978-1981

	1974 -1977		1978 - 1981		change (+/-)
Poisoning					
Solids	53	(44)	37	(30)	- 16
Liquids	3	(2)	1	(1)	- 2
Domestic gas	1	(1)	1	(1)	0
Car exhaust gas	27	(23)	30	(24)	+ 3
Hanging/suffocation	19	(16)	31	(25)	+ 12
Drowning	1	(1)	5	(4)	+ 4
Other violent methods	17	(14)	21	(17)	+ 4
TOTAL	121		126		+ 5

Although there was virtually no change in the total number of CA
suicides between the two periods with an increase of only five deaths, a
significant change in the methods used by the suicides was observed.

The number of car exhaust deaths remained essentially constant
(approx 23% of all suicides), while the number of suicides from
poisoning decreased significantly (chi-sq=6.18; df=1; p<0.02), with a
decrease in the number of poisoning deaths in both sexes. The decrease
in the number of deaths from solids, liquids and domestic gas poisoning
was greater than that found in England and Wales. The choice of
alternative violent method showed a sex difference. Numbers of male
suicides from hanging and drowning nearly doubled (chi-
sq=5.63; 1df; p<0.02) while the number of female suicides who died from
violent methods increased ten-fold between the two periods.

Changes in drugs used in fatal overdoses between 1974-1977 and 1978-1981

Table 3.15 summarises the changes in the numbers of deaths from
different drugs between the two periods 1974-77 and 1978-81. The total
number of deaths from poisoning fell by only six, (7.7%), between the
two periods 1974-1977 and 1978-1981 but the total number of deaths from
barbiturates fell by 63.6%. A similarly dramatic fall was reported in
the number of barbiturate deaths in England and Wales.

TABLE 3.15: NUMBER OF DEATHS FROM DIFFERENT TYPES OF DRUGS
         BETWEEN 1974-1977 AND 1978-1981

	SUICIDE			ACCIDENT			OPEN VERDICT		
	74-7	78-81	(+/-)	74-7	78-81	(+/-)	74-7	78-81	(+/-)
Analgesics	13	14	+1	5	11	+6	1	3	+2
Barbiturates	27	6	-21	6	5	-1	0	1	+1
Sedatives/ Hypnotics	0	5	+5	4	4	0	0	2	+2
Tranquillisers/ Other Psychotropics	12	10	-2	2	0	-2	2	1	-1
Other Drugs	1	2	+1	5	6	+1	0	2	+2
TOTAL	53	37	-16	22	26	+4	3	9	+6

Numbers of suicides in the catchment area from barbiturates fell by 77.7% but the number of non-suicides did not increase, so that the fall was a real one; not an artefact of changes in the coroner's verdict. The decrease was reflected in the numbers of both males and females who died from barbiturate overdoses which fell by 81% and 71% respectively. In contrast, total deaths from analgesics and from other sedatives and hypnotics increased by 47% (from 19 to 28) and 175% (from 4 to 11) respectively. The increase was in the number of suicides among those who died from sedative/hypnotic overdoses, and in the number of accidental death verdicts (or death by misadventure) for those who died from analgesics .

Source of lethal drugs

Patients for whom psychotropic drugs were prescribed at the time of their fatal overdose did not always use them but bought 'over the counter' drugs; less than half of the 212 violent death victims who were being prescribed psychotropic medication died from a drug overdose. Fifty seven (38%; 45%M; 35%F) of the victims of solid and liquid poisonings had obtained their lethal drugs by special efforts (Table 3.16) with no significant sex difference between verdict groups.

TABLE 3.16: UNUSUAL SOURCES OF LETHAL DRUGS

'Unusual' source of lethal drug	S (N=90)	A (N=48)	OV (N=12)
bought drug specifically for fatal overdose	4	3	1
found the drugs hidden by person with custody of them	5	1	
hoarded drugs	6	4	
obtaining prescription drugs under false pretences	6	2	1
used another person's drugs	8	5	1
stole drugs	3	2	
obtained illegal drugs		5	
	32	22	3

SECTION 3B: EVIDENCE CONSIDERED BY THE CORONER

In order to determine whether or not the deceased intended to die as a result of the fatal injury or poisoning the coroner must take into account not only evidence associated with the physical circumstances in which the death occurred, but also evidence of the deceased's intention. Such evidence can include the leaving of a suicide note, previous self-destructive acts and/or threats. Other factors which may have affected the deceased's state of mind include mental and physical illness, and alcohol.

The coroner, therefore, considers all evidence which may be relevant to the medical cause of death and to the deceased's mental capacity and intention at the time of the event leading to death.

MEDICAL EVIDENCE
Cause of death

The cause of violent death of each of the CA residents, was established prior to the inquest by post-mortem examination, together with the results of toxicological analyses in cases where these were requested. In contrast, the mode of death, on which the ICD E-code is based, was determined by the inquest at which all the following factors are taken into account.

Autopsy results

All the 411 inquest notes inspected contained autopsy reports and, unless precluded by decomposition, a statement of the cause of death. The number of CA residents in each verdict group who died from each external cause of death is shown in Table 3.9.

In addition to the autopsy report, 281 (68%) inquest files contained reports of post-mortem blood alcohol levels and 273 (66%) reported the number of drugs found and associated serum levels.

Post-mortem blood alcohol analysis

Post mortem blood alcohol analyses were requested for two thirds of the violent death victims. Evidence in the inquest notes suggested that only 77 (31%) suicides, 62 (49%) accident and 18 (44%) open verdict victims, or just over a third (38%) of the 412 violent death victims had been drinking alcohol prior to the event leading to their death. In 187 (45%) cases there was no indication that the deceased had consumed alcohol. The proportion of violent death victims in this population who had consumed alcohol at the time of death is higher in each verdict group than the 7% suicides, 36% accident victims and 24% open verdict victims in Brighton studied by Jacobson et al (1976)

On the other hand, these findings, for the suicide group alone, and for the whole violent death population are consistent with other reports on suicide populations (James, (37.4%) Perth, 1966; Ayd, (35%) Maryland USA, 1961; Edmondson et al, (31%), 1956; Kraft and Babigian, (26%) Monroe Co USA, 1976).

Half of the results showed that no alcohol had been taken before the event leading to death. Analysis of blood samples to establish alcohol and/or drug levels is not carried out routinely but only requested when the evidence is essential to the determination of the cause of death and/or the mental capacity of the deceased. These tests are expensive, and the time taken to obtain the results may delay the final inquest.

The blood alcohol level of more accidental death victims (71%) was tested compared with suicides (67%) and undetermined death victims (63%) but the difference between the proportion of victims tested in the three groups was not significant (Table 3.17).

In 19 cases (5 suicides, 9 accidents, 5 open verdicts) blood tests were not requested even though there was evidence in the inquest notes that alcohol had been consumed at the time of the fatal act.

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TABLE 3.17: SUMMARY OF POST-MORTEM BLOOD ALCOHOL ANALYSES BY VERDICT

	SUICIDE		ACCIDENT		OPEN VERDICT		S+A+OV	
TESTED	165	67.3%	90	71.4%	26	63.4%	281	68.2%
Negative	93	38.0%	37	29.4%	13	31.7%	143	34.7%
Positive	72	29.4%	53	42.1%	13	31.7%	138	33.5%
NOT TESTED*	80	32.7%	36	28.6%	15	36.6%	131	31.8%
Probably -ve	75		27		10		112	
Probably +ve	5		9		5		19	
TOTAL	245		126		41		412	

Post-mortem blood alcohol concentrations (BAC's)

Proportionately fewer suicides had been drinking prior to the event leading to death than accidental death victims, and they had also drunk less alcohol.

The actual and average post-mortem blood alcohol levels found in the bodies of the violent death victims are shown in Tables 3.18 and 3.19 respectively. Eighty mg% is the level at which ability to drive is deemed to be impaired. Twenty two accident victims, but only two suicides, had post-mortem blood alcohol concentrations in excess of 250mg%.

These levels are necessarily an underestimate of the amount of alcohol which had been consumed before the event leading to death. This is particularly true of those victims who survived for some time between the fatal event and death. Four accident victims with a post-mortem BAC in excess of 350mg% were alive when found and it can be assumed that the level was probably even higher at the time of the fatal injury. Significantly fewer accident victims (67%) were dead when found compared with 82% suicides (p<0.05).

TABLE 3.18: POST-MORTEM BLOOD ALCOHOL CONCENTRATIONS (BAC)
OF VIOLENT DEATH VICTIMS BY VERDICT AND SEX

BAC (mg%)	SUICIDE				ACCIDENT				OPEN VERDICT			
	M		F		M		F		M		F	
	N	%	N	%	N	%	N	%	N	%	N	%
None	49	31	44	51	21	27	16	33	8	31	5	33
>5-79	23	14	10	12	7	9	2	4	2	8	4	27
80-199	23	14	7	8	13	17	5	10	4	15	0	0
200+	6	4	3	4	18	23	8	17	2	8	1	7
Not Tested	58	37	22	26	19	24	17	35	10	39	5	33
TOTAL	159		86		78		48		26		15	

TABLE 3.19: AVERAGE BLOOD ALCOHOL CONCENTRATIONS (BAC) OF
VIOLENT DEATH VICTIMS BY VERDICT AND SEX

VERDICT	SEX	BAC(mg%)				N	%(TOTAL N)
		MEAN	SE	MEDIAN	RANGE		
Suicide	M	113.14	12.04	109	7-458	52	32.7 (159)
	F	92.50	17.25	77	10-245	20	23.3 (86)
Accident	M	206.53	21.81	179	10-540	38	48.7 (78)
	F	224.36	33.64	230	20-432	15	31.2 (48)
Open Verdict	M	140.0	22.66	137	53-236	8	30.8 (26)
	F	77.6	43.24	41	24-300	5	33.3 (15)
S+A+OV	M	151.54	11.58	130	7-540	98	37.3 (263)
	F	137.92	18.74	88	10-432	40	26.2 (149)

Number of drugs found in body

Drug analysis performed on the blood of about two thirds of all the victims in each verdict group showed that the number of drugs taken by the violent death victims in the three verdict groups was very similar (Table 3.20).

Drug poisoning was recorded as the cause of death for 150 violent death victims but at least one drug was found in the body of 173 (42%) of them (Table 3.20).

TABLE 3.20: NUMBER OF DRUGS FOUND IN BODY AT POST-MORTEM BY VERDICT

	SUICIDE		ACCIDENT		OPEN VERDICT		S+A+OV	
	N	%	N	%	N	%	N	%
No drugs	58	23.7	33	26.2	9	22.0	100	24.3
One drug	73	29.8	38	30.2	6	14.6	117	28.4
Two drugs	24	9.8	14	11.1	5	12.2	43	10.4
> two drugs	11	4.5	1	0.8	1	2.4	13	3.2
N tested	166	67.8	86	68.3	21	51.2	273	66.3
Not tested	79	32.2	40	35.9	20	48.8	139	33.7
TOTAL	245		126		41		412	

OTHER MEDICAL EVIDENCE

In addition to the medical evidence contained in the pathologist's report, additional information is usually requested from the deceased's family doctor and any hospital Consultants from whom treatment has been received.

The information relating to physical illness is presented in the next section of this chapter, and the history of mental illness in the victims is described in Chapter 4.

History of physical illness

1) Prior to the event leading to death

Three hundred and twenty nine (80%) of all the violent death victims, 197 (80%) suicides, 99 (79%) accident and 33 (81%) open verdict victims had a record on the Southampton General Hospital Patient Fiche. In addition 32 victims, 23 suicides, eight accident victims and one open verdict victim, had been referred to a consultant neurologist.

2) **At the time of the event leading to death**

The violent death victims were not healthy. One hundred and seventy seven (43%) of all the violent victims were suffering from some form of active physical illness at the time of their death.

The definition of physical illness adopted here is all-embracing in that the illnesses ranged from severe headaches reported to a doctor, to life-threatening and terminal illnesses such as cancer or heart-failure. The physical illness was said to be 'active', or 'present' at the time of the event leading to death if, at that time, the victim was either 'off work due to illness', or was currently receiving advice or treatment from a general practitioner, or was a current general hospital patient.

An illness, such as diabetes or epilepsy, was not included as a 'present physical illness' if it was under control at the time of the event leading to death. For example, diabetes associated with a pregnancy, or childhood epilepsy, which had had no recurrences were not regarded as 'active'. The same criteria for including an 'active' or 'present illness' were applied to victims in all three verdict groups.

Despite the subjective nature of certain assessments of whether a violent death victim was physically ill at the time of the event leading to death the 43% prevalence of somatic illness among the CA population is not dissimilar to that reported in other studies (Stenback et al, (32% psychiatric inpatient suicides), 1965; Myers and Neal, (30% general population of suicides), 1978; Stewart, (78% Welsh suicides subject to PM autopsy), 1960; Yap, (28% Hong Kong suicides), 1958; Jones, (47% suicides), 1965; Chia, (31% Singapore suicides), 1984). There was no difference between the verdict groups: 43% suicides, 44% accidental death victims and 42% undetermined death victims were physically ill at the time of their death. In each verdict group two thirds of those who were physically ill were under the age of 65, with no difference between the sexes.

Only a quarter of the violent death victims in this study with no significant difference between the verdict groups, showed no evidence of either mental or physical illness at the time of their death. (Table 3.21).

Physical and mental health at time of event leading to death

TABLE 3.21: PHYSICAL AND MENTAL HEALTH AT TIME OF EVENT LEADING TO DEATH NUMBER OF VIOLENT DEATH VICTIMS BY VERDICT

	SUICIDE		ACCIDENT		OPEN VERDICT		S+A+OV	
	N	%	N	%	N	%	N	%
Mentally ill* + Physically ill	71	(29)	29	(23)	10	(24)	110	(27)
Mentally ill* and not physically ill	88	(36)	30	(24)	10	(24)	128	(31)
Physically ill + not mentally ill	34	(14)	26	(21)	7	(17)	67	(16)
Not physically ill + not mentally ill	52	(21)	41	(32)	14	(34)	107	(26)
TOTAL	245	(100)	126	(100)	41	(100)	412	(100)

* mentally ill = either current psychiatric patient or prescribed psychotropic drugs by GP

Prevalence of particular illnesses

Table 3.22 summarises the major groups of physical illnesses being treated at the time of the event leading to death; some patients were being treated for more than one illness. The information is not exhaustive but provides minimum numbers. (Details of physical illness have not yet been fully coded and the results shown have been obtained by entering minimal data into a DBaseIII+ database.) It is not possible, at this stage, to assess the proportion of persons suffering from a specific disease who had a history of referred mental illness.

The actual numbers are very small, but the illnesses suffered by the violent death victims as a whole, and by the suicides in particular, are among those associated with high suicide rates in other studies.

TABLE 3.22: PHYSICAL ILLNESSES MENTIONED AT TIME OF EVENT LEADING TO DEATH

DISEASE	S	ACC	OPEN	S+A+OV	% (N=412)
Addison's Disease	1			1	
Cancer	16	2	1	19	**4.6**
Active: (Breast, spine, skin, rectum, prostate(2), leukaemia)	6	1		7	
Treated: (Cervix(2))	1	1		2	
Suspected: results tests NK) (Brain(2), Bowel, stomach,prostate)	4	1		5	
Fear: tests -ve (tongue, penis, stomach(2), throat)	5			5	
Diabetes Mellitus	5	4	1	10	**2.4**
Skin problems	6		1	7	**1.7**
Eczema	5			5	
Exfoliative dermatitis	1			1	
Psoriasis			1	1	
Epilepsy:	7	10	2	19	**4.6**
TLE		2	1	3	
Post leucotomy	1	1		2	
Post traumatic HI	1	1		2	
Post meningitis	2			2	
Post VD	1			1	
Unspecified/idiopathic	2	6	1	9	
Severe/persistent headaches	16	4	3	23	**5.6**
Pain :(excluding headaches)	29	11	1	41	**10.0**
Abdominal	6	2		8	
Back	1	2		3	
Chest	4			4	
Atypical facial pain	2			2	
Limbs/joints/muscles	8	1		9	
Eye		1	1	2	
Cancer pain	4			4	
Paget's Disease		1		1	
Just 'pain'	4	4		8	
Breathing difficulties:	30	15		45	**10.9**
Emphysema	12	4		16	
Asthma	5	1		6	
Chronic bronchitis	3	3		6	
Acute bronchitis	7	7		14	
Chronic obstructive airways disease	2			2	
Tuberculosis	1			1	
Prostate problems (includes 3 Cancer)	5	3	1	9	**2.2**
Cardio-vascular problems	29	19	1	49	**12.0**
Hypertension	7	2		9	
Angina	10	2		12	2.9
Severe atheroma	6	12		18	
Stroke	1	2		3	
Leg amputation (2 actual, 1 pending)	3			3	
Heart pacemaker	2	1	1	4	
Motor Neurone Disease	1			1	
Multiple sclerosis	1			1	
Parkinson's Disease	4			4	
Choreo-Athetosis	1			1	
Tinnitis	3	1		4	
Acoustic neuroma	1			1	
Ulcers (gastric,peptic,stomach(2),duodenum,leg,ankle)	5	1	1	7	1.7
Diverticulitis	2		1	3	
Coeliac Disease	2			2	
Cirrhosis of liver	2	3	2	7	1.7
Chronic Pancreatitis	1	1		2	
Renal dialysis	1			1	
Sequelae to VD (Neurosyphilis,Tabes Dorsalis,Polyarthropathy)	3			3	

NB: Patients could have been suffering from more than one illness

Cancer

The number of deaths, 14 or 3%, associated with neoplasms (current, treated, or suspected but not positively diagnosed), is similar to the 3% found in a matched sample of suicides and controls in Chichester (Barraclough (private communication) and is further evidence that cancer is not a common precipitant of suicide in England and Wales. The proportion is lower than the 11% prevalence of neoplasms reported by Rorsman et al (1982) in 28 Swedish suicides.

Hypochondria

The number of deaths (6) of hypochondriacs, defined as 'persons having an unfounded fear of having a disease' (Stenback et al, 1965), was also low. Five patients were terrified they had cancer and one had a dread of venereal disease. In each case the fear was well documented in the medical case notes or by a GP's report in the inquest file.

Epilepsy

Assuming a prevalence of epileptics in the CA population of 0.4%, the expected number of suicides would be one at the most. The observed number of violent death victims with epilepsy was 19. Even if only the seven suicides are considered, epileptics are over-represented, and, in addition, non-suicide verdicts were returned on another 12 epileptic victims. This replicates the finding of Holding and Barraclough (1978) that only five of the 13 epileptic violent death victims in their comparative study of 330 violent death victims were given suicide verdicts. Myers and Neal (1978) reported six (2.3%) of 256 suicides suffered from epilepsy, very similar to the 2.9% found in this study.

Headaches

Traumatic brain injury has been associated in the past with an increased suicide rate (Heiskanen and Sipponen, 1970; Society of Actuaries, 1954). In the present study ten of the 16 victims with persistent or severe headaches had a history of previous head injuries. Three of these had developed post-traumatic epilepsy (1 TLE).

Other neurological illnesses have been associated with raised suicide rates. In the present study one suicide was suffering from Multiple Sclerosis; four suicides from Parkinson's disease ; two from Motor Neurone Disease; four had a history of brain surgery; three had undergone leucotomies (2 pre-frontal lobe) and one a stereotactic operation. Epilepsy was a sequel to three of these four operations.

Gastric ulcers

High suicide rates associated with peptic or gastric ulcers have been reported by Krause, 1963; Hirohata, 1968; Ihre et al, 1964; Viskum, 1975 and Lindskov, 1975.

Here, five of the violent death victims had diagnosed ulcers in their digestive tract (gastric, peptic, duodenum, stomach (2)), and three others were suffering from diverticulitis. Other digestive tract problems included chronic pancreatitis (2) and cirrhosis of the liver (7).

Haemodialysis

Haemodialysis has been associated with an excess suicide rate in half of the studies reviewed by Barraclough (unpublished). One of the reasons for the inconclusive findings was cited as differences in the selection of patients for dialysis. Barraclough understood that suicide could be concealed in dialysis deaths so that reported rates may be an underestimate.

The one CA resident in this category who committed suicide killed herself by re-breathing into a plastic bag she placed over her head while undergoing dialysis at home.

Surgery

Limb amputations of the Finnish wars of the 1940's were associated with a high suicide rate (Bakalim, 1969).

In the present study, two suicides had a leg amputated because of vascular problems. Another was on the waiting list for an amputation and one of the first two amputees feared a second operation would be necessary. Yet another man, with skin cancer of the hand, had been told that amputation was almost inevitable.

Other recent surgery mentioned included hysterectomy, transurethral and bowel resections.

Medical treatment at time of the event leading to death

Of the 177 (43%) violent death victims who were reported as suffering from a physical illness at the time of their death, 51 (38 suicides, 9 accidental death and 4 undetermined death victims) were current general hospital patients.

Table 3.23 shows that, in the 4 week period before their death, between a half and a third of the verdict groups had been in contact with at least one of the following members of the medical profession: GP, hospital physician or surgeon, or psychiatrist.

TABLE 3.23: INTERVAL BETWEEN LAST MEDICAL CONTACT AND EVENT LEADING TO DEATH

	SUICIDE	ACCIDENT	OPEN VERDICT	S+A+OV
	N (%) C(%)*	N (%) C(%)*	N (%) C(%)*	N (%) C(%)*
Same day	24 (10) (10)	4 (3) (3)	1 (2) (2)	29 (7) (7)
1-7 days	50 (20) (30)	22 (17) (20)	5 (12) (14)	77 (19) (26)
8-28 days	47 (19) (49)	17 (13) (33)	8 (20) (34)	72 (17) (43)
28-91 days	19 (8) (57)	7 (6) (39)	2 (5) (39)	28 (7) (50)
92-366 days	21 (9) (66)	7 (6) (45)	3 (7) (46)	31 (8) (58)
> 1 year	15 (6) (72)	5 (4) (49)	4 (10) (56)	24 (6) (63)
or NK	69 (28)(100)	64 (51)(100)	18 (44)(100)	151 (37)(100)
TOTAL	245 (100)	126 (100)	41 (100)	412 (100)

* C(%) = Cumulative percentage

GP treatment

Evidence in the inquest files suggested that over 70% of the violent death victims were being treated by a doctor at the time of the event leading to their death.

Interval between last GP contact and the event leading to death

Evidence of GP treatment at the time of the event leading to death was recorded in the inquest notes of a third of the victims and between a third and a quarter of the victims in each verdict group had seen their doctor in the month before their death (Table 3.24).

These findings are consistent with other studies which have reported on the high proportion of suicides in contact with the medical profession in the period before their death (Capstick, 1960; Parnell and Skottowe, 1957; Motto and Greene, 1958; Barraclough et al, 1974; Robins et al, 1959b).

TABLE 3.24 : INTERVAL BETWEEN LAST GP CONTACT AND EVENT LEADING TO DEATH

	SUICIDE		ACCIDENT		OPEN VERDICT		S+A+OV	
	N (%)	C(%)*	N (%)	C(%)*	N (%)	C(%)*	N (%)	C(%)*
Same day	7 (3)	(3)	1 (1)	(1)	1 (2)	(2)	9 (2)	(2)
1-7 days	40 (16)	(19)	19 (15)	(16)	3 (7)	(9)	62 (15)	(17)
8-28 days	29 (12)	(31)	11 (9)	(35)	3 (7)	(16)	43 (10)	(27)
29-91 days	11 (4)	(35)	1 (1)	(36)			12 (3)	(30)
92-365 days	8 (3)	(38)	4 (3)	(39)			12 (3)	(33)
Not known	92 (38)		46 (37)		15 (37)		153 (37)	
TOTAL IN GP CARE	187 (76)		82 (65)		22 (54)		291 (71)	
TOTAL	245 (100)		126 (100)		41 (100)		412 (100)	

* C(%) = Cumulative percentage

Some of those in GP care had not been seen in the month before their death because repeat prescriptions were supplied without the necessity for the patient to see the doctor. One GP admitted he had never seen the patient but had merely issued repeat prescriptions for the drugs that had been prescribed by the GP from whom the patient had transferred. In some cases the patient was under hospital outpatient care, and in a third of cases the actual date of the last visit to the GP was not stated. Jacobson and Jacobson (1972) reported 22% of their suicides had not attended a doctor for any complaint over a long period of time.

Medication at time of the event leading to death

More than 60% had been given prescriptions for oral medication (Table 3.25). Nearly a third of victims in both the suicide and non-suicide groups were being treated with non-psychotropic drugs. A fifth were receiving treatment for both mental and physical illness, and only 38% were not undergoing drug therapy at the time of their death.

Significantly more suicides than non-suicides were being treated with psychotropic medication (Diff = 15%; SEdiff = 5%; P<0.01).

TABLE 3.25: DRUG TREATMENT AT TIME OF EVENT LEADING TO DEATH:
NUMBER OF VIOLENT DEATH VICTIMS BY INQUEST VERDICT

TYPE OF TREATMENT	SUICIDE		ACCIDENT		OPEN VERDICT		S+A+OV	
	N	%	N	%	N	%	N	%
Psychotropic Drugs only	89	(36.3)	28	(22.2)	13	(31.7)	130	(31.6)
Non-psychotropic Drugs only	22	(9.0)	17	(13.5)	4	(9.8)	43	(10.4)
Both prescribed	52	(21.2)	25	(19.8)	5	(12.2)	82	(19.9)
No drugs Prescribed	24	(9.8)	12	(9.5)	0	(0.0)	36	(8.7)
Total in GP care	187	(76.3)	82	(65.1)	22	(53.7)	291	(70.6)
Not in GP care (No drugs prescribed)	58	(23.7)	44	(34.9)	19	(46.3)	121	(29.4)
TOTAL	245	(100)	126	(100)	41	(100)	412	(100)

Differences by sex and agegroup are shown in Tables 3.26 and 3.27.

TABLE 3.26: DRUG TREATMENT AT TIME OF EVENT LEADING TO DEATH:
PERCENT OF VIOLENT DEATH VICTIMS BY SEX AND INQUEST VERDICT

	MALES				FEMALES			
TYPE OF DRUG	S	ACC	OPEN	S+A+OV	S	ACC	OPEN	S+A+OV
TOTAL N	159	78	26	263	86	48	15	149
	%	%	%	%	%	%	%	%
Psychotropic Drugs only	32	17	19	26	44	31	53	41
Non-Psychotropic Drugs only	8	13	15	10	10	15	0	11
Both prescribed	18	18	8	17	28	23	20	26
None prescribed	42	53	58	47	17	31	27	23

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TABLE 3.27: DRUG TREATMENT AT TIME OF EVENT LEADING TO DEATH:
NUMBER OF VIOLENT DEATH VICTIMS BY AGEGROUP, SEX AND
VERDICT

AGEGROUP: 15-64	MALES				FEMALES			
TYPE OF DRUG	S	ACC	OPEN	S+A+OV	S	ACC	OPEN	S+A+OV
TOTAL N	131	65	22	218	59	38	10	107
	%	%	%	%	%	%	%	%
Psychotropic drugs only	31	20	23	27	42	47	70	43
Non-Psychotropic Drugs only	9	9	9	9	10	34	0	9
Both prescribed	14	15	4	13	27	27	0	22
None prescribed	44	56	64	50	20	40	30	25
AGEGROUP: 65+								
Psychotropic drugs only	36	0	0	22	48	10	20	36
Non-Psychotropic Drugs only	3	31	50	16	11	30	0	14
Both prescribed	36	31	25	33	30	30	60	33
None prescribed	25	38	25	29	11	30	20	17

Sex differences

In each verdict group the proportion of females being treated with psychotropic medication was higher than that for the corresponding males but the difference was not significant between the suicide groups. Significantly fewer male suicides than female suicides were being treated with drugs of any sort, and this was also true for the accident and total (S+A+OV) group.

Age differences

Significant differences between the sexes were only found in the under 65 agegroup.

Handicap

Over a quarter (29%) of the violent death victims were assessed as being handicapped at the time of the event leading to death. The majority were handicapped by physical disease or disability, others by mental illness such as schizophrenia, dementia and agoraphobia, and a few by social factors such as illiteracy, sometimes in conjunction with a physical disease such as epilepsy, schizophrenia, alcoholism or spasticity.

There was little difference between the 101 victims who were handicapped by either physical or mental illness in respect of verdict groups; (62 (26%) suicides, 26 (20%) accidents and 13 (33%) open verdicts. The only significant age/sex differences were found among male suicides where 46% of elderly males (age 65+) were reported to suffer from a handicap compared with 21% of younger males (chi-sq=6.85, p<0.01; 1df), and among female accident victims where 60% of elderly females were handicapped compared with 19% of younger females (chi-sq=4.75; p<0.03); 1df).

Jacobson et al (1976) reported that lower proportion of accidental death victims than suicide victims in their comparative study had had a recent medical or psychiatric contact, but more of their accident victims were elderly and suffering from chronic pain or handicap. In this study, the only difference between the suicide and accident victims was in the number with a recent medical contact.

OTHER INFORMATION

In addition to the medical evidence, the information collected by the Coroner's Officer in the course of his enquiries is also presented at the inquest. This includes whether the victim was dead when found; whether a note was left; whether any threat of suicide, or previous suicide attempt had been made.

Dead when found

Over 80% of suicide victims were dead when found compared with 68% of non-suicide victims, a significant difference (Diff=14%; SEdiff=4.4; p<0.01).

Suicide note

Suicide notes were mentioned in the inquest files of 115, or 28% of all the violent death victims with 95% being written by those on whom suicide verdicts were returned. Two accidental and three open verdict victims also left notes.

The finding of a note indicating the deceased's intention of taking his/her own life does not provide conclusive evidence of that intent unless the note can be proved to have been written at the time of, or only shortly **before** the fatal act. One note, written **after** the taking of an ultimately fatal overdose and mentioning that the author was dying, was that of an accidental death victim. Almost half of all the suicide victims (47%M, 43%F) left notes, a higher proportion than found in some studies (Seager and Flood, 1965). Even this figure is probably an underestimate; one relative admitted destroying a note prior to reporting the death. Sundqvist-Stensman (1987) reported 56% of a sample of 523 suicides left notes, while Seager and Flood (1965) found a third had written notes. In a comparative study Jacobson et al (1976) found 37% suicides victims left notes, as did 20% of open verdict victims. The leaving of a note was one factor which differentiated accident victims from suicide and open verdict victims.

Threat of suicide or deliberate self-harm

Actual acts of deliberate self-harm in the month before the event leading to death are included in this category, as are verbal threats, and also acts preparatory to death such as suddenly organising personal affairs or unexpectedly telling a friend or relative what they should do in the event of the person's death. Such acts, 'threats' or warnings were mentioned in the inquest notes of a quarter of the violent death victims (88 (36%) suicides, 7 (6%) accidents and 8 (20%) open verdicts).

These findings are consistent with other studies, (Barraclough et al, 36% suicides, 1974; Chapman, 44% suicides, 1965; Robins et al, 51% suicides, 1959a; Jacobson et al, 55% suicides, 9% accidents, 16% open verdicts, 1976; Beisser and Blanchette, 50% suicides, 1961; Medlicott and Medlicott, 54% expatients, 1969). Higher figures have been reported by Achte et al (60% suicides, 1966), Pokorny (75% suicides, 1960), and Medlicott and Medlicott (66% inpatient suicides, 1969).

Just over a third of both male (35%) and female (37%) suicides had threatened to kill themselves in the month before their death. This finding is in contrast to that of Robins et al (1959a) who found that women were more prone to communicate suicidal intent than males.

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Previous history of deliberate self-harm (DSH)

At least one act of DSH, as defined by Morgan et al (1975) had been committed by 40% of all the violent death victims before their fatal act of self-harm (Table 3.28). All references to acts of self-injury, irrespective of motive or severity, were recorded.

A total of 168 (41%) violent death victims were reported to have committed at least one act of DSH. Although a significantly higher proportion of suicides (46%) had a history of DSH than those on whom non-suicide verdicts (33%) were returned (diff=13%; SEdiff=4.8; p<0.5) the proportion of non-suicide victims with a history of prior self-destructive behaviour is within the range reported in other studies (Flood and Seager, 34%, 1968; Sundquist-Stensman, 26%, 1987a); Jacobson et al, 24% suicides, 6% accidents, 20% open verdicts, 1976; Myers and Neal, 45%, 1978; Beisser and Blanchette, 50%, 1961; Achte et al, 56%, 1966; Rorsman, 56%, 1973; Medlicott and Medlicott, 42% inpatient suicides, 54% expatients, 1969; Wilson, 36% suicides, 1968; Barraclough et al, 30%, 1974; Patel, 31% suicides, 1973).

TABLE 3.28: NUMBER OF VIOLENT DEATH VICTIMS WITH AND WITHOUT A HISTORY OF DELIBERATE SELF-HARM (DSH) BY VERDICT AND SEX

	SUICIDE			ACCIDENT			OPEN VERDICT			S+OV+A		
	M	F	M+F	M	F	M+F	M	F	M+F	M	F	M+F
History of DSH	66	48	114	19	21	40	5	9	14	90	78	168
No history	93	38	131	59	27	86	21	6	27	173	71	244
TOTAL	159	86	245	78	48	126	26	15	41	263	149	412
(%)with DSH	(42)	(56)	(46)	(24)	(44)	(32)	(19)	(60)	(34)	(34)	(52)	(41)

Proximity of last act of DSH to event leading to death (ELD)

Intervals between the date of the last act of DSH and the date of the event leading to death are shown in Table 3.29.

The temporal distribution between the last act of DSH and the event leading to death is very similar for each of the verdict groups.

About half of the violent death victims with a history of deliberate self-harm died within a year of their last unsuccessful attempt, about a third successfully killed themselves within three months of their last unsuccessful act of deliberate self-harm, and about twenty per cent died within one month. The intervals for both sexes are similar.

TABLE 3.29: INTERVAL BETWEEN LAST ACT OF DELIBERATE SELF-HARM AND EVENT LEADING TO DEATH

	SUICIDE			ACCIDENT			OPEN VERDICT			S+A+OV			
	M	F	M+F	M	F	M+F	M	F	M+F	M	F	M+F	CUM %
Day of ELD	1	1	2	0	1	1	0	0	0	1	2	3	(2)
1-7 days	7	3	10	1	0	1	1	1	2	9	4	13	(9)
8-14 days	1	1	2	1	2	3	0	0	0	2	3	5	(12)
15-21 days	2	5	7	0	0	0	0	1	1	2	6	8	(17)
22-28 days	2	1	3	2	0	2	0	1	1	4	2	6	(21)
29-91 days	8	5	13	3	6	9	0	2	2	11	13	24	(35)
92-183 days	8	4	12	2	1	3	1	1	2	11	6	17	(45)
184-365 days	4	4	8	0	4	4	1	1	2	5	9	14	(53)
> 1 year	32	23	55	10	7	17	1	2	3	43	32	75	(98)
Not known	1	1	2				1		1	2	1	3	(100)
TOTAL	66	48	114	19	21	40	5	9	14	90	78	168	

Sex difference

A higher proportion of females than males had a history of DSH in each verdict group with the difference reaching statistical significance in each group (p<0.05).

Fewer males than females in each verdict group had a history of deliberate self-harm prior to their death suggesting that males were more successful at killing themselves at the first attempt. This is consistent with the fact that fewer males than females commit acts of DSH. Of those male suicides who had made an unsuccessful attempt to kill themselves, three quarters succeeded at the second attempt (Table 3.30).

TABLE 3.30: NUMBER OF ACTS OF DELIBERATE SELF-HARM COMMITTED BY SUICIDES BY SEX

	MALE	% (TOTAL)	% (+DSH)	FEMALE	% (TOTAL)	% (+DSH)	M + F	% (TOTAL)	% (+DSH)
No mention	93	58.5		38	44.2		131	53.5	
At least 1 Act of DSH	66	41.5		48	55.8		114	46.5	
1 act only	49		74.2	21		43.8	70		61.4
At least 2 Acts DSH	17		25.8	27		56.2	44		38.6
TOTAL	159		66	86		48	245		114

There was no significant difference in the proportion of females in the suicide and non-suicide groups with a history of DSH (56% suicides, 48% non-suicides) but nearly twice as many male suicides (42%) had a history of DSH compared with their non-suicide (23%) counterparts (chi-sq=8.69; p=0.003; 1df).

Verdict differences

Significantly more suicide victims than non-suicide victims had a history of DSH (chi-sq=7.71, 1df, p=0.006); almost half the suicide victims had a history of at least one act of DSH prior to the fatal self-inflicted injury compared with a third of undetermined and accidental death victims.

Number of admissions after DSH

Admission to a general hospital is taken as a measure of a serious act of deliberate harm requiring more medical treatment than can be given in the Accident and Emergency department.

The number of admissions to general hospitals following an act of DSH is shown in Table 3.31.

TABLE 3.31: NUMBER OF ADMISSIONS TO GENERAL HOSPITALS AFTER
DELIBERATE SELF-HARM (DSH) BY VERDICT AND SEX

N OF ADMISSIONS	SUICIDE			ACCIDENT			OPEN VERDICT		
	M	F	M+F	M	F	M+F	M	F	M+F
0	16	4	20	2	5	7	0	1	1
1	36	19	55	8	4	12	3	4	7
2	9	15	24	3	4	7	1	2	3
3	3	3	6	2	3	5	1	1	2
4	2	2	4	0	1	1	0	1	1
5	0	0	0	1	0	0			
6	0	3	3	0	2	2			
7	0	2	2	0	0	0			
8				0	0	0			
9				3	2	5			
TOTAL	66	48	114	19	21	40	5	9	14

Twenty eight violent death victims (17.5% suicides and 14.8% non-suicide victims) had never been admitted after an act (or acts) of DSH.

Suicide and open verdict victims had propotionately fewer admissions to general hospitals after DSH than the accidental death victims (Table 3.31). Of those who had been admitted, significantly more male suicides (72%) than female suicides (43%) were only admitted once (Diff=29%; SEdif=3.3; 1df; p<0.01). Over half of both male and female accident victims had more than two admissions with seven (17.5%) of accident victims having been admitted between five and nine times.

Comparison between ultimate fatal act and penultimate act of DSH

Methods used in the last act of DSH and the fatal method, shown in Table 3.32, were different for male and female suicides. Over two thirds of both male and female suicides with a history of DSH had taken a drug overdose in a previous act of DSH but only 35% of the men died from a lethal overdose compared with 54% of the women.

TABLE 3.32: CHANGES IN METHODS USED BY SUICIDES BETWEEN LAST ACT OF DELIBERATE SELF HARM AND EVENT LEADING TO DEATH

METHOD	MALES			FEMALES		
	FATAL ACT	LAST ACT DSH	PENULT ACT DSH	FATAL ACT	LAST ACT DSH	PENULT ACT DSH
Poison (S)	17 (15)*	43	14	23 (19)*	35	21
(L)	1 (1)*			2 (2)*	1	
(G)	1 (1)*			1		
CO	21 (11)*	4		2 (2)*	1	1
Drowning	3 (0)*	3	1	2	1	1
Hanging	8 (7)*	2		7 (4)*		
/Suffocation	3 (1)*	1		2		
Cutting	1	8	1	0 (1)*	6	3
Other	11 (7)*	5		9 (7)*	4	
	66 (43)*	66	16	48 (35)*	48	26

* External cause of death of those last act of DSH was a drug overdose

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The majority (65%) of male suicides, but less than half (46%) of females who survived their first overdose resorted to a more violent and lethal method the second time. One man had commented to his neighbour that resuscitation procedures were too painful to risk another unsuccessful overdose. He hanged himself shortly afterwards.

Accident and open verdict victims tended to repeat overdoses.

This tendency of 'failed' male suicides to resort to more violent methods after an unsuccessful overdose has been noted by Patel (1973) and Myers and Neal (1978).

CHAPTER 4: HISTORY OF REFERRED MENTAL ILLNESS

The results in this section are based on information contained in the inquest notes, including letters from General Practitioners, and extracted from psychiatric and medical case notes held both in Southampton and in other hospitals in England, Scotland and Wales.

HISTORY OF REFERRED MENTAL ILLNESS (RMI)
Number of violent death victims with a history of RMI

The fact of referral to, or actual treatment by a psychiatrist was mentioned in the inquest notes of 231 (56%) of the 412 violent death victims, of whom 153, or over a third, had experienced at least one spell of inpatient treatment (Table 4.1).

TABLE 4.1: LIFETIME HISTORY OF PSYCHIATRIC CARE OF CATCHMENT AREA
RESIDENTS BY VERDICT

	SUICIDE		ACCIDENT		OPEN VERDICT		S+A+OV	
LIFETIME CARE	N	%	N	%	N	%	N	%
Never referred to psychiatrist	99	40	63	50	19	46	181	44
At least one spell of inpatient care	93	38	47	37	13	32	153	37
Outpatient care only	50	20	16	13	9	22	75	18
Referred but never seen by psychiatrist	3	1					3	1
Total referred	146	59	63	50	22	54	231	56
TOTAL	245	100	126	100	41	100	412	100

Local and non-local treatment

Just over 90% (210) of the 231 violent death victims with a history of psychiatric referral were known to the local psychiatric service, three had been referred but died before their first appointment and 18 had only received psychiatric care from other services (Table 4.2). There was no significant difference between the verdict groups in the proportion of violent death victims who had a history of either local or non-local treatment. Kraft and Babigian (1976) in a study based on the

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Monroe County, NY Case Register reported that only 5% of the residents who committed suicide and had a history of psychiatric treatment were not known to their Case Register, a similar proportion to the 6% found in this population of violent death victims.

TABLE 4.2: NUMBER OF VIOLENT DEATH VICTIMS WITH LOCAL AND NON-LOCAL PSYCHIATRIC RECORDS

VERDICT	MALES N	MALES (%)	FEMALES N	FEMALES (%)	BOTH SEXES N	BOTH SEXES (%)
SUICIDE						
Local Treatment	77	(88.5)	57	(96.6)	134	(91.8)
Non-local Record only	7	(8.0)	2	(3.4)	9	(6.2)
Referred to local service	3	(3.4)			3	(2.0)
TOTAL	87	(100)	59	(100)	146	(100)
ACCIDENT						
Local Record	31	(86.1)	26	(96.3)	57	(90.5)
Non-local Record only	5	(13.9)	1	(3.7)	6	(9.5)
TOTAL	36	(100)	27	(100)	63	(100)
OPEN VERDICT						
Local Record	9	(90.0)	10	(83.3)	19	(18.4)
Non-local Record only	1	(10.0)	2	(16.7)	3	(13.6)
TOTAL	10	(100)	12	(100)	22	(100)
ALL VIOLENT DEATH VICTIMS						
Local Record	117	(88.0)	93	(94.9)	210	(90.9)
Non-local Record only	13	(9.8)	5	(5.1)	18	(7.8)
Referred to local service	3	(2.2)			3	(1.3)
TOTAL	133	(100)	98	(100)	231	(100)

The proportion of undetermined death victims who had a history of referred mental illness was very similar for those whose cause of death was known, but whose mode of death was undetermined, and those for whom both the cause and mode of death was unknown (Table 4.3).

TABLE 4.3: NUMBER AND PERCENTAGE OF VICTIMS WITH HISTORY OF REFERRED MENTAL ILLNESS IN VIOLENT DEATH VICTIMS ON WHOM UNDETERMINED DEATH AND OPEN VERDICTS WERE RETURNED

VERDICT MODE CAUSE	N	UNDETERMINED UNKNOWN (N=31) History of referred mental illness	KNOWN Never Referred	OPEN VERDICT UNKNOWN (N=10) History of referred mental illness	UNKNOWN Never Referred
CATEGORY (based on Table 3.2)					
1 Fatal Injury					
i – trauma	1	. . .	1*	. . .	. . .
ii – fire	2	1	. . .	. . .	1
iii – found in water	14	7	5	1	1
iv – fall from height	3	2	. . .	. . .	1
v – suffocation	1	. . .	1	. . .	. . .
vi – railway accident	3	2 (*2)	1	. . .	. . .
vii – road traffic accident	2	1	1*	. . .	. . .
Sub-total	26	13	9	1	3
2 Drug Related					
'lethal' drug level found	9	5	4	. . .	. . .
'lethal' drug level not found	4	. . .	. . .	4	. . .
Sub-total	13	5	4	4	0
3 Decomposed Body (found in water)	2	. . .	. . .	. . .	2
TOTAL	41	18	13	5	5
Percentage of group with history of referred mental illness	56%	58%	42%	50%	50%
N	(41)	(31)		(10)	

* Deceased had consumed > 80 mg alcohol before death.

Patient status at time of event leading to death

Over a third of violent death victims in each verdict group with a history of referred mental illness were current patients at the time of the ELD (Table 4.4).

TABLE 4.4: PSYCHIATRIC PATIENT STATUS OF VIOLENT DEATH VICTIMS
AT TIME OF EVENT LEADING TO DEATH BY VERDICT

	SUICIDE		ACCIDENT		OPEN VERDICT		S+A+OV	
	N	%	N	%	N	%	N	%
IN CARE								
Current IP	12	8	1	2	1	5	14	6
Current OP (Discharged IP)	32	22	17	27	6	27	55	23
(Never IP)	5	3	4	6	4	18	13	6
TOTAL IN CARE	49	33	22	35	11	50	82	35
NOT IN CARE								
Not current patient								
(Prev IP care)	49	33	29	46	6	27	84	36
(Prev OP care only	45	33	12	19	5	23	62	28
Awaiting care	3						3	
TOTAL NOT IN CARE	97	66	41	65	11	50	149	64
TOTAL WITH HISTORY OF REFERRED MENTAL ILLNESS	146	100	63	100	22	100	231	100

As shown in the previous sections, both the lifetime and recent psychiatric histories of violent death victims with a history of referred mental illness in the three verdict groups showed striking similarities. These are summarised in Table 4.5.

The verdict groups differed only in respect of the number of victims who were showing signs of mental disturbance at the time of the event leading to their death.

TABLE 4.5: COMPARISON BETWEEN VERDICT GROUPS IN RESPECT OF PAST AND
PRESENT MENTAL ILLNESS

		SUICIDE	ACCIDENT	OPEN VERDICT	TOTAL
		N	N	N	N
ALL VICTIMS					
	M:	159	78	26	263
	F:	86	48	15	149
	M+F:	245	126	41	412
		%	%	%	%
Referral to Child Guidance Clinic					
	M+F:	3.3	4.0	4.9	3.6
Referral to Neurologist					
	M+F:	9.4	6.4	2.4	7.8
History of referred mental illness (RMI)					
	M+F:	59.6	50.0	53.7	56.1
	M:	54.7	46.2	38.5	50.5
	F:	68.6	56.3	75.0	65.8
Mental disturbance at time of ELD					
	M+F:	83.7	50.0	63.0	71.3*
GP Treatment					
	M+F:	76.3	65.1	53.7	70.6
Psychotropic treatment at time of ELD					
	M+F:	57.6	42.1	43.9	51.5
Recent psychiatric care (contact less than 365 days before ELD)					
	M+F:	38.0	32.0	37.0	36.0
Current psychiatric patient					
	M+F:	20.0	17.6	26.8	20.0

* Difference significant between proportions (p<0.05)

Lifetime history of psychiatric referral

No significant difference was found between the three verdict
groups in respect of the numbers with a history of psychiatric
referral, or inpatient psychiatric treatment (Table 4.1).

Psychiatric diagnosis

The psychiatric diagnosis of the violent death victims with a history of referred mental illness is shown in Table 4.6. The grouping of the ICD-9 diagnoses is that used by the Southampton Psychiatric Case Register (Jennings, 1981,1982).

TABLE 4.6: DIAGNOSIS (ICD-9) OF VIOLENT DEATH VICTIMS WITH
HISTORY OF REFERRED MENTAL ILLNESS BY VERDICT

DIAGNOSIS	SUICIDE		ACCIDENT		OPEN VERDICT		S+OV+A	
	N	%	N	%	N	%	N	%
Dementia (290)			1	1.5			1	.5
Schizophrenia (295,297)	20	13.7	6	9.5	2	9.1	28	12.1
Affective Psychosis (296)	45	30.8	6	9.5	7	31.8	58	25.1
Neurotic Disorder (300)	49	33.6	10	15.9	4	18.2	63	27.3
Personality Disorder (301)	5	3.4	11	17.5	3	13.6	19	8.2
Drug abuse (304)	2	1.4	7	11.1			9	3.9
Alcohol abuse (291,303,305.1)	6	4.1	18	28.6	3	13.6	27	11.7
Other (292-294,298-9, 302,304,305.1- 305.9,306-319)	10	6.8	2	3.2	1	4.5	13	5.6
Not diagnosable	6	4.1	2	3.2	2	9.1	10	4.3
Never diagnosed	3	2.1					3	1.3
	146		63		22		231	

Suicide verdicts were returned on the majority of patients suffering from psychotic illnesses and depressive illnesses while accidental verdicts were returned on more than half of those with alcohol, drug and personality disorders (Figures 4.1, 4.2).

FIGURE 4.1

VERDICT DISTRIBUTION OF MALE
PSYCHIATRIC PATIENTS BY ICD-9 DIAGNOSIS
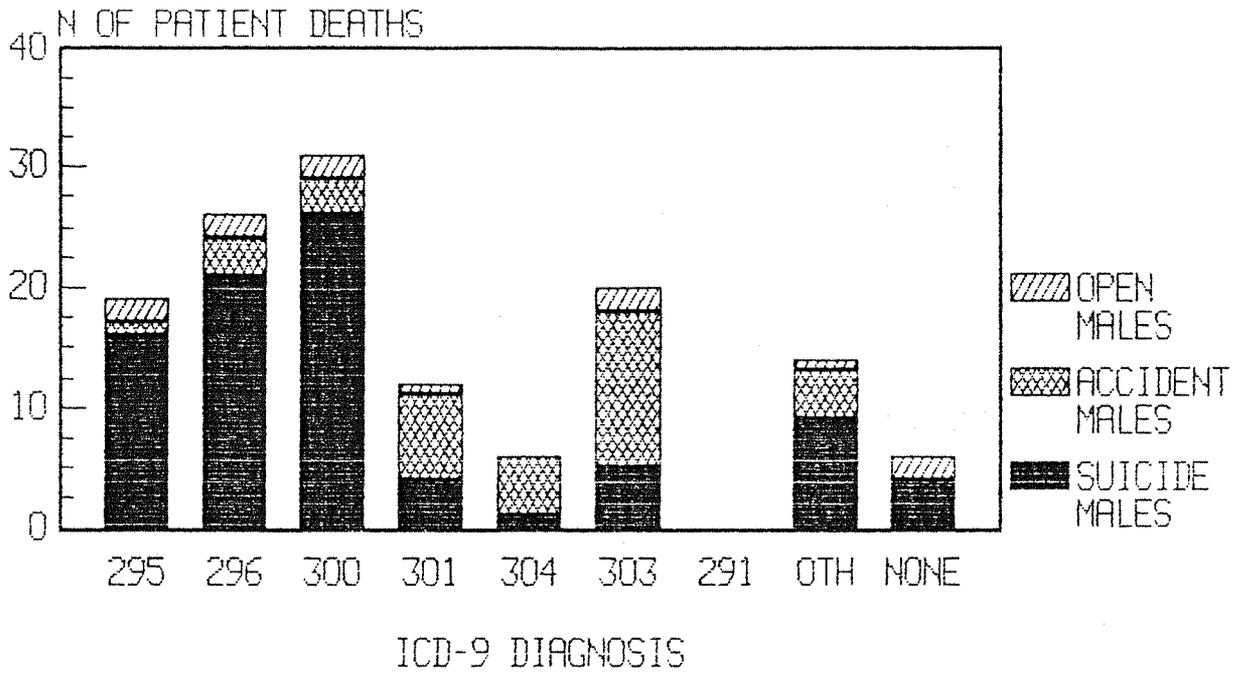
FIGURE 4.2

VERDICT DISTRIBUTION OF FEMALE
PSYCHIATRIC PATIENTS BY ICD-9 DIAGNOSIS
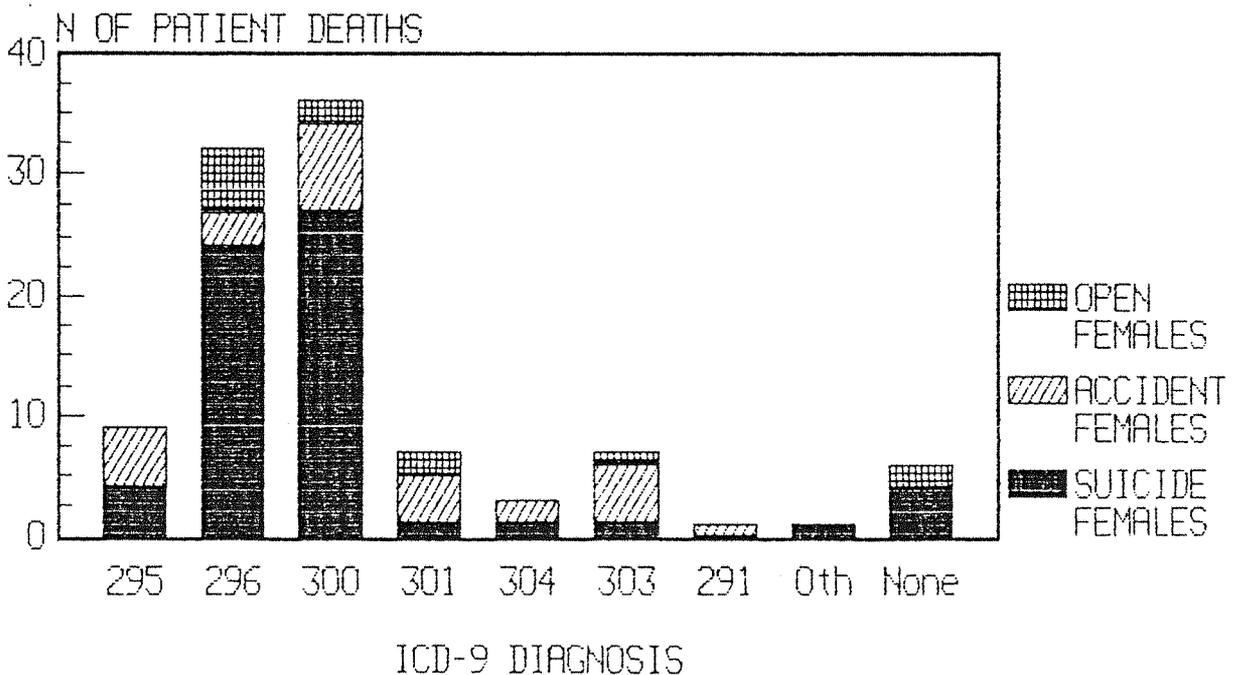
The diagnostic distribution of the violent death victims by verdict and sex is shown in Table 4.7.

TABLE 4.7: PSYCHIATRIC DIAGNOSIS BY VERDICT AND SEX

DIAGNOSIS	SUICIDE			ACCIDENT			OPEN VERDICT			S+OV+A					
	M	F	M+F	M	F	M+F	M	F	M+F	M		F		M+F	
	N	N	N	N	N	N	N	N	N	N	%	N	%	N	%
Dementia	0	0	0	0	1	1	0	0	0	0	0	1	1	1	0
Schizophrenia	16	4	20	1	5	6	2	0	2	19	14	9	9	26	11
Affective psychosis	21	24	45	3	3	6	2	5	7	26	20	32	33	58	25
Neurotic disorder	26	23	49	3	7	10	2	2	4	31	23	32	33	63	27
Personality disorder	4	1	5	7	4	11	1	2	3	12	9	7	7	19	8
Drug abuse	1	1	2	5	2	7	0	0	0	6	5	3	3	9	4
Alcohol abuse	5	1	6	13	5	18	2	1	3	20	15	7	7	27	11
Other	9	1	10	4	0	4	1	0	1	14	11	1	1	15	6
Not diagnosable	2	4	6	0	0	0	0	2	2	2	2	6	6	8	3
Not diagnosed	3	0	3											3	1
TOTAL	87	59	146	36	27	63	10	12	22	133		98		231	

Depression

Over 90% of the patients in the neurotic group (ICD-9 300) had a registered diagnosis of 'neurotic depression' (ICD-9 300.4) so that the total number of patients with a depressive disorder was 52% of all violent death victims, or 65% of all suicides. Barraclough et al (1974) reported a prevalence of 64% depressive illness.

Alcoholism

The proportion (4%) of suicides, and of all violent death victims (11%), with a diagnosis of alcoholism was lower than the average of 21% reported in other suicide populations (Robins et al, 23%, 1959b; Dorpat and Ripley, 27%, 1960; Barraclough et al (15%) 1974; Beskow, 22%, 1979; Chynoweth et al, 17%, 1980) but suicide verdicts were returned on only a minority of all the violent death victims with a diagnosis of alcohol

dependence/abuse. Rorsman (1974) reported that alcoholism was more common in psychiatric patients who died accidental deaths than in a control group.

Age at first referral to a psychiatrist

The average age of first referral is shown in Table 4.8. Median ages, and age ranges are shown in Table 4.9.

The only significant sex difference is found in the suicide group. The average age of first referral for male patients was significantly younger than that of female patients. The average age of first referral of male patients in each of the groups is remarkably similar. This does however, mask the differences in the age of first referral in the different diagnostic groups which is shown in Table 4.10.

TABLE 4.8: AVERAGE AGE OF FIRST REFERRAL TO A PSYCHIATRIST BY
VERDICT AND SEX

		SUICIDE			ACCIDENT				OPEN VERDICT			
SEX	N	MEAN	SD	SE	N	MEAN	SD	SE	N	MEAN	SD	SE
M	87	37.8	16	1.7	36	34.7	16	2.7	10	35.8	10	3.2
		p<0.5										
F	59	42.4	15	2.0	27	36.4	16	3.1	12	44.9	19	5.6

TABLE 4.9: MEDIAN AGE AT FIRST REFERRAL AND AGE RANGE AT FIRST REFERRAL
OF VIOLENT DEATH VICTIMS WITH A HISTORY OF REFERRED MENTAL
ILLNESS BY SEX AND VERDICT

	SUICIDE		ACCIDENT		OPEN VERDICT	
	M	F	M	F	M	F
Median	36.0	41.0	34.7	34.9	34.9	45.2
Range	13-81	2-75	13-72	18-72	19-52	15-85

Fifteen patients (8 suicides, 5 accident and 2 open verdict victims) had their first referral as juveniles. The youngest referral was a girl who subsequently committed suicide, and who was referred to the Child Guidance Clinic at the age of two !

TABLE 4.10: MEAN AGE OF FIRST REFERRAL TO PSYCHIATRIST BY DIAGNOSIS AND SEX

DIAGNOSIS	MALES			FEMALES		
	N	MEAN (MEDIAN)	SE	N	MEAN (MEDIAN)	SE
Schizophrenia	20	25.4 (23.4)	1.6	9	32.9 (21.5)	6.1
Affective Psychosis	26	47.2 (47.8)	3.3	32	41.5 (38.9)	2.9
Neurotic Disorder	31	39.1 (37.8)	2.8	32	40.9 (43.4)	2.6
Personality Disorder	12	23.0 (22.4)	2.1	7	37.7 (36.9)	7.3
Drug abuse	6	19.3 (19.5)	1.4	3	26.9 (24.0)	5.3
Alcohol abuse	20	38.8 (39.6)	2.2	7	45.8 (48.0)	3.7
Others	7	42.0 (40.4)	3.6	8	53.1 (54.3)	6.7

TABLE 4.11: MEAN AGE AT DEATH OF VICTIMS WITH HISTORY OF REFERRED MENTAL ILLNESS BY DIAGNOSIS AND SEX

DIAGNOSIS	MALES			FEMALES		
	N	MEAN (MEDIAN)	S	N	MEAN (MEDIAN)	SE
Schizophrenia	20	34.7 (33.0)	2.3	9	44.6 (39.0)	5.9
Affective Psychosis	26	58.5 (56.0)	3.2	32	51.7 (53.0)	2.7
Neurotic Disorder	31	45.8 (47.0)	2.8	32	52.3 (54.5)	2.5
Personality Disorder	12	33.9 (32.5)	1.7	7	47.0 (47.0)	6.9
Drug abuse	6	26.2 (27.5)	1.7	3	38.0 (31.0)	10.7
Alcohol abuse	20	46.5 (48.0)	2.3	7	50.9 (55.0)	4.2
Others	7	44.8 (41.5)	3.5	8	56.2 (62.0)	6.7

Mean age at death of psychiatric patients (all verdicts combined)

Male schizophrenics were significantly younger, both at first referral (Table 4.10) and when they died (Table 4.11) than other males suffering from psychotic illness, but they were not significantly younger than males with a diagnosis of personality or drug-related

disorders. It is possible that some of the latter could have been showing the first signs of a schizophrenic illness when they were referred and died before a final diagnosis was made. The mean ages of first referral of both male and female schizophrenics are very similar to the values, 23.7 years for males and 30.8 years for females, reported by Roy (1982a).

Length of psychiatric care

For the majority of the referred patients in each verdict group their first referral to a psychiatrist was many years before their death (Table 4.12). Only 17% of all the referred patients had their first in lifetime referral to a psychiatrist in the year before the event leading to their death (Table 4.13), and nearly 90% had more than one contact. Borg and Stahl (1982) also found that only 13% of suicides died within a year of their first referral.

TABLE 4.12: INTERVAL BETWEEN FIRST REFERRAL AND EVENT LEADING TO DEATH

	SUICIDE			ACCIDENT			OPEN VERDICT			S+A+OV		
	N	%	C%*	N	%	C%*	N	%	C%*	N	%	C%*
Same day	0	0	0	1	2	2	0	0	0	1	0	0
1-7 days	2	1	1	1	2	4	1	4	4	4	2	2
8-14 days	2	1	3	0	0	4	1	5	9	3	1	3
15-21 days	3	2	5	0	0	4	0	0	9	3	1	4
22-28 days	1	0	5	1	2	6	0	0	9	2	1	5
29-91 days	4	3	8	0	0	6	0	0	9	4	2	7
92-183 days	5	3	12	1	2	8	2	9	18	8	4	11
184-365 days	11	8	19	1	2	10	2	9	27	14	6	17
>1 yr <2 yrs	12	8	27	4	6	16	2	9	36	18	8	25
> 2 years	106	73	100	53	84	100	14	64	100	173	75	100
Not known				1	1					1	0	
TOTAL	146			63			22			231		

* C% = cumulative percentage

Interval between first referral and last contact with psychiatrist

Most of the violent death victims had received extended periods of psychiatric care although not necessarily continuously in a single spell of care.

TABLE 4.13: INTERVAL BETWEEN FIRST REFERRAL AND LAST CONTACT
BY VERDICT

	SUICIDE			ACCIDENT			OPEN VERDICT			S+A+OV		
	N	%	C%*	N	%	C%*	N	%	C%*	N	%	C%*
Same day	18	13	13	2	3	3	3	14	14	23	10	10
1-7 days	0	0	13	1	2	5	0	0	14	1	0	10
8-14 days	1	1	14	1	2	7	1	4	18	3	1	11
15-21 days	2	1	15	0	0	7	0	0	18	2	1	12
22-28 days	1	1	16	1	2	9	0	0	18	2	1	14
29-91 days	11	8	24	3	5	14	0	0	18	14	6	20
92-183 days	5	3	27	2	3	17	4	18	36	11	5	25
184-365 days	11	8	35	7	12	29	1	4	41	19	8	33
1 < 2 years	11	8	43	1	2	31	2	9	50	14	6	40
> 2 years	79	57	100	41	69	100	11	50	100	131	60	100
Not known	4			4						8		
TOTAL	143**			63			22			228**		

* C% = cumulative percentage
** 3 patients were awaiting their first contact

These findings are similar to those of Kraft and Babigian (1976) who reported that 75% of suicides known to Monroe County Psychiatric Register had their first contact more than a year before their death and 88% had at least two contacts with the service.

Recent contact with psychiatrist

Approximately two thirds of all the victims with a history of referred mental illness in each verdict group, representing a third of all violent death victims in each group, had a psychiatric contact less than a year before their death (hereafter called 'recent patients' (Table 4.14).

TABLE 4.14: INTERVAL BETWEEN LAST CONTACT AND EVENT LEADING TO DEATH BY VERDICT

	SUICIDE			ACCIDENT			OPEN VERDICT			S+A+OV		
	N	%	C%*	N	%	C%*	N	%	C%*	N	%	C%*
Same day	13	9	9	3	5	5	2	9	9	18	8	9
1-7 days	13	9	18	10	17	22	4	18	27	27	12	21
8-14 days	9	6	24	4	7	29	3	14	41	16	7	28
15-21 days	10	7	31	2	3	32	1	4	45	13	6	34
22-28 days	8	6	37	3	5	37	0	0	45	11	5	39
29-91 days	14	10	47	7	12	49	3	14	59	24	11	50
92-183 days	15	11	58	5	8	57	1	5	64	21	9	59
184-365 days	11	8	66	5	8	65	1	5	69	17	8	67
Total < 1 year*	93			39			15			147		
> 1 year	47	34	100	21	35	100	7	31	100	75	33	100
Not known	3			3						6		
TOTAL	143**			63			22			228**		

* C% = cumulative percentage
** 3 patients were awaiting their first contact

History of inpatient psychiatric care

About a third of all the violent death victims in the present study had a history of inpatient treatment for mental illness, a similar proportion to that reported in populations of suicides (Borg and Stahl, (36%), 1982; Robin et al, (31%), 1968; Jacobson and Jacobson, (32%), 1972. Holding and Barraclough (1975) also found that 33% of their open verdict sample had been treated as inpatients. However, the proportion of accident victims in the present study with a history of inpatient care is almost twice the 20% reported by Holding and Barraclough (1977).

Among the violent death victims with a history of referred mental illness a higher proportion of accidental death victims (75%) than suicide (65%) and undetermined death victims (59%) had been treated as inpatients, (Table 4.1), but the difference does not reach statistical significance. However, both the maximum and average number of

admissions to mental hospitals for accidental death victims of both sexes was higher than for the corresponding suicide and open verdict patients (Table 4.15). Koranyi (1977) also reported that 75% of patients who died accidental deaths had been admitted. Female suicides had been admitted more often than their male counterparts with significantly more males having only been admitted once (chi-sq=5.05; p<0.02; 1df). The fact that female patients are admitted more often than males was also noted by Rorsman (1973).

TABLE 4.15: NUMBER OF ADMISSIONS FOR PSYCHIATRIC TREATMENT
BY VERDICT AND SEX

N OF ADMISSIONS	SUICIDE			ACCIDENT			OPEN VERDICT		
	M	F	M+F	M	F	M+F	M	F	M+F
1	30	12	42	11	7	18	2	3	5
2	6	9	15	1	2	3	0	1	1
3	7	4	11	4	1	5	2	3	5
4	2	1	3	5	1	6	1	0	1
5	5	3	8	1	2	3	0	0	0
6	1	1	2	1	0	1	0	0	0
7	0	3	3	0	2	2	1	0	1
8	0	0	0	1	0	1			
9	1	1	2	0	1	1			
10	0	2	2	0	1	1			
11	0	2	2	0	0	0			
12	1	0	1	0	0	0			
13	0	0	0	2	1	3			
14	0	0	0	0	0	0			
15	0	1	1	0	0	0			
16	0	0	0	0	0	0			
17	0	0	0	1	1	2			
18	0	0	0	0	0	0			
19	0	1	1	0	0	0			
20				0	0	0			
21				0	0	0			
22				0	0	0			
23				0	1	1			
TOTAL	53	40	93	27	20	47	6	7	13
Mean	2.3	4.3		4.0	6.2		3.2	2.0	
SE	0.3	0.7		0.8	1.5		0.9	0.4	
Median	1	2		3	4.5		3	2	
Range	1-12	1-19		1-17	1-23		1-7	1-3	

These numbers must be a minimum.

Interval between last inpatient discharge and event leading to death

Just over half of all patients with a history of admission had received psychiatric inpatient care during the year before the event leading to their death ('recent inpatients') Table 4.16 with no significant difference between the verdict groups. This group constitutes a fifth of all the 412 violent death victims.

TABLE 4.16: INTERVAL BETWEEN LAST DISCHARGE FROM INPATIENT TREATMENT
           AND EVENT LEADING TO DEATH BY VERDICT

	SUICIDE			ACCIDENT			OPEN VERDICT			S+A+OV		
	N	%	C%*	N	%	C%*	N	%	C%*	N	%	C%*
Died before discharge	12	13	13	1	2	2	1	8	8	14	10	10
Day of discharge				1	2	4				1	1	11
1-7 days	2	2	15	4	9	13	1	8	16	7	4	15
8-14 days	3	3	18	1	2	15	1	8	24	5	3	18
15-21 days	0	0	18	0	0	15	1	8	32	1	1	19
22-28 days	4	4	22	2	4	19	0	0	32	6	4	23
29-91 days	6	7	29	5	11	30	2	15	47	13	8	31
92-183 days	7	8	37	2	4	34	1	8	55	10	7	38
184-365 days	13	14	51	5	11	45	6	47	100	24	15	53
Total < 1 year	47	51		21	45		13	100		81	53	
> 1 year	46	49	100	26	55	100	0	0	100	72	47	100
TOTAL ADMITTED	93			47			13			153		

* C% = cumulative percentage

More than half of the violent deaths occurred either in hospital or less than a year after discharge, and nearly a quarter occurred within a month. No significant difference was found between the three verdict groups in respect of patient status or the intervals between discharge and death.

Mortality of psychiatric patients has been variously reported in terms of the violent death rate, a standardised mortality ratio, and as the relative risk of death from a particular cause compared with another population. The results of this study are presented in each of these three ways, and in addition, the risk attributable to mental illness in suicide has been calculated.

In this section the results are based on numbers of catchment area residents in contact with the Southampton Psychiatric Case Register in the years 1974 to 1981 inclusive (Jennings 1981, 1982). The data collected by the Case Register during this period was restricted to contacts by City of Southampton residents.

In each year the total population at risk is therefore the population of the City of Southampton aged 15+, and the population of recent patients is taken to be the number of City residents in contact with the Southampton Psychiatric Case Register during the year in question. Each violent death is taken to lie in the year of the event leading to death. 'Recent psychiatric contact' is defined as a contact with the psychiatric service in the 365 days before the event leading to death.

VIOLENT DEATH RATES OF VICTIMS WITH AND WITHOUT A HISTORY OF RECENT PSYCHIATRIC CONTACT

Comparisons are made in respect of variation over time, sex, age-group, type of treatment in year before the ELD, and psychiatric diagnosis. The actual violent death rates, broken down by verdict, with 95% confidence intervals, (95% CI), for recent psychiatric patients and other residents of the City of Southampton are listed by year of event leading to death in Table 5.1. Population figures, on which the rates are based are tabulated in Appendices 18A and 18B.

Changes over time

Changes in the violent death rates of City residents with and without a recent psychiatric contact during the study period are illustrated in Figures 5.1 and 5.2 respectively.

Changes by verdict

The profile of the accidental death rate is very similar to that of the suicide rate for recent psychiatric patients (Figure 5.1). The apparent rise in the recent patient death rate in 1978 was not associated with any change in the psychiatric service; conversely the change

in service as a result of the opening of the Department of Psychiatry in the City in 1979 is not obvious from the graphs.

TABLE 5.1: VIOLENT DEATH RATES FOR SOUTHAMPTON CITY RESIDENTS (Aged 15+)
BY RECENT PSYCHIATRIC STATUS   1974-1981

	VERDICT GROUP								
	Suicide		Accident		Open verdict		(S+A+OV)		
Year	N	Rate (95%CI)	N	Rate	N	Rate	N	Rate (95%CI)	
ALL RESIDENTS									
74	24	14.8 (9 to 21)	12	7.3	2	1.2	38	23.4 (16 to 31)	
75	23	14.2 (8 to 20)	7	4.2	5	3.0	35	21.5 (14 to 29)	
76	18	11.1 (6 to 16)	14	8.4	3	1.8	35	21.6 (14 to 29)	
77	27	16.6 (10 to 23)	14	8.4	6	3.6	47	28.9 (21 to 37)	
78	23	14.2 (8 to 20)	23	13.9	2	1.2	48	29.6 (21 to 38)	
79	23	14.3 (8 to 20)	11	6.7	3	1.8	37	23.0 (16 to 30)	
80	22	13.7 (8 to 20)	18	11.0	6	3.7	46	28.7 (20 to 37)	
81	31	19.6 (13 to 27)	8	4.9	6	3.7	45	28.5 (20 to 37)	
RECENT PATIENTS		(95%CI)						(95%CI)	
74	11	352 (140 to 564)	3	96	0	0	14	449 (210 to 688)	
75	8	228 (67 to 389)	1	28	1	28.5	10	285 (105 to 465)	
76	8	219 (64 to 374)	3	82	0	0	11	301 (120 to 482)	
77	9	259 (86 to 432)	5	144	1	28.8	15	432 (209 to 655)	
78	14	407 (190 to 624)	10	291	2	58.2	26	757 (461 to 1053)	
79	8	233 (68 to 398)	4	116	3	87.4	15	437 (212 to 662)	
80	6	164 (30 to 298)	5	137	2	54.7	13	355 (158 to 552)	
81	13	348 (155 to 541)	3	80	1	2.7	17	455 (235 to 675)	
OTHER RESIDENTS		(95%CI)						(95%CI)	
74	13	8.0 (4 to 12)	9	5.5	2	1.2	24	14.8 (9 to 21)	
75	15	9.2 (4 to 14)	6	3.7	4	2.5	25	15.4 (9 to 22)	
76	10	6.2 (2 to 10)	11	6.8	3	1.8	24	14.8 (9 to 21)	
77	18	11.1 (6 to 16)	9	5.5	5	3.1	32	19.7 (13 to 27)	
78	9	5.5 (2 to 9)	13	8.0	0	0	22	13.6 (8 to 19)	
79	15	9.3 (4 to 14)	7	4.3	0	0	22	13.7 (8 to 20)	
80	16	10.0 (5 to 15)	13	8.1	4	2.5	33	20.6 (13 to 28)	
81	18	11.4 (6 to 17)	5	3.2	5	3.2	28	17.7 (11 to 24)	

N = Total number of deaths in 8 year period
Rate = Average annual rate per 100,000 population at risk

FIGURE 5.1

VIOLENT DEATH RATES OF RECENT CITY
PATIENTS BY VERDICT 1974-1981

ANNUAL VIOLENT DEATH RATE
/100,000 POP AT RISK

FIGURE 5.2

VIOLENT DEATH RATES OF OTHER CITY
RESIDENTS BY VERDICT 1974-1981

ANNUAL VIOLENT DEATH RATE
/100,000 POP AT RISK
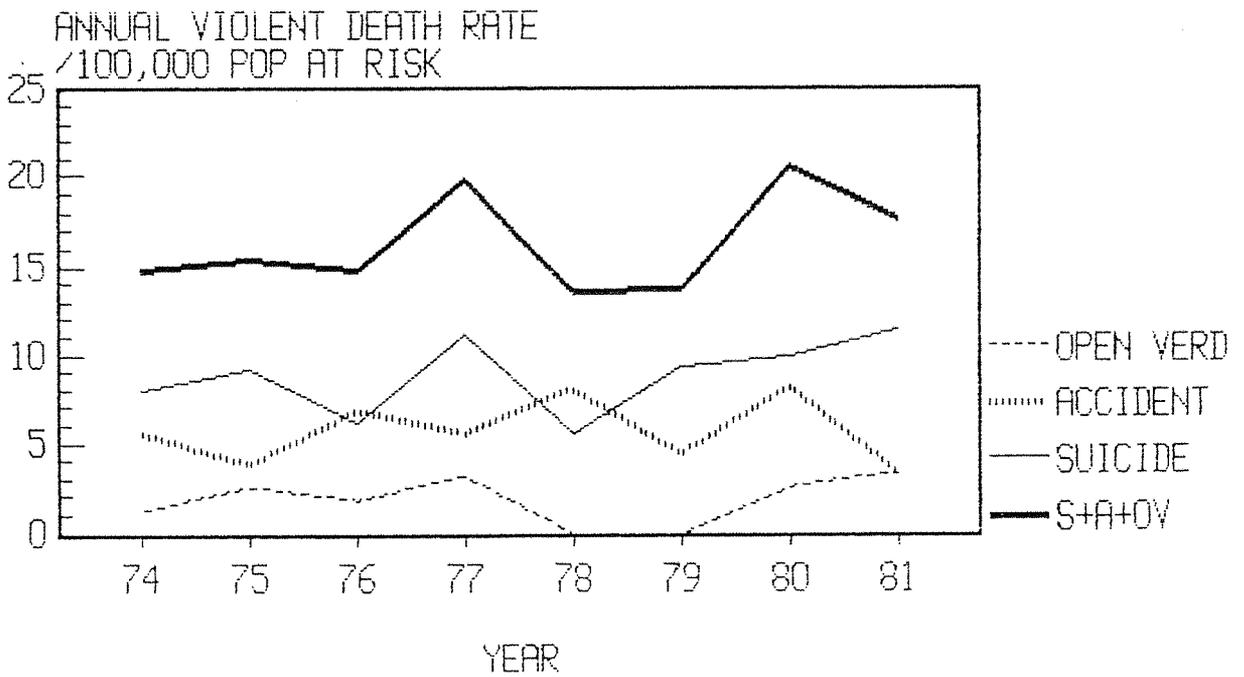
Violent death rates by verdict and sex

The differences in violent death rates by verdict group for recent psychiatric patients and other residents are summarised in Tables 5.2 and 5.3.

TABLE 5.2 :AVERAGE VIOLENT DEATH RATES FOR SOUTHAMPTON CITY RESIDENTS (aged 15+) BY RECENT* PSYCHIATRIC STATUS AND VERDICT 1974-1981

	ALL CITY RESIDENTS			RECENT PSYCH PATIENTS			OTHER CITY RESIDENTS		
VERDICT	N	Rate	95%CI	N	Rate	95%CI	N	Rate	95%CI
Suicide	191	14.8	(13to17)	77	275	(212to338)	114	9.0	(7to11)
Accident	107	8.3	(7to10)	34	121	(79to163)	73	5.8	(4to 7)
Open Verdict	33	2.5	(2to3)	10	36	(13to 58)	23	1.8	(1to 3)
S+A+OV	331	25.6	(23to28)	121	432	(354to510)	210	16.6	(14to19)

N = Total number of deaths in 8 year period
Rate = Average annual rate per 100,000 population at risk
* Psychiatric contact in year before event leading to death

TABLE 5.3: AVERAGE VIOLENT DEATH RATES FOR SOUTHAMPTON CITY RESIDENTS (aged 15+) BY RECENT* PSYCHIATRIC STATUS, VERDICT AND SEX 1974-1981

	RECENT PSYCH PATIENTS*			OTHER CITY RESIDENTS		
VERDICT	N	Rate	95% CI Rate	N	Rate	95% CI Rate
MALES						
Suicide	46	382	(270 to 492)	75	12.2	(9 to 15)
Accident	15	125	(61 to 189)	49	8.0	(6 to 10)
Open Verdict	4	33	(0 to 66)	18	2.9	(2 to 4)
S+A+OV	65	540	(406 to 674)	142	23.1	(19 to 27)
FEMALES						
Suicide	31	194	(124 to 264)	39	6.0	(4 to 8)
Accident	19	119	(64 to 174)	24	3.7	(2 to 5)
Open Verdict	6	38	(7 to 69)	5	0.8	(0 to 2)
S+A+OV	56	351	(257 to 445)	68	16.6	(8 to 13)

N = Total number of deaths in 8 year period
Rate = Average annual rate per 100,000 population at risk
* Psychiatric contact in year before event leading to death

Violent death rates by age and sex

Rates of violent death by age and sex for recent psychiatric patients and other residents are illustrated in Figures 5.3 and 5.4, and listed in Table 5.5.

Recent psychiatric patients

Significantly higher rates of violent death (S+A+OV), were found in young males between the ages of 25 and 34, than in female patients of the same age, while female patients over the age of 75 had significantly lower rates of violent death than their male counterparts (Figure 5.3).

Other City residents

Below the age of 55, male violent death rates were significantly higher than the corresponding female rates. Among residents aged 55 and over there was no significant difference between the male and females rates (Figure 5.4).

Admission in year before death and rates of violent death

The rates of violent death associated with admission to a mental hospital are shown in Table 5.4 and compared with the corresponding rates for patients treated only as outpatients in the year before their death. The rates of suicide and accidental death are significantly greater for residents treated as inpatients ($p<0.05$).

TABLE 5.4: RATES OF VIOLENT DEATH FOR PATIENTS TREATED AS INPATIENTS, AND OUTPATIENTS (ONLY) IN THE YEAR BEFORE THE EVENT LEADING TO DEATH

VERDICT	RECENT INPATIENTS			RECENT OUTPATIENTS			
	N	Rate	95%CI	N	Rate	95%CI	p
Suicide	39	440	(299 to 581)	38	198	(134 to 262)	<0.5
Accident	17	191	(99 to 285)	17	89	(46 to 132)	<0.5
Open Verdict	4	45	(0 to 90)	6	31	(6 to 57)	ns
(S+A+OV)	60	676	(502 to 850)	61	318	(237 to 399)	<0.5

N = Total number of deaths in 8 year period
Rate = Average annual rate per 100,000 population at risk

TABLE 5.5: NUMBER OF VIOLENT DEATH VICTIMS, AND AVERAGE ANNUAL VIOLENT
DEATH RATES, AMONG SOUTHAMPTON CITY RESIDENTS (AGE 15+)
BY AGEGROUP AND VERDICT, BY SEX AND RECENT PSYCHIATRIC
PATIENT STATUS 1974-1981

A:RECENT PSYCHIATRIC PATIENTS*

MALES		SUICIDE			ACCIDENT			OPEN VERDICT		S+A+OV	
AGE	N	RATE	(95%CI)	N	RATE	(95%CI)	N	RATE	N	RATE	(95%CI)
15-24	5	288	(31to 545)	0	0	( )	1	58	6	346	(64to 628)
25-34	9	325	(109to 541)	6	217	(40to394)	0	0	15	541	(262to 820)+
35-44	7	331	(81to 581)	5	237	(25to449)	3	142	15	710	(345to1075)
45-54	15	864	(420to1308)	1	58	(58to174)	0	0	16	922	(463to1381)
55-64	5	388	(42to 734)	1	78	(0to234)	0	0	6	466	(86to 846)
65-74	3	257	(39to 553)	2	171	(0to413)	0	0	5	428	(42to 798)
75+	2	126	(76to 328)	0	0	( )	0	0	2	162	(0to 391)

FEMALES

	N	RATE	(95%CI)	N	RATE	(95%CI)	N	RATE	N	RATE	(95%CI)
15-24	1	46	(0to 138)	2	92	(0to222)	0	0	3	138	(0to 297)
25-34	1	35	(0to 105)	4	140	(0to280)	1	35	6	211	(39to 383)+
35-44	8	395	(116to 674)	3	148	(0to319)	2	99	13	642	(287to 997)
45-54	6	298	(55to 541)	5	248	(26to470)	1	50	12	595	(252to 938)
55-64	8	448	(132to 764)	2	112	(0to270)	0	0	10	561	(209to 915)
65-74	6	327	(60to 594)	3	164	(0to353)	1	55	10	546	(202to 890)
75+	1	30	(0to 90)	0	0	( )	1	30	2	61	(0to 147)

B:OTHER RESIDENTS OF CITY OF SOUTHAMPTON

MALES

	N	RATE	(95%CI)	N	RATE	(95%CI)	N	RATE	N	RATE	(95%CI)
15-24	6	4.4	(1 to 8)	11	8.1	(3 to 13)	2	1.5	19	14.0	(8 to 20)
25-34	15	12.6	(6 to 19)	8	6.7	(2 to 11)	2	1.7	25	21.0	(13 to 29)
35-44	15	16.5	(8 to 25)	4	4.4	(0 to 9)	5	5.5	24	26.5	(16 to 37)
45-54	10	11.6	(4 to 19)	14	16.2	(8 to 25)	5	5.8	29	33.6	(21 to 46)
55-64	16	18.3	(9 to 27)	4	4.6	(0 to 9)	1	1.1	21	24.0	(14 to 34)
65-74	11	16.8	(7 to 27)	4	6.1	(0 to 12)	0	0	15	22.9	(11 to 35)
75+	2	6.8	(0 to 16)	4	13.4	(0 to 27)	3	10.0	9	30.1	(10 to 50)

FEMALES

	N	RATE	(95%CI)	N	RATE	(95%CI)	N	RATE	N	RATE	(95%CI)
15-24	2	1.5	(0 to 4)	6	4.6	(1 to 8)	2	1.5	10	7.6	(3 to 12)
25-34	0	0	( )	2	1.8	(0 to 4)	0		2	1.8	(0 to 4)
35-44	3	3.5	(0 to 8)	3	3.5	(0 to 8)	1	1.2	7	8.1	(2 to 14)
45-54	8	9.1	(3 to 16)	1	1.1	(0 to 3)	0		9	10.3	(3 to 17)
55-64	10	10.6	(4 to 17)	6	6.4	(1 to 12)	1	1.1	17	18.1	(9 to 27)
65-74	10	12.6	(5 to 21)	2	2.5	(0 to 6)	1	1.3	13	16.4	(7 to 25)
75+	6	9.9	(2 to 18)	4	6.6	(0 to 14)	0		10	16.5	(6 to 27)

N = Total number of deaths in 8 year period
Rate = Average annual rate per 100,000 population at risk
* Psychiatric contact in year before event leading to death
+ Male rate significantly higher than female rate (p<0.05)

FIGURE 5.3

VIOLENT DEATH RATES FOR RECENT CITY
PATIENTS BY AGEGROUP

(S+A+OV) RATE/100,000

----FEMALE
PATIENTS

......MALE
PATIENTS
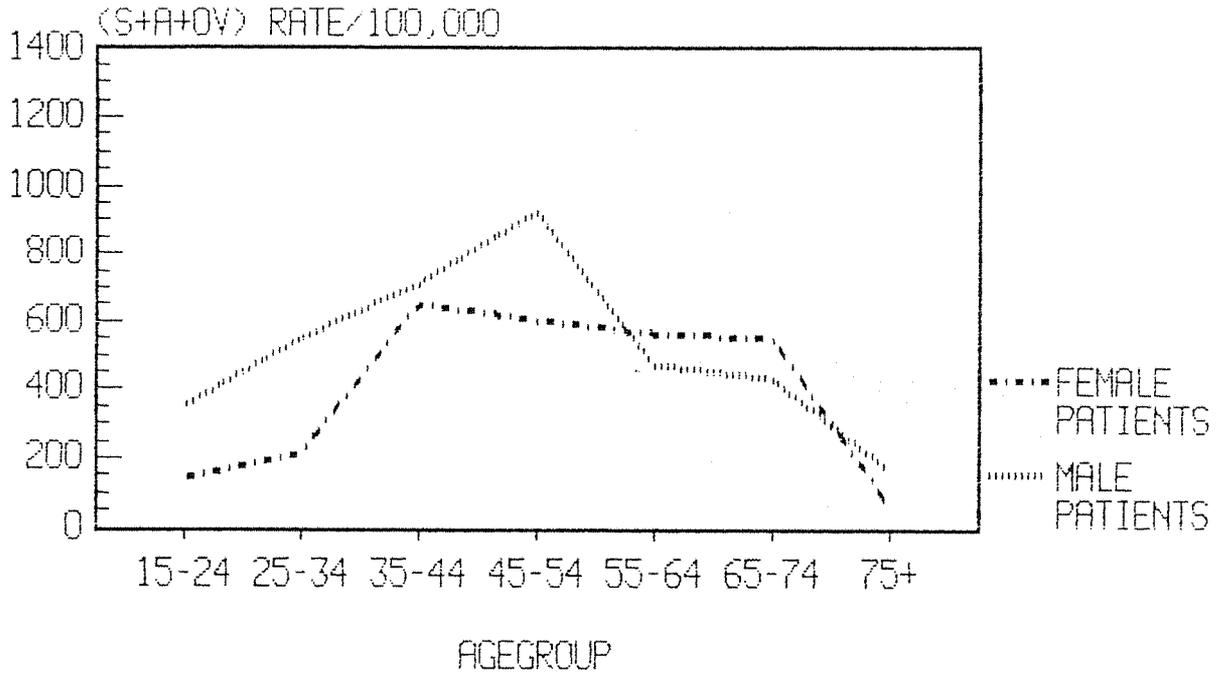
AGEGROUP

FIGURE 5.4

VIOLENT DEATH RATES FOR OTHER CITY
RESIDENTS BY AGEGROUP

(S+A+OV) RATE/100,000

----OTHER F
RESIDENTS

......OTHER M
RESIDENTS

AGEGROUP
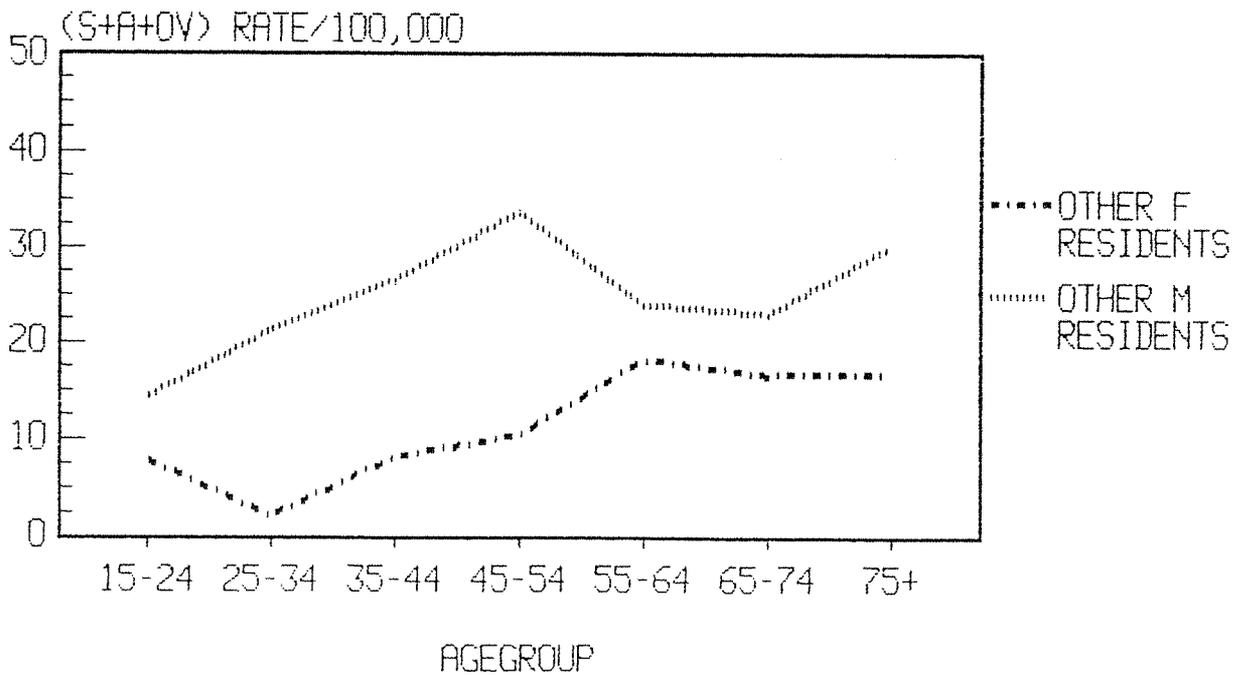
Violent death rates by psychiatric diagnosis and sex

Diagnosis

Violent death rates for the various diagnostic groups are shown in Table 5.6 and Figure 5.5. (NB the ICD-9 code 293 in Figure 5.5 represents all alcohol related disorders as shown in Table 5.6.)

From Table 5.6 and Figure 5.5 it is clear that the violent death rates of recent psychiatric patients in all diagnostic groups except dementia, and those for whom no diagnosis was possible, are significantly higher than those of other residents. A similar comparatively low rate of suicide in patients with a diagnosis of dementia, or organic brain syndrome, have been reported by Farberow et al (1971), Farberow et al (1966), Gale (1980) and Gardner et al (1964). The fact that the rate of violent death for patients with no diagnosable psychiatric illness is not significantly higher than the violent death rate for other residents, suggests that they were indeed not suffering from mental illness.

Sex

Sex differences in the rates of violent death in the various diagnostic groups are shown in Table 5.7.

Highest suicide rates, and total rates of violent death were found in male patients with a diagnosis of schizophrenia and female patients suffering from an affective psychosis. Females suffering from schizophrenia have higher rates of accidental death than other patient groups but the difference is not significant.

Only in the case of schizophrenia is the difference in the rates between the sexes significant; males have a significantly higher rate of violent death than females (p<0.05).

FIGURE 5.5

VIOLENT DEATH RATES OF RECENT PATIENTS
BY ICD 9 DIAGNOSIS

VIOLENT DEATH (S+A+OV) RATE
/100,000

.... 95% CI(U)

——— (S+A+OV)
RATE

.... 95% CI(L)
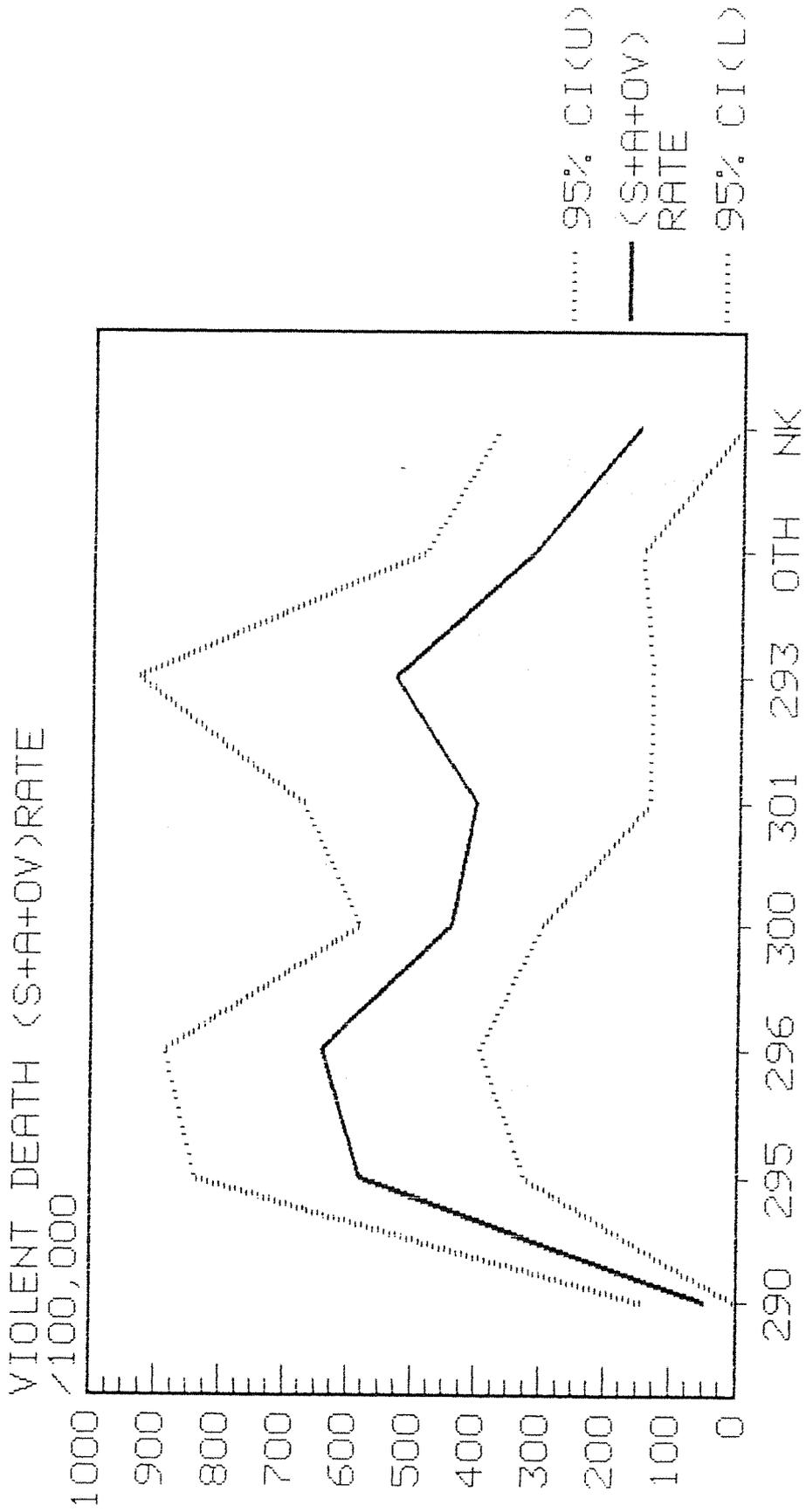
ICD 9 DIAGNOSIS

TABLE 5.6: VIOLENT DEATH RATES OF RECENT* PSYCHIATRIC PATIENTS BY ICD-9
DIAGNOSIS AND VERDICT 1974-1981

DIAGNOSIS	TOTAL 8YR POP AT RISK	SUICIDE N	RATE	ACCIDENT N	RATE	OPEN VERDICT N	RATE	S+A+OV N	RATE
Dementia (290)	2176	0		1	46	0		1	46
95% CI					(0to138)				(0to138)
Schizophrenia (295)	3456	14	406 ***	4	116	2	58	20	580 ***
95% CI			(189to621)		(0to232)		(24to140)		(322to838)
Affective Psychosis(296)	4224	20	474 ***	4	95	3	71	27	640 ***
95% CI			(263to685)		(0to190)		(11to153)		(395to885)
Neurosis (300)	8880	31	349 ***	7	79 ***	1	11	39	439 ***
95% CI			(223to475)		(19to139)		(0to33)		(299to579)
Personality Disorder (301)	2232	1	45	7	314 ***	1	45	9	403 ***
95% CI			(0to135)		(77to551)		(0to135)		(135to671)
Alcohol Related Disorder (293, 303, 305)	1320	2	152	5	379 ***	0	0	7	530 ***
95% CI			(0to366)		(41to717)		( )		(130to930)
Other Psychiatric Disorder	4432	6	135 ***	5	113 ***	3	68	14	316 ***
95% CI			(25to245)		(11to215)		(0to144)		(148to484)
Not diagnosable	1304	2	153	0		0		2	153
95% CI			(0to369)		( )		( )		(0to369)
All recent Patients	28016	77	275 ***	34	121 ***	10	36	121	432 ***
95% CI			(213to337)		(81to161)		(14to58)		(354to510)
Other Residents	1266232	114	9	73	6	23	2	210	17
95% CI			(7.4to10.8)		(4.6to7.4)		(1.2to2.8)		(14to19)

N = Total number of deaths in 8 year period
Rate = Average annual rate per 100,000 population at risk
* Psychiatric contact in year before event leading to death
*** Difference between recent patients and other residents significant
    (p<0.05)

TABLE 5.7: VIOLENT DEATH RATES/100,000 OF RECENT* PSYCHIATRIC PATIENTS BY VERDICT, DIAGNOSIS AND SEX 1974-1981

DIAGNOSIS	SEX	SUICIDE			ACCIDENT			OPEN VERDICT			S+A+OV		
		N	RATE	SE†	N	RATE	SE†	N	RATE	SE†	N	RATE	SE†
Schizophrenia ** (295)	M	12	615	177	1	51	51	2	102	72 **	15	768	197
	F	2	132	94	3	199	114	0	0	0	5	332	148
Affective Psychosis (296)	M	6	410	167	1	68	68	0	0	0	7	478	180
	F	14	507	135	3	109	62	3	109	62	20	725	161
Other Diagnoses	M	28	325	61	13	150	42	2	23	16	43	499	76
	F	15	128	33	13	111	31	3	26	15	31	265	48
All recent Patients	M	46	382	56	15	125	32	4	33	17	65	540	67
	F	31	194	35	19	119	27	6	38	15	56	350	56
Other residents	M	75	12.2	3.5	49	8.0	2.8	18	2.9	1.7	142	23.1	4.8
	F	39	6.0	2.4	24	3.7	1.9	5	0.8	0.9	68	10.4	3.2

TABLE 5.8: TOTAL (S+A+OV) VIOLENT DEATH RATES FOR SOUTHAMPTON CITY RESIDENTS IN RECENT PSYCHIATRIC CONTACT AND OTHER VIOLENT DEATH VICTIMS BY DIAGNOSIS AND SEX

DIAGNOSIS	SEX	AV ANNUAL POP AT RISK	N RECENT PATIENTS	VD RATE /100,000	95% CI RATE
Schizophrenia (295)	M	244	15 **	768	382 to 1154
	F	188	5	332	42 to 622
Affective Psychosis (296)	M	183	7	478	125 to 831
	F	345	20	725	409 to 1041
Other Diagnoses	M	1078	43	499	350 to 648
	F	1464	31	265	171 to 359
All recent Patients	M	1505	65	540	409 to 671
	F	1997	56	350	240 to 460
Other residents	M	76725	142	23.1	14 to 32
	F	81554	68	10.4	4 to 17

N = Total number of deaths in 8 year period
* Psychiatric contact in year before event leading to death
** Difference significant p<0.05
† 95% Confidence interval of rate = (Rate - 1.96xSE) to (Rate + 1.96xSE)

STANDARDISED MORTALITY (SUICIDE) RATIO

In the case of the verdict group suicide, it is possible to calculate the standardised suicide ratio. This is expressed as:

$$\frac{\text{observed number of deaths from suicide}}{\text{expected number of deaths from suicide}} \quad \text{or} \quad O/E$$

where E is calculated by multiplying the population at risk by the corresponding suicide rate in England and Wales.

Population figures are tabulated in Appendices 18A and 18B.

Standardised suicide ratios for male and female City residents by recent psychiatric patient status are listed in Table 5.9A. A significant ($p<0.05$) excess of suicides was found among recent male psychiatric patients in every agegroup. Among recent females psychiatric patients the excess was only found in the 35-74 agegroups.

If the ratios of the standardised suicide ratios of recent psychiatric patients and other residents are compared for each sex (Table 5.9B), the excess suicide mortality associated with a recent psychiatric contact is found to be significantly greater for males in all agegroups (Figure 5.6) but only in females between the ages of 35 and 74 (Figure 5.7). The most remarkable finding is the paucity of violent deaths among young females in the 25-34 agegroup.

TABLE 5.9A: STANDARDISED SUICIDE RATIOS FOR CITY RESIDENTS BY SEX AND
RECENT* PSYCHIATRIC PATIENT STATUS

MALES

		RECENT* PATIENTS					OTHER RESIDENTS		
	O	E	O/E	95%CI	O	E	O/E	95%CI
15-24	5	0.08	62.5**	(20.3 to 146)	6	8.2	0.74	(0.27 to 1.60)
25-34	9	0.32	28.1**	(12.9 to 53.4)	15	14.0	1.07	(0.60 to 1.77)
35-44	7	0.26	26.9**	(10.8 to 55.5)	15	11.4	1.32	(0.74 to 2.17)
45-54	15	0.28	53.6**	(30.0 to 88.4)	10	14.0	0.71	(0.34 to 1.30)
55-64	5	0.21	23.8**	(7.7 to 55.6)	16	14.2	1.12	(0.64 to 1.82)
65-74	3	0.20	15.0**	(3.0 to 43.8)	11	11.2	0.98	(0.49 to 1.76)
75+	2	0.23	8.7**	(1.1 to 31.4)	2	5.5	0.36	(0.04 to 1.30)
15+	46	1.55	29.7	(21.7 to 39.6)	75	79.1	0.95	(0.75 to 1.19)

FEMALES

		RECENT* PATIENTS					OTHER RESIDENTS		
	O	E	O/E	95%CI	O	E	O/E	95%CI
15-24	1	0.56	17.9	(0.45 to 99)	2	3.4	0.58	(0.07 to 2.10)
25-34	1	0.14	7.4	(0.19 to 41.0)	0	5.3	0.00	( )
35-44	8	0.14	58.8**	(25.4 to 116)	3	6.0	0.50	(0.10 to 1.46)
45-54	6	0.22	27.8**	(10.2 to 60.5)	8	9.5	0.84	(0.36 to 1.61)
55-64	8	0.20	40.0**	(17.3 to 78.8)	10	10.6	0.95	(0.45 to 1.74)
65-74	6	0.22	26.8**	(9.8 to 58.3)	10	9.8	1.02	(0.49 to 1.88)
75+	1	0.30	3.4	(0.08 to 18.8)	6	5.5	1.09	(0.40 to 2.33)
15+	31	1.25	24.8	(16.9 to 35.2)	39	50.9	0.77	(0.54 to 1.05)

N = Total number of deaths in 8 year period
Rate = Average annual rate per 100,000 population at risk
* Psychiatric contact in year before event leading to death
** difference significant p<0.05

TABLE 5.9B: RATIO OF STANDARDISED SUICIDE RATIOS OF RECENT PSYCHIATRIC
PATIENTS (SSR1) AND OTHER CITY RESIDENTS (SSR2) BY SEX

	MALES		FEMALES	
	RATIO (SSR1/SSR2)	95% CI	RATIO (SSR1/SSR2)	95% CI
15-24	85.0	(20.5 to 334)	30.7	(0.52 to 590)
25-34	26.2	(10.1 to 64.0)	0.0	
35-44	20.5	(7.1 to 53.3)	118.0	(28.2 to 688)
45-54	75.0	(31.5 to 18.7)	33.8	(9.7 to 111)
55-64	21.4	(6.1 to 61.2)	42.2	(14.5 to 119)
65-74	12.2	(2.2 to 46.3)	26.1	(7.8 to 79.4)
75+	23.9	(1.7 to 33.0)	3.1	(0.97 to 25.6)
15+	31.3	(21.2 to 45.8)	32.4	(19.5 to 53.2)

FIGURE 5.6
MALES
RATIO STANDARDISED SUICIDE RATIO (SSR)
(RECENT PATIENTS/OTHER CITY RESIDENTS)
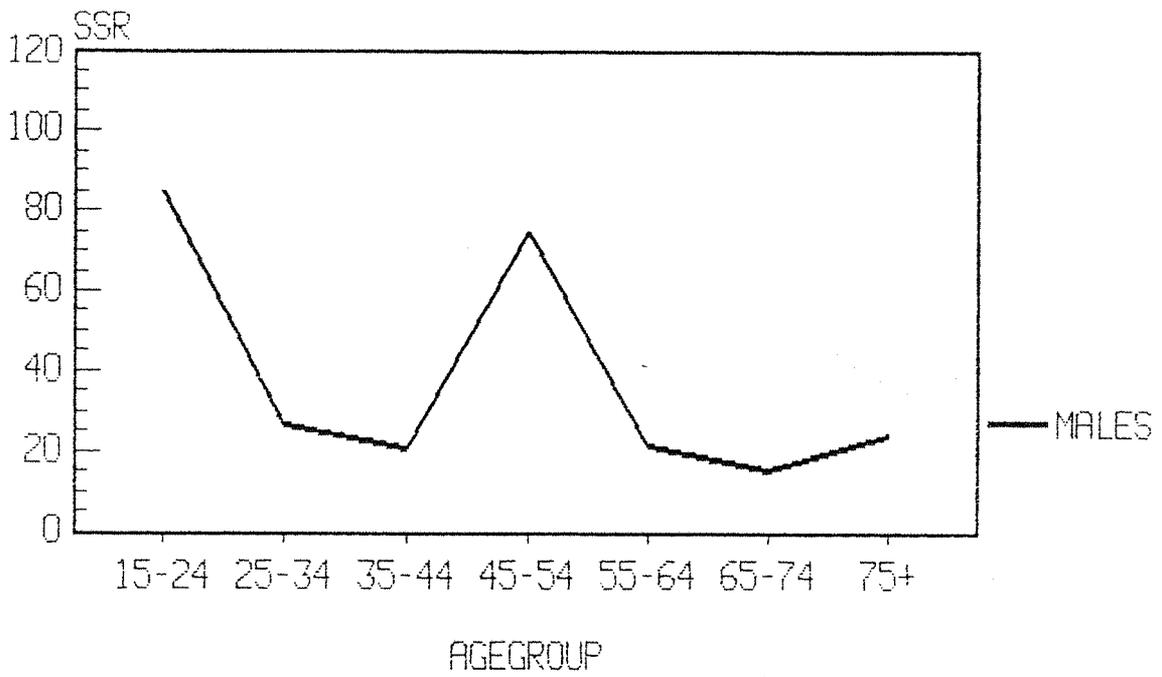
FIGURE 5.7
FEMALES
RATIO STANDARDISED SUICIDE RATIO (SSR
(RECENT PATIENTS/OTHER CITY RESIDENTS)
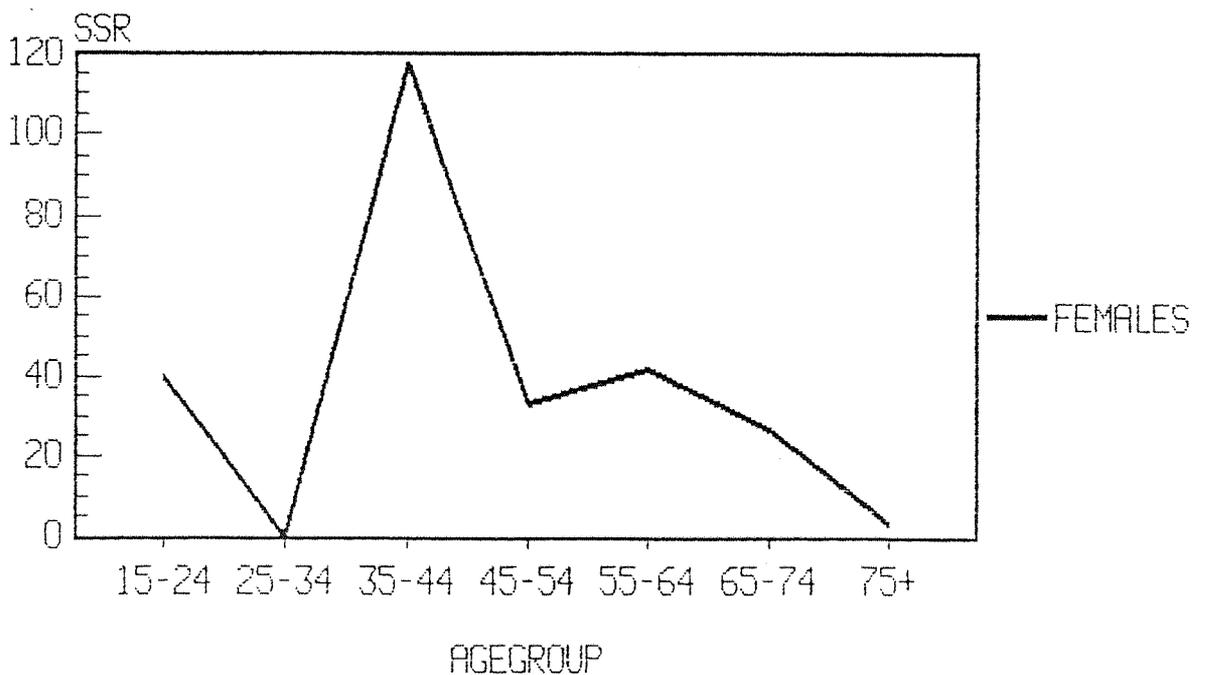
RELATIVE RISK
Definition

The relative risk of an event V occurring when a specific factor F is present is the ratio of the rate of occurrence of V when F is present to the rate of occurrence of V when B is absent (Cornfield, 1951).

In the case of interest here V is the fact of being in contact with a psychiatrist in the year before the event leading to the violent death, and F is the violent death itself.

Calculation

Since rates are always expressed with respect to the same number, 100,000, of population at risk, it follows that :

$$\text{Relative Risk} = \frac{\text{risk of dying a violent death if seen by a psychiatrist within a year of death}\quad (A)}{\text{risk of dying a violent death if not seen by a psychiatrist}\quad (B)}$$

where

$$A = \frac{\text{N of recent patients who died violent death}}{\text{N of patients seen by a psychiatrist in that year}}$$

and

$$B = \frac{\text{N of other residents who died a violent death}}{\text{N of residents in population not seen by a psychiatrist}}$$

Using the method outlined above the relative risk of dying from suicide, selected accidental causes, and undetermined deaths were calculated for Southampton city residents whose last psychiatric contact was less than a year before the event leading to their death (ELD).

Comparisons are made between the relative risk of violent death for recent psychiatric patients and other residents of the City of Southampton by verdict group, year of death, agegroup, diagnosis and type of psychiatric care in year before event leading to death.

Relative risk by verdict group

From Table 5.10 it is clear that although the increased risk of suicide is greater than that of accidental or undetermined death the differences are not statistically significant. Therefore, in comparing the increased risk of violent death over time, by agegroup and diagnostic group the patients in the three verdict groups have been treated as a single group, except in the case of the temporal variation for which the increased risk of suicide has been shown separately in Figure 5.8.

FIGURE 5.8

RELATIVE RISK OF VIOLENT DEATH
(RECENT PATIENTS/OTHER CITY RESIDENTS)

RELATIVE RISK OF VIOLENT DEATH

(S+A+OV)

SUICIDE
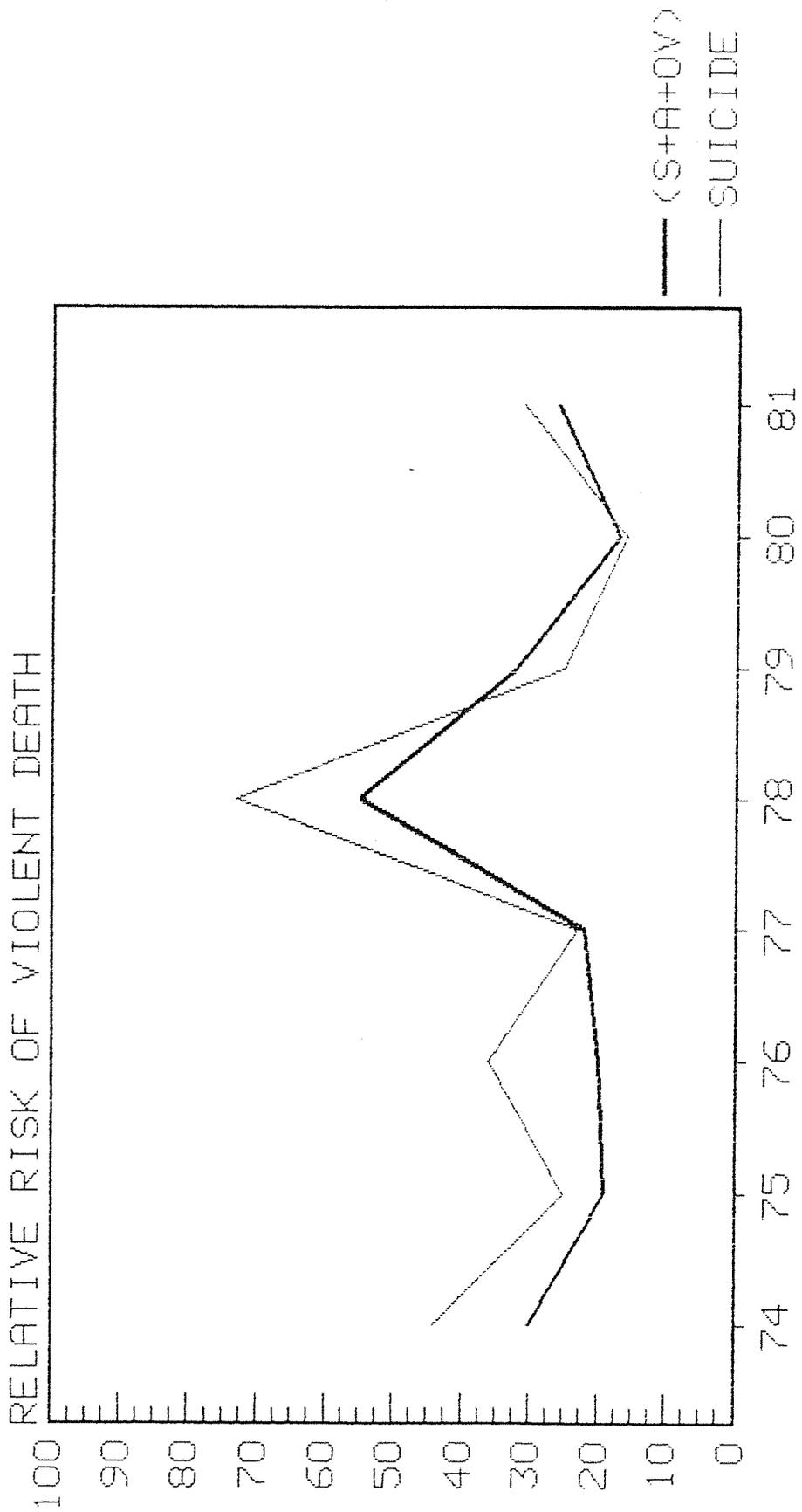
YEAR OF EVENT LEADING TO DEATH

TABLE 5.10: VIOLENT DEATH RATES FOR SOUTHAMPTON CITY RESIDENTS BY INQUEST
VERDICT AND PSYCHIATRIC PATIENT STATUS AT TIME OF EVENT
LEADING TO VIOLENT DEATH AND RELATIVE RISK OF VIOLENT DEATH
FOR RECENT PSYCHIATRIC PATIENTS COMPARED WITH OTHER RESIDENTS

VERDICT	RECENT PSYCHIATRIC PATIENTS*				OTHER CITY RESIDENTS				RELATIVE RISK (RR)	
	N	Rate	(95% CI	Rate)	N	Rate	(95% CI	Rate)	Recent /Others	95% CI RR
Suicide	77	275	(212 to	338)	114	8.8	(7 to	10)	31	(23 to 41)
Accident	34	121	(79 to	163)	73	5.7	(4 to	7)	21	(10 to 42)
Open Verdict	10	36	(13 to	58)	23	1.8	(1 to	3)	20	(14 to 32)
All Verdicts	121	432	(354 to	510)	210	16.3	(14 to	19)	26	(21 to 32)

N = Total number of deaths in 8 year period
Rate = Average annual rate per 100,000 population at risk
* Psychiatric contact in year before event leading to death

Changes in relative risk of violent death during study period

Changes in the relative risk of suicide, and of all (S+A+OV)
violent deaths, between 1974 and 1981 for City residents with and
without a history of a recent psychiatric contact are shown in Figure
5.8 and Tables 5.11A and 5.11B.

TABLE 5.11A: RATES OF SUICIDE BY YEAR OF DEATH AND RELATIVE RISK OF
VIOLENT DEATH FOR RECENT PSYCHIATRIC PATIENTS COMPARED
WITH OTHER CITY RESIDENTS

	RECENT PATIENTS		OTHER RESIDENTS		RELATIVE RISK (RR)	
Suicide						
	N	Rate	N	Rate	Recent pats/others	95% CI RR
1974	11	352	13	8.0	44	(20 to 98)
1975	8	228	15	9.2	25	(10 to 58)
1976	8	219	10	6.2	36	(14 to 90)
1977	9	259	18	11.1	23	(10 to 52)
1978	14	407	9	5.5	73	(32 to 169)
1979	8	233	15	9.3	25	(11 to 59)
1980	6	164	16	10.0	16	(6 to 42)
1981	13	348	18	11.4	31	(15 to 62)

TABLE 5.11B: RATES OF TOTAL (S+A+OV) VIOLENT DEATH BY YEAR OF DEATH
AND RELATIVE RISK OF VIOLENT DEATH FOR RECENT
PSYCHIATRIC PATIENTS COMPARED WITH OTHER CITY RESIDENTS

	RECENT PATIENTS		OTHER RESIDENTS		RELATIVE RISK (RR)	
All violent deaths (S+A+OV)						
	N	Rate	N	Rate	Recent pats/others	95% CI
1974	14	449	24	14.8	30	(16 to 58)
1975	10	285	25	15.4	19	(9 to 38)
1976	11	301	24	14.8	20	(10 to 41)
1977	15	432	32	19.7	22	(12 to 40)
1978	26	757	22	13.6	55	(31 to 98)
1979	15	437	22	13.7	32	(17 to 61)
1980	13	355	33	20.6	17	(9 to 33)
1981	17	455	28	17.7	26	(14 to 47)

N = Total number of deaths in 8 year period

Rate = Average annual rate per 100,000 population at risk

* Psychiatric contact in year before event leading to death

Sex and relative risk

The relative risk of violent death by sex is shown in Table 5.12.
It is notable that the relative risk for recent female patients is
significantly greater than that for males in each of the verdict groups,
accident and open verdict, but not for suicides.

Age and relative risk

Table 5.13 shows that the relative risk of violent death, from sui-
cide, accident or undetermined causes, is significantly greater for all
recent psychiatric patients, compared with other residents, in every
agegroup except for the over 64's.   The increased risk for male
psychiatric patients lasts longer in males for whom it persists into
the senium.   A significantly increased risk of violent death is found
in female patients aged 25 to 64 (Figure 5.9).

In residents with no recent psychiatric contact the violent death rate
increases with increasing age for both sexes combined but decreases
sharply in recent psychiatric patients over the age of 74.

TABLE 5.12: RELATIVE RISK OF VIOLENT DEATH FOR SOUTHAMPTON CITY
           RESIDENTS (aged 15+) BY RECENT* PSYCHIATRIC STATUS,
           INQUEST VERDICT AND SEX 1974-1981

VERDICT	N	RATE(95% CI RATE)	N	RATE (95% CI RATE)	RELATIVE RISK(RR) RECENT /OTHERS	95% CI RR
MALES						
Suicide	46	382 (270 to 494)	75	12.2 (9 to 15)	31	(22 to 45)
Accident	15	125 (61 to 189)	49	8.0 (6 to 10)	16	(9 to 28)
Open Verdict	4	33 (0 to 66)	18	2.9 (13 to 58)	11	(4 to 33)
S+A+OV	65	540 (406 to 674)	142	23.1 (19 to 27)	23	(17 to 31)
FEMALES						
Suicide	31	194 (124 to 264)	39	6.0 (4 to 8)	32	(20 to 52)
Accident	19	119 (64 to 174)	24	3.7 (2 to 5)	32	(18 to 59)
Open Verdict	6	37 (7 to 69)	5	0.8 (0 to 2)	49	(15 to 161)
S+A+OV	56	351 (257 to 445)	68	10.4 (8 to 13)	33	(23 to 48)

N = Total number of deaths in 8 year period
Rate = Average annual rate per 100,000 population at risk
* Psychiatric contact in year before event leading to death

Treatment in year before event leading to death and relative risk

The relative risk of violent death for psychiatric patients who
have been treated as inpatients in the year before their violent death
is double that of patients treated only as outpatients, a significant
increase (RR = 2.1; 95%CI 1.4 to 3.0). As far as verdict is concerned,
the relative risk of both suicide and accidental death is significantly
increased for recent inpatients (Table 5.14). Rorsman (1974) restated
the findings of a previous study, that the overall mortality of
outpatients was not significantly higher than that of inpatients but
that suicide was over-represented amongst outpatients in both sexes, and
fatal accidents were over-represented in males. No breakdown by sex for
recent inpatients and recent outpatients was possible in this study.

TABLE 5.13: RELATIVE RISK OF ALL VIOLENT DEATH FOR SOUTHAMPTON CITY
RESIDENTS BY AGE GROUP AND PSYCHIATRIC PATIENT STATUS
AT TIME OF EVENT LEADING TO VIOLENT DEATH BY AGE AND SEX

Both sexes	RECENT PSYCH PATIENTS*		CITY RESIDENTS NOT IN RECENT PSYCH CONTACT		RELATIVE RISK (RR)	
	N	Rate	N	Rate	Recent pats /others	95% CI RR
15-24	9	230	29	10.9	21	(10 to 45)
25-34	21	374	27	11.7	32	(18 to 56)
35-44	28	677	31	17.5	39	(23 to 64)
45-54	28	746	38	21.9	34	(21 to 56)
55-64	16	521	38	21.0	25	(14 to 45)
65-74	15	499	28	19.3	26	(14 to 48)
75+	4	88	19	20.9	4	(2 to 12)
[65+	19	283	47	20.0	13	(7 to 21)]
15+	121	432	210	16.6	26	(19 to 35)
Males	N	Rate	N	Rate	Recent pats /others	95% CI RR
15-24	6	346	19	14.0	24	(11 to 51)
25-34	15	541	25	21.0	26	(13 to 48)
35-44	15	710	24	26.5	27	(14 to 51)
45-54	16	922	29	33.6	27	(15 to 50)
55-64	6	466	21	24.0	19	(8 to 48)
65-74	5	428	15	22.9	19	(7 to 51)
75+	2	162	9	30.1	5	(1 to 25)
[65+	7	292	24	25.2	11	(5 to 26)]
15+	65	540	142	23.1	23	(17 to 31)
Females	N	Rate	N	Rate	Recent pats /others	95% CI RR
15-24	3	138	10	7.6	18	(5 to 66)
25-34	6	211	2	1.8	118	(24 to 586)
35-44	13	642	7	8.1	79	(32 to 198)
45-54	12	595	9	10.3	58	(24 to 137)
55-64	10	561	17	10.1	31	(14 to 67)
65-74	10	546	13	16.4	33	(14 to 75)
75+	2	61	10	16.5	4	(1 to 17)
[65+	12	234	23	16.4	14	(7 to 29)]
15+	56	351	210	10.4	34	(24 to 48)

N = Total number of deaths in 8 year period
Rate = Average annual rate per 100,000 population at risk
* Psychiatric contact in year before event leading to death

FIGURE 5.9

RELATIVE RISK OF VIOLENT DEATH
(RECENT PATIENTS/OTHER CITY RESIDENTS)
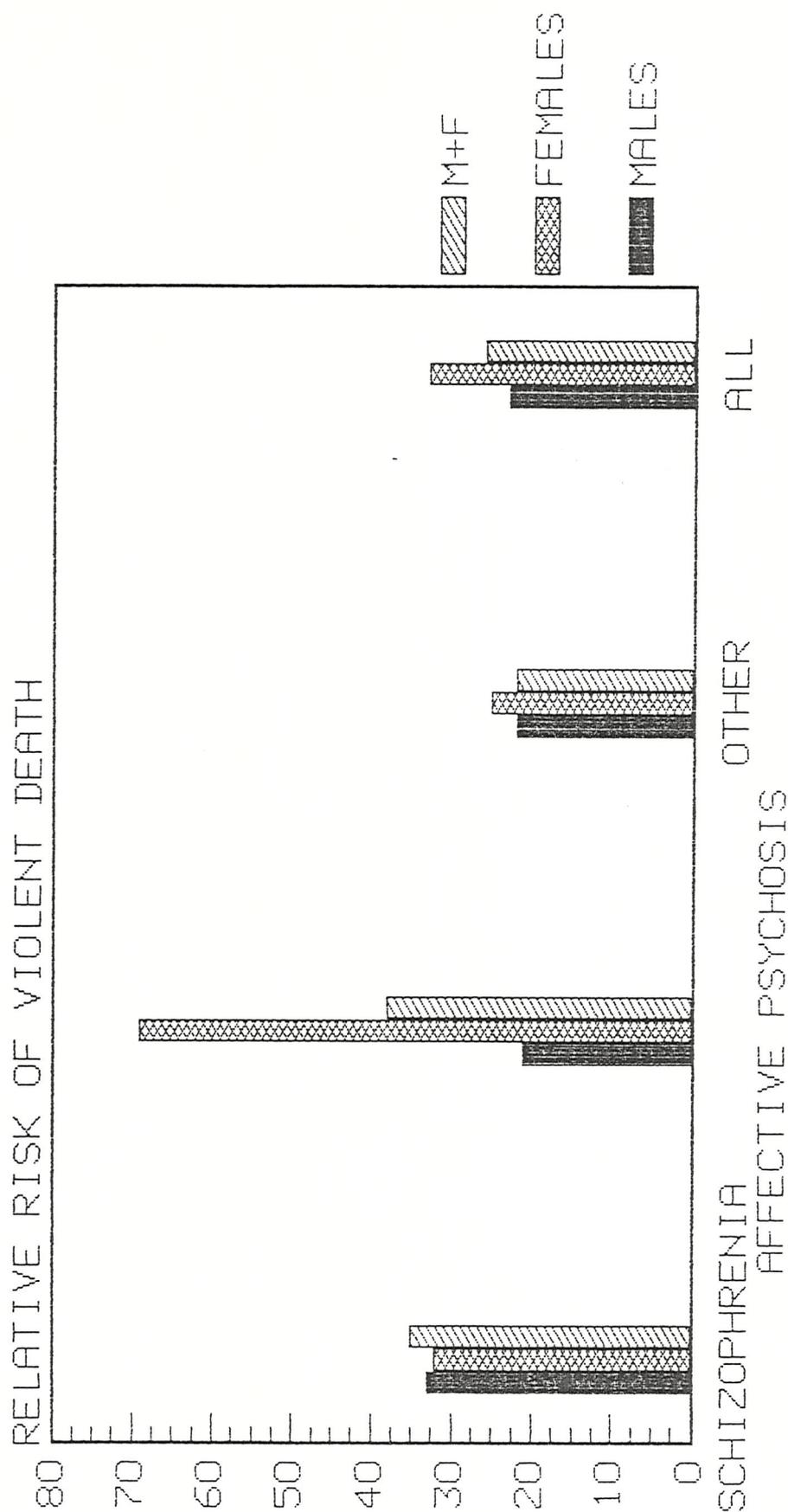
TABLE 5.14: RELATIVE RISK OF VIOLENT DEATH FOR PATIENTS TREATED AS
INPATIENTS, AND OUTPATIENTS (ONLY) IN THE YEAR BEFORE THE
EVENT LEADING TO DEATH

INQUEST VERDICT	RECENT INPATIENTS*				RECENT OUTPATIENTS**				RELATIVE RISK (RR) (RECENT INPATIENTS /RECENT OUTPATIENTS)	
VERDICT	N	Rate	(95% CI Rate)		N	Rate	(95% CI Rate)		RR	95% CI RR
Suicide	39	440	(299 to 581)		38	198	(134 to 262)		2.2	(1.4 to 3.4)
Accident	17	191	(99 to 285)		17	89	(46 to 132)		2.2	(1.1 to 4.2)
Open Verdict	4	45	(0 to 90)		6	31	(6 to 56)		1.4	(0.4 to 5.1)
(S+A+OV)	60	676	(502 to 850)		61	318	(237 to 399)		2.1	(1.4 to 3.0)

N = Total number of deaths in 8 year period
Rate = Average annual rate per 100,000 population at risk
* Psychiatric contact in year before event leading to death
* RECENT INPATIENT – admitted to mental hospital in the year before the
event leading to death
** RECENT OUTPATIENT – treated only as an outpatient during year before
event leading to death

Diagnosis and relative risk

The relative risk of violent death was calculated for selected
diagnostic groups in Southampton City residents with a contact on the
Southampton Psychiatric Case Register in the year before the event
leading to their violent death and are shown in Table 5.15.

Sex, diagnosis and relative risk

Sex differences are shown in Table 5.15. (It was only possible to
obtain a sex breakdown by the diagnostic groups shown). Only in the case
of females with a diagnosis of affective psychosis is the relative risk
of violent death significantly greater than for patients suffering from
other psychiatric illnesses.

TABLE 5.15: RELATIVE RISK OF VIOLENT DEATH FOR RECENT PSYCHIATRIC PATIENTS COMPARED WITH OTHER CITY RESIDENTS BY PSYCHIATRIC DIAGNOSIS AND SEX

DIAGNOSIS	SEX	N RECENT PATIENTS	RELATIVE RISK(RR)**	95% CI RR
Schizophrenia	M	15	33	(19 to 56)
(295)	F	5	32	(13 to 79)
	M+F	20	35	(22 to 55)
Affective	M	7	⌈ 21	(10 to 44)
Psychosis	F	20	* ⌊ 69	(42 to 113)
(296)	M+F	27	38	(26 to 57)
Other diagnoses	M	43	22	(15 to 30)
	F	31	25	(17 to 39)
	M+F	74	22	(17 to 28)
All recent	M	65	23	(17 to 31)
Patients	F	56	33	(23 to 48)
	M+F	121	26	(21 to 33)
Other	M	142	1	
Residents	F	68	1	
	M+F	210	1	

* Difference significant (p<0.05)

** Relative risk compared with all other residents of same sex

Relationship between risk and recent psychiatric contact

The significantly increased risk of violent death in patients who are in psychiatric care, or have been seen by a psychiatrist within the last year does not prove a causal relationship, but a high relative risk does increase the plausibility of a causal hypothesis.

The **population attributable risk** does, however, provide an immediate sense of the importance of a risk factor.

Definition

Attributable risk has been defined as the maximum proportion of cases of a disorder in the population as a whole that can be uniquely attributed to the experience of a risk factor (Levin, 1953).

Interpretation

The attributable risk was interpreted as follows by Fleiss (1981): if the risk factor could be eliminated the rate of occurrence of the outcome characteristic would be reduced. Since exposure to risk factor is not necessary for the occurrence of the outcome condition a proportion of people without the risk factor will still develop it.

Calculation of attributable risk

When data are collected as part of routine registration of vital events, as in this study, the attributable risk (AR) may be estimated by the formula below (Markush, 1977) which relates to Table 5.16.

$$AR = \frac{p11p22 - p12p21}{(p.1)(p2.)}$$

TABLE 5.16: CLASSIFICATION OF OUTCOME BY EXPOSURE TO RISK FACTOR

	OUTCOME		
RISK FACTOR	Violent Death	No Violent Death	Total Pop at Risk
Recent Contact with Psychiatrist	p11	p12	p1.
No Recent Contact	p21	p22	p2.
	p.1	p.2	1

where:

$$p11 + p12 = p1. \quad ; \quad p21 + p22 = p2.$$

$$p11 + p21 = p.1 \quad ; \quad p12 + p22 = p.2$$

and

$$p11 + p21 + p12 + p22 = p.1 + p.2 = p1. + p2. = 1.$$

For each x and y, pxy is, for the relevant category associated by x and y, a proportion of N, the total population under consideration.

Confidence intervals for attributable risk

A simple expression for the standard error of ln(1-AR) was derived by Fleiss (1979), which is related to a much more complicated expression for the standard error itself (Walter, 1976). Approximate 95% confidence intervals were calculated here using Fleiss' method (Fleiss, 1981).

$$se \left[\ln(1 - AR) \right] = \left[\frac{p12 + AR \ (p11 + p22)}{N \times p21} \right]^{1/2} = X$$

An approximate 95% confidence interval for ln(1-AR) is calculated by using the following formula:

$$X - 1.96 \times AR <= \ln(1-AR) <= X + 1.96 \times AR.$$

Then taking the antilogarithms of the limits, the complements of these limits with respect to unity give the approximate 95% confidence intervals for the attributable risk itself.

Verdict group

The population attributable risk per cent of recent mental illness for Southampton city residents in the three verdict groups (based on population figures in Appendices 18A and 18B) is summarised in Table 5.17. There is very little variation of the population attributable risk which runs from 30-40% if it is not broken down by sex.

TABLE 5.17: POPULATION ATTRIBUTABLE RISK PER CENT FOR VIOLENT DEATH
ASSOCIATED WITH SEVERE MENTAL ILLNESS AS EVIDENCED BY A
RECENT CONTACT WITH A PSYCHIATRIST

VERDICT GROUP	MALES		FEMALES		BOTH SEXES	
	PAR%	95% CI	PAR%	95% CI	PAR%	95% CI
Suicide	37	(35 to 39)	43	(41 to 45)	40	(39 to 42)
Accident	22	(20 to 24)	43	(41 to 44)	32	(30 to 33)
Open verdict	17	(15 to 18)	53	(52 to 55)	30	(29 to 31)
S+A+OV	30	(28 to 32)	44	(42 to 45)	36	(35 to 38)

Sex difference

Recent mental illness, as evidenced by a recent contact with a
psychiatrist, accounts for a significantly higher proportion of violent
deaths in females (44%) than in males (30%) for all verdict groups.

If the effect of mental illness were removed, the number of male
accidental and undetermined deaths would only be reduced by about half
the reduction expected in the corresponding female groups.

GENERALISATION TO THE WHOLE CATCHMENT AREA POPULATION

From Table 5.18 it is clear that the characteristics of the
residents of the City of Southampton with a history of mental illness
are very similar to those of the catchment area as a whole, in terms of
the proportion who have been referred, admitted, and treated in the year
before the event leading to their death. The assumption is now made that
all the residents in each verdict group with a history of referred
mental illness can be treated as a single group.

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TABLE 5.18: COMPARISON BETWEEN CATCHMENT AREA RESIDENTS AND SOUTHAMPTON
CITY RESIDENTS IN RESPECT OF THEIR LIFETIME PSYCHIATRIC
HISTORIES BY VERDICT 1974-1981

	SUICIDE		ACCIDENT		OPEN VERDICT		S+A+OV	
	N	(%)	N	(%)	N	(%)	N	(%)
ALL CA RESIDENTS	245	(100)	127	(100)	41	(100)	412	(100)
HISTORY OF REFERRED MENTAL ILLNESS								
Never referred	99	(40.4)	63	(50.0)	19	(46.3)	181	(43.9)
Referred	146	(59.6)	63	(50.0)	22	(53.7)	192	(56.1)
Inpatient (IP) treatment	93	(38.0)	47	(37.3)	13	(31.7)	153	(37.1)
Recent contact	93	(38.0)	39	(31.0)	15	(36.6)	147	(35.7)
In care at time of ELD	49	(20.0)	22	(17.5)	11	(26.8)	82	(19.9)
ALL CITY RESIDENTS	191	(100)	107	(100)	33	(100)	331	(100)
HISTORY OF REFERRED MENTAL ILLNESS								
Never referred	72	(37.7)	51	(47.7)	16	(48.5)	139	(42.0)
Referred	119	(62.3)	56	(52.3)	17	(51.5)	192	(58.0)
Inpatient (IP) treatment	79	(41.4)	44	(41.1)	10	(30.3)	133	(40.2)
Recent contact	77	(40.3)	34	(31.8)	10	(30.3)	121	(36.6)
In care at time of ELD	45	(23.7)	21	(19.6)	8	(24.2)	74	(22.3)

How does the excess violent death mortality of recent patients in
Southampton compare with that reported in other studies?

Rates

It is not easy to make a direct comparison between the average
annual rates of suicide calculated in this study and other studies
because of the different patient groups studied, but the Southampton
City rates are of the same order of magnitude as those found by others
(Table 5.19).

TABLE 5.19: SUICIDE RATES IN PSYCHIATRIC PATIENTS

STUDY	PATIENT GROUPS	AV ANNUAL SUICIDE RATE /100,000 PATIENTS		
		SEX	RATE	95%CI
Borg and Stahl,1982	Inpatients+outpatients	M+F	526	
Innes and Millar,1970	All psychiatric contacts	M	348	
		F	243	
		M+F	286	
Rorsman et al,1982	All patients (Prosp)	M	236	
Pokorny,1964	Inpatients	M+F	566	
Gardner et al,1964	Inpatients	M+F	351	
Koranyi,1977	Outpatients	M+F	265	
Present study	Recent patients	M+F	275	(213to337)
	(Last contact <365	M	382	(272to491)
	days before death)	F	194	(125to262)
	Recent inpatients	M+F	440	(299to581)
	Recent outpatients	M+F	198	(134to262)

The Southampton City suicide rate of 198 /100,000 /year outpatients treated is lower than the 265 reported by Koranyi (1977) for outpatients, but the latter group included some recently discharged inpatients.

The combined male and female rates for the different diagnostic groups are similar to those reported in other studies. In particular, the finding of the lowest suicide rate among patients with chronic organic brain syndrome, and the highest rates for those suffering from psychotic illnesses (schizophrenia and affective psychosis), reported by Gardner et al (1964), Farberow et al (1971), Farberow et al (1966), Gale (1980), and Black et al (1985a, 1985b, 1985d) is replicated.

A sex difference was reported by Gardner et al (1964) who found that male suicide rates exceeded the corresponding female rates in each diagnostic group. In the present study, although the suicide and (S+A+OV) rates for all recent male patients were significantly higher

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than those for all recent female patients, the sex difference was not reflected in all diagnostic groups. Both the suicide and (S+A+OV) rates for females with a diagnosis of affective psychosis were higher than the the corresponding male rates, but the difference is not statistically significant.

From Figure 5.5, which shows the 95% confidence intervals of the rates, it can be seen that there is no significant difference between the total (S+A+OV) rate of violent death of patients with diagnoses other than for those with organic brain syndrome and those for whom no diagnosis was possible. Examination of the rates shown in Table 5.6 show that the rate of accidental death in patients with alcohol and personality related disorders is significantly higher than the corresponding suicide rates.

The accidental rate for neurotic patients, although significantly lower than the suicide rate, is still significantly higher than the suicide rate for the other residents. Sims (1973) found that non-suicide verdicts were returned on five out of eight neurotic patients whose deaths were 'attributable to mental illness'. In a subsequent study to assess the increased mortality associated with neurosis (Sims and Prior, 1978) a significant excess of mortality due to suicide and accidental death was found. Their results refuted the view that neurosis is: '... a benign and a very rare cause of death' and 'a prolonged and irritating condition which occurs independently of, or alongside, somatic illness, and makes management of the latter more difficult'. Black et al (1985d) have also reported significantly increased suicide mortality in depressive neurosis and alcohol and drug related disorders, and a significantly increased accidental death rate in both male and female personality disorders.

A doubling of the rates of suicide for patients with a diagnosis of neurotic disorder and personality disorder (often associated with neurosis) was reported by Gardner et al (1964) in patients over the age of 55. No rates could be calculated by age in the present study.

Relative risk

A comparison with studies which have calculated the relative risk of suicide shows that the results of this study are consistent with previous reports (Table 5.20).

The relative risks of accidental death and undetermined death found in this study are not significantly greater than the risk of suicide in recent psychiatric patients but are, however, very much higher than

those reported in other studies (Rorsman et al, 1982: Acc x 3(M+F); Black et al, 1985b: Acc x2 (M); x4 (F); Innes and Millar, 1970: Acc x1(M); x3(F); Babigian and Odoroff, 1969: x3(M+F)).

The most probable explanation for this difference is the definition of what constitutes an 'accidental' death. Most of the comparative studies have used official statistics to generate the total numbers of suicides and 'accidents'. The larger the total numerator used in calculating the 'expected' number of deaths from those causes, (where the 'expected' number = national rate (or total number of 'accidents/total population at risk)); the larger the 'expected' number becomes, and hence the smaller the relative risk, or (observed/expected) ratio.

In this study the number of accidental deaths is restricted to those corresponding to the ten causes of suicide, as defined by the ICD9 code. The accidental deaths from these selected causes represented 13% , or about 1/7, of all accidental deaths in England and Wales during the study period. If the relative risks of accidental death reported in the above studies are multiplied by a factor of 7 the results are of the same order of magnitude as found in the present study.

Attributable risk

The finding that less than half of the risk of violent death is attributable to severe mental illness provides additional evidence to support the view that other factors, such as social and physical problems must also be taken into account if the number of self-inflicted violent deaths is to be reduced. Even if the effect of severe mental illness, as diagnosed by recent psychiatric contact, were eliminated, the overall risk of self-inflicted violent death, would be reduced by a factor of only one third. In other words, two thirds of the risk of violent death is not attributable to severe mental illness. For suicides this proportion is three fifths; higher than might be expected. Of course, not all severe psychiatric illness is treated by the psychiatric service, and the onus of reducing the part of the overall risk which could be attributed to less severe mental illness (which is not calculable here) must fall on the General Practitioner, who is usually also responsible for care in the year following discharge from the psychiatric service. The recognition of social risk factors which, in combination with a mental or physical illness, may precipitate a self-inflicted death is obviously important. In Chapter 8 the epidemiology of violent death in the catchment area is described, and the factors which

differentiate victims with and without a history of mental illness are discussed.

TABLE 5.20: REPORTS OF INCREASED RISK OF SUICIDE (AND OTHER VIOLENT DEATHS) IN PSYCHIATRIC PATIENTS

STUDY	SEX	COMPARISON BETWEEN	RELATIVE RISK (O/E)	
Rorsman et al 1982	M	Mentally ill v not mentally ill	(Suicide)	27
Temoche et al 1964	M+F	Discharged IP's v Gen Pop	(Suicide)	34
Pokorny 1964	M+F	Schizophrenics v Gen Pop	(Suicide)	20
Koranyi 1977	M	Outpatients v Gen Pop	(Suicide)	23
	F	Outpatients v Gen Pop	(Suicide)	52
	M+F	Outpatients v Gen Pop	(Suicide)	31
Guze and Robins 1970	M+F	Affective Psychotics v Gen Pop	(Suicide)	30
Borg and Stahl 1982	M+F	Inpatients+outpatients v Gen Pop	(Suicide)	21
Black et al 1985b	M	Previously admitted patients v Gen Pop	(Suicide)	15
	F	Previously admitted patients v Gen Pop	(Suicide)	41
	M+F	Previously admitted patients v Gen Pop	(Suicide)	21
Innes and Millar 1970	M	All psychiatric contacts v Gen Pop	(Suicide)	25
	F	All psychiatric contacts v Gen Pop	(Suicide)	30
	M+F	All psychiatric contacts v Gen Pop	(Suicide)	27
Present study	M	Recent psych patients v Oth residents	(Suicide)	23
	F	Recent psych patients v Oth residents	(Suicide)	34
	M+F	Recent psych patients v Oth residents	(Suicide)	26
Present study	M	Recent psych patients v Oth residents	(Accidents)	16
	F	Recent psych patients v Oth residents	(Accidents)	32
	M+F	Recent psych patients v Oth residents	(Accidents)	21
Present study	M	Recent psych patients v Oth residents	(Undetermined)	11
	F	Recent psych patients v Oth residents	(Undetermined)	49
	M+F	Recent psych patients v Oth residents	(Undetermined)	20

In this section the effect of replacing a traditional mental hospital based psychiatric service with a District General Hospital Psychiatric service on the number of violent deaths among catchment area residents is examined.

The Southampton Department of Psychiatry was opened in May 1979 to provide a comprehensive inpatient and outpatient service for the population aged 15-64. The psychogeriatric service for the 65 and over population was unchanged throughout the six year period. Changes in the numbers of patient deaths in the 65 and over agegroup were used to control for any local changes not connected with the change in the psychiatric service.

Additional data, for the period 1.1.82 - 30.6.82, was collected by the same method as for the main study to enable the actual change in numbers of self-inflicted deaths of psychiatric patients in the three year periods before and after the opening of the Department of Psychiatry to be calculated. There was no change in local coroners during the extended period.

Inpatient deaths

Thirteen catchment area residents died from self-inflicted causes following admission to the Department of Psychiatry in the first three years of its history; in the previous three years only one resident of the same catchment area population had committed suicide after admission to Knowle Hospital (Table 6.1). There were no self-inflicted violent deaths among psychiatric inpatients over the age of 65 in either period.

The question to be answered is: 'Did the increase in the number of inpatient deaths of psychiatric patients represent a real increase in the number of deaths of patients treated by the new service?'

If the new Department of Psychiatry had actually caused an 'epidemic' of patient deaths, as suggested by the local press, the total number of deaths of patients treated by the service, or the proportion of recent patient deaths, should have increased significantly, with the number of deaths of residents never treated remaining essentially constant.

TABLE 6.1: INPATIENT DEATHS IN THE 3-YEAR PERIODS BEFORE AND AFTER
THE DEPARTMENT OF PSYCHIATRY (DOP) OPENED IN MAY 1979

	KNOWLE HOSPITAL	DEPARTMENT OF PSYCHIATRY
1976-77		
1977-78	1 Suicide	
1978-79		
1979-80		4 Suicides, 1 Accident
1980-81		4 Suicides
1981-82	1 Suicide*	2 Suicides, 1 Accident

* This patient had been admitted to the DOP and was transferred to
Knowle Hospital before the event leading to death

All residents of the catchment area

The total number of violent deaths from suicide, undetermined and
accidental deaths from the selected causes in the catchment area
increased from 155 in the period 21.5.76 - 20.5.79 ('Before') to 179 in
the period 21.5.79 - 20.5.82 ('After') (Table 6.2).

TABLE 6.2: NUMBER OF DEATHS OF CATCHMENT AREA RESIDENTS DYING IN THE
3-YEAR PERIODS BEFORE AND AFTER DEPARTMENT OF PSYCHIATRY (DOP)
OPENED IN MAY 1979

AGEGROUP	15-64				65 AND OVER				15 AND OVER			
	S	A	OV	S+A+OV	S	A	OV	S+A+OV	S	A	OV	S+A+OV
Before	64	45	13	122	19	11	3	33	83	56	16	155
After	86	42	13	141	25	10	3	38	111	52	16	179
Total	150	87	26	263	44	21	6	71	194	108	32	334

During both periods approximately three quarters of both the total
number of violent deaths, and the total number of suicides, occurred in
the population under the age of 65.

This finding suggests the change in the number of violent deaths
was not significantly different from that in the over 65 agegroup.

The increase in the total number of violent deaths in both age-
groups was due to the increase in the number of suicides. Deaths from
accidental and undetermined causes remained essentially constant. There
was no significant difference in the proportion of suicide verdicts
returned on the victims in the different agegroups in the periods before
and after the opening of the DOP. The increase in the number of suicides

was similar for both agegroups; 34% in the under 65's and 31% in the 65 and over agegroup.

Psychiatric patient status.

Changes in the numbers of victims with different histories of referred mental illness and types of psychiatric treatment are compared in Table 6.3.

Comparisons are made between the two age groups in respect of victims: A) with a lifetime history of psychiatric illness; B) with a recent psychiatric contact; C) who were 'in care' or current psychiatric patients at the time of their death; D) who had been discharged from inpatient care in the year before their death; E) who had never been referred to a psychiatrist. Changes in the number of patients who died violent deaths in the periods before and after the DOP opened are shown in Figure 6.1 for those on whom a suicide verdict was returned, and changes in patient status are shown in Figure 6.2 for all patients who died violent deaths.

TABLE 6.3: CHANGES IN THE NUMBERS OF VIOLENT DEATHS BY PSYCHIATRIC
PATIENT STATUS AND AGE-GROUP IN THE 3-YEAR PERIODS BEFORE
AND AFTER THE OPENING OF THE DEPARTMENT OF PSYCHIATRY

AGEGROUP	15-64				65 AND OVER				15 AND OVER			
	S	A	OV	S+A+OV	S	A	OV	S+A+OV	S	A	OV	S+A+OV
A: VICTIMS WITH A HISTORY OF PSYCHIATRIC REFERRAL												
Before	42	26	7	75	14	2	2	18	56	28	9	93
After	49	27	10	86	8	4	2	14	57	31	12	100
Total	91	53	17	161	22	6	4	32	113	59	21	193
B: RECENT PATIENTS (Psychiatric contact in year before ELD)												
Before	25	17	7	49	7	2	1	10	32	19	8	59
After	30	13	3	46	5	3	1	9	35	16	4	55
Total	55	30	10	95	12	5	2	19	67	35	12	114
C: CURRENT PATIENTS												
Before	13	9	5	27	2	2	1	5	15	11	6	32
After	21	8	1	30	4	3	1	8	25	11	2	38
Total	34	17	6	57	6	5	2	13	40	22	8	70
D: PATIENTS DISCHARGED FROM CARE <365 DAYS BEFORE ELD												
Before	12	8	2	22	5	0	0	5	17	8	2	27
After	9	5	2	16	1	0	0	1	10	5	2	17
Total	21	13	4	38	6	0	0	6	27	13	4	44
E: NEVER REFERRED TO A PSYCHIATRIST												
Before	22	19	6	47	5	9	1	15	27	28	7	62
After	37	15	3	55	17	6	1	24	54	21	4	79
Total	59	34	9	102	22	15	2	39	81	49	11	141

FIGURE 6.1
NUMBER OF VIOLENT DEATHS OF CA RESIDENTS
BY RECENT PATIENT STATUS, AGEGROUP AND
RELATIONSHIP OF ELD TO DOP OPENING

N DEATHS (Rec=Recent patient)
(Oth =Other resident)

OPEN VERD
ACCIDENT
SUICIDE

Rec(<65)   Rec(65+)   Oth(<65)   Rec(65+)
    Oth(<65)   Oth(65+)   Rec(<65)   Rec(65+)

BEFORE DOP   AFTER DOP
OPENED   OPENED
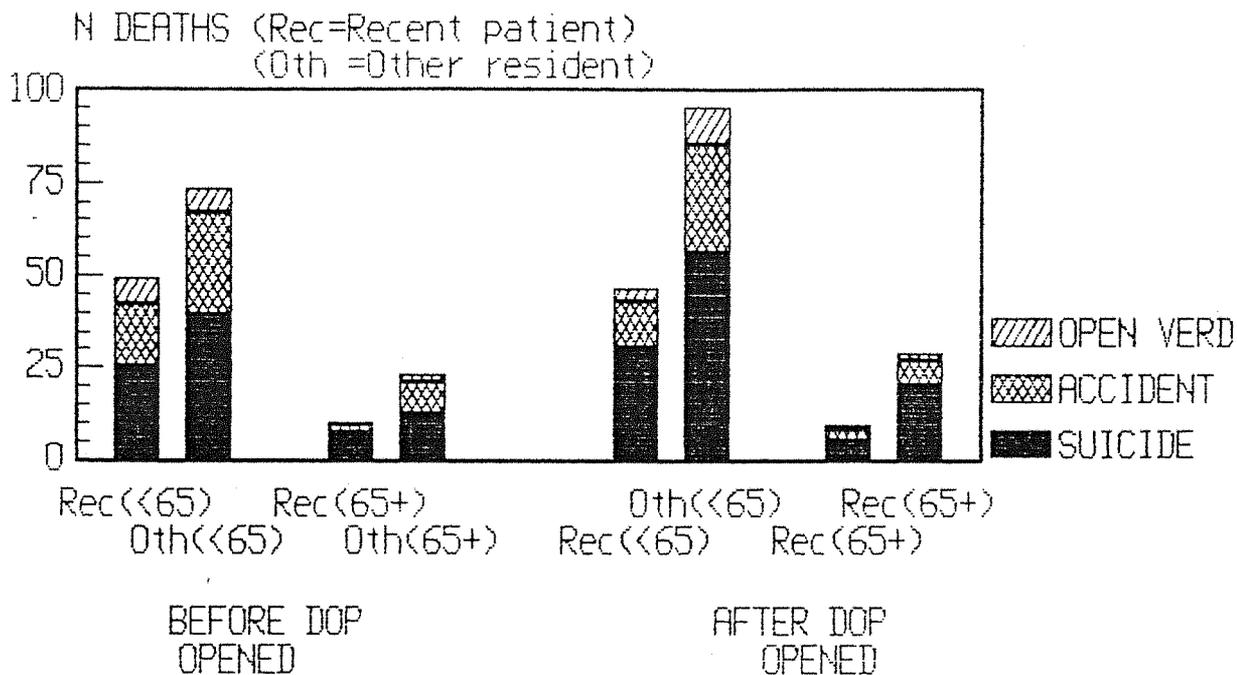
FIGURE 6.2
CHANGE IN PATIENT STATUS OF CA RESIDENTS
WHO COMMITTES SUICIDE BEFORE AND AFTER
DOP OPENED BY AGE-GROUP

% IN EACH CARE CATEGORY

CURRENTLY
IN CARE

NOT IN
PSYCH CARE

NEVER IN
PSYCH CARE

B(ALL)   A(ALL)   B(<65)   A(<65(B(65+)   A(65+)

RELATIONSHIP TO OPENING OF DEPARTMENT
OF PSYCHIATRY (DOP) AND AGE-GROUP

126
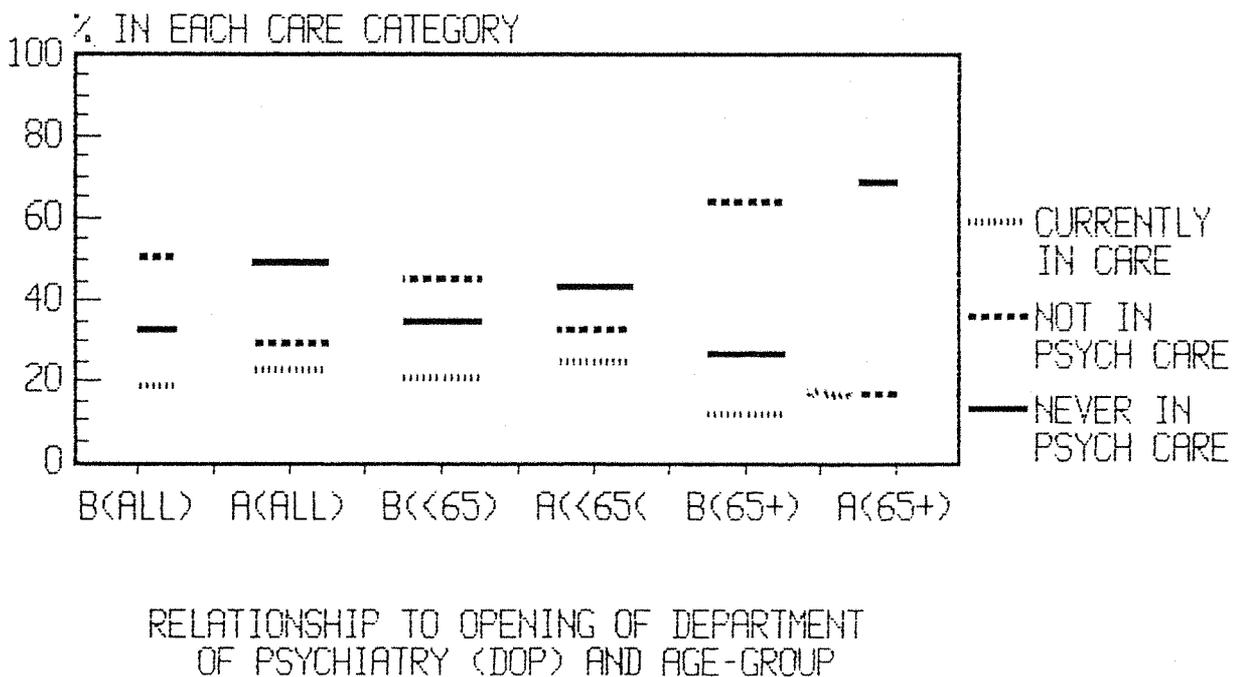
Changes in the pattern of inquests

Before the opening of the Department of Psychiatry all inpatients were treated at Knowle Hospital, situated in the countryside about 13 miles from Southampton. Psychiatric patients who died violent deaths after discharge from Knowle Hospital were subject to inquest by any one of a number of different coroners depending on where the body was found. No one coroner was aware of the total number of psychiatric patients who died. However, when patients died after admission to the Department of Psychiatry, even when their deaths occurred outside the hospital premises, the inquests were all held by the Southampton coroner, or his partner in the same firm of solicitors, HM Coroner for Western Hampshire.

Deaths of current inpatients outside the grounds of Knowle Hospital were uncommon because of its isolation. A number of Knowle inpatients died on the railway line which ran through the grounds but none of these were Southampton catchment area residents.

Changes in pattern of violent death

The increase in the total number of violent deaths of residents with a history of referred mental illness in the period after the DOP opened was 8% (from 93 to 100) compared with an increase of 27% (62 to 79) in the number of violent deaths of residents with no history of psychiatric referral.

If only deaths from suicide are considered the corresponding increases are 2% (from 56 to 57) and 100% (from 27 to 54) respectively!

Differences by psychiatric patient status and agegroup

i) Current patients

Figure 6.1 shows that the increase in the percentage of current patients in the under 65 agegroup who committed suicide is mirrored in the over 65 agegroup. In both agegroups the proportions of both residents ever referred to a psychiatrist, and of patients no longer in psychiatric care, decreased while the proportion of residents never referred to the psychiatric service increased, particularly in the 65 and over agegroup.

If changes in the psychiatric patient status of the violent death victims in the different agegroups are compared (Figure 6.2) it can be seen that there is no increase in the proportion of current psychiatric patients among the victims under the age of 65, but the proportion of elderly patients in care is slightly increased.

ii) Recently discharged patients

A decrease in the number of violent deaths, particularly in the number of suicides, among recent patients who had been discharged in the year before their death was found in both agegroups (Table 6.3D).

iii) Victims with no history of referred mental illness

The overall increase in the number of violent deaths, as shown in Table 6.3E, was accounted for almost exclusively by the increase in the number of deaths of persons never in contact with the local service (Figure 6.3).

Change in proportion of suicide verdicts returned on violent death victims

Table 6.4 summarises the proportion of suicide verdicts returned on the victims with and without a history of psychiatric referral by agegroup and patient status at the time of the event leading to death.

The proportion of suicide verdicts returned on the violent death victims increased significantly in the period after the Department of Psychiatry opened for both current patients and those never referred to a psychiatrist: from 48% to 70% for psychiatric patients under the age of 65 who were in care at the time of their death (p<0.5), and from 47% to 67% for CA residents of all ages who had never been referred to a psychiatrist (p=0.01) (Table 6.4).

Cause and effect?

The percentage of deaths of recent patients, and other residents is shown in Figures 6.3 and 6.4, for both the under 65 and 65+ age-groups. These figures illustrate that, despite the increase in the number of in-patient deaths, the change in the service for the 15-64 age group did not result in a significant increase in deaths of patients recently treated by the new service. In fact the increase was considerably less than the increase in numbers of violent deaths in residents never in contact with the service in both agegroups.

A similar increase in the number of suicides who had no previous contact with the psychiatric service relative to the number of suicides among former and current patients in the same population, between 1970-1 and 1975-6, was reported by Perris et al (Sweden, 1980). They also found that, although the number of deaths of psychiatric inpatients increased, there was no increase in the proportion of former patients in the suicide series.

FIGURE 6.3
PATIENT STATUS OF CA RESIDENTS WHO
COMMITTED SUICIDE BEFORE AND AFTER DOP
OPENED BY AGEGROUP

% DEATHS IN EACH CARE CATEGORY
BY AGEGROUP
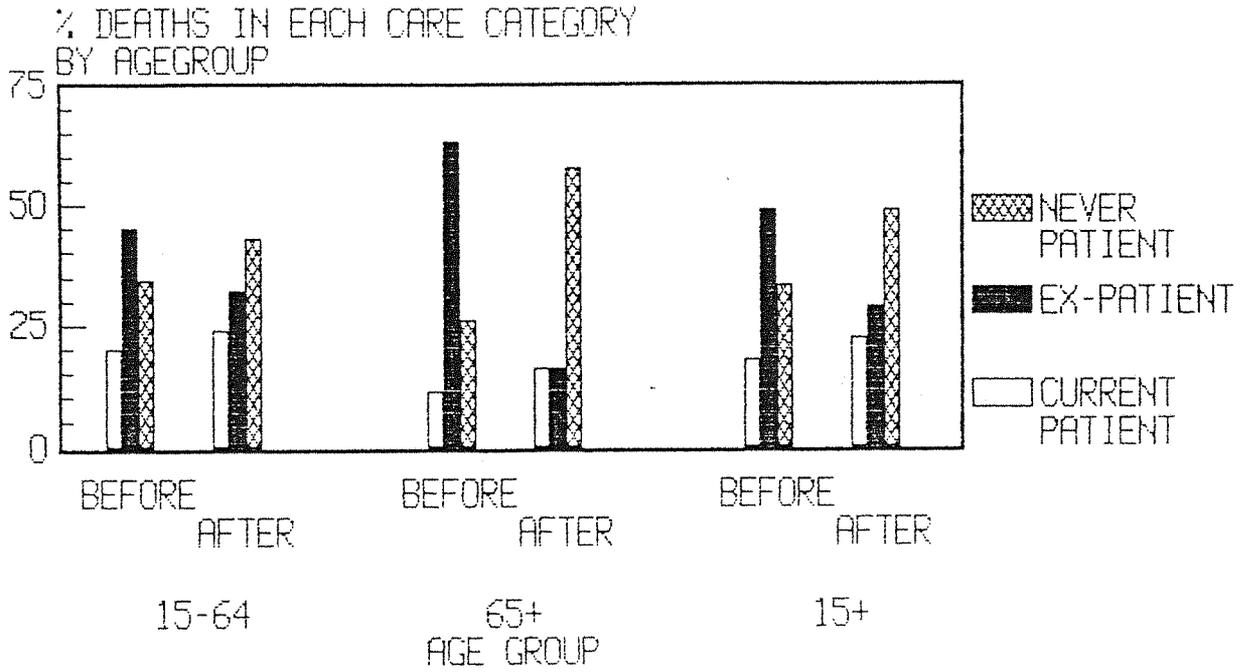
FIGURE 6.4
PATIENT STATUS OF CA RESIDENTS WHO
DIED VIOLENT DEATHS BEFORE AND AFTER
DOP OPENED BY AGEGROUP

% DEATHS IN EACH CARE CATEGORY
BY AGEGROUP
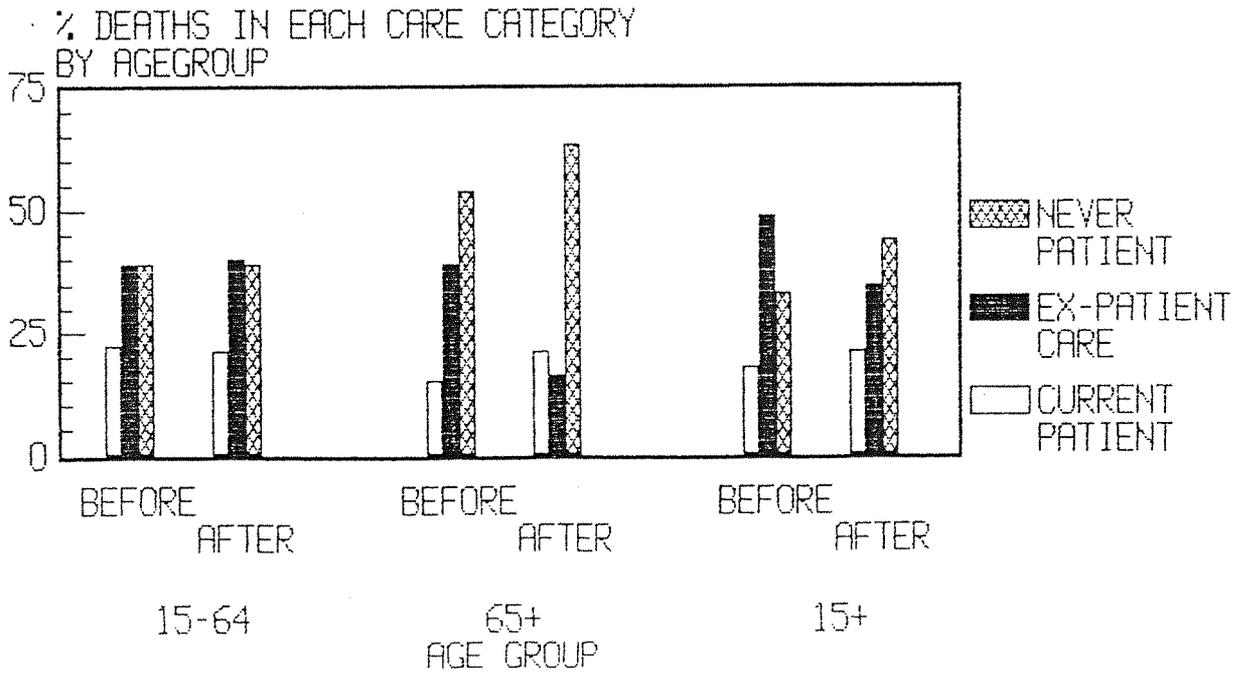
TABLE 6.4: CHANGES IN PROPORTION OF SUICIDE VERDICTS RETURNED ON VIOLENT
DEATH VICTIMS BY PSYCHIATRIC PATIENT STATUS AND AGEGROUP IN 3
YEAR PERIODS BEFORE AND AFTER DEPARTMENT OF PSYCHIATRY OPENED

PSYCHIATRIC PATIENT STATUS

	15-64		65 AND OVER		15 AND OVER	
	% SUICIDE VERDICTS	95%CI	% SUICIDE VERDICTS	95%CI	% SUICIDE VERDICTS	95%CI
A: HISTORY OF PSYCHIATRIC REFERRAL						
Before	56	(44 to 67)	78	(52 to 94)	60	(49 to 70)
After	57	(46 to 68)	57	(29 to 82)	57	(47 to 67)
B: RECENT PATIENTS (PSYCHIATRIC CONTACT IN YEAR BEFORE ELD)						
Before	51	(36 to 66)	70	(34 to 93)	54	(41 to 67)
After	65	(50 to 79)	56	(21 to 86)	64	(50 to 76)
C: CURRENT PATIENTS						
Before	48	(29 to 68)	40	(5 to 85)	47	(29 to 65)
After	70	(51 to 85)*	50	(16 to 84)	66	(49 to 80)*
D: NEVER REFERRED TO A PSYCHIATRIST						
Before	47	(32 to 62)	33	(12 to 62)	44	(31 to 57)
After	67	(53 to 79)**	71	(49 to 87)**	68	(57 to 78)**

* increase in proportion of suicide verdicts significant at 95% level
** increase in proportion of suicide verdicts significant at 99% level

It could be argued that if more people had been in contact the
total numbers of deaths might have been further reduced, and that bad
publicity associated with the inpatient deaths made people less willing
to be referred to, or to attend the Department of Psychiatry. Evidence
in inquest notes mentioned that three suicide victims had either refused
referral, or, having agreed to referral, had killed themselves before
their first appointment. There is, however, no evidence to support the
hypothesis that fewer patients were referred to the service after the
Department of Psychiatry opened. In fact statistics published by the
Southampton Psychiatric Case Register (Jennings, 1981) report that a
record number of first referrals were made in 1980, and an increased
number of patients were admitted.

These findings provide evidence to support the view that the
enormous increase in the number of inpatient deaths did not indicate a
significant increase in the total number of deaths of psychiatric
patients treated by the new service, but rather that acutely ill
psychiatric patients, at high risk of killing themselves, died in the
hospital instead of at home or elsewhere. The diagnoses of the

patients who died while undergoing treatment at the Department of
Psychiatry, as described in Section 7, confirm that almost all the
patients fall into the previously identified high risk diagnostic groups
of male schizophrenics and female affective psychotics.

Although the number of patients who died while receiving inpatient
care in the new Unit showed a dramatic increase compared with the
number who died in Knowle Hospital, there is very little evidence to
suggest that a greater number of recent psychiatric patients, both
inpatients and outpatients, died after the Department of Psychiatry
opened than would have been predicted from a study of the numbers of
recent patients who died when the service was based at Knowle Hospital.
Indeed, as shown in Figure 6.1 the numbers of recent patients actually
decreased in the second period.

Gardner et al (1964) reported that the proportion of current
patients who died while in psychiatric care was lower for those whose
last contact was inpatient than for patients being treated as
outpatients at the time of their suicide. They attributed this to the
protected environment that inpatient facilities provide. However, the
difference between chronic and acute inpatient facilities must be taken
into account.

Gale et al (1980) found that the suicide rate per 100,000 inpatient
years at risk was proportional to the ratio of total admissions to the
average inpatient census. Increases in this ratio reflect higher
inpatient turnover, and indicate a greater number of acutely ill
patients in the hospital at a particular time.

A comparison of the proportion of patients under 65 who were either
discharged or died within a week of admission to the Department of
Psychiatry in 1980-81 (446 or 30% of 1493 admissions), with the
corresponding figures for Knowle Hospital 1977-78 (306 or 21% of 1459
admissions), showed a significant increase (Diff = 9%; SEdiff = 1.59)
(Jennings, 1981, p14).

These figures suggest that an increase in the number of inpatient
deaths was only to be expected by virtue of the greater turnover of
patients.

Epidemics

Awareness of the problem of inpatient suicides has been increasing
in the last 20 years as evidenced by the plethora of reports in the
literature, particularly from the Scandinavian countries (Perris et al,
1980, quotes seven references to Scandinavian studies) but the problem
was not unrecognised before then.

Self-examination by hospitals of their record of inpatient deaths was stimulated by the Warlingham Park Hospital Enquiry (1976). The results have shown that clusters of suicides, or other violent deaths, among psychiatric inpatients are not uncommon, but that over a longer period the average number or rate of inpatient deaths do not vary greatly between hospitals.

'Epidemics' have been reported in a number of hospitals in the UK, over and above the one under study at the Department of Psychiatry in Southampton when 14 inpatients died in the first three years after its opening. In Birmingham, 10 psychiatric patients committed suicide in the period 1970-1981 with 5 of these deaths occurring in the last three years (Salmons, 1984). Over the total period studied, 1963-1981, the suicide rate for the Birmingham hospital was 1.7 per 1000 discharges; not excessive when compared with Gale's rate of 1.3-2.5 per 1,000 for six New York hospitals (Gale et al, 1980). The corresponding Southampton rate for the 8 year period is 1.6 per 1000 admissions.

At Exe Vale Hospital 16 inpatients and expatients killed themselves in 30 months (Langley and Bayatti, 1984). A 10-year study, revealing 40 inpatient suicides, gave an average inpatient suicide rate of 0.67 per 100,000 general population served. This is not dissimilar to the rate of 0.49 per 100,000 population served reported for Fulbourn Hospital between 1979 and 1984, when 14 inpatient deaths occurred (Garvey, 1985). The corresponding rate for the Department of Psychiatry over the 8 year period is 0.59 inpatient violent deaths per 100,000 CA population.

These comparisons suggest that the rate of violent death of catchment area residents who died during a spell of inpatient care is not very different from that found in other hospitals if the deaths occurring in the 'epidemic' period are averaged with others over a longer period.

This study was not designed to answer the question of whether these deaths could have been prevented, but to determine whether the increased number of inpatient deaths was associated with a significant increase either in the number of deaths of patients receiving care under the new service, or in the total number of local violent deaths. The answer is definitely 'no' to the first question and appears to be 'not proven' to the second, as evidenced by the fact that acutely ill patients, at high risk of killing themselves, died in hospital rather than at home or elsewhere, and even so the increase in the number of inpatient deaths was less than the increase in the number of violent deaths in residents not in contact with the psychiatric service.

CHAPTER 7: INPATIENT DEATHS

During the study period 1974-1981, and the extended period 1st January 1982 – 30th June 1982, 15 deaths occurred following admission to psychiatric hospitals. Two Southampton residents killed themselves after admission to Knowle Hospital before the Department of Psychiatry opened, and one killed himself after being transferred to Knowle from the Department of Psychiatry. Thirteen patients, including the Knowle patient, died from self-inflicted causes following admission to the Department of Psychiatry, twelve in the main study period and one in the extended period.

Verdict distribution

Suicide verdicts were returned on 12, of the victims, two were found to have died by accident or misadventure, and one death was undetermined whether suicide or accident. The proportion of suicide verdicts, (80%), returned on these patients is significantly higher than the 56% returned on current outpatients. This finding confirms that of Beskow (1987) that : 'more deaths in psychiatric units, or shortly after discharge, are diagnosed as suicides, and that the number of 'contro-versial cases' (non-suicides) increases with time after discharge'.

Suicide verdicts were returned on the five patients with a diagnosis of depressive psychosis who were admitted after an act of DSH, whereas an accidental verdict was returned on the patient with a diagnosis of schizophrenia.

Characteristics of inpatients

Table 7.1 summarises the age, sex, psychiatric diagnosis, place and method of death of the 15 patients; Table 7.2 summarises their past history of deliberate self-harm and length of psychiatric care.

In common with other studies, the majority of inpatient death victims are female although the sex ratio of Southampton residents admitted to both Knowle Hospital and the Department of Psychiatry was approximately unity in the under 65 agegroup in both 1978 and 1980 (Jennings, 1981).

Diagnosis

The inpatients in this study resemble other populations of deceased psychiatric inpatients in that the majority were suffering from psychotic illnesses: six from schizophrenia (4 males; 2 females), six from a depressive psychosis (1 male; 5 females). One of the three 'neurotic' patients had a diagnosis of neurotic depression (ICD-9 300.4).

Threat of suicide

Twelve, or 80%, of the inpatients had made suicidal threats in the month before their death. In eight cases the threat was associated with an act of deliberate self-harm.

History of Deliberate Self-Harm (DSH)

Thirteen of the fifteen had a history of DSH, with over half having committed more than one act of self-injury for which they had been admitted at least once to a general hospital for treatment (Table 7.2). Of the eight who had committed an act of DSH in the month before their death, six had done so either just before, or during their last admission. The final admission of five patients was precipitated by an act of DSH.

Six of the eight patients who had a previous history of deliberate self-harm in the month before their lethal act had used, or threatened to use, a violent method in their last self-destructive act. Such acts included: running in front of a moving car, jumping from a height (3), self-immolation, and swallowing a corrosive liquid. Only two had taken an overdose of drugs.

This finding is similar to that of Garvey (1985) who reported that a majority of inpatients who committed suicide had previously used a violent method.

The only patient in this study who had given no prior warning of intent to kill himself, either verbally, or by having committed any acts of self-harm, was a 31 year old man with a schizophrenic illness. The difficulty in predicting the deaths of schizophrenic patients has been commented on by Breier and Astrachan (1984) who found that previous suicide attempts by these patients were not temporarily correlated with actual suicides. The deaths of schizophrenic patients are often completely unexpected in the absence of the usual signals given by patients in other diagnostic groups.

Length of psychiatric care

Four patients (27%) had their first referral to a psychiatrist in the year before the event leading to their death. Since an average of 28% of all City residents in contact with the service were first in lifetime referrals between 1974-1981, there is no evidence to suggest that first referrals in this study are over-represented among the inpatient death. Only one of these four patients, a 21 year old male, was suffering from schizophrenia; the other 3 were females with a diagnosis of affective psychosis.

Number of admissions to mental hospitals

Only two (14%) inpatients died during their first admission.

Location of event leading to death

More than half of the inpatients died outside the hospital; two were at home 'on leave', and seven were absent without leave (AWOL). Three patients committed the fatal act in the ward itself, and three died in bathrooms.

Methods

In common with other studies, (Odegard, 1952; Farberow et al, 1971), hanging accounted for the largest number of inpatient deaths (2) but in contrast to other studies no one method was used by consecutive suicidal patients (Salmons, 1984).

The ingenuity of psychiatric patients in hospital in finding ways to kill themselves has been commented on by Farberow et al (1971), and illustrated in this study by the patient who drowned himself in the ward wash-hand basin, and the patient who drank a bottle of medicated shampoo. Even among those who died outside the hospital the methods used were non-standard.

One lady lay under the front wheels of a stationary bus and another returned to her old home where she swallowed 100 aspirin tablets before hanging herself. Another patient, allowed home to repair the front door damaged when the police forced an entry after his recent overdose, was found behind his electric cooker having suffocated himself with the 'non-toxic' natural gas supply.

In contrast to the experience in Birmingham (Salmons, 1984) only one inpatient was killed after jumping from an upper floor window during the study period. There were, however, other patients who survived attempts to kill themselves by autokabalesis (Sims and O'Brien, 1979).

TABLE 7.1: DETAILS OF DEATHS OF PSYCHIATRIC INPATIENTS 1974-MID 1982

MONTH	YEAR	AGE	SEX	ICD-9 DIAGNOSIS	HOSPITAL	PLACE OF ELD	CAUSE OF DEATH	VERDICT
OCT	1975	29	F	296.1	KNOWLE	HOME - ON LEAVE	SELF- IMMOLATION	OPEN
NOV	1977	55	F	296.1	KNOWLE	IN WARD TOILET	HANGING	SUICIDE

------------------------DOP OPENED MAY 1979------------------------

MONTH	YEAR	AGE	SEX	ICD-9 DIAGNOSIS	HOSPITAL	PLACE OF ELD	CAUSE OF DEATH	VERDICT
MAY	1979	40	M	296.1	DOP	HOME - ON LEAVE	DOMESTIC GAS POISONING	SUICIDE
NOV	1979	54	F	296.1	DOP	IN WARD	HANGING	SUICIDE
FEB	1980	38	F	295.7	DOP	RAILWAY - AWOL	STRUCK BY TRAIN	MISADVENTURE
MAR	1980	56	F	300.4	DOP	HOME - AWOL	HANGING + FATAL O/D	SUICIDE
MAY	1980	53	F	296.6	DOP	WARD BATHROOM	DRANK BOTTLE SHAMPOO	SUICIDE
JUL	1980	22	F	296.1	DOP	IN WARD	JUMPED FROM WINDOW	SUICIDE
SEP	1980	37	F	300.0	DOP	IN PARK - AWOL	O/D ASPIRIN	SUICIDE
FEB	1981	35	F	295.6	DOP	IN CITY -ON LEAVE	LAY UNDER BUS	SUICIDE
APR	1981	27	M	295.1	DOP	IN WARD	DROWNED IN WASH-HAND BASIN	SUICIDE
JUN	1981	21	M	295.9	DOP	IN CITY - AWOL	JUMPED FROM BRIDGE	SUICIDE
JUL	1981	31	M	295.9	KNOWLE	IN WARD	SELF - IMMOLATION	SUICIDE
OCT	1981	25	M	295.9	DOP	STATION - AWOL	JUMPED IN FRONT OF TRAIN	SUICIDE
MAR	1982	61	M	300.0	DOP	AWOL	OVERDOSE	MISADVENTURE

AVERAGE AGE OF MALE INPATIENTS 34.1 (SD = 14.6) years (N = 6)
                FEMALE INPATIENTS 42.1 (SD = 12.7) years (N = 9)

OVERALL AVERAGE 38.9 (SD = 13.6) years (N = 15)

TABLE 7.2: MORE DETAILS OF DEATHS OF PSYCHIATRIC INPATIENTS
1974-MID 1981

AGE	* SEX	ICD-9 DIAG	PREV DSH?	N ADM DSH	METHOD LAST DSH	INT LAST DSH & ELD	N ADM MH	LENGTH LAST ADM	INT FIRST REF & ELD
29	F	296.1	Y	4	BURNING	25 DAYS	3	25 DAYS	169 DAYS
55	F	296.1	Y	1	RTA	5 DAYS	15	12 DAYS	>10 YEARS
40	M	296.1	Y	1	DRUG O/D	3 DAYS	5	2 DAYS	>10 YEARS
54	F	296.1	Y	1	JUMPING	22 DAYS	1	5 DAYS	24 DAYS
38	F	295.7	Y	1	ATTEMPTED DROWNING	SAME DAY	23	1 DAYS	>10 YEARS
56	F	300.4	Y	2	DRUG O/D	138 DAYS	2	45 DAYS	>10 YEARS
53	F	296.6	Y	2	DRUG O/D	>1 YEAR	9	111 DAYS	940 DAYS
22	F	296.1	Y	3	JUMPING	3 DAYS	4	3 DAYS	220 DAYS
37	F	300.0	Y	3	CORROSIVE LIQUID	20 DAYS	5	19 DAYS	>10 YEARS
35	F	295.6	Y	4	DRUG O/D	264 DAYS	10	636 DAYS	>10 YEARS
27	M	295.1	Y	3	JUMPING	13 DAYS	2	110 DAYS	1349 DAYS
21	M	295.9	Y	2	DRUG O/D	59 DAYS	2	3 DAYS	256 DAYS
31	M	295.9	N						>10 YEARS
25	M	295.9	Y	1	DRUG O/D	24 DAYS	3	114 DAYS	1000 DAYS
61	M	300.0	N				1		311 DAYS

* ABBREVIATIONS USED IN HEADINGS

ICD-9 DIAG   - ICD-9 Code for psychiatric diagnosis
PREV DSH?   - Whether previous history of deliberate self-harm
N ADM DSH   - Number of times admitted after acts of deliberate self-harm
METHOD LAST DSH   - Method used in last act of deliberate self-harm
INT LAST DSH & ELD   - Interval between last act of deliberate self harm
                      and event leading to death
N ADM MH - Number of admissions to mental hospitals
LENGTH LAST ADM - Interval between last admission and event leading to
                      death
INT FIRST REF & ELD - Interval between first referral to psychiatrist
                      and event leading to death

CHAPTER 8: EPIDEMIOLOGY

THE CATCHMENT AREA POPULATION

The catchment area population is described in Chapter 2.

Violent Death Rates 1974-1981

The annual violent death rates, from suicide, accident and undetermined causes (per 100,000 population aged 15+) for the CA population, based on OPCS mid-year population estimates (OPCS, 1981c) (tabulated in Appendix 19), and the corresponding rates for England and Wales (based on 1981 Census populations) are shown in Table 8.1.

Comparison with England and Wales

Between 1.1.74 and 1.1.82 the total catchment area mortality rates from all causes of death, 1346 for males and 1160 for females, were slightly lower than the corresponding rates of 1560 for males and 1430 for females in England and Wales. Deaths from all violent causes (ICD-9 codes E800-999) represented 4% of male and 3% of female deaths in both the catchment area and in England and Wales.

The '8 year average' male violent death rate of 28.5 for the catchment area was 19% higher than the corresponding national rate of 24.0, a significant increase (p<0.05; Table 8.2), while the female violent death rates in both the catchment area and in England and Wales were both 15.3 (Table 8.2).

Local male and female accident rates (from the selected accidents) were similar to the corresponding national rates of about 8 for males and 5 for females aged 15+.

Comparison of suicide rates

Mid-year population figures for the New Forest part of the catchment area were not available. However, from comparison of mid-year estimates for area 41NA (City), 41BL (Eastleigh) and 41GL (whole of New Forest) with 1981 Census figures it is clear that the population of the City has decreased over the study period while the populations of the New Forest and Eastleigh areas have increased. If the catchment area part of the New Forest is estimated at 44% of the total New Forest population a 0.8% net decrease in the catchment area population occurred over the period. 1981 Census figures have been used in all calculations of violent death rates so that local rates may be slightly underestimated.

TABLE 8.1: NUMBER AND RATES PER 100,000 OF VIOLENT DEATH IN CATCHMENT
AREA 1974-1981 INCLUSIVE FOR POPULATION AGED 15 AND OVER

		SUICIDE		ACCIDENT		OPEN VERDICT		S+A+OV		ALL CAUSES	
		RATE	N	RATE	N	RATE	N	RATE	N	RATE	N
1974	M	21.0	23	8.2	9	0.9	1	30.1	33	Not Available	
	F	4.2	5	4.2	5	1.7	2	10.2	12	Not Available	
1975	M	17.2	19	4.5	5	4.5	5	26.3	29	1407	1554
	F	10.3	12	2.6	3	1.7	2	14.5	17	1147	1342
1976	M	12.6	14	10.8	12	4.5	5	27.9	31	1386	1540
	F	8.4	10	4.2	5	0	0	12.6	15	1250	1484
1977	M	20.6	23	8.1	9	3.6	4	32.2	36	1384	1546
	F	10.0	12	5.8	7	2.5	3	18.2	22	1107	1336
1978	M	10.7	12	10.8	12	0.9	1	22.3	25	1392	1558
	F	11.5	14	9.1	11	0.8	1	21.4	26	1196	1451
1979	M	16.9	19	8.9	10	0.9	1	26.7	30	1441	1620
	F	8.2	10	3.3	4	2.5	3	14.0	17	1197	1455
1980	M	16.0	18	13.3	15	3.6	4	32.8	37	1412	1592
	F	9.8	12	5.7	7	2.5	3	18.0	22	1156	1414
1981	M	26.9	31	5.2	6	4.3	5	36.4	42	1267	1461
	F	9.0	11	4.9	6	0.8	1	14.8	18	1147	1395
Annual Average Rate (1981 Census)	M	17.2	159	8.4	78	1.8	26	28.5	263	1346	10871
	F	8.8	86	4.9	48	1.5	15	15.3	149	1160	9877
England & Wales	M	12.9		7.0		4.1		24.0		1560	
	F	7.9		4.4		3.0		15.3		1430	

NB: Mid-year population estimates used in annual rates 1974-1980 (OPCS
    personal communication)
    1981 Census populations used for 1981 rates (OPCS, 1981a)

TABLE 8.2: NUMBER AND RATES PER 100,000 OF VIOLENT DEATHS IN THE
DEPARTMENT OF PSYCHIATRY CATCHMENT AREA (CA) AND ENGLAND
AND WALES (E&W) 1974-1981 (1.1.74 - 31.12.81 inclusive)

	MALES (POP AGE 15+)				FEMALES (POP AGE 15+)			
		RATE				RATE		
VERDICT	N	CA	95% CI	E & W	N	CA	95% CI	E & W
SUICIDE	159	17.2	(14 to 20)	12.9*	86	8.8	(7 to 11)	7.9
ACCIDENT	78	8.5	(7 to 10)	7.0	48	5.0	(4 to 6)	4.4
OPEN VERDICT	26	2.8	(2 to 4)	4.1*	15	1.5	(1 to 2)	3.0
S+OV	185	20.0	(17 to 23)	17.0	101	10.3	(8 to 12)	10.9
TOTAL	263	28.5	(25 to 32)	24.0	149	15.3	(13 to 18)	15.3

* Difference significant at p<0.05 level

NB:
Rates are '8-year average' rates/100,000 Census pop at risk (OPCS, 1981)

Suicide rates in the catchment area were higher, and open verdict rates lower than the corresponding rates in England and Wales for both sexes but the difference was only significant (p<0.05) for male rates (Table 8.2). The combined local male (S+OV) rate of 20 was 18% higher than the national combined (S+OV) rate of 17. The increase in the combined local rate was accounted for entirely by the high local male suicide rate of 17.2 which was 33% higher than the national male suicide rate of 12.9. Both the local female suicide rate, 8.8, and the (S+OV) rate, 10.3, were very similar to the suicide and (S+OV) rates of 7.9 and 10.9 in England and Wales. This suggests that the overall increase in the male (S+OV) rate is not an artefact of the local coroners having a less stringent definition of suicide than other coroners, but that the catchment area male suicide is truly higher than the national average suicide rate. The '8 year'average male suicide rate (of 17) in the catchment area was higher than the national male suicide rate throughout the study period while the corresponding female suicide rates were very similar (Figure 8.1). Standardised suicide ratios, based on population figures in Appendix 8.1, are illustrated in Figures 8.2 and 8.3 which show that the male rate, although higher than the national rate, is only significantly higher, (p<0.05), than the national rate in 1977 and 1981.

FIGURE 8.1

SUICIDE RATES IN CATCHMENT AREA AND ENGLAND AND WALES BY SEX 1974-1981

FIGURE 8.2

STANDARDISED MALE SUICIDE RATIO (SSR) (+ 95% CONFIDENCE INTERVALS) 1974-1981

FIGURE 8.3

STANDARDISED FEMALE SUICIDE RATIO (SSR)
(+ 95% CONFIDENCE INTERVALS) 1974-1981

SSR/100,000 POP (15+) AT RISK

95% CI(U)

SSR - FEMALE

95% CI(L)

YEAR

FIGURE 8.4

PERCENTAGE OF VIOLENT DEATH VICTIMS IN
EACH AGEGROUP BY VERDICT AND SEX

% IN EACH AGEGROUP

65+

35-64

15-34

S   A   OV   S   A   OV   S   A   OV

FEMALES   MALES   BOTH SEXES

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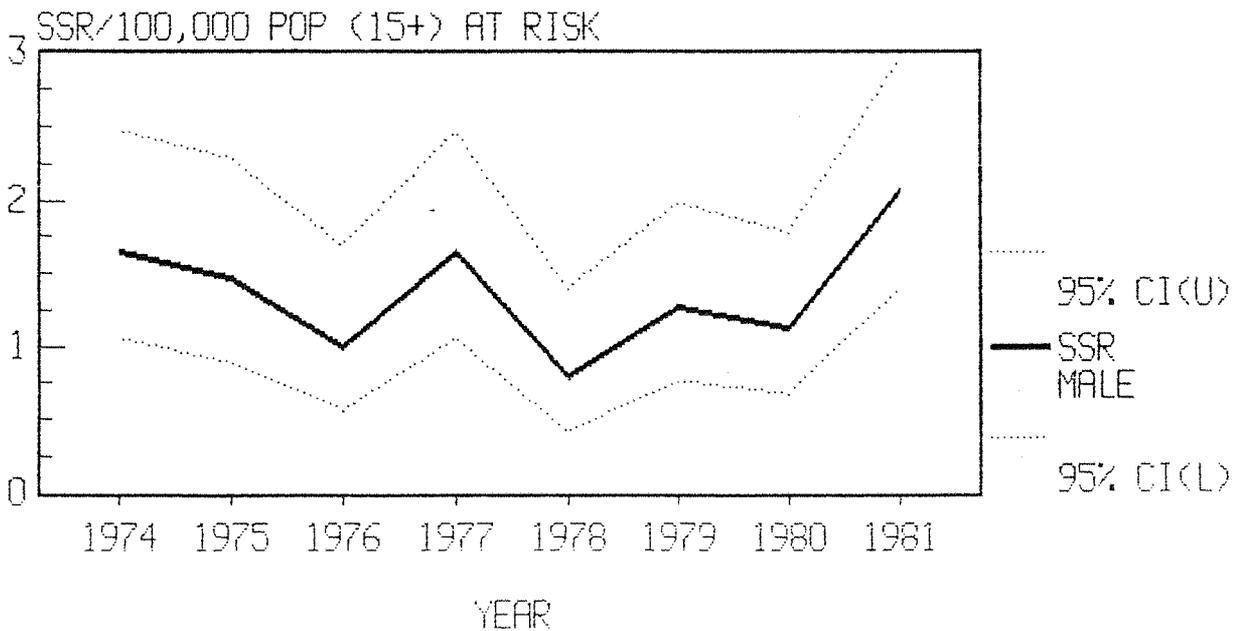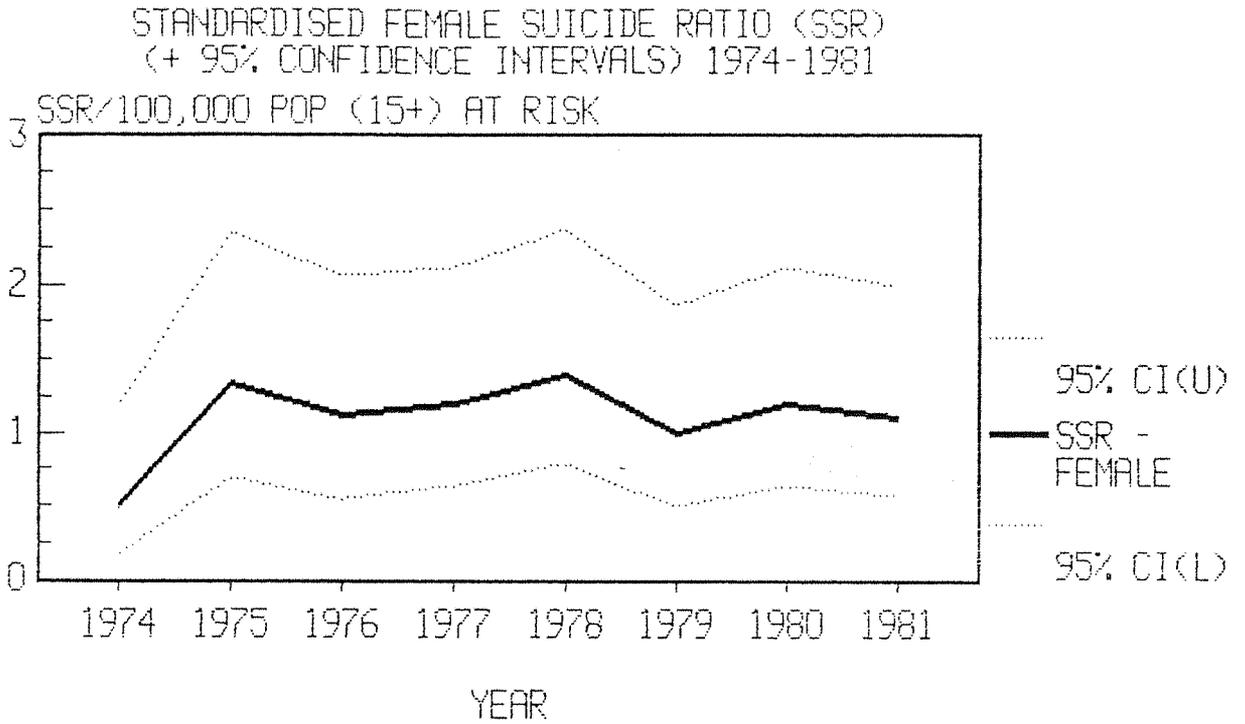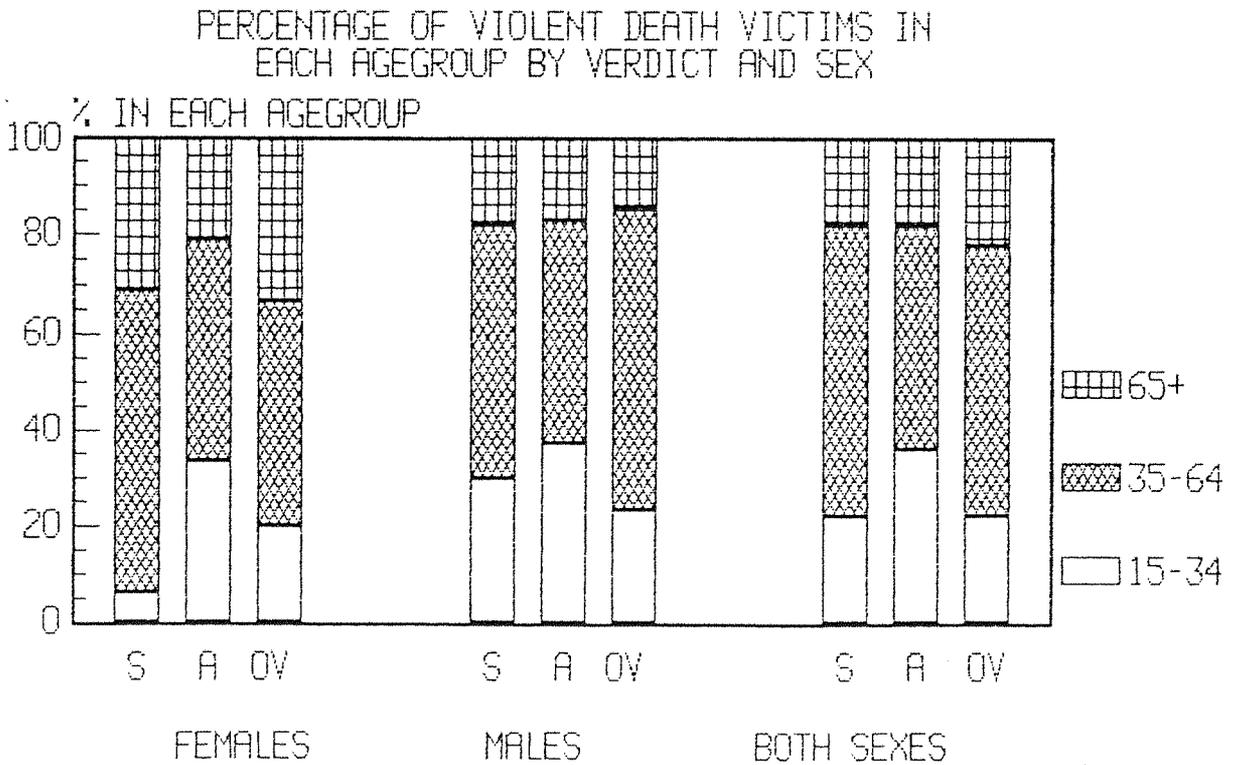
Comparison of City and non-City residents

Two thirds of the CA population (162,000) were City residents and one third (75,000) lived in the suburban and rural areas to the east and west.

The individual and combined violent death rates for City and non-City residents are shown in Table 8.3.

TABLE 8.3: NUMBER AND RATES PER 100,000 OF VIOLENT DEATH IN THE CATCHMENT AREA BY DOMICILE, AGEGROUP, SEX AND VERDICT 1974-1981

DOMICILE	AGE	POP	SUICIDE		ACCIDENT		OPEN VERDICT		S+A+OV	
CITY			N	RATE	N	RATE	N	RATE	N	RATE
Males	15-64	66011	103	19.5	54	10.2	19	3.6	176	33.3
	65+	12219	18	18.4	10	10.2	3	3.1	31	31.7
	15+	78230	121	19.3	64	10.2	22	3.5	207	33.1
Females	15-64	65398	47	9.0	34	6.5	8	1.5	89	17.0
	65+	18152	23	15.8	9	6.2	3	2.1	35	24.1
	15+	83550	70	10.4	43	6.4	11	1.6	124	18.6
M + F	15-64	131409	150	14.3	88	8.4	27	2.6	265	25.2
	65+	30371	41	16.9	19	7.8	6	2.5	66	27.2
	15+	161780	191	14.9	107	8.3	33	2.5	331	25.6
NON-CITY										
Males	15-64	32156	28	10.9	11	4.3	3	1.2	42	16.3
	65+	4946	10	25.3	3	7.6	1	2.5	14	35.4
	15+	37102	38	12.8	14	4.7	4	1.3	56	18.9
Females	15-64	31197	12	4.8	4	1.6	2	0.8	18	7.2
	65+	6821	4	7.3	1	1.8	2	3.7	7	12.8
	15+	38018	16	5.3	5	1.6	4	1.3	25	8.2
M + F	15-64	63353	40	7.9	15	3.0	5	1.0	60	11.8
	65+	11767	14	14.9	4	4.2	3	3.2	21	22.3
	15+	75120	54	9.0	19	3.2	8	1.3	81	13.5

A comparison of the actual rates suggests that both the suicide and non-suicide rates of CA residents who live outside the City are lower than the corresponding rates of City residents. These results apparently replicate the finding of Seager and Flood (1965) that the suicide rates for rural dwellers are lower than for urban dwellers. However the difference in their suicide rates is only significant (p<0.05) for females.

Table 8.4 summarises the significant differences between the violent death rates of CA residents in the City and non-City areas by sex and agegroup.

TABLE 8.4: SIGNIFICANT DIFFERENCES BETWEEN RATES OF SUICIDE AND
          ALL VIOLENT DEATHS BY DOMICILE, SEX AND AGEGROUP

			CITY		NON-CITY	
CITY/NON-CITY DIFFERENCES						
SEX	VERDICT		RATE	95% CI	RATE	95% CI
MALE	SUICIDE	15-64	19.5	(15.7 to 23.3)	10.9 *	(6.2 to 14.0)
	SUICIDE	15+	19.3	(15.9 to 22.8)	12.8 *	(8.2 to 16.1)
	(S+A+OV)	15+	33.1	(28.6 to 37.6)	18.9 *	(13.9 to 23.8)
FEMALE	SUICIDE	15-64	9.0	(6.4 to 11.6)	4.8 *	(2.1 to 7.5)
	SUICIDE	15+	10.4	(8.0 to 12.9)	5.3 *	(2.7 to 7.8)
	(S+A+OV)	15+	18.6	(15.3 to 21.8)	8.2 *	(5.0 to 11.4)
AGE DIFFERENCES						
MALE	(S+A+OV)	15-64	age difference not significant		* ⌈ 16.3	(11.4 to 21.3)
		65+			⌊ 35.4	(16.9 to 53.9)
FEMALE	(S+A+OV)	15-64	9.0	(6.4 to 11.6) ⌉ *	age difference not significant	
		65+	15.8	(9.4 to 22.3) ⌋		

* Difference in rates significant (p< 0.05)

Overall rates of suicide and of all violent deaths were significantly higher for both male and female City dwellers compared with non-City dwellers but age and sex differences were found. The total violent death rate of elderly male non-City residents was significantly higher than that of non-City males under the age of 65, but there was no age difference in the rates for male City residents. In contrast, no age difference was found in the suicide rates of non-City female residents but the suicide rate for elderly City females was significantly higher than for those under the age of 65. Although the

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rates of elderly females in the non-City area appear lower than the corresponding City rates, in line with the usual finding (Walk, 1967), the differences in the rates are not significant. The most striking rates found in this study are the relatively low rates of suicide, and of all violent deaths, in elderly City males which are not significantly different from those of elderly City females, or from the rates of younger males. McCarthy and Walsh (1975), reported that the rate of suicide was higher in rural districts for residents over the age of 34, and that the difference between the rural and urban rates increased with age. The higher rural rate was found to correspond with higher rural rates of mental illness (Walsh and Walsh, 1970).

This relationship could not be tested in this study because data on psychiatric contacts by the non-City population were not collected.

SOCIAL AND DEMOGRAPHIC CHARACTERISTICS

SEX AND AGE

Sex ratio

In each verdict group the number of male victims exceeded that of females by approximately 2:1 (1.8:1 suicides; 1.7:1 non-suicides). This is the sex ratio normally associated with populations of suicides.

Age distribution

The age distribution of the suicide and open verdict groups were very similar with 22% of the victims under the age of 35 and 18%(S) and 20%(OV) aged 65+ (Figure 8.4). Accidental death victims of both sexes were younger than the non-accidental groups with over a third (36%) under the age of 35 and only 18% aged 65+.

Average age

The average age of the 412 violent death victims was 48.4 years with no significant difference between the suicide and non-suicide groups (Table 8.6). The average age (49.8 yrs) of the suicide victims is slightly lower than the average of 'early 50's' calculated by Morrison (1982) on the basis of the general population studies of Robins et al (1959b), Dorpat and Ripley (1960) and Barraclough et al (1974).

TABLE 8.5: NUMBER OF VIOLENT DEATH VICTIMS, AND VIOLENT DEATH RATES, AMONG CATCHMENT AREA RESIDENTS (AGE 15 and over) BY AGE GROUP AND VERDICT, BY SEX

MALES		SUICIDE			ACCIDENT			OPEN VERDICT			S+A+OV	
AGEGROUP	POP AT RISK*	N	RATE**	%	N	RATE**	%	N	RATE**	%	N	RATE**
15 - 24	24912	13	6.5	8	14	7.0	18	3	1.5	11	30	15.1
25 - 34	22738	35	19.2	22	15	8.2	19	3	1.6	11	53	29.1
35 - 44	17906	25	17.5	16	10	7.0	13	8	5.6	31	43	30.0
45 - 54	16693	34	25.5	21	16	12.0	21	7	5.2	27	57	42.7
55 - 64	15918	24	18.8	15	10	7.9	13	1	0.8	4	35	27.5
65 - 74	11780	21	22.5	13	7	7.4	9	0			28	29.7
75+	5385	7	16.2	6	6	13.9	8	4	9.3	15	17	39.5
ALL AGES (15 & over)	115332	159	17.2		78	8.5		26	2.8		263	28.5

FEMALES		SUICIDE			ACCIDENT			OPEN VERDICT			S+A+OV	
15 - 24	23917	4	2.1	5	9	4.7	19	2	1.0	13	15	7.8
25 - 34	21866	1	0.6	1	7	4.0	15	1	0.6	7	9	5.1
35 - 44	17315	16	11.6	19	7	5.1	15	3	2.2	20	26	18.8
45 - 54	16668	17	12.7	20	7	5.2	15	1	0.7	7	25	18.7
55 - 64	16829	21	15.6	24	8	5.9	16	3	2.2	20	32	23.8
65 - 74	14069	18	16.0	21	5	4.4	10	3	2.7	20	26	23.1
75+	10904	9	10.3	10	5	5.7	10	2	2.3	13	16	18.3
ALL AGES (15 & over)	121568	86	8.8		48	4.9		15	1.5		149	15.3

* 1981 Census population
** Average annual rate/100,000 population at risk
N = total number of deaths in 8 years

Verdicts by sex and age

From Table 8.6 it can be seen that, although there was no difference between the average ages of the males in the different verdict groups female suicide victims were significantly older than non-suicide victims with the difference reaching statistical significance in the

difference between female suicides and female accidental death victims (T-test:T=2.22; p=0.028). Female open verdict victims were older than female accidental death victims but the difference did not reach statistical significance.

Male suicides were significantly younger than female suicides but no significant difference in average age at death was found among the male and female non-suicide victims (Table 8.5).

Only 6% of female suicides were under the age of 35 compared with a third of accidental and a fifth of female undetermined death victims. Significantly more non-suicide than suicide verdicts were returned on females under the age of 35. Half of all male and female accident victims died under the age of 45.

TABLE 8.6: AVERAGE AGES OF VIOLENT DEATH VICTIMS BY SEX AND VERDICT

SEX	N	SUICIDE(S) MEAN	SD	SE	N	NON-SUICIDE (A+OV) MEAN	SD	SE	N	S+A+OV MEAN	SD	SE
M	159	46.4	17	1.3	104	44.9	19	1.9	263	45.8	18	1.1
		p< 0.001								p<0.001		
F	86	56.0	15	1.7	53	48.5	21	2.6	149	52.8	18	1.5
					p<0.05							
M+F	245	49.8	17	1.1	167	46.3	20	1.5	412	48.4	18	0.9

Violent death rates by sex and age

Standardised suicide ratios are shown for each sex in Figures 8.5 (males) and 8.6 (females).

The '8-year average' suicide rates are compared with the corresponding suicide rates in England and Wales in Figure 8.7. Figures 8.8 and 8.9 illustrate the '8-year average' violent death rates by age and sex.

Males

Highest male violent death rates were found in men aged 45-54, both overall (S+A+OV) and in the suicide group. In the 75+ agegroup the male suicide rate decreased and the open verdict and accident rates increased giving an overall increased rate (Figure 8.8).

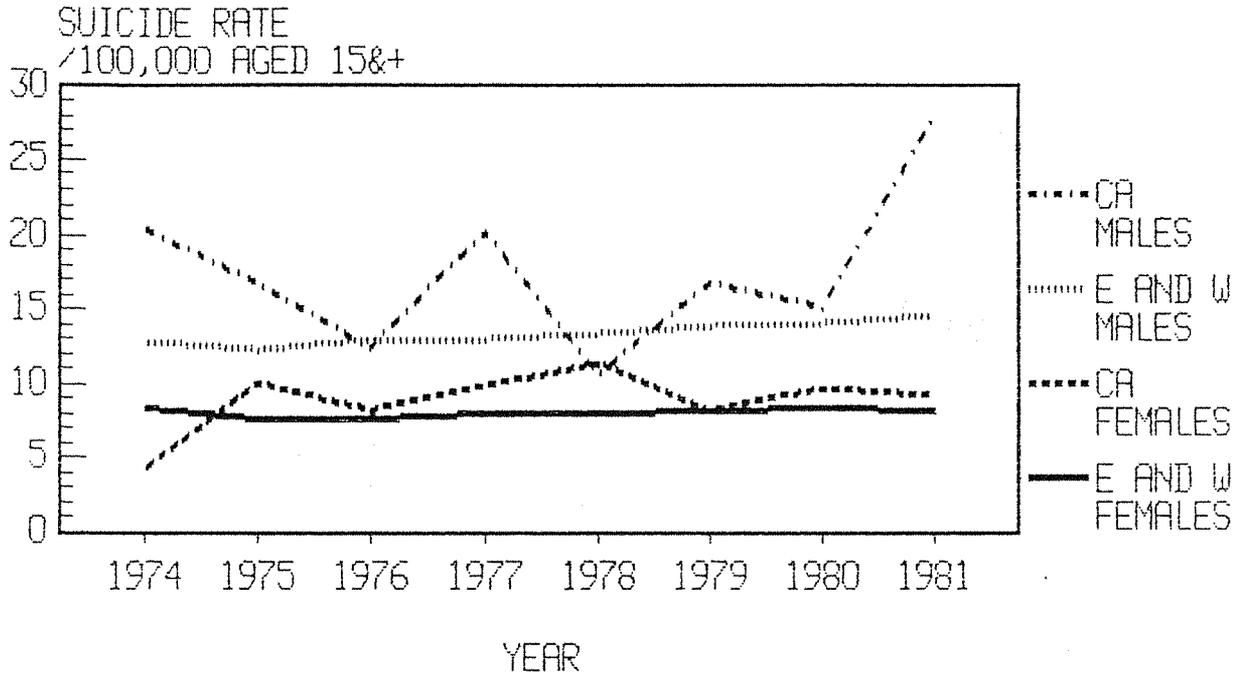FIGURE 8.5

STANDARDISED MALE SUICIDE RATIO (SSR)
(+ 95% CONFIDENCE INTERVALS) BY AGE

SSR/100,000 POP AT RISK
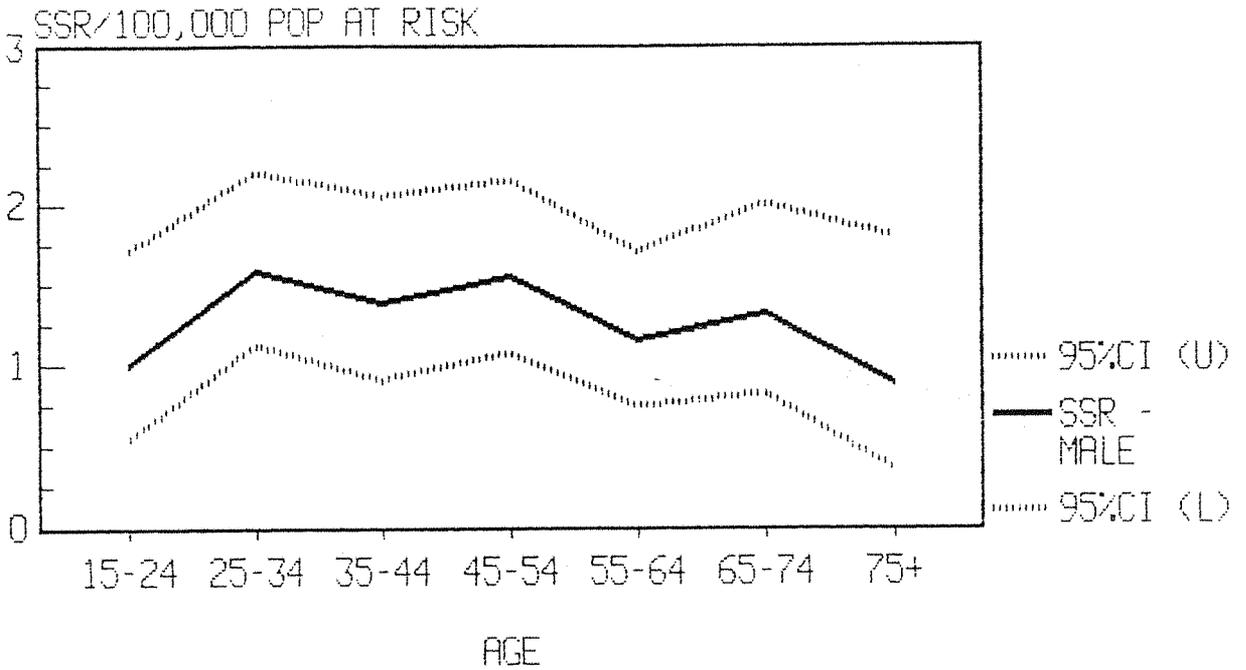
FIGURE 8.6

STANDARDISED FEMALE SUICIDE RATIO (SSR)
(+ 95% CONFIDENCE INTERVALS) BY AGE

SSR/100,000 POP AT RISK
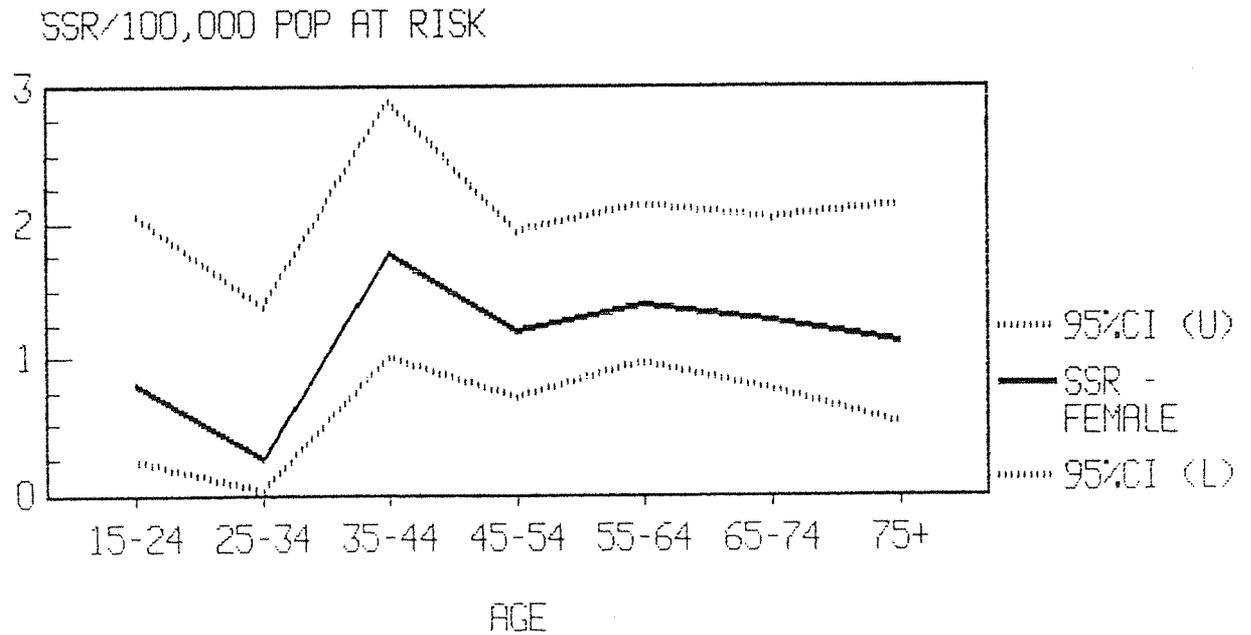
FIGURE 8.7

SUICIDE RATES IN ENGLAND AND WALES AND CATCHMENT AREA BY AGE AND SEX 1974-1981

S RATE/100,000 POP AT RISK

AGE
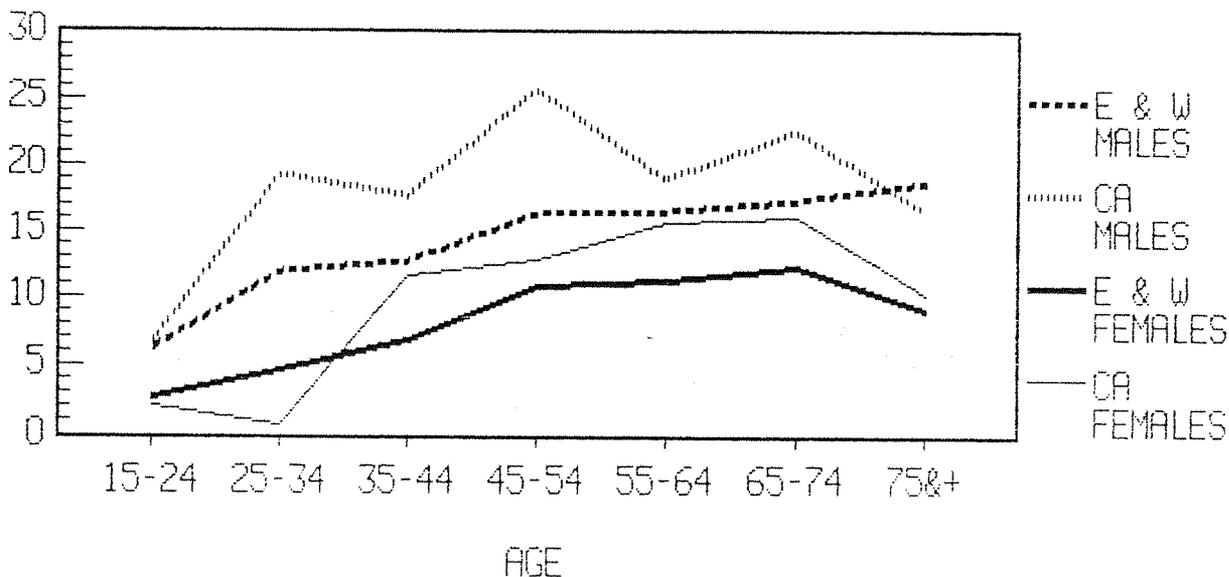
FIGURE 8.8

8-YEAR AVERAGE MALE VIOLENT DEATH RATES BY AGE AND INQUEST VERDICT

RATE/100,000 POP AT RISK

AGEGROUP

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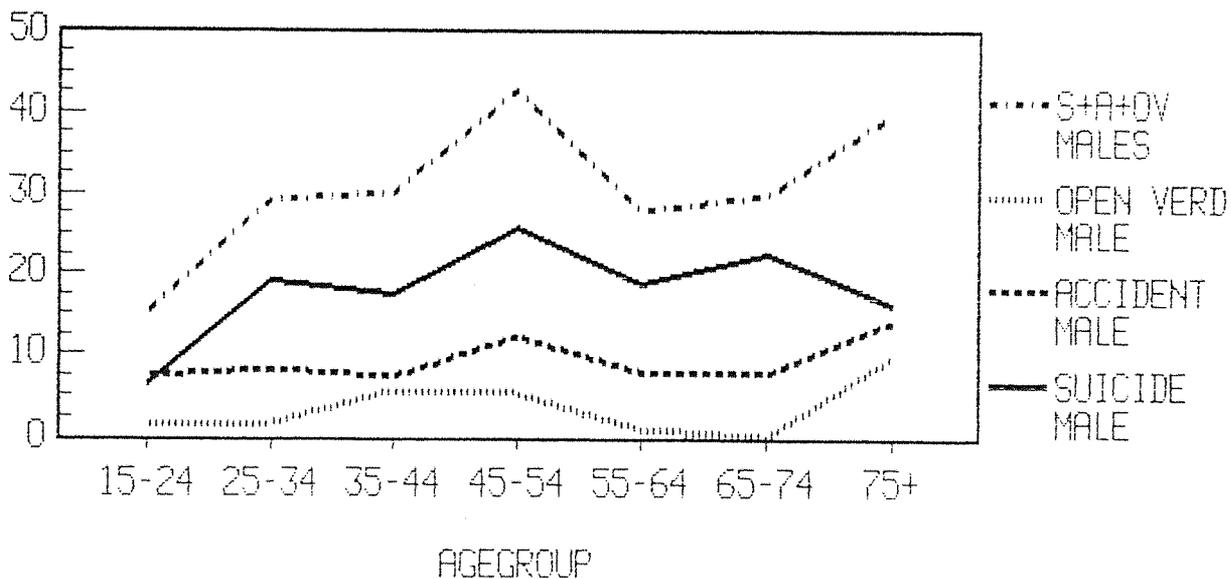
Females

The CA suicide rate increased with increasing age for females aged 35+ in line with, but with slightly higher rates than, the England and Wales rates (Figure 8.7). In the 15-24 agegroup the national rate was slightly higher than in the catchment area but a surprising dip was observed in the female CA suicide rate, for females between the ages of 25 and 34 (Figure 8.9). No corresponding increase was found in the accident or undetermined rate. In fact the total violent death rate for the CA female 25-34 agegroup was equal to the corresponding national suicide rate alone. In contrast to the male rate (Figure 8.8) the female overall violent death rate decreased in females over the age of 74.

Female CA accident and open verdict rates remained essentially constant over the whole age range.

Ratio of male rates to female rates

Male rates exceeded female rates in each verdict group by an average of about 2:1 but the ratio was considerably higher than this in the 25-34 agegroup, both for suicides, and the group as a whole (Figure 8.10).

The increased ratio for the suicide group can be explained by the fact that only one suicide verdict was returned on a female in this agegroup. However, the increased ratio persists even when all verdict groups are combined. A comparison of the proportion of suicide victims, all violent death victims and the general population in each agegroup for both sexes (Figures 8.11 and 8.12) shows that it is the females who are under-represented rather than the males who are over-represented in the 24-34 agegroup. No obvious reason exists for the very low violent death rate for young CA females.

FIGURE 8.9

8-YEAR AVERAGE FEMALE VIOLENT DEATH RATES BY AGE AND INQUEST VERDICT

RATE/100,000 POP AT RISK
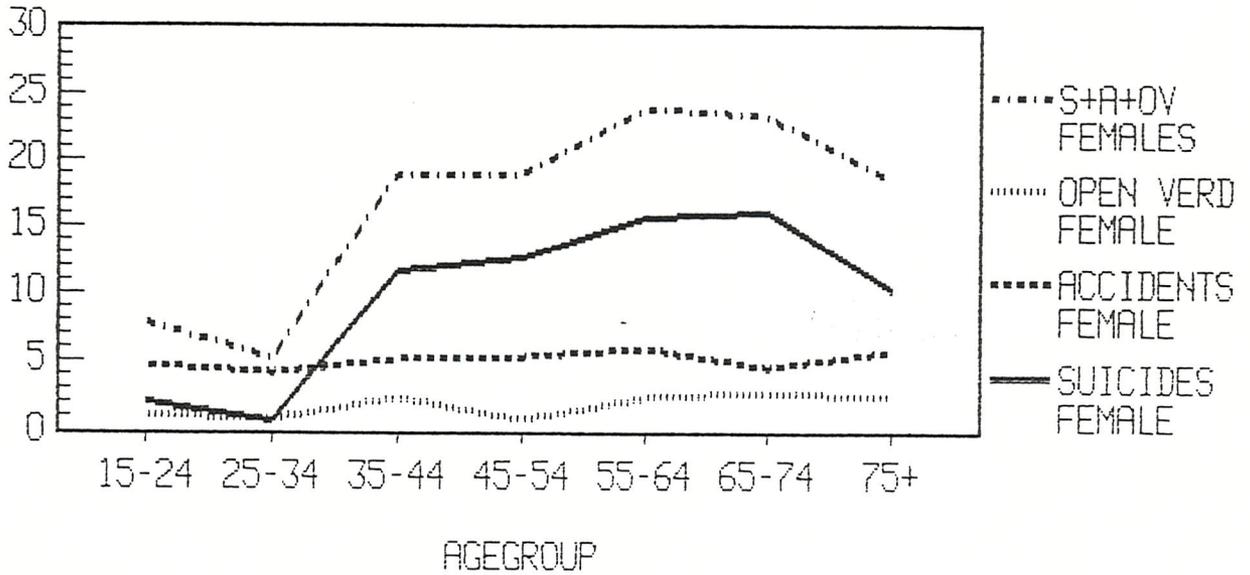
FIGURE 8.10

RATIO OF MALE AND FEMALE VIOLENT DEATH RATES BY AGE AND INQUEST VERDICT

M/F RATIO

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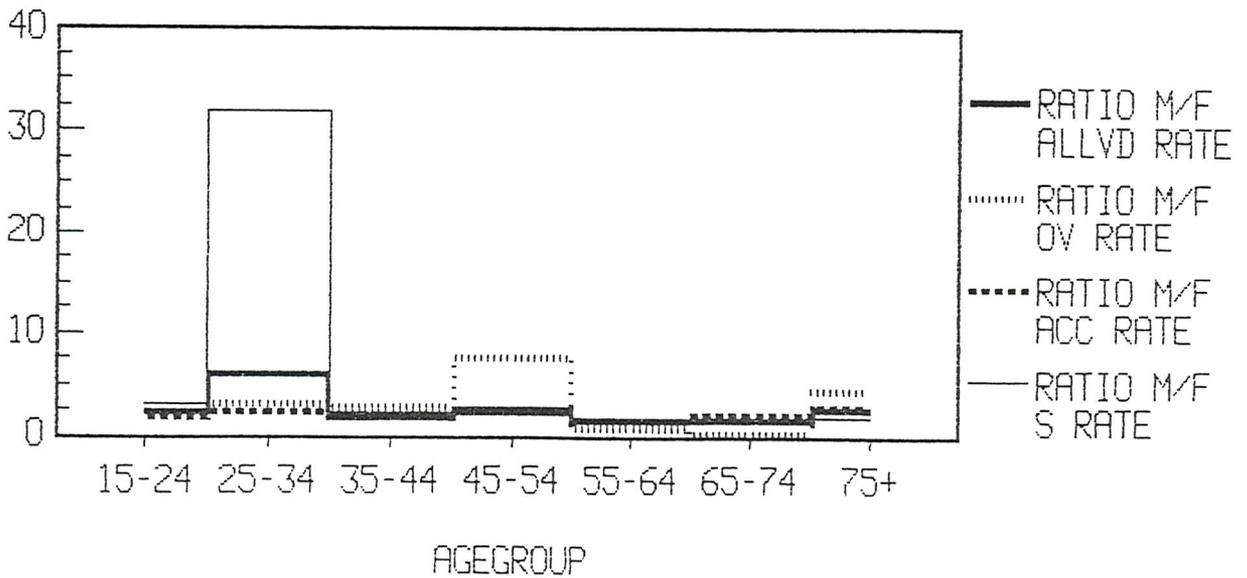
FIGURE 8.11

PERCENTAGE OF MALES IN SUICIDE, VIOLENT DEATH AND CATCHMENT AREA POPULATIONS
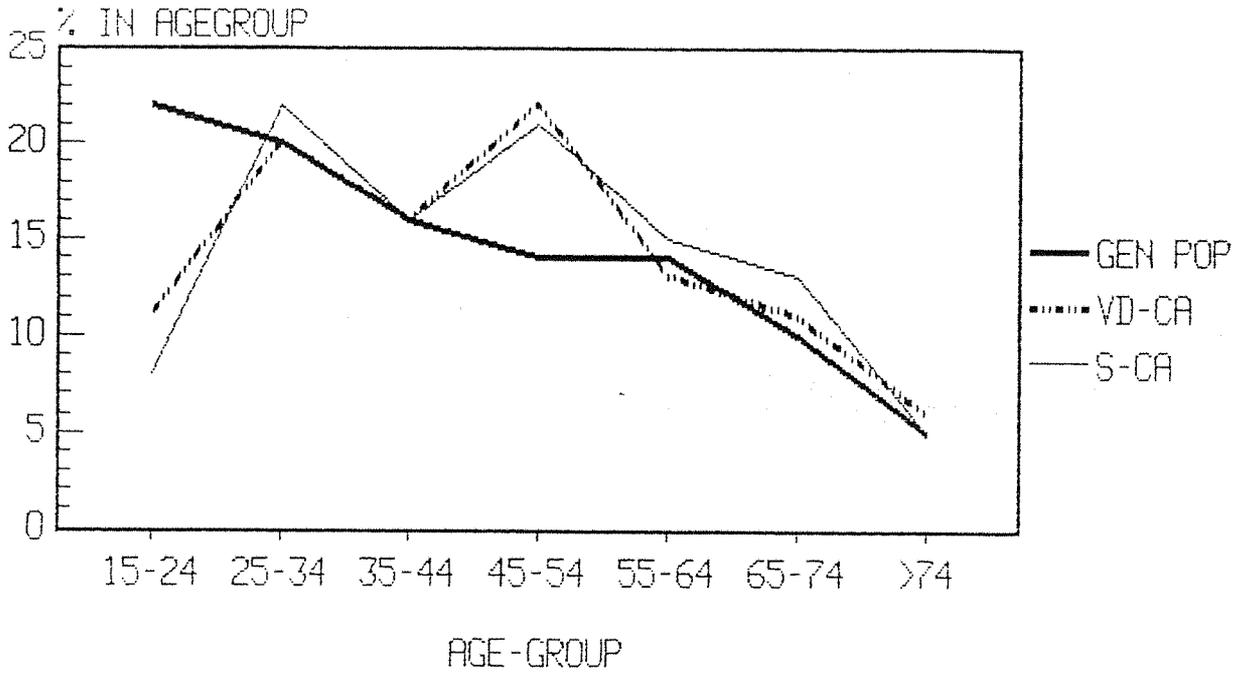
FIGURE 8.12

PERCENTAGE OF FEMALES IN SUICIDE, VIOLENT DEATH AND CATCHMENT AREA POPULATION
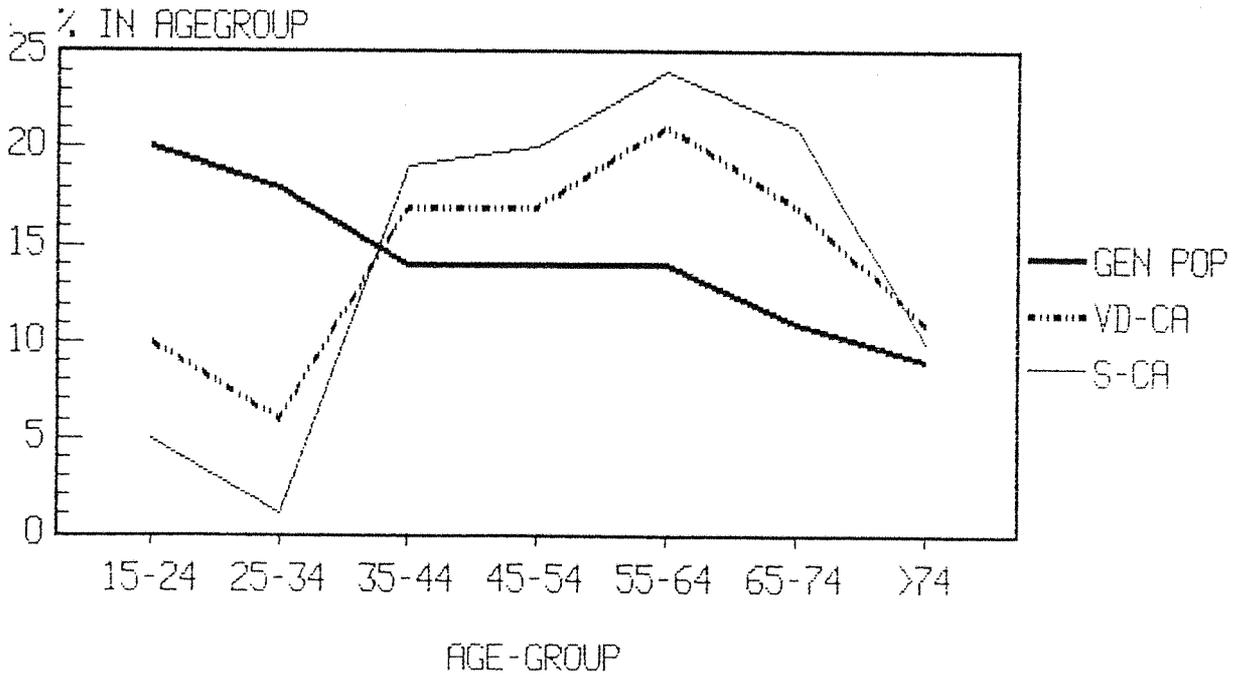
MARITAL STATUS

The legal marital status profile of male catchment area residents was very similar to that for England and Wales (29% single, 64% married and 7% widowed or divorced). Fewer CA females were never married and more were widowed or divorced. The proportion of legally married persons in the catchment area was very similar to that in England and Wales for both the 15-64 and 65+ agegroups (OPCS 1981a).

Rates of violent death for CA residents are shown in Table 8.7.

In general, studies on suicide populations (Kraft and Babigian, 1976; Seager and Flood, 1965; Weiss, 1954) have reported increased rates of suicide in married (M), widowed (W) and divorced (D) persons compared with single (S) persons. On the other hand, Barraclough et al (1974) reported that 'never married' males had higher violent death rates than their married counterparts, and a significantly higher rate of suicide in unmarried males was reported by Pokorny (1983), compared with either married or separated/widowed/divorced males.

The results of this study show that the violent death rates, both individually and collectively, are significantly increased for both males and females whose marriage has ended in widowhood or separation (Table 8.8). There is no significant difference between the suicide rates of 'never married' males or females and their married counterparts, but the total (S+A+OV) rate of violent death for 'never married' males is significantly higher than for married males (Table 8.8).

In this study population married men had the lowest violent death rates and the combined total of widowed or divorced men the highest rate. This finding was replicated by Sundqvist-Stensman (1987b). The relative risk of suicide in the widowed or divorced group, compared to other males, is 1.9 (95%CI 1.2 to 3.0), and the increased risk of any violent death is 2.0 (95%CI 1.4 to 2.9).

Legal marital status

If legal marital status, as recorded on the death certificate is considered, a higher proportion of suicides were legally married than in the other verdict groups and fewer were single; more of the non-suicide groups were legally divorced (Table 8.9).

TABLE 8.7: NUMBER AND RATES/100,000 OF VIOLENT DEATH OF CATCHMENT AREA
RESIDENTS BY SEX AND LEGAL MARITAL STATUS
(Rates per 100,000 Census population at risk)

	SEX	POP	(%)	SUICIDE			ACCIDENT			OPEN VERDICT			S+A+OV		
				Rate	N	(%)	Rate	N	(%)	Rate	N	(%)	Rate	N	(%)
S	M	33377	(29)	19.1	51	(32)	13.1	35	(45)	4.9	13	(50)	37.1	99	(38)
	F	24590	(20)	6.1	12	(14)	2.5	5	(10)	1.0	2	(13)	9.7	19	(13)
M	M	74308	(64)	14.8	88	(55)	5.2	31	(40)	1.2	7	(27)	21.2	126	(48)
	F	74784	(62)	8.4	50	(58)	3.3	20	(42)	1.2	7	(47)	12.9	77	(52)
W or D	M	7647	(7)	32.7	20	(13)	18.2	11	(14)	6.6	4	(15)	57.2	35	(13)
	F	22194	(18)	13.6	24	(28)	13.0	23	(48)	3.4	6	(40)	30.0	53	(36)
NK	M				0			1			2			3	(1)
	F				0			0			0			0	
ALL	M	115332		17.2	159		8.4	78		2.8	26		28.5	263	
	F	121568		8.8	86		4.9	48		1.5	15		15.3	149	

N = total number of deaths in 8 years
POP = 1981 Census population

TABLE 8.8: SIGNIFICANT DIFFERENCES BETWEEN VIOLENT DEATH RATES OF
CATCHMENT AREA RESIDENTS BY LEGAL MARITAL STATUS

MARITAL STATUS	SEX	SUICIDE		S+A+OV	
		RATE	95% CI	RATE	95% CI
SINGLE	M	19.1	(13.9 to 24.3)	37.1	(29.8 to 44.4)
	F	6.1	(2.7 to 9.6)	9.7	(5.3 to 14.0) **
MARRIED	M	14.8	(11.8 to 17.9)	21.2	(17.5 to 24.9) *
	F	8.4	(6.0 to 10.7) **	12.9	(10.0 to 15.7) **
WIDOWED/	M	* 32.7	(18.4 to 47.0)	57.2	(38.3 to 76.2) *
DIVORCED	F	13.5	(8.1 to 18.9)	30.0	(21.8 to 37.9)

* Difference in male rates significant (p<0.05)
** Difference in female rates significant (p<0.05)

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TABLE 8.9: NUMBER OF VIOLENT DEATH VICTIMS BY LEGAL MARITAL
STATUS AT TIME OF EVENT LEADING TO DEATH

LEGAL STATUS	SUICIDE		CCIDENT		OPEN VERDICT		S+A+OV	
	F	M	F	M	F	M	F	M
Single	12	51	5	35	2	13	19	99
(%)	(14)	(32)	(10)	(45)	(13)	(50)	(13)	(38)
	* p<0.01		* p<0.01		* p<0.05		* p<0.01	
Married	50	88	20	31	7	7	77	126
(%)	(58)	(55)	(42)	(40)	(47)	(27)	(52)	(48)
Widowed	22	13	12	3	4	1	38	17
(%)	(26)	(8)	(25)	(4)	(27)	(4)	(25)	(6)
	* p<0.01		* p<0.01				* p<0.01	
Divorced	2	7	11	8	2	3	15	18
(%)	(2)	(4)	(23)	(10)	(13)	(12)	(10)	(7)
Not known				1		2		3
TOTAL	86	159	48	78	15	26	149	263

De facto marital status

If, however, the de facto marital status, as described in the
inquest notes, is compared the effect of marital disharmony on violent
death is more obvious (Table 8.10).

Of 88 legally married male suicides and 31 male accident victims 27
and 7 respectively were living apart from their spouse at the time of
the event leading to their death. This compares with 8 out of 50 female
suicide victims. This suggests that the true violent death rates for
divorced/separated males is probably much higher than the official
figures (Table 8.7), suggest and the rate for cohabiting married males
lower.

Differences by sex and verdict
Sex

Three significant differences between the sexes in both the suicide
and non-suicide groups were found: i) males were more likely to be
single; ii) females were more likely to be widowed; and iii) previously
married males were more likely to be separated from their partner (only
significant in suicide and (S+A+OV) group) (Tables 8.9 and 8.10).

TABLE 8.10: NUMBERS OF VIOLENT DEATH VICTIMS BY LEGAL (L) AND DE FACTO (A) MARITAL STATUS AT TIME OF EVENT LEADING TO DEATH

	SUICIDE				ACCIDENT				OPEN VERDICT				S+A+OV			
	F		M		F		M		F		M		F		M	
	L	A	L	A	L	A	L	A	L	A	L	A	L	A	L	A
S	12	12	51	49	5	5	35	32	2	2	13	13	19	19	99	99
%	14	14	32	31	10	10	45	41	13	13	50	50	13	13	38	36
	$p<0.01$				$p<0.01$				$p<0.01$				$p<0.01$			
M/C	50	42	88	61	20	26	31	24	7	6	7	8	77	74	126	93
%	58	49	55	38	42	54	40	31	47	40	27	31	52	50	48	35
W	22	22	13	13	12	11	3	3	4	4	1	1	38	37	17	17
%	26	26	8	8	25	23	4	4	27	27	4	4	26	25	6	6
	$p<0.01$				$p<0.01$				$p<0.01$				$p<0.01$			
D/S	2	10	7	36	11	6	8	18	2	3	3	2	15	19	18	56
%	2	12	4	23	23	13	10	23	13	20	12	8	13	7	7	21
	$p<0.05$												$p<0.01$			
NK							1	1			2	2			3	3
TOTAL	86		159		48		78		15		26		149		263	

Sex and verdict

No difference was found between the females in the suicide and non-suicide groups in respect of either legal or de facto marital status. Among males, significantly more suicide than non-suicide victims were legally married and fewer legally single but no significant difference between the de facto marital status of the two verdict groups existed.

EMPLOYMENT STATUS

Violent death rates

The same definitions were used to classify the economic activity of the violent death victims as were used in the 1981 Census. This enabled individual violent death rates to be calculated and comparisons made with the general population (Table 8.11).

Differences by sex and verdict

Males

There was no difference between the male suicide and non-suicide victims in terms of their employment status at the time of death with 44% actually in work, 18% unemployed, 19% retired, 9% temporarily (off-work) sick and 7% permanently sick.

Fewer male violent death victims (44%) were in employment at the time of their death compared with the Census population (70%) but similar proportions of each group were affected by unemployment (16%S, 17%A, 23% OV). Over 10 times as many violent death victims in each group were 'off sick' at the time of their death (9%S ,9%A ,8%OV) compared with the 0.7% of the catchment area population. Both unemployment and permanent sickness were over-represented among the violent death victims, but the proportion of retired males in each verdict group (19%S; 17%A; 15%OV) was not significantly different from the 14% in the general population. Although the violent death rates for retired males was higher than the average group rates this was consistent with their age.

Unemployment/'not working'

Over half of the males in each group (51%S, 53%A, 50%OV) were 'not working' because of temporary or permanent sickness, unemployment or retirement at the time of their death. In the catchment area population only 23% of males were 'not working'.

This finding is similar to that of Kraft and Babigian (1976) who pointed out that the relationship between unemployment and suicide was more striking when they realised that the number of suicides 'not engaged in their customary occupation' at the time of their death (which included those retired and those on sick leave) rose from 19% 'unemployed' to 44% 'not working'.

TABLE 8.11: NUMBERS AND RATES OF VIOLENT DEATH PER 100,000 AGED 15+ BY ECONOMIC ACTIVITY AND SEX

	SEX	POP	%	SUICIDE Rate	N	%	ACCIDENT Rate	N	%	OPEN VERDICT Rate	N	%	S+A+OV Rate	N	%
In work	M	80,228	69.6	11	73	46	5	31	40	2	11	42	18	115	44
	F	51,041	42.1	2	7	8	2	7	14	1	3	20	4	17	11
Temp sick	M	763	0.7	229	14	9	115	7	9	33	2	8	377	23	9
	F	351	0.3	71	2	2	107	3	6	107	3	20	285	8	5
Unemployed	M	7,906	6.9	41	26	16	21	13	17	9	6	23	71	45	17
	F	2,991	2.5	8	2	2	4	1	2	4	1	7	17	4	3
Perm sick	M	2,218	1.9	56	1	6	45	8	10	6	1	4	107	19	7
	F	1,596	1.3	31	4	5	39	5	10	0	0	0	71	9	6
Retired	M	15,960	13.8	24	31	19	10	13	17	3	4	15	38	48	18
	F	7,725	6.4	7	4	5	3	2	4	2	1	7	11	7	5
Student	M	7,813	6.8	3	2	1	5	3	4	2	1	4	11	7	2
	F	7,033	5.8	4	2	2	2	1	2	0	0		5	3	2
Housewife	F	50,623	41.7	16	64	74	6	26	54	2	7	47	24	97	65
NK	M				3	2		3	4		1	4		1	4
	F				1	1		3	6		0			0	
Total	M	115,321	100	17	159	100	8	78		3	26	100	28.5	263	100
	F	121,360	100	9	86	100	5	48		1.5	15	100	15.3	149	100

Females

No difference was found between the economic activity of the female victims in the three verdict groups. The proportion (11%) of female violent death victims in paid employment was only a quarter of the 42% of the corresponding female catchment area Census population but in each of the verdict groups the violent death rate was lowest for employed women.

The highest death rates in each verdict group, as in the case of men, was for those who were temporarily 'off sick', followed by those who were permanently sick. As in the case of males, the proportion of females who had retired from paid employment was very similar to that found in the Census population. If anything, the violent death rate was lower than expected for these females.

Housewives

Housewives had higher rates of suicide and accidental death than those who were in work. Housewives who had never worked were more prevalent in the suicide group (66%) than in the accident and undetermined death (34%) groups and significantly more female suicide than non-suicide victims were not in paid employment (chi-sq=5.65; 1df; p<0.02). A corresponding excess of non-suicide victims were either in employment, unemployed or temporarily or permanently sick.

Students

Student numbers were under-represented in the violent death victims of both sexes.

SOCIAL CLASS

In assigning the violent death victims to the Registrar General's social classes the classification used by OPCS (OPCS, 1981) was used. For married women, and widowed or divorced females (and single women) with no occupation of their own, their husband's (or father's) occupation was used. Where a single or divorced woman was working, or had worked, her own occupation was used.

Overall, the violent death victims were over-represented in the lowest Social Classes compared with the CA population with the excess being accounted for by the high proportion of working class (Class IV and V) accidental and undetermined death victims (34%OV and 38%A, cp 24% CA).

The distribution of the suicide victims between the social classes was very similar to that of the catchment area Census population (Table 8.12).

Suicide rates increased slightly with lowering of social class from 10.0/100,000 population in Class I to 16.3 in Class V: the higher rates usually associated with Classes I and II were not evident in the catchment area population suicides.

Differences by sex and verdict
Sex

There was no significant difference in the social class distribution of the male and female violent death victims.

Sex and verdict

Significantly more suicides (44%) than non-suicides (32%) were in social class III (chi-sq=5.3; 1df; p<0.03) and significantly more non-suicides (17%) than suicides (9%) were in social class V (chi-sq=4.94; 1df; p<0.03). The pattern was similar for both sexes (Table 8.13).

TABLE 8.12: NUMBERS AND RATES OF VIOLENT DEATH AMONG CATCHMENT
AREA RESIDENTS BY SOCIAL CLASS AND VERDICT

SOCIAL CLASS	SUICIDE			ACCIDENT			OPEN VERDICT			S+A+OV			CENSUS POP 1981
	Rate	N	%	Rate	N	%	Rate	N	%	Rate	N	%	%
I	10.0	10	4	6.0	6	5	1.0	1	2	17.0	17	4	5
II	10.6	39	16	3.8	14	11	2.4	9	22	16.9	62	15	19
IIINM	14.1	33	14	6.0	14	11	1.0	1	2	20.5	48	12	12
IIIM	10.3	75	31	3.4	25	20	1.9	14	34	15.6	114	28	38
IV	13.6	44	18	7.4	24	19	3.1	10	24	24.2	78	19	17
V	16.3	22	9	17.7	24	19	3.0	4	10	37.0	50	12	7
NK		22	9		19	15		2	5		43	10	2
TOTAL		245			126			41			412		

N = total number of deaths in 8 years

TABLE 8.13: SOCIAL CLASS OF VIOLENT DEATH VICTIMS BY VERDICT AND SEX

MALES	SUICIDE			ACCIDENT			OPEN VERDICT			S+A+OV		
SOCIAL CLASS	N	%	Cum%	N	%	Cum%	N	%	Cum%	N	%	Cum%
I	7	5	5	5	7	7	1	4	4	13	5	5
II	21	14	19	9	13	20	3	13	17	33	13	18
IIINM	22	14	33	4	6	26	1	4	21	27	11	29
IIIM	52	34	67	18	25	51	11	46	67	81	33	62
IV	33	22	89	17	24	75	6	25	92	56	23	85
V	17	11	100	18	25	100	2	8	100	37	15	100
NOT CLASSIFIED	7			7			2			16		
	159			78			26			263		

FEMALES	SUICIDE			ACCIDENT			OPEN VERDICT			S+A+OV		
SOCIAL CLASS	N	%	Cum%	N	%	Cum%	N	%	Cum%	N	%	Cum%
I	3	4	4	1	3	3				4	3	3
II	18	25	29	5	14	17	6	40	40	29	24	27
IIINM	11	16	45	10	28	45				21	17	44
IIIM	23	32	77	7	19	64	3	20	60	33	27	71
IV	11	16	93	7	19	83	4	27	87	22	18	89
V	5	7	100	6	17	100	2	13	100	13	11	100
NOT CLASSIFIED	15			12						27		
	86			48			15			149		

LIVING CONDITIONS AT TIME OF EVENT LEADING TO DEATH

Accommodation at time of event leading to death

Although less than 2% of the catchment area population were living in non-private accommodation in 1981 (1981 Census), nearly a quarter of the violent death victims were not living in private households at the time of their death (18%S, 22%A, 39%OV) (Table 8.14).

TABLE 8.14: NUMBER OF VIOLENT DEATH VICTIMS BY ACCOMMODATION/HOUSEHOLD
AT TIME OF EVENT LEADING TO DEATH AND VERDICT

	SUICIDE			ACCIDENT			OPEN VERDICT		
	M	F	M+F	M	F	M+F	M	F	M+F
PRIVATE:									
Alone	41	33	74	19	8	27	5	4	9
With others	85	43	128	37	34	71	8	8	16
(Sub-total	126	76	202	56	42	98	13	12	25)
NON PRIVATE:									
Hospital:									
Psychiatric	5	7	12	0	1	1	0	1	1
General	1	0	1	2	0	2			
Geriatric				0	1	1			
Retirement home	3	1	4	1	3	4	0	1	1
Lodgings	13	1	14	7	0	7	4	0	4
Hostels	2	0	2	6	1	7	3	1	4
Hotel	1	0	1	1	0	1			
Ship							2	0	2
Homeless(NFA)*	8	1	9	5	0	5	4	0	4
(Sub-total	33	10	43	22	6	28	13	3	16)
	159	86	245	78	48	126	26	15	41

* No address at time of death because of:
eviction (2), returned from abroad (1), or just itinerant (10)

While 89% of the Census population were living with others in private households this was true for only half (52%) of the violent death victims. One in three suicide victims and one in four accidental or open verdict death victims was living alone in a private household compared with one in ten of the Census population.

For all the verdict groups, both the rates of violent death (Table 8.15), and the relative risk of violent death (Table 8.16), for persons not living in private households were significantly greater than for those living in private households, either alone or with others.

TABLE 8.15: NUMBER AND RATES OF VIOLENT DEATH BY PLACE OF RESIDENCE AT TIME OF DEATH AND VERDICT

TYPE OF HOUSEHOLD	POP **	(%)	SUICIDE RATE	N	(%)	ACCIDENT RATE	N	(%)	OPEN VERDICT RATE	N	(%)
Private household - alone	22,815	(9.6)	40.5	74	(30)	14.8	27	(21)	4.9	9	(22)
- with others	210,077	(88.7)	7.61	128	(52)	4.2	71	(56)	1.0	16	(39)
Non-private household*	4,008	(1.7)	134.1	43	(18)	87.3	28	(22)	49.9	16	(39)
	236,900			245			126			41	

** OPCS 1981 Census Population (aged 15+)
* Hospitals, hotels, lodging houses, hostels for the homeless, prisons, barracks, ships
N = total number of deaths in 8 years

TABLE 8.16: RELATIVE RISK OF VIOLENT DEATH FOR VIOLENT DEATH VICTIMS LIVING ALONE OR IN NON-PRIVATE ACCOMMODATION COMPARED WITH VIOLENT DEATH VICTIMS LIVING WITH OTHERS IN PRIVATE HOUSEHOLD

VERDICT GROUP	ACCOMMODATION Relative Risk (RR) compared with living in:			
	Own Home (alone) RR	95% CI	Non-Private accommodation RR	95% CI
Suicide	5.3	(4 to 7)	17.6	(12 to 25)
Accident	3.5	(2 to 5)	20.7	(13 to 32)
Open verdict	5.1	(2 to 11)	52.4	(26 to 105)
Non-Suicide (A+OV)	3.8	(2 to 6)	26.5	(19 to 38)
S+A+OV	4.7	(4 to 6)	21.2	(17 to 27)

Differences by sex and verdict

Sex

Similar proportions of males (25%) and females (30%) were living alone at the time of their death but significantly more males (29%) than females (13%) were not living in private accommodation (chi-sq=9.03; 1df; p=0.003; OR=2.4; 95%CI=1.3-4.3).

Sex and verdict

Although the difference between the proportions of suicide and non-suicide victims of both sexes living alone (30% S;24% NS) and living in non-private accommodation (18% S; 26% NS) was not significant, there was a significant sex difference. Significantly more female suicides (38%) than non-suicides (19%) were living alone (chi-sq=5.56; 1df; p<0.2; OR=2.6; 95%CI=1.2-6.1), but significantly more male non-suicide (34%) than suicide (21%) victims were living in non-private accommodation (chi-sq=4.80; p<.03; 1df; OR=1.94; 95%CI=1.1-3.5).

Suicides

Although about half of both male (47%) and female (50%) suicides were not living with others in a family situation their actual accommodation differed. Three quarters of these 43 women were living in their own homes but nearly half of the 74 lone male suicides were either not living in private households (Table 8.17), or were temporarily homeless and sleeping rough. An overwhelming majority (90%+) of homeless males were under the age of 65. Nearly half (45%) of the females who were living alone in a private house were over the age of 65.

Accidents

Although 12% of both female accident and female suicide victims were living in non-private accommodation, of those in private households, 81% of accident victims were living with others compared with only 57% of suicides.

Open verdicts

A similar pattern to the suicides was found among open verdict victims. A narrow majority of open verdict females living alone were still in their own homes while a very large majority of open verdict male victims not living in private households with others were in non-private accommodation or had no fixed address (Table 8.14).

Differences by age

The proportion of both male and female suicides age 65+ who were living alone in their own home was significantly higher than for younger suicides (male: diff = 25%; SEdiff = 10.1; p<0.05); female: diff = 25%; SEdiff = 11.3; p<0.05). There was no significant difference between the number of elderly male (46%) and female (56%) suicides who were living alone (Table 8.17).

TABLE 8.17: PERCENTAGE OF VIOLENT DEATH BY VERDICT, AGEGROUP, SEX AND HOUSEHOLD AT TIME OF EVENT LEADING TO DEATH

SUICIDE	MALES			FEMALES			BOTH SEXES		
	<65	65&+	ALL	<65	65&+	ALL	<65	65&+	ALL
TOTAL N	131	28	159	59	27	86	190	55	245
	%	%	%	%	%	%	%	%	%
Alone	21	46	26	31	56	38	24	51	30
with others	56	43	53	54	41	50	55	42	52
not private	33	11	21	15	4	12	21	7	18

NON-SUICIDE	(ACCIDENT + OPEN VERDICT)								
	<65	65&+	ALL	<65	65&+	ALL	<65	65&+	ALL
TOTAL N	87	17	104	48	15	63	135	32	167
	%	%	%	%	%	%	%	%	%
Alone	20	42	23	17	27	19	18	34	22
with others	45	35	43	75	40	67	56	38	52
not private	35	23	34	8	33	14	26	28	26

The age distribution of female suicide and female accidental death victims who were living alone differed in that significantly fewer female accident victims under the age of 65 were living alone (13%) than female suicides (31%) (Diff = 17.4%; SEdiff = 8.1%; p<0.05), but there was no significant difference in the proportion of widows who were living alone in the suicide (18/19) and accidental death (5/7) groups.

TABLE 8.18: NUMBER OF VIOLENT DEATHS BY VERDICT, AGEGROUP, SEX
AND HOUSEHOLD AT TIME OF EVENT LEADING TO DEATH

SUICIDE	MALES			FEMALES			BOTH SEXES		
	<65	65&+	ALL	<65	65&+	ALL	<65	65&+	ALL
Alone	28	13	41	18	15	33	46	28	74
with others	73	12	85	32	11	43	105	23	128
not private	30	3	33	9	1	10	39	4	43
	131	28	159	59	27	86	190	55	245

ACCIDENT									
	<65	65&+	ALL	<65	65&+	ALL	<65	65&+	ALL
Alone	14	5	19	5	3	8	19	8	27
with others	32	5	37	31	3	34	63	8	71
not private	19	3	22	2	4	6	21	7	28
	65	13	78	38	10	48	103	25	126

OPEN VERDICT									
	<65	65&+	ALL	<65	65&+	ALL	<65	65&+	ALL
Alone	3	2	5	3	1	4	6	3	9
with others	7	1	8	5	3	8	12	4	16
not private	12	1	13	2	1	3	14	2	16
	22	4	26	10	5	15	32	9	41

FACTORS ASSOCIATED WITH HIGH RATES OF VIOLENT DEATH

The highest death rates in each verdict group are associated with being widowed or divorced/separated, and in the case of males, never being married (Table 8.8); not working because of unemployment, temporary or permanent sickness (Table 8.11); living alone, particularly in non-private accommodation (Table 8.15); and being of low social class (Table 8.12).

Marital status

These findings suggest an enduring marriage or cohabitation protects men against violent death but increases the risk for females. It could be argued that a man who has a partner to look after him is protected from the stress of loneliness or having to cope on their own if ill or handicapped. On the other hand, a married woman or mother is

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not only expected to look after herself but is responsible for the care of others. If not in paid employment outside the home, a woman may suffer from loneliness during the day or have financial problems because of having no personal income. If the woman is in paid employment, although she may have additional job related stress, the benefits of company and extra income may outweigh this. The increased self-esteem of a woman in paid employment is also a possible protective factor.

Loneliness/social isolation

Social isolation, which has been cited as a predisposing factor in suicides was also found to be a factor in both undetermined and accidental death victims.

Loneliness can take many forms. Social isolation was experienced not only by elderly people living on their own in retirement or widowhood, but also by a number of male victims who were living separately in the same house as an ex-partner. More commonly, loneliness was associated with living alone in the victim's own home, or with living in lodgings.

Social isolation is even possible when accommodation is shared as illustrated by the following tragedies. Two accidental poisoning victims were 'found dead' in bed, several days after death, in shared rooms occupied at the time of death, and for some time after it, by at least one other person.

Employment

The fact that violent death rates were lower than the catchment area average for both sexes in each verdict group for those who were in work, or who had retired from paid employment, suggests that having a job may be a protective factor, and that this protection lasts into old age. A possible explanation for this latter point may be that the financial pressures, which have been cited as being factors in the increasing suicide rate of old age, may be mitigated if an adequate pension has been earned during a lifetime of work.

Temporary absence from work because of sickness

Not unexpectedly, rates of both suicide and all types of violent death for unemployed persons are significantly higher than those for persons in work (Figures 8.13 and 8.15), but the corresponding rates for those who were temporarily 'not working' because of sickness are significantly higher than the rates for unemployed males!

Although the overall violent death rate (Figure 8.16) is significantly higher for those females who are unemployed, temporarily sick or housewives than for employed females, only housewives show a significantly increased suicide rate (Figure 8.14) compared with all the other female groups.

These findings suggest that the fear of losing a job, involving potential loss of income, and certainly loss of self-esteem, is a powerful precipitant of suicide, and other potentially self-inflicted deaths in males, but not in females, and that housewives are more prone to suicide than other females.

Differences in the social and demographic characteristics of victims in the suicide and non-suicide groups are discussed in Chapter 9.

FIGURE 8.13

MALE SUICIDE RATE FOR CATCHMENT AREA
RESIDENTS BY EMPLOYMENT STATUS 1974-1981

S RATE/100,000 POP (15+)

95% CI(U)
SUICIDE RATE
95% CI(L)

IN WORK   PERM SICK   RETIRED
    TEMP SICK   UNEMPLOYED   STUDENT

EMPLOYMENT STATUS

FIGURE 8.14

FEMALE SUICIDE RATE FOR CATCHMENT AREA
RESIDENTS BY EMPLOYMENT STATUS 1974-1981

S RATE/100,000 POP(15+)

95% CI(U)
SUICIDE RATE
95% CI(L)

IN WORK   PERM SICK   RETIRED   HOUSEWIFE
    TEMP SICK   UNEMPLOYED   STUDENT

EMPLOYMENT STATUS

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FIGURE 8.15

MALE VIOLENT DEATH(S+A+OV) RATE FOR CA
RESIDENTS BY EMPLOYMENT STATUS 1974-1981
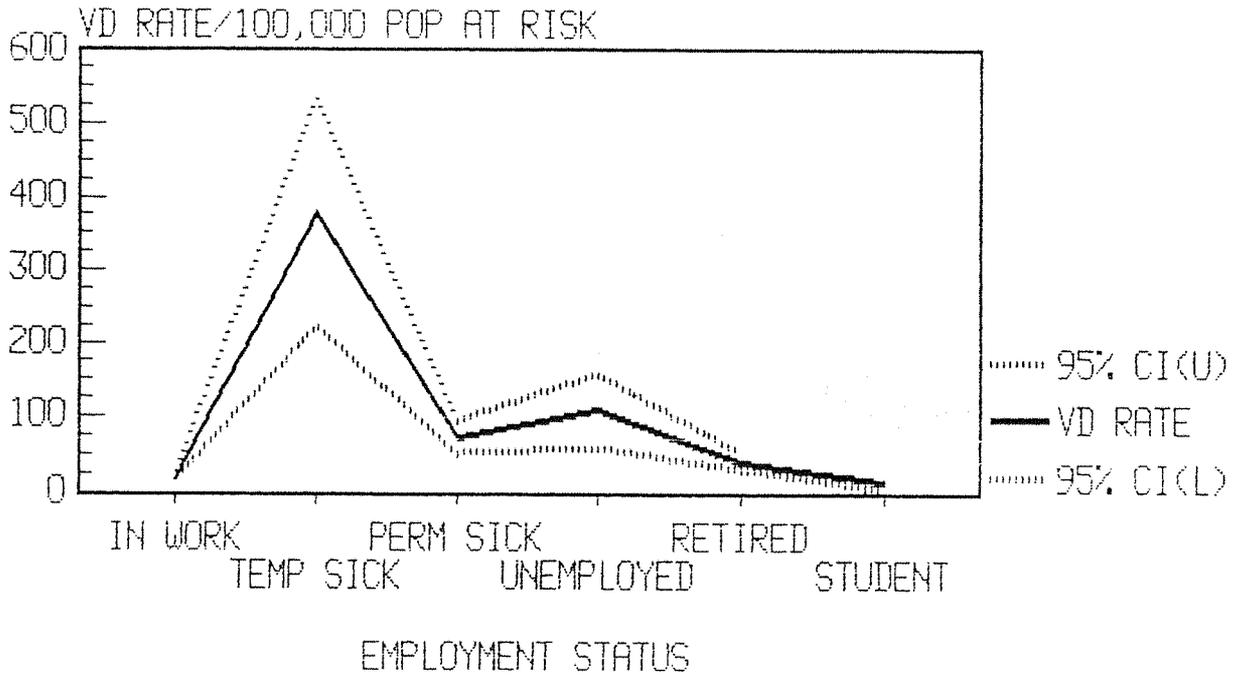
FIGURE 8.16

FEMALE VIOLENT DEATH(S+A+OV) RATE FOR CA
RESIDENTS BY EMPLOYMENT STATUS 1974-1981
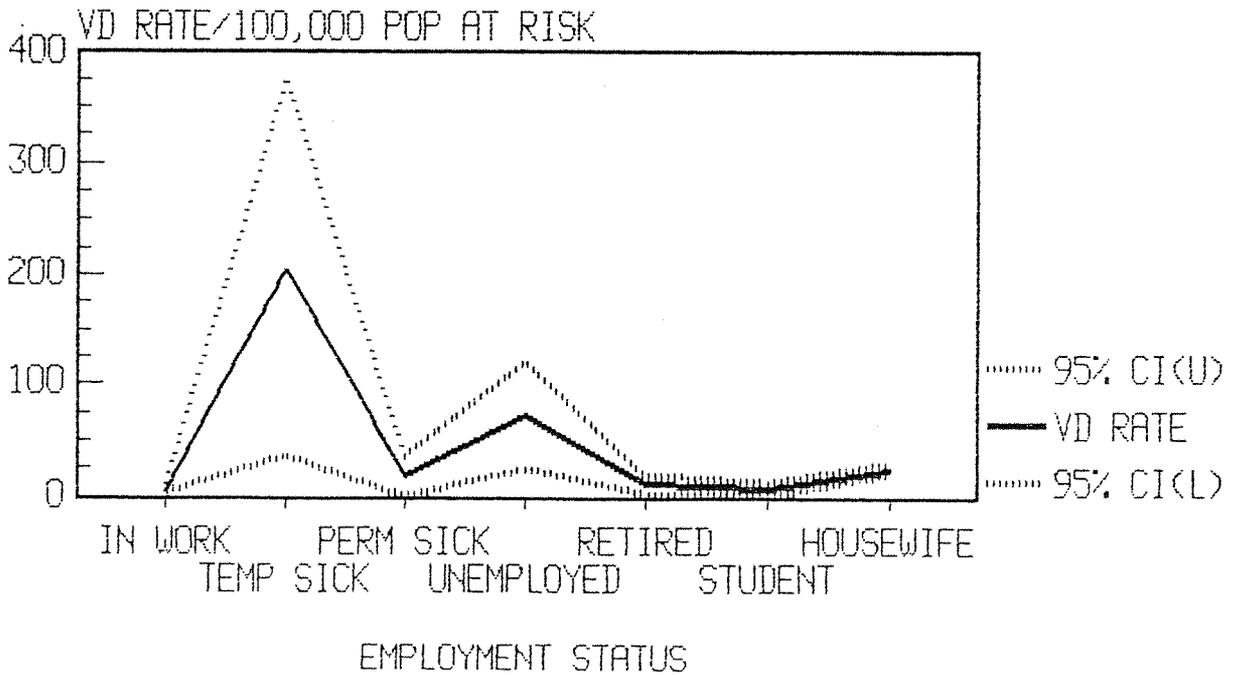
CHAPTER 9: COMPARISONS

A: COMPARISON BETWEEN SUICIDES AND NON-SUICIDE VICTIMS

Social and demographic characteristics

The social risk factors of suicide in the general population, which include being male, elderly, unmarried, unemployed and living alone, have been described in many studies; Durkheim (1897); Dublin (1963); Sainsbury (1975).

The results presented in Chapter 8 confirm that these factors are associated with the highest rates of deaths from suicide, and also with the highest rates of death from all the potentially self-inflicted causes investigated in this study. Differences between the verdict groups in respect of their social characteristics at the time of the event leading to their death are summarised in Table 9.1.

This table shows a remarkable similarity between the social and demographic characteristics of the violent death victims in the suicide and non-suicide verdict groups. Suicide victims differ significantly from those on whom non-suicide verdicts were returned in respect of only four variables:

i)   more suicides had suffered a recent upset in a personal relation-
     ship, through either separation or bereavement;
ii) fewer suicides were legally divorced;
iii) fewer suicides were living in non-private households;
iv) more male suicides were of higher social class.

These four factors are not independent since marital separation often leads to divorce, homelessness and living in a non-private household. Similarly there is an overlap of people of low social class and those living in non-private households.

Jacobson et al (1976) also found that in a comparative study of suicides and accidental and open verdict deaths, the accidental group contained a higher proportion of persons of lower social class. In contrast, Holding and Barraclough (1978) in a similar comparison, in London found that accidental death victims were of a higher social class than suicides, but this study differed from the present study, and that of Jacobson, in that the violent death victims studied were not all residents of the same coroner's district. A quarter of the London

victims were non-residents so that no epidemiological conclusions could be drawn. Although Jacobson's study population did not include victims who died outside the coroner's district, no non-residents were included.

TABLE 9.1: SUMMARY OF DIFFERENCES BETWEEN VERDICT GROUPS IN RESPECT OF SOCIAL CHARACTERISTICS AT TIME OF EVENT LEADING TO DEATH

		SUICIDE	ACCIDENT	OPEN VERDICT	TOTAL
		N	N	N	N
All victims		245	126	41	412
Males		159	78	26	263
Females		86	48	15	149

		%S	% A	%(A+OV)	%OV	% TOTAL S:NS
Sex:	M:	65	62	(62)	63	64
	F:	35	38	(38)	37	36
Age < 65:	M:	82	83	(84)	85	83
	F:	69	79	(76)	67	72
Living alone:	M+F:	30	21	(22)	23	27
Non-private hhold:	M+F:	18	22	(26)	39	21 *p<0.01
Recent move:	M+F:	25	14	(12)	7	20
Single:	M+F:	26	32	(33)	37	29
Married (legal):	M+F:	56	41	(38)	34	49
Cohabiting (de facto):						
	M+F:	42	40	(38)	24	41
Divorced (legal):	M+F:	4	15	(14)	12	8* p<0.01
Separated (de facto):						
	M+F:	19	19	(17)	12	18
Widowed:	M+F:	14	12	(12)	12	13
Recent upset in personal relationship:						
	M+F:	31	19	(18)	17	26* p<0.01
Unemployed:	M+F:	12	12	(13)	17	12
Employed:	M+F:	33	32	(35)	35	33
Retired:	M+F:	14	12	(12)	12	14
Not working (Unemployed, temp or perm sick or retired):						
	M+F:	38	40	(41)	44	39
Social class I/II:	M+F:	22	19	(18)	26	21
Social class III :	M+F:	44	31	(32)	37	39 *p<0.02
Social class IV :	M+F:	20	22	(23)	26	21
Social class V :	M+F:	11	22	(17)	10	14 *p<0.02

The characteristics of suicide, accidental and undetermined death victims subject to inquest by the same coroner have been compared by Holding and Barraclough (1975, 1977), Jacobson et al (1976), and more recently by Platt et al (1988).

The lower proportions of accident victims and open verdict victims who were legally married in this study are very similar to those reported by Holding and Barraclough (accidents, 1977, and undetermined deaths, 1975) and by Jacobson et al (1976), but there was no significant difference between the de facto marital status in the three groups. Platt et al (1988) found that Scottish suicides and undetermined death victims could not be distinguished on the basis of marital status. Although fewer non-suicide victims were married, neither Jacobson et al (1976) nor Holding and Barraclough (1978) found a significant difference between the marital status of the three verdict groups.

Medical and psychiatric characteristics

Table 4.5 summarised the psychiatric history of the victims in the suicide and non-suicide verdict groups and Table 9.2 compares their medical history.

Not only do the violent death victims in the three verdicts groups resemble each other in terms of their social and demographic characteristics, as previously described, but their history of both mental and physical illness are also very similar, (Chapter 4: Table 4.5 and Table 9.2).

As remarked in Chapter 4, the only significant differences between the psychiatric histories of the victims in the three verdict groups are their physical and/or mental state in the period just prior to the event leading to death. Significantly more suicide victims had been treated by a medical practitioner, although not necessarily for psychiatric disorders, in the previous four weeks, and had the fact of mental disturbance at the time of the fatal act recorded in the inquest notes. Similar differences were reported by Jacobson et al (1976) and Holding and Barraclough (1978).

High prevalences of mental illness in all three verdict groups, similar to those reported here, were reported by both of these comparative studies, supporting the view that mental illness is an important factor, not only in suicide, but in all forms of self-inflicted violent death.

TABLE 9.2: SUMMARY OF DIFFERENCES BETWEEN VERDICT GROUPS IN RESPECT OF
PAST AND PRESENT PHYSICAL ILLNESS

	SUICIDE	ACCIDENT	OPEN VERDICT	TOTAL
	N	N	N	N
All victims: M:	159	78	26	263
F:	86	48	15	149
M+F:	245	126	41	412
	%	%	%	%
Medical treatment in 4 weeks before ELD				
M+F	49.0	33.3	34.1	43.0*p<0.01
GP treatment:M+F:	76.3	65.1	53.7	70.6
Non-psychotropic medication				
M+F:	30.2	33.3	22.0	30.3
Present physical illness				
M+F:	42.9	44.0	41.5	43.1
Past physical illness				
M+F:	49.4	49.6	46.3	49.1
Handicap: M+F:	25.3	20.8	31.7	24.6
Current general hospital patient:				
M+F	9.4	6.3	2.4	7.8

Previous deliberate self-harm (DSH)

The most surprising finding is that there is no significant
difference between the suicide and non-suicide groups in respect of the
proportion of females with a history of DSH, although for the suicides
as a whole, and for male suicides there is a significant difference.
Jacobson et al (1976), did not differentiate between the sexes.

Since at least half of the violent death victims had a history of
referred mental illness (Table 4.1), and 58% of all the victims were
either current psychiatric patients or were being treated with
psychotropic drugs by their GP at the time of their death (Table 3.21),
the social, demographic and medical characteristics of the victims with
and without a history of referred mental illness were compared to see
whether any of the risk factors were more prevalent in patients with
such a history.

Significant differences between the suicide group, and the non-
suicide verdict groups were reported by Jacobson et al (1976) in respect
of recent psychiatric symptoms, being in psychiatric care at time of
event leading to death, and suffering from chronic pain or handicap,

which were not replicated in the present study. These differences may stem from the older age population in Brighton, and the fact that residents dying outside the coroner's district were not traced. These could have been younger and less physically disabled persons thereby affecting the statistics.

The present study also differs from that of Holding and Barraclough (1978) in the high proportion of accidental death victims who were current psychiatric patients at the time of their death.

Alcohol taken at the time of the event leading to death

Extensive research into the relationship between drinking (and alcoholism) and acts of personal violence has shown that self-destructive behaviour is often accompanied or preceded by the consumption of alcohol.

Both Holding and Barraclough (1978) and Jacobson et al (1976) confirmed an excess of non-suicide victims who had taken alcohol at the time of death, or who had a history of alcoholism. Rorsman (1974) also found that alcoholism was more common among men who died accidental deaths than in a control group.

The proportion of violent death victims in this study who had consumed alcohol at the time of the event leading to death, shown in Table 3.17, is higher in each verdict group than the 7% suicides, 36% accident victims and 24% open verdict victims studied by Jacobson et al (1976). However, the finding in the present study that for the suicide group alone the proportion is about 31% is consistent with other reports; James, 37%, (1966); Ayd, 35%, (1961); Edmondson et al, 31%, (1956); Kraft and Babigian, 26%, (1976). The best estimate found here for all the violent death victims is 38%.

Alcohol abuse

A subjective rating of 'alcohol abuse' was made on the basis of information contained in the inquest file or medical case notes. Positive ratings were associated with reports of 'alcohol dependence', 'alcohol abuse' or 'heavy' drinking as opposed to 'social' drinking, 'marital break-up due to excessive drinking' or 'violence/crime associated with drinking'. On the basis of these criteria, 90 or 21.8%, of all the violent death victims (25% males, 15% females) had a history of alcohol abuse.

Although this may be regarded as a loose definition of alcoholism, the proportion of 'alcohol abusers' among the suicide victims, 13.5%, is

in fact lower than the lowest number of alcoholic suicides reported in other studies. These studies reported proportions of suicides with a primary diagnosis of alcoholism ranging from 15% to 26.9% (average 21.1%). It is, however, higher than the 7% reported by Jacobson et al, 1976) for Brighton suicides with a 'drinking problem '. In the present study the prevalence of alcohol abuse was much higher among accidental and undetermined death victims (34.1%) than among suicide victims (13.5%). Accidental death verdicts were returned on at least half of both the male (60%) and female (52%) alcohol abusers and corresponds closely to the finding that accidental death verdicts were returned on half of the 24 Brighton violent death victims who had a drinking problem (Jacobson et al, 1976).

The sex ratio of alcohol abusers in the 3 groups ranged from 4:1 in the suicide group to 2.5:1 in the non-suicide groups. The suicide sex ratio is similar to that reported by Barraclough et al (1974).

Other key differences are summarised in Table 9.3.

TABLE 9.3 :SUMMARY OF DIFFERENCES BETWEEN VERDICT GROUPS IN RESPECT OF CIRCUMSTANCES AT TIME OF EVENT LEADING TO DEATH (ELD)

	SUICIDE	ACCIDENT	OPEN VERDICT	TOTAL	
	N	N	N	N	
All victims	245	126	41	412	
Males	159	78	26	263	
Females	86	48	15	149	
	%	%	%	%	S:Non-S
Dead when found: M+F:	82	67	71	76	* p<0.01
Suicide note: M+F:	45	2	7	28	* p<0.01
Threat of suicide in month before ELD					
M+F:	36	6	20	25	* p<0.01
M:	35	4	15	24	* p<0.01
F:	37	8	27	27	* p<0.01
History of lifetime deliberate self-harm (DSH)					
M+F:	46	32	34	41	* p<0.01
M:	42	24	20	34	* p<0.01
F:	56	44	60	52	
Alcohol taken at time of ELD					
M+F:	29	42	32	33	** p<0.05
History of alcohol abuse					
M+F:	14	34	34	22	** p<0.01
History of drug abuse					
M+F:	6	22	5	11	** p<0.01

* Factor significantly more prevalent in suicide victims
** Factor significantly more prevalent in non-suicide victims

B: COMPARISON BETWEEN VICTIMS WITH AND WITHOUT A HISTORY OF REFERRED MENTAL ILLNESS

Age

Victims of both sexes with a history of referred mental illness were younger than the corresponding victims with no history of referral.

The average age of male and female accident victims was very similar. In the present study, female violent death victims with and without a history of referred mental illness were older than their male counterparts (Table 9.4). In fact the average age of all male violent death victims is more or less independent of verdict and of whether or not there was any history of referred mental illness.

TABLE 9.4: AVERAGE AGE AT DEATH OF VIOLENT DEATH VICTIMS WITH AND WITHOUT A HISTORY OF REFERRED MENTAL ILLNESS (RMI) BY SEX AND VERDICT GROUP

	MALES			FEMALES			MALES+FEMALES		
	N	AV AGE	SE	N	AV AGE	SE	N	AV AGE	SE
VICTIMS WITH HISTORY OF RMI				* p<0.01					
Suicide	87	45.7	1.8	59	53.9	1.8	146	49.0	1.3
Accident	36	43.9	2.4	27	45.3	3.1	63	44.5	1.9
Open verdict	10	40.9	3.3	12	50.3	5.9	22	46.0	3.6
VICTIMS NEVER REFERRED				* p<0.05					
Suicide	72	47.3	2.0	27	60.5	3.5	99	50.9	1.8
Accident	42	44.0	3.4	21	49.9	5.6	63	46.0	2.9
Open verdict	16	52.2	5.6	3	50.3	5.9	19	53.6	5.3

* Significant differences (Based on T-Tests)

Social Characteristics

Marital status

The only significant difference found was that victims with a history of referred mental illness were significantly less likely to be single (never married) than others. Less than a quarter (23%) were single compared with a third of others (p<0.05).

Living alone

There was no significant difference between the victims with and without a history of RMI in respect of living alone or in non-private accommodation.

Not working

The violent death victims with a history of referred mental illness (RMI) were significantly more likely than other victims (No MI) to be: not working because of unemployment, sickness or retirement (73% RMI: 56% No MI; p<0.01). Significantly fewer of the RMI victims (28%) were in work compared with others (44%) (Diff=16; SEdiff=5; p<0.01).

In all these respects the total population of violent death victims with a history of referred mental illness was very characteristic of the population consisting of suicides alone.

Medical characteristics

Significantly more victims with a history of referred mental illness were receiving treatment from their GP at the time of the event leading to death, (83% RMI cp 54% No MI; Diff=29%; SEdiff=4%; p<0.01) but the two groups could not be differentiated in respect of the prevalence of physical illness.

Alcohol and drug abuse

In comparison with those with no history of referred mental illness, significantly more patients and expatients were found to have a history of drug abuse (14% RMI: 6% No MI; chi-sq=6.4; p<0.02. Drug abuse includes over-doses, regularly taking more than prescribed dose or mixing drugs, as well as taking illicit drugs. There was no difference in the proportion with a history of alcohol abuse.

Previous history of DSH and/or threat of self-harm

Nearly two thirds (64.5%) of victims with a history of referred mental illness had a record of at least one act of DSH compared with 10.5% of others. (Diff=54%; SEdiff=3.2%; p<0.01). However, this is a bit tautologous in that almost everyone who had committed an act of DSH was referred to a psychiatrist and therefore acquired a history of RMI!

Twice as many referred victims had threatened to commit an act of self-injury in the month before the fatal act (32% RMI; 17% No MI).

C: COMPARISON BETWEEN SUICIDES AND NON-SUICIDES WITH A HISTORY OF REFERRED MENTAL ILLNESS

Risk factors

When the characteristics of the suicides (S) and non-suicides (NonS) with a history of referred mental illness are compared, no significant difference is found between the proportions of the two verdict groups in respect of: being married (marital status); not working (73% S; 72% NonS); or living alone either in private (28% S; 21% NonS), or non-private accommodation (21% S; 26% nonS).

This suggests that the social risk factors associated with suicide are also factors in persons with a history of referred mental illness on whom non-suicide verdicts are returned. In addition, the suicide and non-suicide groups could not be differentiated by a history of DSH (68% S; 59% NonS) for males (Table 9.5).

The factors which were significantly more prevalent among suicides with a history of referred mental illness than among the corresponding non-suicides were a threat to commit self-injury in the month before the fatal act (41% S; 15% NonS, p< 0.01), and a mention of mental disturbance at the time of the event leading to death (86% S; 70% NonS: p<0.05). In addition, significantly fewer suicides had a history of drug abuse (7% S; 27% NonS: p<0.001) or alcohol abuse (14% S; 42% NonS: p< 0.001).

History of deliberate self-harm (DSH)

It is well established that not all acts of deliberate self-harm are intended to be fatal, and that only about 1% of those who commit an act of DSH kill themselves (Stengel and Cook, 1958). However, the present study shows that more than half of the females, and at least a third of males, who died from self-inflicted causes had committed at least one such act (Table 3.28). Over half of these deaths occurred within a year of an act of DSH, and a third of the victims succeeded in killing themselves within three months of a failed suicide attempt (Table 3.29).

The proportion of each diagnostic group with a history of DSH is shown in Table 9.6. The majority of all the patients with a psychotic illness had committed at least one act of DSH with the exception of males with a diagnosis of schizophrenia.

TABLE 9.5:   NUMBER OF VIOLENT DEATH VICTIMS WITH A HISTORY OF REFERRED
             MENTAL ILLNESS WHO HAD A RECORD OF DELIBERATE SELF-HARM
             (DSH) BY INQUEST VERDICT

BOTH SEXES	SUICIDE		ACCIDENT		OPEN		ALL VERDICTS	
DSH	99	67.8	36	57.1	14	63.6	149	64.5
NO DSH	47	32.2	27	42.9	8	36.4	82	35.5
	146	100.0	63	100.0	22	100.0	231	100.0
MALES								
DSH	54	62.1	18	50.0	5	50.0	77	57.9
NO DSH	33	37.9	18	50.0	5	50.0	56	42.1
	87	100.0	36	100.0	10	100.0	133	100.0
FEMALES								
DSH	45	76.3	18	66.7	9	75.0	72	73.5
NO DSH	14	23.7	9	33.3	3	25.0	26	26.5
	59	100.0	27	100.0	12	100.0	98	100.0

TABLE 9.6: HISTORY OF DELIBERATE SELF HARM BY DIAGNOSIS IN ALL
           RESIDENTS KNOWN TO LOCAL PSYCHIATRIC SERVICE WITH A
           HISTORY OF REFERRED MENTAL ILLNESS

DIAGNOSIS	MALES			FEMALES		
	HISTORY DSH	NO DSH	ALL	HISTORY DSH	NO DSH	ALL
Schizophrenia	9	9	18	7	2	9
Affective psychosis	12	11	23	24	7	31
Neurotic disorder	23	5	28	24	6	30
Personality disorder	5	7	12	5	2	7
Drug addiction	4	1	5	2	1	3
Alcohol abuse	8	8	16	4	2	6
Other	9	6	15	4	3	7
	70	47	117	70	23	93
	(60%)	(40%)	(100%)	(75%)	(25%)	(100)

Threat of suicide

A third of both the suicides, (and of all the violent death victims) with a history of referred mental illness had threatened to kill themselves in the month before their death, with no significant difference between the sexes (37% males and 35% females).

There was, however, a significant difference between the sexes in the diagnostic distribution of referred psychiatric patients who had made threats (Tables 9.3 and 9.4). Almost 60% of females who had made threats were suffering from affective psychosis and over a third of males patients were diagnosed as neurotic.

Just over a third (37%) of all female suicides had threatened to kill themselves in the month before their death with no excess among those with a history of referred mental illness. However, 59% of the referred psychiatric patients had a diagnosis of affective disorder and threats had been made by 54% of these females. The difference between the proportion of these patients and the other diagnostic groups does not reach significance if only suicide victims are considered; if, however, all female violent death victims with a diagnosis of affective psychosis are combined the excess over all other diagnostic groups does reach significance (chisq=9.82; 1df; p=0.002).

Threats were made by significantly more males with a history of referred mental illness than by other males (chisq=5.23; 1df; p=0.02), and males with a diagnosis of neurotic disorder accounted for the largest single diagnostic group. Again, differences between males with neurotic disorder and other diagnoses does not reach significance in the suicide group alone, but if all verdict groups are combined the excess does reach significance (chisq=5.77; 1df; p=0.016).

The low proportion of patients with a diagnosis of schizophrenia who gave a warning of their impending death is consistent with other studies such as that of Yarden (1974).

TABLE 9.7: NUMBER OF VIOLENT DEATH VICTIMS WHO THREATENED TO COMMIT SUICIDE IN THE MONTH BEFORE THEIR DEATH BY HISTORY OF REFERRED MENTAL ILLNESS

MALES	SUICIDE			ACCIDENT			OPEN VERDICT			S+A+OV		
THREAT	RMI	NOT MI	ALL	RMI	NOT MI	ALL	RMI	NOT MI	ALL	RMI	NOT MI	ALL
Y N	38	18	56	3	0	3	2	2	4	43	20	63
(%)	(44)	(25)	(35)	(8)	(0)	(4)	(15)	(27)	(15)	(32)	(18)	(24)
N N	49	54	103	33	42	75	8	14	22	90	110	200
(%)	(56)	(75)	(65)	(92)	(100)	(96)	(85)	(73)	(85)	(68)	(82)	(76)
	87	72	159	36	42	78	10	16	26	133	130	263

FEMALES												
Y N	22	10	32	4	0	4	4	0	4	30	10	40
(%)	(37)	(37)	(37)	(15)	(0)	(8)	(33)	(0)	(27)	(31)	(20)	(27)
N N	37	17	54	23	21	44	8	3	11	68	41	109
(%)	(63)	(63)	(63)	(85)	(100)	(92)	(67)	(100)	(73)	(69)	(60)	(73)
	59	27	86	27	21	48	12	3	15	98	51	149

TABLE 9.8: THREAT OF SUICIDE BY DIAGNOSIS (ALL SUICIDES WITH A HISTORY REFERRED MENTAL ILLNESS (N=146)

	MALES			FEMALES		
DIAGNOSIS	THREAT	NO THREAT	ALL MALES	THREAT	NO THREAT	ALL FEMALES
Schizophrenia	4	12	16	0	4	4
Affective psychosis	7	14	21	13	11	24
Neurotic disorder	14	12	26	6	15	21
Personality disorder	1	2	3	1	0	1
Drug addiction	0	1	1	0	1	1
Alcohol abuse	4	1	5	1	0	1
Other	5	4	9	1	3	4
No diagnosis	3	3	6	0	3	3
	38 (44%)	49 (56%)	87 (100%)	22 (37%)	37 (63%)	59 (100)

TABLE 9.9: THREAT OF SUICIDE BY DIAGNOSIS (ALL VICTIMS WITH A HISTORY OF REFERRED MENTAL ILLNESS; N=231)

DIAGNOSIS	MALES			FEMALES		
	THREAT	NO THREAT	ALL MALES	THREAT	NO THREAT	ALL FEMALES
Schizophrenia	4	16	20	1	6	7
Affective psychosis	7	19	26	17	15	32
Neurotic disorder	16	15	31	7	25	32
Personality disorder	2	9	11	1	6	7
Drug addiction	1	5	6	0	3	3
Alcohol abuse	5	15	20	1	5	6
Other	5	7	12	2	5	7
No diagnosis	3	4	7	0	3	3
	43 (32%)	90 (68%)	133 (100%)	30 (31%)	68 (69%)	98 (100)

D: CHARACTERISTICS OF VIOLENT DEATH VICTIMS WITH A HISTORY OF REFERRED MENTAL ILLNESS

Comparison between victims with a history of RMI in the CA and City

A comparison of the last psychiatric care received by all the patients known to the local service and of City residents recorded on the Case Register, and for whom the violent death rates have been calculated, shows that the two populations of psychiatric patients are very similar, both in respect of the proportion who were in contact within a year of the event leading to their death, and in the proportion who were in the various care groups (Table 9.10). Two thirds of both groups were recent patients.

TABLE 9.10: LAST PSYCHIATRIC CARE FOR VICTIMS WITH A LOCAL RECORD OF
REFERRED MENTAL ILLNESS FOR ALL CATCHMENT AREA RESIDENTS
AND ALL CITY RESIDENTS

ALL LOCAL PATIENTS (N=210)

LAST PSYCHIATRIC CARE	RECENT PATIENTS		OTHER PATIENTS	
	N	%	N	%
Inpatient	34	24.5	10	14.1
Outpatient	53	38.1	47	66.2
Day Patient	8	5.8	1	1.4
Consultation	25	18.0	8	11.3
Domiciliary Visit	14	10.1	5	7.0
Crisis clinic	5	3.6		
	139		71	

ALL CITY RESIDENTS (N=121)

Inpatient	30	24.8	9	16.7
Outpatient	46	38.0	34	63.0
Day Patient	8	6.6	1	1.9
Consultation	21	17.4	6	11.1
Domiciliary Visit	11	9.1	4	7.4
Crisis CLinic	5	4.1		
	121		54	

Risk factors for victims with history of RMI by diagnostic group

Risk factors identified in psychiatric populations have included:
living alone (Rorsman, 1973; Barraclough et al, 1974; Sainsbury, 1975);
being unemployed (Myers and Neal, 1978; Robin et al, 1968; Tuckman et
al, 1966); being widowed or unmarried (Flood and Seager, 1968; Myers and
Neal, 1978; Tuckman et al, 1966); recent 'object' loss and male
(Rorsman, 1973); marital difficulties or financial reverse (Tuckman et
al, 1966).

These factors are considered here for each of the diagnostic groups
identified in Tables 9.8 and 9.8 except for the drug abusers for whom
there were too few for meaningful analysis. All the patients with a
history of referred mental illness have been included in this analysis
in view of the similarities betwen the groups noted above.

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Schizophrenia

In common with the findings of other studies, (Roy, 1982a and 1982b; Warnes, 1968) the ratio of male suicides to female suicides in this diagnostic group is 4:1 although the excess of males decreases to 2:1 when all verdict groups are combined. Accidental death verdicts were returned on the majority of female patients suffering from schizophrenia.

Males (N=19: 16S; 1A; 2OV)

Males with a diagnosis of schizophrenia: died at a younger age than other male patients, (58% were under the age of 35 cp 32% all males); were predominantly never married (84% single cp 36% and 11% married cp 48%); were not working (37% were unemployed cp 17% and 32% cp 7% not working because of permanent disability). More than a third (37% cp 21%) were not living with others in a private household. Over 80% were referred to a psychiatrist under the age of 35 (47% between the ages of 15-24 and 37% between the ages of 24-35).

This picture is very similar to that of Roy (1982a) who defined the risk factors for schizophrenics as being young, male, unemployed and having a chronic relapsing illness. An additional factor found in the present study is that of not living in a private household.

Other authors have commented on the fact that patients with schizophrenia die at a younger age than other patients. Winokur and Tsuang et al (1975) reported that, although suicide was a significant outcome factor in mania, depression and schizophrenia, suicide is likely to occur at an earlier age in schizophrenia than in the other illnesses; Tsuang (1980) wrote: 'Persons with schizophrenia have shorter lives than the general population'.

Females (N=9: 4S; 5A)

Nearly a quarter (22%) of female schizophrenics were living in non-private accommodation compared with 12% of all females; 22% were permanently sick compared with 6% of all females. They were older when they died than male schizophrenics (only 22% were under the age of 35) and fewer female schizophrenics (44%) had first been referred to a psychiatrist under the age of 35.

Affective psychosis

Males (N=26: 21S; 3A; 20V)

The most striking characteristic of these males was the fact that nearly a fifth (19%) were living apart from their wives at the time of their death; although 65% were legally married only 46% were cohabiting. For three of the five men who were separated the move had taken place within a month of their death. Over 40% were over the age of 65 (cp 17% all males), only 4% were unemployed but 39% were retired (cp 18%).

This suggests that elderly men who have recently suffered a marital breakdown are at high risk, particularly if they have had to move out of the matrimonial home.

Roy (1983) reported risk factors for males with a diagnosis of affective psychosis as being separated, widowed or divorced, living alone and unemployed. This finding is similar to that found in the present study, if 'unemployed' is taken to include the 'retired'.

Only a third of males with affective disorders had made a recent threat to kill themselves.

Females (N=32: 24S; 3A; 50V)

Nearly 70% (cp 56% all females) were aged between 35 an 64, with more married than expected (68% cp 50%); more housewives (72% cp 65%); and fewer were living alone (19% cp 30%). Social class was slightly higher than expected (35% SC I&II cp 30% all females).

Roy (1983) found that significantly more female suicides than controls were middle class but, in contrast to the present study he reported that significantly more were living alone.

The fact that significantly more females in this diagnostic group (53%) than in any other (31%) had threatened to kill themselves in the month before the event leading to their death suggests that any suicide threat in a middle-aged, middle class lady with a history of affective psychosis should be taken very seriously.

Neurosis

Almost all (90%) of the patients diagnosed as suffering from a neurotic disorder had an ICD-9 diagnosis of 300.4 (neurotic depression). As in the case of affective psychosis the sex ratio was approximately unity.

Males (N=31: 26S; 3A; 2OV)

The most striking characteristic of the males with a diagnosis of neurotic depression was that 65% had recently experienced a crisis in a personal relationship, and 39% had changed their accommodation in the week before the event leading to their death. The latter was usually a sequel to the former. Of those who were legally married, 29% were living apart from their wives.

These males resembled males with a diagnosis of depressive psychosis in respect of their recently disrupted marital status and in the proportion 'not working'. Because of their younger age at death (Table 4.11), more neurotic patients (median age 47 yrs) were unemployed (20%) and fewer were retired (19%) than affective psychotics (median age 56 yrs), only 4% of whom were unemployed and 39% retired.

More males with a diagnosis of neurosis (75%) had a history of DSH than in any of the other diagnostic groups, and over half of these men had threatened to kill themselves in the month before their fatal act of DSH. Nearly 80% of those who failed at the first attempt, after an unsuccessful drug overdose, resorted to a violent method.

For the majority of these men their only contact with the psychiatric service was a consultation after the first suicide attempt and, either no follow-up was felt to be appropriate or an outpatient appointment was not kept.

Females (N=32: 23S; 7A; 2OV)

The only difference between the social characteristics of the female with a diagnoses of neurotic depression (N) and affective psychosis (AP) is that slightly fewer neurotics were living with their spouse (N 44%; AP 66%), and slightly more were widowed (25% N; 16% AP). There was no difference in their employment status. In contrast with their male counterparts, and females with a diagnosis of affective psychosis, a minority of female neurotics had threatened to kill themselves in the month before their death (Table 9.5)

Personality and alcohol related disorder

Non-suicide verdicts were returned on the majority of patients of both sexes with these diagnoses.

Personality disorder
Males (N=12: 4S; 7A; 1OV)

Two thirds (67%) of the men were living alone in non-private accommodation and were young men (median age 32.5yrs, (Table 4.11). Only 17% were married at the time of their death. Forty one percent were in 'middle class' (Social Class I, II, or III(NM)).

Females (N=7: 1S; 4A; 2OV)

Nearly three quarters (73%) of these women were widowed (43%) or divorced (30%). More of the women in this group had been in paid employment (29%) but were unemployed at the time of their death, and fewer were housewives. Forty three percent were living alone.

Alcohol abuse
Males (N=20: 5S; 13A; 2OV)

Nearly half (45%) of these men were living alone but only half of them were in in private accommodation. Three quarters were over the age of 64. Eighty percent were 'working class' (Social Class III(M), IV or V) and two thirds were unemployed.

Females (N=7: 1S; 5A; 1OV)

In contrast to the males with a diagnosis of alcohol abuse these females were all from Social Classes I and II, and 86% were living in private households with others. They were older than their male counterparts with 65% over the age of 35. Seventy one percent were housewives and 29% had experienced a recent breakdown in a personal relationship. Murphy et al (1979) also reported that a third of alcoholic suicides had experienced the loss of a close personal relationship within six weeks of their death. In the present study the finding is only applicable to females. Such a loss was experienced by only 15% of males.

CHAPTER 10: HOMICIDE

Number of homicides

For completeness the CA residents who were either the victims, or the perpetrators, of homicides which occurred in the catchment area during the 8 year study period were identified and the inquest notes inspected.

Information on homicide is very limited and is essentially restricted to numbers. The coroner's inquest is brief because the enquiry is to be pursued in a higher court, and contains few facts, especially about the assailant. Only in the two cases of homicide followed by suicide were the full facts present. The police declined to allow access to other sources of information. In a few cases inquest data were supplemented by information published in the local press and/or in medical or psychiatric case notes.

Twenty one CA residents were killed, representing approximately 5% of the 433 violent deaths between 1974 and 1981. This also represents approximately 10% of the number of suicides, mirroring the 1:10 ratio found for homicides:suicides in England and Wales, (OPCS, 1974-81).

Homicide and suicide

The relationship between homicide and suicide is complicated. Two killers were found dead at the scene of the crime; a lower proportion than reported by West (1965). Two other killers had attempted to kill themselves before arrest, one suicide had attempted to kill his wife before he killed himself, and another suicide had previously attempted to kill himself after attempting to kill his wife.

Temporal distribution of homicides

YEAR	1974	1975	1976	1977	1978	1979	1980	1981	TOTAL
Males	1	2	1	0	1	1	1	2	9
Females	2	1	3	1	0	2	0	3	12
Total	3	3	4	1	1	3	1	5	21

Most homicides occurred on Saturdays

Rates

The male homicide rate was higher, and the female homicide rate lower, than the national rates of 1.3 (males) and 0.9 (females) but the numbers are too small for these differences to be meaningful. The

apparent 400% increase in the total number of murder victims between 1980 and 1981 was accounted for by a domestic tragedy in which three members of one family were killed by a fourth who committed suicide.

Place of event leading to death

Two CA residents were killed outside the catchment area and the inquests conducted by non-local coroners. The inquest notes were untraceable in one case but enough details were supplied by the coroner from information recorded in his register to enable this victim to be included in the description.

Causes of death

The 21 cases of homicide were exclusively by means of violent methods: 3 strangulation/suffocation; 2 shooting; 6 cutting/stabbing; 10 multiple injuries. Multiple injuries accounted for half of the deaths of both sexes and sharp instruments were used in most of the other male killings Murders from firearms were uncommon and death from poisoning notably absent.

Inquests (N=19)

Nineteen inquests were held on the 21 CA residents who were found to have been unlawfully killed; one inquest involved three members of the same family.

Victims (N=21; 9M(43%); 12F(57%)

Male homicide victims were older (mean age=48.0yrs; sd=17.16) than female victims (mean age=39.25; sd=7.0). Only three of the nine male victims were under the age of 45 compared with eight of the 12 females.

Domestic murder predominated; over half of the 21 victims were killed by a member of their own household. Five victims (3 wives, 2 husbands) were killed by their spouse, two others (both female) by a co-habitee, and four by other family members. Two men murdered their ex-mistresses and two homosexuals their partners. One man, with a horror of homosexuality, killed a homosexual who propositioned him. Two prostitutes were killed by their clients and another girl was killed after being raped. The other two victims, killed by non-related assailants, died at a party and in a shipboard brawl respectively.

The minimum age of violent death victims identified in this study was 15 so that no information was collected on either child victims of homicide or infanticide.

Assailants (N=22 : 19M (86%) ; 3F (14%)

There is no direct correlation between the number of CA residents who were killed and the number of CA residents responsible for the deaths of others since one or the other may not be a CA resident. Two of the the 23 victims of these assailants were not CA residents and so are not included among the number of homicide victims in this study. One CA resident was killed by two non-CA residents. One CA resident was responsible for the deaths of three CA residents.

Twenty two CA residents were charged with the unlawful killing of another person. Twenty three CA residents were actually responsible for the deaths of others but no charges were brought against a young man who shot his friend, on whom a verdict of accidental death had been returned by a jury. However, an inquest verdict of accidental death, or death by misadventure, does not preclude a subsequent criminal charge. The widow of one CA resident was belatedly charged with murder 18 months after a jury had returned a verdict of death by misadventure on her husband who died from an overdose of drugs and alcohol, but she was subsequently acquitted by the trial jury. A suspicion of murder had been raised prior to the inquest , but, in general, a Coroner is obliged to accept a jury verdict no matter how perverse it may seem (Smith's Case, 1696).

The husband's death from an overdose, which could have been self-administered, is included in the accidental death group. The ICD code recorded on the death certificate was that of an accidental overdose (E853).

History of referred mental illness

From information contained in the inquest notes and local hospital records ten of the 22 assailants were found to have shown evidence of mental illness at or before the time of the fatal attack. Apart from the two suicides who killed themselves before arrest, and are assumed to have been mentally disturbed at that time, four (18%) were already known to the local psychiatric service, and four (18%) were subsequently referred.

Trial verdict

The outcome for the 20 living assailants was: one acquitted, one found unfit to plead, 18 convicted of manslaughter or murder. Five charges of murder were reduced to manslaughter on the grounds of diminished responsibility following psychiatric assessment. The two men who committed suicide are deemed to have been guilty of murder even though the verdict might have been different had they survived a trial.

CHAPTER 11: DISCUSSION

Suicide and mental illness

Suicide is thought of as the major source of the increased mortality of the mentally ill but the results of this study show that death from causes similar to suicide but on which undetermined or accidental verdicts are returned contributes nearly half as much again as suicide. Of the 412 potentially self-inflicted deaths, 59% were proved to be suicides, 10% undetermined and 31% accidents.

The contribution of mental illness to the total mortality of a population through its association with violent death can be estimated. The total number of potentially self-inflicted deaths accounted for less than 2% of all deaths of Southampton residents aged 15 and over. Over half (56%) of these deaths had been preceded by a referral to a psychiatrist so that mental illness made a contribution of about 1% to the mortality of the catchment area population.

How far is it possible to generalise the findings of this study? The catchment area population is very similar in its age and sex structure to that of England and Wales. Catchment area residents died from very similar causes to the population of England and Wales, with the exception of an excess of car exhaust gas poisonings attributable to the proximity of the New Forest, and the proportion of the population of the City of Southampton in contact with the psychiatric service is comparable with that found by the Camberwell Case Register (Wing and Hailey, 1972). These facts suggest that the pattern of violent death in the catchment area, and the prevalence of mental illness among its violent death victims is probably fairly typical of the country as a whole.

Methodology

As discussed in Chapter 2, the use of data generated by the statutory death registration procedures, supplemented by coroners' records in the case of non-local deaths, enables a total population of violent death victims in a defined geographical population to be identified, irrespective of where the death was registered in England and Wales. Official statistics have been used previously to identify populations of suicides, and in some cases undetermined deaths, but no other study has used them to identify a total population of potentially self-inflicted violent death victims.

Coroners' records have been used extensively as primary sources of information but again, no other study has included all the potentially self-inflicted deaths of residents of a defined coroners' (or coroners') district(s) who died elsewhere. Shaw and Sims (1984), in a study of all violent deaths of local patients needed to search the records of more than one coroner in order to identify the deaths of local patients.

The area of residence codes used to identify the violent death victims correspond with those used in the compilation of Census data. This enables direct comparisons between the social and demographic characteristics of the violent death victims and the Census population to be made in the knowledge that any changes, such as changes in employment, will have affected both violent death victims and other residents. The same argument applies to comparisons between the catchment area and England and Wales in the period 1974-1981. The fact that the national reduction in the number of deaths from barbiturate poisoning was reflected in the catchment area (Chapter 3) supports the assumption that the catchment area population is fairly representative.

Definition of violent deaths

The inclusion of all deaths which were the result of potentially self inflicted acts, as defined by the ICD-9 code for the external cause of death, ensures that direct comparisons can be made with national statistics. It also removes the necessity of making arbitrary decisions as to which other deaths, which 'could have been suicide', should be included, and enables comparisons to be made between the three inquest verdict groups.

As explained in Chapter 2 the importance is increasing of including violent death victims on whom non-suicide verdicts are returned because of the current law on the degree of proof needed to justify a suicide verdict. This means that an increasing number of non-suicide verdicts are, and will be, returned on psychiatric patients who are suffering from overt mental illness at the time of their death. This practice has been illustrated in this study, particularly in the case of female patients suffering from schizophrenia.

Definition of psychiatric patients

The definition of psychiatric patients in terms of 'referral to a psychiatrist' ensures that at least one piece of documentary evidence, the letter of referral, is available for every patient. Although many patients are treated by their GP's for minor psychiatric illness, most

patients with a more serious illness are referred at least once for a consultation with a psychiatrist, even if subsequent care is managed by the GP.

The existence of the Southampton Psychiatric Case Register during the whole period of the study, but which regrettably no longer exists, provided a unique opportunity to compare the characteristics of the violent death victims with recent contact with those of the general population in contact with the service, and to compare rates of violent death of recent patients with those of the general population.

In terms of their social, demographic and psychiatric history the characteristics of the City residents in contact with the Case Register are very similar to those of the non-City residents so that it is probable that risk factors identified in the City population are relevant to all patients in recent contact with the psychiatric service.

Moreover, since the catchment area population resembles that of England and Wales in many respects, for example in terms of age and sex distribution, the proportion of residents dying violent deaths, and the proportion of the residents in contact with the local psychiatric service, it is probable that many of the risk factors found among in the study population are also to be found in other populations.

Violent deaths in the catchment area and England and Wales 1974-1981

The overall pattern of violent death in the catchment area was extra-ordinarily similar to that found in England and Wales. Violent deaths from suicide, open verdicts and the corresponding accidental death causes accounting for 1.6% and 1.5% of all deaths in the 15 and over agegroup in the two populations, respectively. Accidental death verdicts were returned on approximately 30% of the violent deaths in both populations. (OPCS 1974-81). About 5% of deaths from all causes in both populations were the result of homicide and the ratio of homicides to suicides (1:10) was also similar.

Suicide verdicts were returned on 59% of CA deaths and undetermined verdicts on 10% compared with 53% and 18% respectively in England and Wales.

To examine the consistency of the two coroners in the proportion of suicide verdicts returned on violent death victims, the number of suicide verdicts returned on poisoning victims was compared. Although the two coroners, who deputised for each other, did return different proportions of the 146 deaths from drug overdoses which were subject to inquest in the catchment area as suicide, 57% (71/124 - City) compared

with 73% (16/22 - non-City), the difference was not statistically significant (chisq = 1.27; 1df; p=0.26).

Place of death

As reported in Chapter 3 the total number of suicides who were found dead outside the catchment area was actually 35 (14%), very similar to the expected 13% (Jacobson and Jacobson, 1972). Only 18 (7%) suicide inquests were conducted by a non-local coroner because 17 deaths occurred in that part of the New Forest which extends beyond the CA boundary but forms part of the district of one of the local coroners (HM Coroner for Western Hampshire).

The finding that 13% of all CA resident violent death victims died outside the catchment area, confirming the estimate of Jacobson and Jacobson (1972), suggests that this proportion is essentially a constant. It is important to identify and include these non-local deaths since a higher proportion of undetermined verdicts are returned on them (Table 3.8) than on deaths of residents who die in their own coroner's district.

Inpatient deaths

The 17 deaths of hospital inpatients, on 14 of which suicide verdicts were returned, represented 4% of all violent deaths and 5% of all suicides. Other studies have shown that an average of 5% of suicides are those of hospital inpatients (Crammer, 1984). This suggests that, despite the increase in the number of inpatients who died following admission to the Department of Psychiatry, no excess of inpatient deaths occurred in the study period. It also shows that even among hospital inpatients who are indisputably responsible for their own deaths the verdict is not always one of suicide.

Causes of violent death

Catchment area residents died from similar causes of death to residents in England and Wales with the exception of an excess of deaths from car exhaust poisoning. Similar proportions of both populations died from drug related deaths (Chapter 3).

Availability of lethal method has been cited in many studies as a determining factor in the choice of lethal method. For example, the change in the source of domestic gas from coal gas to the relatively harmless natural gas caused a dramatic decrease in the number of deaths caused by this substance (Hassell and Trethowan, 1972).

The availability of particular drugs has also been found to have a significant effect on the number of deaths in which they feature.

Barbiturates

As shown in Chapter 3, deaths from barbiturates in the catchment area decreased in line with the decrease in barbiturate deaths reported nationally, presumable in response to more careful prescribing of these drugs after the danger associated with them was publicised. Not all the victims of barbiturate poisoning were being prescribed these drugs at the time of their death but used drugs which had been hoarded over many years. In one case the victim had stated categorically that she had collected enough drugs to kill herself 'when the time was right'.

Geography

The proximity of certain geographical features has been found to influence causes of death of local residents. Excess numbers of deaths from precipitation have been reported in the vicinity of Beachy Head (Surtees, 1977 and 1982) and in the Bristol area which includes the Clifton Suspension Bridge and the Avon Gorge (Seager and Flood, 1965). In Dublin, which is geographically similar to the catchment area in that it is bounded by a coastline, two rivers and traversed by two canals, the predominant cause of death has been drowning (McCarthy and Walsh, 1966). Despite the proximity of most parts of the catchment area to water, either to the coastline of Southampton Water, the boundary rivers Hamble and Beaulieu, or to the rivers Itchen and Test which traverse it, the number of deaths from drowning is no more than the national average. Nor do the bridges crossing the rivers seem to have the same attraction for CA residents as the Clifton Bridge from which one Southampton resident jumped. This refutes the claim of Seager and Flood that non-residents do not travel to jump off that bridge! A possible reason for the relatively low number of bridge deaths is that they are mainly in the city where it is difficult to jump without being spotted, and perhaps restrained, in contrast to the more remotely situated Clifton bridge.

This study reveals that the New Forest has a fatal attraction for many suicide victims, particularly males, and the majority of the victims of car exhaust gas poisoning died there. Remote car parks give the privacy needed and if a car is spotted with steamed up windows the initial assumption is that it contains a courting couple. Unless an examination of the car is made to see if anything is attached to the

exhaust pipe, the Police are reluctant to respond to reports. One man died because no action was taken in response to a telephone call from a passer-by about a car parked in a suspicious place with steamed up windows. Had immediate action been taken the man might have survived; he was unconscious when found but dead on arrival at hospital.

Railways also constitute an attraction, particularly for psychiatric patients (Langley and Bayatti, 1984). In the present study, 16 victims, (11 suicides, 2 accidents and 3 undetermined deaths), which included two absconding inpatients, were killed by trains.

Englehardt et al (1959), in a discussion of the problem of suicide and the way in which doctors can play a part in its prevention, wrote: 'It is thought that patients contemplating suicide select certain means of death and limit themselves to these modes, neglecting many simple and apparent ways of taking their lives.' He cited the importance of suggestion in this connection and advised that newspapers should play down the mode of death in their suicide reports since 'it has been shown repeatedly that persons contemplating taking their lives select a means of death about which they have recently read in lurid press reports'. A report by Church and Phillips (1984) showed a clustering of suicides by plastic bag suffocation which were attributed to the publicity given to the inquests of the victims.

In this study at least one death was almost certainly a 'copy-cat' death in that the female victim was found drowned on the beach where another lady had committed suicide a few days earlier. A copy of the newspaper reporting the details of the previous death, including where the body was found, was found open in her home. An open verdict was returned on the second death.

A study of the change in publicity given to suicides in the catchment area after the opening of the Department of Psychiatry, as measured by increased column inches, size of type and headlines, showed a significant increase (Steele, 1984). This could have been one of the factors contributing to the increase in total number of suicides among catchment area residents in the period after the Unit opened.

However, 'copy-cat' deaths were not a feature of the inpatient deaths at the Department of Psychiatry in contrast to other 'epidemics' of inpatient deaths such as the spate of deaths by precipitation from ward windows in Birmingham (Salmons, 1984). The patients at the Department of Psychiatry died from a wide variety of causes (Table 7.1).

Causes of inpatient deaths

Deaths occurring in the ward or toilet included drinking medicated shampoo, drowning in a wash-hand basin, and self-immolation as well as the most common inpatient methods of hanging and jumping from windows. Patients who died outside the hospital while on leave, or after absconding died in a similar variety of ways: lying under a stationary bus, taking an overdose of drugs, railway accidents, jumping from bridges and hanging. No two consecutive inpatient suicides died from the same method. The three inpatient deaths which occurred in the general hospital were caused by hanging (suicide verdict), drinking corrosive cleaning fluid in ward toilet after admission following a drug overdose (accident verdict), and falling from a hospital ward balcony after taking off his dressing gown (accident death verdict).

One suicide victim had obviously thought a great deal about the merits and demerits of various means of self-destruction as shown by a list found among his effects. Another man was very concerned that his wife should not have to identify 'anything gruesome'. Both men died from car exhaust gas poisoning.

As shown in Table 3.13, a number of suicides used multiple methods, any one of which would almost certainly have been fatal. No comparative data relating to suicides using multiple methods has been found in the literature.

Prevention of violent deaths

Seager and Flood (1965) concluded, on the basis of a study of 325 Bristol suicides, that the high proportion of suicides among patients with long-standing psychiatric illnesses must be looked on as the inevitable mortality rate of these conditions and that probably nothing could be done without an increase in the knowledge of their aetiology and further advances in methods of treatment. A similar acceptance of the inevitability of at least some patient deaths has been expressed by Schwartz et al (1975) who stated: 'We do not believe a person who is absolutely intent on suicide can be deterred from it. It is fortunate that such unambivalent suicidality is the exception to the rule.'

Since 1965 advances in treatments have been made but only if these are used or accepted by patients can they be effective.

Refusal of treatment

Electro Convulsive Therapy (ECT) is recognised by psychiatrists as an effective treatment of depression, particularly in the elderly but is

regarded with great suspicion by patients and relatives because of adverse media publicity. Evidence presented at one inquest by a consultant psychogeriatrician stated unequivocally that he believed the suicide of his elderly patient was the direct consequence of her relatives' refusal to allow her to be treated with ECT. This was not the only death occurring after a refusal to accept a recommendation for ECT treatment; another family refused to give permission, and a patient himself refused on the grounds that it would cause brain damage.

Delay in treatment

Even when depression is recognised and treated, the treatment given is not always sufficiently aggressive. Barraclough et al (1974) found that, although doctors had diagnosed a psychiatric disorder in most cases, only a third of depressives were given anti-depressants, mostly in doses below the recommended dose. It seems that to be effective treatment must be started promptly, prescribed in sufficient dosage, and monitored closely.

One patient in the present study had been assessed at a consultation and diagnosed as needing anti-depressant treatment. The start of treatment was postponed until a researcher, who was on leave, could assess the patient's suitability for inclusion in a drug trial. The patient committed suicide before the treatment was commenced.

Monitoring of treatment
Repeat prescriptions

In a number of instances the fatal drugs had been 'saved up' over a period of time from the excess tablets prescribed in monthly prescriptions because, for example, a hundred tablets, to be taken three times a day, were collected for a period in which ninety or less were needed.

From Chapter 3, Section 3B it appears that about 15% of violent death victims, who were taking medicine prescribed by their GP had not been seen in the month before their death. One GP admitted he had never seen the patient but had merely issued repeat prescriptions for the drugs that had been prescribed by the GP from whom the patient had transferred! Another GP submitted evidence that the patient was being prescribed anti-depressants but had not collected her repeat prescription for several months. It is difficult to see how the effectiveness of medication, particularly when prescribed for mental illness, can be monitored if the patient is never seen.

Chlormethiazole

The danger of injudicious prescribing of drugs is further illustrated by the findings in respect of deaths from chlormethiazole.

Six of the men who died from the combined effect of alcohol and chlormethiazole were alcoholics for whom the drug had been prescribed by general practitioners to alleviate withdrawal symptoms, but inquest evidence suggested dependence and abuse. In at least four instances men had obtained excess supplies of chlormethiazole by registering as a temporary visitor with more than one practice. From the inquest notes it was apparent that some alcoholics rely on this drug to mitigate the unpleasant effects of premeditated alcohol abuse. Attitudes of these alcoholics are epitomised by the following extracts from evidence presented at their inquests:

> 'The deceased said he was taking Heminevrin to allay the onset of withdrawal '
> 'The deceased said "These tablets will see me alright"'
> 'The deceased said the tablets helped him after he had been drinking - stopping him seeing and hearing things! '

Similar evidence presented at local inquests in 1986 led a Southampton newspaper to suggest that a recent black-market in chlormethiazole, innocently fuelled by general practitioners, had caused many deaths (Bailey, 1986a and 1986b).

The 13 deaths from chlormethiazole, a drug which is not recommended for use in general practice (CSM, 1987), represented 9% of poisoning deaths in the catchment area. The expected number of deaths from alcohol and chlormethiazole in the catchment area during the eight year study period is 2.4, based on the figure of 50 deaths per annum for England and Wales (CSM, 1987). The finding of six deaths in the eight year between 1974 and 1981 indicates a long-standing practice of lax prescribing of chlormethiazole by general practitioners in the catchment area.

Some of the over-prescription could, perhaps, be avoided if the story of why an emergency prescription of the drug was necessary was checked with the previous GP. At least if a subsequent GP was approached he could be warned that a prior enquiry had been made!

This problem may well disappear in Southampton following the opening in 1989 of the St Dismas Detoxification Unit, the first purpose built unit of its kind. Since there is now a facility in which detoxification can be carried out under medical supervision, the necessity for GP's to prescribe Heminevrin in general practice should be

eliminated, and the number of local deaths from Heminevrin in the future can be expected to fall.

Pending treatment

Six patients had psychiatric out-patient appointments at the time of their death, three actually killed themselves on the day of the appointment instead of attending. A further eleven suicides killed themselves before or on the day of an appointment to see another doctor. Two suicides died on the day they were due to receive the results of tests for dreaded diseases (cancer in one, VD in the other). In the latter case the test result proved to be negative.

Seager and Flood (1965) reported 12 (3.7%) referred patients died just before their first psychiatric appointment and suggested that if suicide was a possibility, then urgent admission should be requested rather than subjecting the patient to the formalities of an outpatient appointment. Jacobson and Jacobson (1972) found that 3.5% of suicides failed to keep an appointment in the week before their suicide.

The impression gained from the evidence in the inquest notes was that some patients are relieved when their GP suggests referral to a consultant after an unsuccessful course of treatment but, as the day of the appointment approaches, the relief changes to fear and the feeling becomes that of 'I would rather die than see a psychiatrist'! Carstairs (1962) suggested that when an appointment is made the fear of insanity should be discussed with the patient.

The other problem with referral via the out-patient route is that there is no control over the time between referral and consultation. Even when an urgent referral is requested the 'urgency' may become lost. For example: a young man, whose father had committed suicide six months previously, was admitted to the general hospital after an overdose, was seen by a psychiatrist and referred for an _urgent_ out-patient appointment. An appointment was made for the following week. However, before the date of the appointment a letter was sent from Medical Records cancelling that appointment and making a new one for two months hence. The _urgent_ tag had been lost and the patient committed suicide before the new appointment.

When a patient refuses psychiatric referral, or treatment, there is obviously no way of enforcing this without recourse to the Mental Health Act, and in the majority of cases this is inappropriate. However, there are situations in which more vigilance on the part of GP's might prevent some deaths which are, in some part, due to lack of effective treatment

or supervision.

It is well known that schizophrenic patients are at high risk of suicide but that their illness can be controlled in many case with regular neuroleptic injections. The number of patients whose medication is supervised by their GP is growing and with this change the importance of preventing drop-out increases. Patients receiving medication at the Department of Psychiatry are constantly monitored for attendance and followed up by a Community Nurse if found to be defaulting.

The situation which can occur in general practice is illustrated by the patient who failed to receive his monthly injection for three months and his family were unprepared when he suddenly relapsed into a suicidal state. In fact, the patient had phoned the surgery the day before his death to cancel the appointment for his injection on the following day on the grounds that he 'was not feeling too well'! This was the third time the appointment for his injection had been cancelled with no follow up by the practice.

Another patient had not collected a 4 weekly repeat prescription for psychotropic medication for three months; and one patient, who regularly collected repeat prescriptions for a variety of drugs, had never been seen by the GP who had always issued repeat prescriptions for the drugs prescribed by her previous GP.

Two accidental death victims who were threatening to commit suicide, one of whom had been seen by the GP the day before and told to 'go home and rest', went to the surgery but were not seen by the doctor or anybody else.

These patients, who are probably not untypical, fit the picture of their suicides, so aptly described by Seager and Flood (1965): 'Many of these patients had sought medical advice, and it must be noted regrettably that they had not received the treatment which might well have helped them and saved their lives. Even when action was about to be taken, it was not always taken in time.'

It is not only psychiatrists and GP's who can be expected to recognise the risk of suicide in patients since a large proportion of suicides have been receiving treatment from physicians and/or surgeons. Over 40% of the violent death victims in each of the verdict groups were suffering from a physical illness at the time of their death.

As shown in Chapter 3: Section 2B the prevalence (43%) of somatic illness among the CA population is not dissimilar to that reported in other studies.

The relationship between physical illness and suicide was investigated by Tuckman et al, (1966). In correlating between suicide rates and a variety of physical illnesses, their data supported the hypothesis that physical illness, as measured by mortality, is positively correlated with suicide. This led them to suggest that illness produces stress which contributes to the suicide, in addition to other stresses, (loss of job, close relative or friend by death or separation, marital and/or financial difficulties), which have also been found to be associated with suicide.

Physical illness

The importance of physical illness in conjunction with mental illness was reiterated by Jones (1965), who concluded that better follow-up of discharged psychiatric patients might be life-saving, particularly if they were unwell on discharge. He also drew attention to the necessity for psychiatric intervention in patients with prolonged physical illness. In the present study only a quarter of the violent death victims, with no significant difference between the verdict groups, showed no evidence of either mental or physical illness at the time of their death (Table 3.21) and over 60% were being prescribed some form of medication (Table 3.25).

In fairness to the medical profession it must also be pointed out that the evidence shows that even when the risk of suicide is recognised and extreme measures are taken to minimise the risk of a fatal drug overdose, for example by only issuing a prescription for a three day supply, the patient determined to succeed will do so. As previously shown (Table 3.16) over a third of victims who killed themselves with drugs resorted to unusual measures to obtain the lethal drugs and a minority of patients died from prescribed medication. Jones (1965) reported that only two out of nine psychiatric patients died from an overdose of drugs available only on prescription.

A summary of the appointments with a doctor (not necessarily a psychiatrist) pending or missed, or treatment refused at time of event leading to death is given in Table 11.1.

TABLE 11.1: CASES OF NON-TREATMENT AND PATIENT STATUS

SUICIDES: N=22

Refused offer of psychiatric referral	2
Refused ECT because of fear of brain damage	1
Relatives refused ECT because of adverse publicity	2
Psychiatric appointment for day of event leading to death	3
Psychiatric appointment pending	3
GP appointment on day of event leading to death	1
Medical consultant appointment on day of event leading to death	1
Medical consultant appointment pending	3
Did not return to GP after course of psychiatric medication	1
Awaiting test results	
fear of VD - result due day of death (PM test -ve)	1
fear of Cancer (result of test not known)	1
Missed depot injections given by GP for 3 months	1
Did not collect repeat prescription for 3 months before death	1
Awaiting admission (admission delayed because of industrial action at hospital)	1

ACCIDENTAL DEATHS: N=6

Refused to take anti-depressant drugs because of side effects - died from overdose of aspirin.	1
Incompatible combination of drugs in therapeutic quantities: Registrar deliberately prescribed Imipramine to be taken in conjunction with Parstellin.	1
Victims who were threatening to commit suicide were taken to their GP's surgery but were not seen by GP because:	
i) notes had not been put out by Receptionist and GP had left surgery before omission was discovered	1
ii) GP was sick	1
Refused psychiatric help	1
Patient had just been discharged against her will	1

Referred psychiatric patients

How typical is the population of victims with a history of referred mental illness?

The finding that over half of the suicide victims were known to a psychiatric service is similar to that reported in other studies (Kraft and Babigian (1976); Jacobson and Jacobson, 1972; Beskow. 1987; Jacobson et al, 1976; Perris et al, 1980), and the proportion was similar for the accidental and open verdict groups. Even when the stricter criterion of

admission to a mental hospital is applied there is still very little difference between the three verdict groups. The proportion of suicides and undetermined death victims with a history of inpatient psychiatric care is similar to that reported in other studies. Jacobson and Jacobson (1972) found 32% of their Brighton suicides had been treated as inpatients, as had 33% of Holding and Barraclough's (1975) open verdict sample. However, the proportion of accident victims with a history of inpatient care is almost twice the 20% reported by Holding and Barraclough (1977). The proportion (36%) of the violent death victims in each group seen within a year of their death is slightly higher than that reported for suicides (Jones, 30%, 1965; Parnell and Skottowe, 23%, 1957), as is the proportion (20%) of each group in care (Perris et al, 16%, 1980).

With a majority of the violent death victims known to the psychiatric service having been in contact within a year of their death, (Table 9.10), the recognition of the patient groups at highest risk of violent death is crucial, even if prevention is not possible in all cases.

The results shown in Chapter 5 show that combined (S+A+OV) rate of violent death is significantly greater for patients with a recent psychiatric contact than for other residents in the same population, the violent death rates for the various diagnostic groups do not differ significantly from each other, with the exception of the rate for dementia (Figure 5.5). This finding is consistent with the conclusion of Innes and Millar (1970) that the act of referral to a psychiatrist is associated with a higher risk of mortality.

The apparently higher risk of suicide for patients with a diagnosis of schizophrenia, affective psychosis and neurosis seems to be an artefact of the verdict distribution. Non-suicide verdicts were returned on the majority of patients diagnosed as suffering from personality, drug and alcohol related disorders (Table 5.6). These patients are characterised by a history of repeated acts of deliberate self-poisoning with drugs and/or alcohol. The fact that 80% of females suffering from schizophrenia had a history of deliberate self-harm may explain why accidental death verdicts were returned on the majority of these patients.

Since the recent patients cannot be differentiated only in terms of their diagnosis, it seems to be important to be aware of the social risk factors associated with the groups. For example, the majority of young male schizophrenics are unemployed and living in non-private

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accommodation which suggests that those who are employed, or living with their family are to some extent protected. However, the following cases may pin-point potentially dangerous situations when this security is threatened.

> A young male schizophrenic, working after a period of unemployment, was told his job was to be changed. Since this had happened just before he was dismissed from his previous employment, he was terrified that the same thing would happen again and he jumped to his death from a high level office window. Perhaps recognition of his apprehension and an explanation of why the change was necessary might have helped to prevent this death. It appeared that his dismissal was not being contemplated by the employer, but that it was felt that a less stressful job would be in his best interest.
>
> Another young male schizophrenic, living with an elderly parent, became very upset when the parent started thinking about moving to sheltered accommodation and selling the family home. Fearing for his own future he killed himself.

The importance of social factors is illustrated by the following case:

> A married man had been admitted on two occasions to the general hospital following acts of deliberate self-harm but had discharged himself before any psychiatric assessment could take place. This man therefore had no record of psychiatric referral. However, in searching the psychiatric records it was discovered that his wife had been admitted on several occasions to Knowle Hospital for psychiatric treatment. A comparison of the dates of the husband's admission after DSH and the wife's discharge from Knowle showed a remarkable correlation! His act of DSH followed very closely on his wife's return home. After her third discharge the husband hanged himself.

Closing comments

The results of this study show that the increase in the suicide rate in the catchment area following the opening of the Department of Psychiatry was not due to an excessive increase in the number of patients treated by the new service, but was due to a significant increase in the deaths of person never referred to a psychiatrist. Although the number of inpatient deaths increased, the total number of deaths of patients treated by the new service in the year before their death decreased.

The violent death mortality from potentially self-inflicted causes for both recent psychiatric patients and other residents in the same

population is shown to be more than 50% higher than the official suicide rate would indicate. Non-suicide verdicts were returned on 40% of patients treated by a psychiatrist in the year before their death. In studying the correlation between mental illness and violent death, it is therefore essential to include all deaths from the same causes on which non-suicide verdicts are returned.

Violent death rates, and the risk of violent death, are found to be significantly increased for recent patients compared with other residents in each verdict group for each diagnostic group except dementia. No significantly increased risk of violent death was found in any single diagnostic group compared with the others.

As found in other studies, the period of greatest risk of violent death is in the period after discharge from psychiatric care, it is suggested that all patients should be carefully followed up by their GP, or Community Nurse, for at least a year after their discharge from hospital care, and that family and employers are made aware of the signs of relapse. This is particularly important for patients with schizophrenia who tend to fall out of care and relapse quickly if medication is not maintained.

The risk attributable to a recent psychiatric contact accounts for less than half the total risk of violent death so that social factors must be taken into account in trying to identify potentially self-destructive patients. No difference was found between the social characteristics in the different verdict groups, nor between victims with and without a history of referred mental illness.

Finally, the database of patients compiled during this study has been continously updated with the co-operation of the Coroner for Southampton. This has proved extremely useful in enabling the medical staff at the Department of Psychiatry to conduct periodic medical audits on recent patients who die from violent or unnatural causes.

APPENDIX 1: DEMOGRAPHIC CHARACTERISTICS OF THE CATCHMENT AREA
AND ENGLAND AND WALES.

MALES

AGE GROUP	CITY	EASTLEIGH	NEW FOREST	TOTAL CA	ENGLAND & WALES
0-14	20.89	21.22	22.05	21.11	21.50
15-24	17.35	15.50	16.89	17.04	16.60
25-44	27.10	30.40	28.56	27.79	27.30
45-64	22.34	22.08	22.30	22.31	22.30
65-84	11.82	10.34	9.80	11.25	11.80
85&+	0.50	0.46	0.40	0.50	0.50

Sub-totals

15-64	66.79	67.98	67.75	67.14	66.20
65&+	12.32	10.80	10.20	11.75	12.30

TOTAL POPULATION ('000s)	99	17	30	146	24160

FEMALES

0-14	18.99	19.98	20.57	19.44	19.30
15-24	16.19	14.81	15.31	15.85	15.16
25-44	24.77	29.26	28.17	25.97	25.48
45-64	22.45	21.77	21.59	22.20	22.12
65-84	15.96	12.87	13.20	15.04	16.34
85&+	1.64	1.31	1.16	1.50	1.60

Sub-totals

15-64	63.41	65.84	65.07	64.02	62.76
65&+	17.60	14.18	14.36	16.54	17.94

TOTAL POPULATION ('000s)	103	17	30	150	25474

DISTRIBUTION OF POPULATION BY AGE AND SEX (1981)
(% OF TOTAL POPULATION - ALL AGES)
(DATA FROM OPCS NATIONAL STATISTICS AND 1981 CENSUS DATA)

APPENDIX 2: CLASSIFICATION OF SUDDEN, VIOLENT AND UNNATURAL DEATHS

```
                              ┌─────────────────────────────────┐
                              │ EXTERNAL CAUSE OF DEATH (COD)    │
                              └─────────────────────────────────┘


                         INJURY OR POISONING              UNASCERTAINABLE
                                                        AFTER POST MORTEM (PM)
                                                          BUT NOT NATURAL


   ┌────────────┐
   │ PERPETRATOR│      SELF              ANOTHER            UNKNOWN      UNKNOWN
   └────────────┘



                 DELIBERATELY         UNKNOWN
                 SELF DESTRUCTIVE                   ACCIDENTAL   UNKNOWN   UNKNOWN
   ┌────────┐                                            UNKNOWN
   │ INTENT │          ACCIDENTAL    DELIBERATE
   └────────┘


   ┌────────┐
   │MODE OF │      SUICIDE               HOMICIDE                         OPEN
   │DEATH   │           ACCIDENT             'ACCIDENTAL                  VERDICT
   │(MOD)   │              UNDETERMINED      HOMICIDE'    UNDETERMINED
   └────────┘              (OPEN VERDICT)                 (OPEN VERDICT)


                              ┌─────────────────────┐
                              │  INQUEST VERDICT     │
                              └─────────────────────┘
```

APPENDIX 3: EXAMPLES OF RELATIONSHIP BETWEEN CAUSE OF DEATH
              AND MODE OF DEATH

(CAUSE OF DEATH (COD) established by Postmortem examination
 MODE OF DEATH (MOD) determined after inquest)

EXTERNAL CAUSE (COD)	CIRCUMSTANCES	INQUEST VERDICT (MOD)
Poisoning	Deliberately by self with intent to die	SUICIDE
	Accidentally by self	ACCIDENT
	Accidentally by another	ACCIDENT
	Deliberately by another	HOMICIDE
	Not known by whom ⌐ or intent not known ⌐	UNDETERMINED (OPEN VERDICT)
Shooting or other injury	Deliberately by self	SUICIDE
	Deliberately by another	HOMICIDE
	Accidentally by self or another	ACCIDENT
	Not known	UNDETERMINED (OPEN VERDICT)
Injuries from falls between levels	Deliberate jump with intent to die	SUICIDE
	Pushed	HOMICIDE
	Deliberate jump - motive not known	UNDETERMINED
	Fall	ACCIDENT
	Not known	UNDETERMINED (OPEN VERDICT)

APPENDIX 4: MEDICAL CERTIFICATE OF THE FACT AND CAUSE OF DEATH

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FIGURE 2

BIRTHS AND DEATHS REGISTRATION ACT 197
(Form prescribed by the Registration of Births, Deaths & Marriages
(Amendment) Regulations 197)

Serial Number

MEDICAL CERTIFICATE OF THE FACT AND CAUSE OF DEATH
For use only by a FULLY REGISTERED medical practitioner

Registrar to enter no. of Death Entry

PARTICULARS OF DECEASED

Full names .... N.H.S. Number..

Date of death............................. Date of birth (or year if date unknown) ....

Place of death ....

CAUSE OF DEATH		These particulars not to be entered in death register
		Approximate interval between onset and death
I	I	
Disease or condition (a) .... leading to death _due to (or as a consequence of)_		....
Antecedent causes. Morbid conditions, if any, giving rise to the above cause (b)... _due to (or as a consequence of)_		....
(The underlying condition to be recorded last) (c)..		....
II	II	
Other significant conditions contributing to the death but not related to the disease or condition causing it	....	....

SPECIMEN

CERTIFICATION
Either A or B to be completed

A

To the REGISTRAR of Births and Deaths

I CERTIFY that I have inspected the body of the above-named after death;

that I last attended the deceased for the condition which caused death .... days before death; and

that I am confident that the cause of death was that recorded above; and

that I know of no reason why this death should be reported to the coroner (see list in certificate B).

B

To the CORONER

I CERTIFY that I have inspected the body of the above-named after death. I am reporting this death because

☐ I did not attend the deceased for the condition which caused death within 7 days before death; or

☐ the death might have been due to or contributed to by the employment followed at some time by the deceased, drugs, medicine or poison or a violent or unnatural cause;

☐ I have reason to believe that the death occurred during an operation or under or prior to complete recovery from an anaesthetic or arising out of an incident during an anaesthetic;

☐ the cause or circumstances make the death one which the law requires should be reported;

☐ the death might need to be investigated in the public interest;

☐ I cannot confidently identify the cause of death.

Signed ....

Medical Qual. .... Address ....

Date...............................

that he does not consider it necessary to hold an Inquest

(Pink FORM A and B)

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NOTIFICATION TO THE REGISTRAR BY THE CORONER
that he does not consider it necessary to hold an Inquest

For completion by coroner	If a histological or bacteriological examination is to be made, please initial ——→		For completion by registrar	Entry No.

A.

For use where NO POST-MORTEM has been held under Section 21 of the Coroners (Amendment) Act, 1926

PARTICULARS OF DECEASED PERSON—Name and surname .....

Age   Date and place of death .....

Cause of death:

The circumstances connected with the death of the above person have been reported to me and I do not consider it necessary to hold an inquest.

Signature   H.M. Coroner for   Date

To   Registrar of births and deaths

*Where this notification relates to a still-born child this should be stated here.

B.

For use where a POST-MORTEM has been held under Section 21 of the Coroners (Amendment) Act, 1926

PARTICULARS OF DECEASED PERSON—Name and surname.

Age   Date and place of death .....

I hereby certify that a post-mortem examination of the body of the above person was made by
and his report disclosed that the cause of death

*I have given a Certificate E

for cremation dated .... to

(name) .... of

(address) ....

....

*Delete words in Italics if not applicable

and I am satisfied that an inquest is unnecessary.

Signature_____ H.M. Coroner for_____ Date_____

To:_____Registrar of births and deaths
*Where this notification relates to a still-born child this should be stated here.

INSTRUCTIONS TO REGISTRAR
This death must be registered in the presence of an ordinary informant and spaces 1-7 should be completed in accordance with the information given by the informant and not copied from this form.
    If A is filled up and the deceased was attended during his last illness by a registered medical practitioner, the cause of death must be entered from the certificate issued by him and not from this form.
    If B is filled up the cause of death must be entered from this form as in Example No. 28 or 32 in Appendix O of the Handbook
    If B relates to a still-birth then the pathologist's certificate should be sent with this form, if not, you must request the Coroner to forward it.   Form 100

APPENDIX 6: CORONER'S CERTIFICATE AFTER INQUEST

(DECEASED PERSON)

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CORONER'S CERTIFICATE AFTER INQUEST
furnished under section 23 (1) of the Births and Deaths Registration Act 1953

*PM	*No PM

To be completed by registrar
Entry No.

To the registrar of births and deaths for the sub-district of

I certify that at an inquest held on .... at ....

In the .... of .... *I/the jury found as follows

PART I DECEASED PERSON (Not still-born - see separate Form 99A)

1. Date and
place of death

2. Name and
surname

3 Sex
*Male/Female

4 Maiden surname of
woman who has married

5. Date and
place of
birth

6. Occupation
and usual
address

Cause of death

---

*PART II. The inquest was adjourned on .... *under Section 7 of the Visiting Forces Act, 1952. and has not been resumed.

*PART III. BURIAL/CREMATION

I have given *an Order for Burial/a Certificate E for Cremation dated .... to ....

of (address) ....

Date ....   Signature ....

H.M. Coroner for ....

PART IV. ACCIDENT OR MISADVENTURE (including deaths from neglect or from anaesthetics)

1. Place where accident occurred:
   - 0. Home
   - 1. Farm
   - 2. Mine or quarry
   - 3. Industrial place or premises
   - 4. Place of recreation or sport
   - 5. Street or highway
   - 6. Public building
   - 7. Resident institution
   - 8. Other specified place
   - 9. Place not specified

4. If motor vehicle accident, deceased was:†
   - 0. Driver of motor vehicle other than motor cycle
   - 1. Passenger in motor vehicle other than motor cycle
   - 2. Motor cyclist
   - 3. Passenger on motor cycle
   - 4. Occupant of tram car
   - 5. Rider of animal; occupant of animal-drawn vehicle
   - 6. Pedal cyclist
   - 7. Pedestrian
   - 8. Other specified person
   - 9. Unspecified person

2. To be completed for all persons aged 16 and over
   When injury was received deceased was†
   - 1. On way to, or from work
   - 2. At work
   - 3. Elsewhere

5. Type of injury

3. Details of how accident happened:

6. Parts of body injured:

7. Interval between injury and death†
   1. Less than one year   2. One year or more

PART V. MARITAL CONDITION, etc

All persons aged 16 and over†	1. Single 2. Married	3. Widowed 4. Divorced	All married persons	Date of birth of surviving spouse ....

FOR COMPLETION BY THE REGISTRAR		
Name and surname of deceased		
Regn district	Sub-district	Entry No.

*Delete as necessary   †Please ring appropriate numbers   FORM 99(REV)

APPENDIX 8: FORM OF DEATH ENTRY IN REGISTER

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FORM 24

CONFIDENTIAL

RETURN OF DEATHS TO AREA HEALTH AUTHORITY

(NATIONAL HEALTH SERVICE ACT 1977, S124(2))*

REGISTRATION DISTRICT .... SUB-DISTRICT ....

THIS IS A TRUE RETURN .... REGISTRAR .... DATE ....
FOR THE WEEK ENDING

ENTRY NO	DATE AND PLACE OF DEATH	NAME AND SURNAME	SEX	DATE OF BIRTH	OCCUPATION AND USUAL ADDRESS	CAUSE OF DEATH
	(This is the place where death is certified - eg Dead on arrival at a hospital - and is not necessarily where the event leading to death took place.)				(In the case of married women and widows the occupation of the husband is given.)	(This section includes the name of the doctor signing the death certificate; the name of the Coroner if PM without inquest carried out; and date of inquest if held and verdict.)

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APPENDIX 10: CHANGES IN ICD-E CODES BETWEEN 8TH AND 9TH REVISIONS
(WHO, 1968,78)

EXTERNAL CAUSE OF DEATH	SUICIDE ICD E Code		ACCIDENT ICD E Code		OPEN VERDICT ICD E Code	
	8th	9th	8th	9th	8th	9th
Poisoning solids or liquids	950	950	850-859 860-865	850-858	980	980
Choking			911	911		
Poisoning gases in domestic use	951	951	870-877	867-868	981	981
Poisoning other gases	952	952	860-869	869	982	982
Hanging, strangulation and suffocation	953	953	913	913	983 988	983
Submersion (drowning)	954	954	910	910	984	984
Firearms and explosives	955	955	922	922	985	985
Cutting and piercing instruments	956	956	920	920	986	986
Electrocution	958	958	925	925	988	988
Jumping from high place	957	957			987	987
Falls between levels			882-884	882-884		
Other and unspecified means	958	958	929	866-928	988	988
Late effects	959	959	940-949	929	989	989

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APPENDIX 11: INFORMATION COLLECTED DURING DEATH REGISTRATION BY SOURCE

	Coroner's Records	Draft Entry Form	Entry in Death Reg.	Mortality File
INFORMANT	Coroner	OPCS	DHA	RHA
Type of access to information	Visual inspection or purchased P/c's	P/c* (purchased)	Visual inspection or P/c (free)	Print-out (free)
Relationship of availability of information and date of death	Virtually instant	9-12 months after death	Within 2 weeks of local deaths	9-12 months after death
Information available				
Registration District (= area where death occurred)	Coroner's District	Y	Y	Y
Register Entry Number	N	Y	Y	Y
Usual address	Y	Y	Y	OPCS Area Code
Age	Y	Y	Y	Y
Date of birth	Y	Y	Y	Y
Marital status	<——— sometimes ———>		usually	N
Place of birth	Y	Y	N	N
Date of event leading to death	Y	N	N	N
Date death certified	Y	Y	Y	Y
Place where death occurred	Y	Where death certified	Where death certified	Where death certified
Sex	Y	Y	Y	Y
Occupation (in case of child or married woman, occ. of father/husband)	<——————————— usually ———————————>			
Whether PM	Y	Y	N	N
Inquest date	Y	Y	Y	N
Name of doctor or coroner certifying death	Y	Y	Y	N

* P/c = Photocopy

APPENDIX 12: SOURCES OF INFORMATION COLLECTED DURING DEATH
REGISTRATION PROCEDURES IN ENGLAND AND WALES

DEATH

(Natural Causes)

Certified by
Doctor

(Violent or Sudden Deaths)

Reported to
CORONER

SOURCE 1

POST MORTEM

(All deaths)
Personal particulars
supplied by Informant

(Natural Causes)
Pink Form B

(Unnatural Causes of death)
INQUEST

Coroner's Certificate after inquest

REGISTRAR OF DEATHS

FORM 310
sent weekly to

OPCS

CODED FORM 310

ENTRY IN DEATH REGISTER

Certified copy
to Informant

Copies sent weekly to
COMMUNITY HEALTH PHYSICIAN

SOURCE 3

Photocopies available
after coding

SOURCE 2

MORTALITY FILE (Anonymous)

REGIONAL HEALTH AUTHORITY

Violent Deaths Listing

SOURCE 4

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APPENDIX 14: NON-LOCAL CORONERS DISTRICTS IN WHICH INQUESTS ON
CATCHMENT AREA RESIDENTS WERE HELD IN ENGLAND AND
WALES, 194-1981
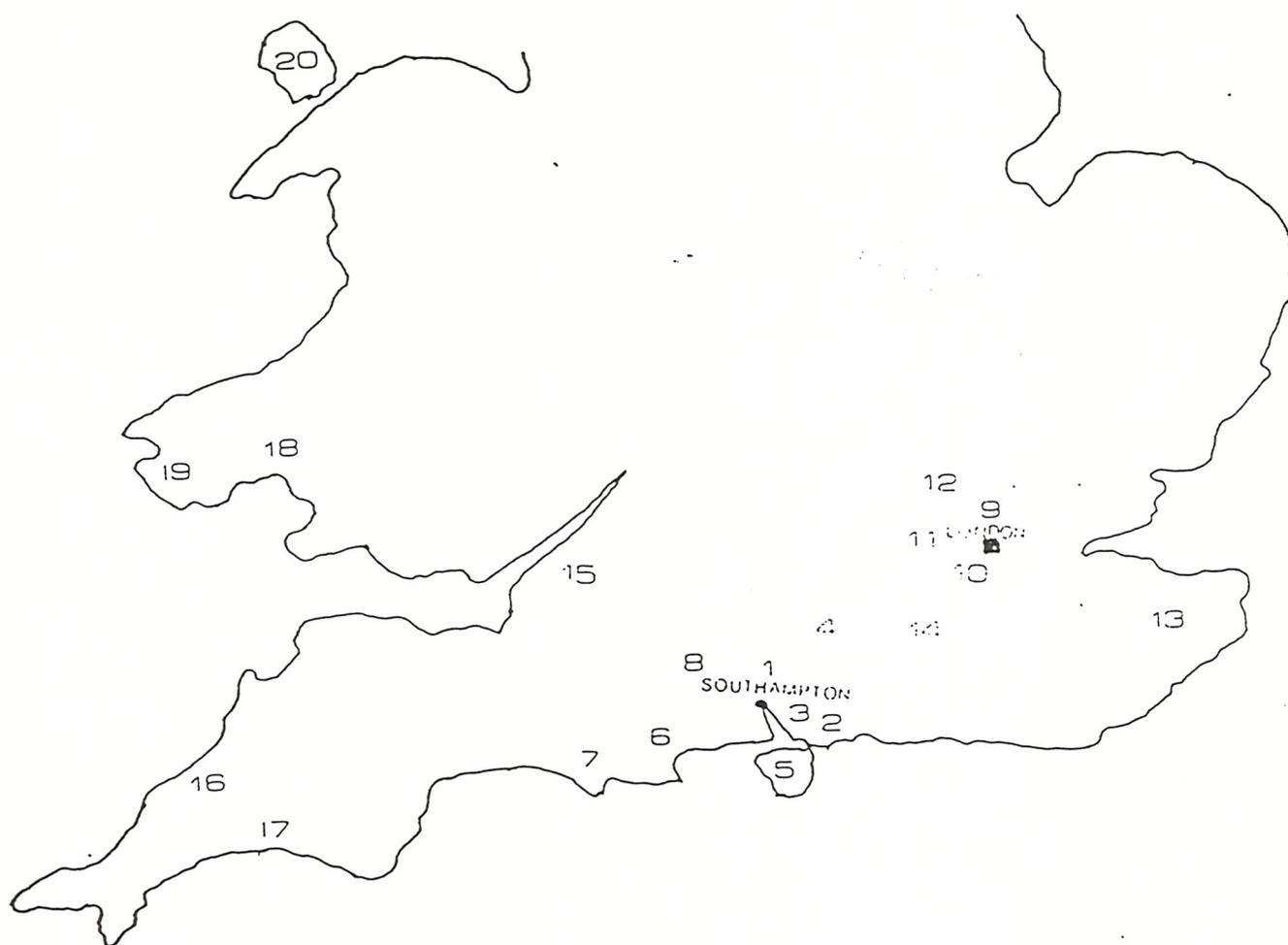
NON-LOCAL CORONER'S DISTRICT

1   Central Hampshire
2   Portsmouth
3   Southern Hampshire
4   North East Hampshire
5   Isle of Wight
6   Eastern, Dorset
7   Western, Dorset
8   Wiltshire
9   Inner North London
10 Inner West London

11 Western London
12 St. Albans, Herts
13 Canterbury, Kent
14 Surrey
15 Avon No 2
16 Truro, Cornwall
17 Plymouth, Devon
18 Carmarthenshire, Dyfed
19 Pembrokeshire, Dyfed
20 Ynys Mon (Anglesey)

CORONER'S OFFICE

————————————————————————————— 19———

Coroner's Officer's Report Concerning Death

1. Name, age, occupation and address
   of deceased. (If a married woman,
   widow or child, state husband's or
   father's name, occupation and address.

2. State where and when (day and hour)
   the deceased died, or was found
   dying or dead.

3. If deceased had been seen by any
   legally qualified medical man,
   before or after death, give name
   and address.

4. Previous medical history.

5. Where body now lying.

6. Inquest to be held at.

7. Name and address of witnesses.

8. State supposed cause of death
   if known, or suspected, and
   circumstances relating to it.

————————————————————————————
Coroner's Officer.

APPENDIX 16: INFORMATION RECORDED DURING POST MORTEM EXAMINATION

POST MORTEM REPORT (EXAMPLE)

Name   Apparent Age
At
Identified by   Date

External Examination
  Nourishment and Height
  Marks of violence, of iden-
  tification eg old scars,
  tattoo marks etc
  Histology
  Toxicology
Time of death
Time of Examination

Internal Examination
  Skull
  Brain, Meninges, etc
  Mouth, tongue, oesophagus,
  larynx, Trachea, Lungs and
  pleura
  Weight of R lung
  Weight of L lung
  Pericardium, heart and
  blood vessels
  Weight of heart
  Size of aorta
  Stomach and contents
  Peritoneum, intestines
  and mesenteric glands
  Liver and gall bladder
  Spleen
  Kidneys and ureter
  Bladder and urine
  Generative organs
  Are all other organs healthy?
Did death arise from natural
causes ?

Cause of Death
          I   I
Disease or condition directly
leading to death
                                  a: ....
                                       (due to (or as a consequence of)

Antecedent causes   b) ....
Morbid conditions, if any, giving   (due to (or as a consequence of)
rise to the above cause stating
the underlying condition last   c) ....
          II   II
Other significant conditions, con-
tributing to the death, but not   ....
related to the disease or condition
causing it   ....

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VIOLENT DEATHS IN DOP CATCHMENT AREA 1.1.74-30.6.82

1. Code
□□□□

2. Name ....

3. Known to DOP/KH/Moorgreen Records ?
   1. Yes
   2. No
   □

   Hospital number
   □□□□□□□

4. Known to Southampton General Hospitals ?
   1. Yes
   2. No
   □

   Hospital number
   □□□□□□□

PERSONAL DETAILS OF DECEASED

5. Address at time of event leading to death.

   ....

   ....

   ....

6. Postcode
   □□□□□□□□□

7. Electoral Ward ....
   □□

8. Date of birth
   □□□□□□

9. Age at death
   □□

10. Sex
    1. M
    2. F
    □

11. Marital Status   Legal   1. S
                                       2. M
                                       3. W   □
                                       4. D
                                       5. Not known

                            Actual   10. S
                                       20. M
                                       30. W   □□
                                       40. D
                                       50. M but living apart
                                       60. Cohabiting and married
                                       70. Cohabiting and single
                                       90 Not known

12. Was marital status/ personal
    relationship unstable ?
    1. Yes
    2. No/No evidence
    □

HOUSEHOLD CLASSIFICATION

13. Type of household   1. One person household
                                          2. Two person household
                                          3. Three or more persons   ☐
                                          4. Not separate household
                                          5. Not known

14. Type of accommodation   1. House/bungalow
                                          2. Flat
                                          3. Caravan   ☐
                                          4. Home for elderly/disabled
                                          5. Psychiatric Unit(NHS)
                                          6. Mental Hospital
                                          7. Hotel
                                          8. Miscellaneous
                                          9. No information

15. Had domestic unit changed   1. Yes
    in last week   2. No/No evidence   ☐

16. Economic position   1. Full time work
                                          2. Part time work   ☐
                                          3. Off sick*
                                          4. Unemployed
                                          5. Retired
                                          6. Student
                                          7. Housewife
                                          8. Single woman <60
                                               (not working)
                                          9. No Information

Occupation ....

Industry ....

Rank ....

17. Occupation code   ☐☐☐

18. Social Class   1. I
                                          2. II
                                          3. III(NM)
                                          4. III(M)
                                          5. IV   ☐
                                          6. V
                                          7. Not classified
                                          8. No information

(of husband in case of married woman;
 and father in case of single woman not in employment)

EVENT LEADING TO DEATH
(Summary of facts from all sources)

19. Date of event leading to death (or best estimate)

      □□□□□□

20. Day of week of event leading to death
     1. Sunday
     2. Monday
     3. Tuesday
     4. Wednesday
     5. Thursday
     6. Friday
     7. Saturday

     □

21. Mode of death
    (ICD E CODE)
    (9th edition)

     1. Poisoning by drugs
     2. Poisoning by other solids
       and liquids
     3. Domestic gas
     4. Car exhaust gas
     5. Hanging/strangulation
     6. Drowning (Domestic bath)
     7. Drowning (public place)
     8. Firearms/explosives
     9. Cutting or piercing instruments
    10. Jumping (window/building)
    11. Jumping (bridges)
    12. Electrocution
    13. Suffocation
    14. Railway
    15. Road traffic accident
    16. Burning
    17. Fall between levels
    18. Inhaled vomit/choking
    19. Alcohol
    20. Not known

     □□

22. Was alcohol taken before fatal act ?
   1. Yes
   2. No
   3. Not known

     □

23. Were drugs taken before a non-poisoning death ?
    (excluding gas)
   1. Yes
   2. No
   3. Not known

     □

24. Was deceased dead when found?
   1. Yes
   2. No
   3. Not known

     □

25. Place of event leading to death
    or where body found
   1. At home in house
   2. At home but not in house
   3. In general hospital
   4. In psychiatric unit
   5. In mental hospital
   6. In custody/prison
   7. Not 1-7 but inside DOP CA
   8. Not 1-7 but outside DOP CA
   9. Not known

     □

26. Name of Coroner   1. Emanuel
                                      2. Roe
                                      3. Deputy   ☐
                                      4. Non-local coroner

27. Coroner's District   1. Local
                                      2. Non-local   ☐

28. Coroner's verdict   1. Suicide
                                      2. Accident/Misadventure   ☐
                                      3. Open/Undetermined

29. Anything unusual about access to drugs ?
    Specify   1. Yes
                                      2. No   ☐

<u>POST MORTEM RESULTS</u>

30. Name and rank of pathologist

    . . . .

31. Medical cause of death (transcribe PM findings)

       . . . .

       . . . .

       . . . .

32. Diseases found

       . . . .

       . . . .

33. Biochemistry: Number of drugs taken ? 1. No drugs found
                                             2. One drug
                                           3. Two drugs   ☐
                                           4. More than two drugs
                                         9. Not tested

34. Level of drugs in blood?

       . . . .

35. Level of blood alcohol ? (mg%)   ☐☐☐

36. Level of carbon monoxide in blood ?   ☐☐☐

37. Pregnant ?   1. Yes
                                      2. No
                                      3. Male   ☐

38. Was present mental disturbance mentioned? (Specify facts and source)

....   ☐

39. Was present physical illness mentioned? (Specify facts and source)

....   ☐

40. Was past mental disturbance mentioned? (Specify facts and source)

....

....   ☐

41. Was past physical illness mentioned? (Specify facts and source)

....

....   ☐

42. Was there evidence of alcohol abuse in coroners notes ? (Specify)
....   ☐

43. Was there evidence of drug abuse in coroners notes ? (Specify)

....   ☐

44. Evidence of handicap in coroners notes ? (Specify)
                              1. Impaired vision
                              2. Impaired hearing
                              3. Difficulty walking
                              4. Difficulty dressing   ☐
                              5. Incontinent
                              6. Other

45. Was there evidence that deceased had threatened to kill him/herself
in month before event leading to death?   ☐

46. Was a suicide note left ?   ☐

GP TREATMENT

47. Was deceased being treated by GP?   ☐

48. Were psychotropic drugs prescribed by GP?   ☐

49. Were non-psychotropic drugs prescribed by GP?   ☐

50. Date last seen by GP   ☐☐☐☐☐☐

APPENDIX 17B: QUESTIONNAIRE 2 (USED WITH MEDICAL CASE NOTES)

HISTORY OF REFERRAL FOR MENTAL (OR NEUROLOGICAL) ILLNESS

Code ☐☐☐☐

1. Ever seen a Child Guidance Clinic ? ☐

2. Ever seen for neurological examination
   (where and by whom) ☐

   ....

3. Whether known to Southampton Psychiatric Case Register? ☐

4. Psychiatric Diagnosis during last episode of care ☐☐☐☐☐

5. Consultant in charge during last episode of care

   ....

6. Date of first referred mental illness ☐☐☐☐☐☐

7. Date of last admission ☐☐☐☐☐☐

8. Date of last discharge ☐☐☐☐☐☐

9. Length of last admission in days ☐☐☐☐

10. Date of last contact with psychiatrist ☐☐☐☐☐☐

11. Date of last out-patient appointment ☐☐☐☐☐☐

12. Date of next out-patient appointment ☐☐☐☐☐☐

13. Was there a break of more than 12 months
    before last episode of care? ☐

14. Total number of admissions to mental hospitals ☐☐

15. Patient status at time of event leading to death
    1. current inpatient
    2. current out-patient
    3. ex-patient*
    4. Referred** ☐
    5. never patient
  * discharged or more than 90 days since last contact and no
    appointment pending.
  ** awaiting first ever appointment appointment

16. Type of care at last contact
    1. Inpatient
    2. Out-patient
    3. Day patient
    4. Consultation* ☐
    5. Domiciliary Visit (DV)*
    6. Crisis Clinic
    7. Other
    9. Never in contact
  * Excludes Consultation or DV associated with fatal self-injury)

HISTORY OF DELIBERATE SELF HARM (DSH)

Code ⬚⬚⬚⬚

1. Number of admissions to general hospital after DSH ⬚⬚
   (number is a minimum)

2. Date of last act of DSH (non-fatal) ⬚⬚⬚⬚⬚⬚

Methods used in last two serious acts of (non-fatal) DSH
(requiring admission or psychiatric consultation)

3. Method used in last act of DSH* ⬚⬚

4. Date of penultimate act of DSH ⬚⬚⬚⬚⬚⬚

5. Method used in penultimate act of DSH* ⬚⬚

(Codes as for method used in fatal act; 99 = not applicable)

APPENDIX 18A: AVERAGE ANNUAL POPULATION AT RISK BY AGE-GROUP, SEX AND
RECENT PSYCHIATRIC PATIENT STATUS FOR SOUTHAMPTON CITY
RESIDENTS 1974-1981

AGE GROUP	AVERAGE ANNUAL POPULATION AT RISK					
	MALES		FEMALES		MALES + FEMALES	
	RECENT PATIENTS*	OTHERS**	RECENT PATIENTS*	OTHERS**	RECENT PATIENTS*	OTHERS**
15-24	217	16927	272	16425	489	33352
25-34	346	14852	356	14072	702	28924
35-44	264	11324	253	10861	617	22185
45-54	217	10776	252	10954	469	21730
55-64	161	10927	223	11730	384	22657
65-74	146	8181	229	9917	375	18098
75+	154	3738	411	7595	565	11333
15+	1505	76725	1997	81554	3502	158279

APPENDIX 18B: ANNUAL POPULATION AT RISK BY RECENT PSYCHIATRIC PATIENT
STATUS FOR SOUTHAMPTON CITY RESIDENTS

AGE GROUP	POPULATION AT RISK		
YEAR	ALL CITY RESIDENTS**	RECENT PSYCH PATIENTS*	OTHER RESIDENTS
74	165,400	3121	162,300
75	166,000	3510	162,500
76	166,100	3654	162,400
77	166,000	3470	162,500
78	165,600	3435	162,200
79	164,400	3433	161,000
80	163,800	3659	160,100
81***	161,780	3734	158,046
8 YEAR TOTAL	1319,080	28016	1291,064

* Year prevalence of City residents in contact with
Southampton Psychiatric Case Register (Jennings, 1981,81)

** OPCS mid year population estimates (OPCSPC)
*** 1981 Census population (OPCS, 1981)

APPENDIX 19: ANNUAL SUICIDE RATES IN CATCHMENT AREA AND ENGLAND AND WALES
1974-1981 (Rates / 100.000 population at risk)

MALES

	CATCHMENT AREA			ENGLAND AND WALES		
YEAR	POPULATION* ('000s)	N	SUICIDE RATE	POPULATION* ('000s)	N	SUICIDE RATE
1974	109.6	23	21.0	18017	2279	12.6
1975	110.4	19	17.2	18104	2182	12.1
1976	111.1	14	12.6	18209	2327	12.8
1977	111.7	23	20.6	18322	2362	12.9
1978	111.9	12	10.7	18431	2430	13.2
1979	112.4	19	16.9	18571	2558	13.8
1980	112.7	17	16.0	18700	2627	14.0
1981	115.3	32	27.8	18979	2761	14.5

FEMALES

YEAR	POPULATION* ('000s)	N	SUICIDE RATE	POPULATION* ('000s)	N	SUICIDE RATE
1974	118.1	5	4.2	19655	1618	8.2
1975	117.0	12	10.3	19710	1507	7.6
1976	120.6	10	8.4	19793	1482	7.5
1977	121.6	12	10.0	19895	1576	7.9
1978	121.3	14	11.5	20010	1585	7.9
1979	121.5	10	8.2	20127	1628	8.1
1980	122.3	12	9.8	20254	1691	8.3
1981	121.6	11	9.0	20564	1658	8.1

N = total number of deaths in 8 years
OPCS estimated mid year populations 1974-1980, 1981 Census population

APPENDIX 20: AVERAGE ANNUAL SUICIDE RATES IN CATCHMENT AREA AND
ENGLAND AND WALES BY AGEGROUP 1974-1981

MALES

	CATCHMENT AREA			ENGLAND AND WALES		
AGE GROUP	POPULATION* ('000s)	N	Av Annual S Rate	POPULATION* ('000s)	N	Av Annual S Rate
15-24	24.912	13	6.5	4010	1913	6.0
25-34	22.738	35	19.2	3569	3368	11.8
35-44	17.906	25	17.5	3024	3052	12.6
45-54	16.693	34	25.5	2764	3572	16.2
55-64	15.918	24	18.8	2641	3445	16.3
65-74	11.780	21	22.3	2020	2931	17.1
75&+	5.385	7	16.3	951	1417	18.6
Total	115.332	159	17.2	18979	19526	12.9

FEMALES

	CATCHMENT AREA			ENGLAND AND WALES		
15-24	23.917	4	2.1	3862	804	2.6
25-34	21.866	1	0.6	3517	1312	4.7
35-44	17.315	16	11.6	2972	1630	6.9
45-54	16.668	17	12.8	2768	2418	10.9
55-64	16.829	21	15.6	2867	2592	11.3
65-74	14.069	18	16.0	2599	2549	12.3
75&+	10.904	9	10.3	1979	1440	9.1
Total	121.568	86	8.8	20564	12745	7.8

N = total number of deaths in 8 years
OPCS 1981 Census population

REFERENCES

Achte K. A., Stenback A. and Teravainen H. (1966) On Suicides Committed During Treatment in Psychiatric Hospitals. *Acta Psychiatrica Scandinavica* 42, 272-284.

Adelstein A. and Mardon C. (1975) Suicides 1961-74. *Population Trends* 2, 13-18.

Arato M., Demeter E., Rihmer Z. and Somogyi E. (1988) Retrospective Psychiatric Assessment of 200 Suicides in Budapest. *Acta Psychiatrica Scandinavica* 77, 454-456.

Atkinson J. M. (1978) *Discovering Suicide: Studies in the Social Organisation of Sudden Death*. London: Macmillan.

Ayd F. J. (1961) *Recognising the Depressed Patient*. New York: Grune and Stratton.

Babigian H. M. and Odoroff C. L. (1969) The Mortality Experience of a Population with Psychiatric Illness. *American Journal of Psychiatry* 126, 470-480.

Bagley C., Jacobson S. and Rehin A. (1976) Completed Suicide: A Taxonomic Analysis of Clinical and Social Data. *Psychological Medicine* 6, 429-438.

Bailey J. (1986a) Prescription for Death. *Southern Evening Echo* Nov 12.

Bailey J. (1986a) Deadly Potion. *Southern Evening Echo* Nov 12.

Bakalim G. (1969) Causes of Death in a Series of 4738 Finnish War Amputees. *Artificial Limbs* 13, 27-36.

Banen D. M. (1954) Suicide in Psychotics. *Journal of Nervous and Mental Disease* 120, 349-357.

Barraclough B. M. (1974) Poisoning Cases: Suicide or Accident. *British Journal of Psychiatry* 124, 526-530.

Barraclough B., Bunch J., Nelson B. and Sainsbury P. (1974) A Hundred Cases of Suicide: Clinical Aspects. *British Journal of Psychiatry* 125, 355-373.

Barraclough B. M. and Pallis D. J. (1975) Depression Followed by Suicide: A Comparison of Depressed Suicides with Living Depressives. *Psychological Medicine* 5, 55-61.

Beisser A. R. and Blanchette J. E. (1961) A Study of Suicides in a Mental Hospital. *A Practical Journal on Psychiatry and Neurology* XXII, 365-369.

Beskow J. (1979) Suicide and Mental Disorder in Swedish Men. *Acta Psychiatrica Scandinavica* Supplementum 277, 5-138.

Beskow J. (1987) The Prevention of Suicide while in Psychiatric Care. *Acta Psychiatrica Scandinavica* 76, 66-75.

Births and Deaths Registration Act 1953 S15.

Black D., Warrack G. and Winokur G. (1985a) Excess Mortality among Psychiatric Patients: The Iowa Record-Linkage Study. *Journal of the American Medical Association* 253, 58-61.

Black W., Warrack G. and Winokur G. (1985b) The Iowa Record-Linkage Study I. Suicides and Accidental Death among Psychiatric Patients. *Archives of General Psychiatry* 42, 71-75.

Black D., Warrack G. and Winokur G. (1985c) The Iowa Record-Linkage Study II. Excess Mortality among Patients with Organic Mental Disorders. *Archives of General Psychiatry* 42, 78-81.

Black D., Warrack G. and Winokur G. (1985d) The Iowa Record-Linkage Study III. Excess Mortality among Patients with 'Functional' Disorders. *Archives of General Psychiatry* 42, 82-88.

Black D., Winokur G. and Nasrallah A. (1987) Suicide in Subtypes of Major Affective Disorder: A Comparison with General Population Suicide Mortality. *Archives of General Psychiatry* 44, 878-880.

Borg S. E. and Stahl M. (1982) Predicition of Suicide: A Prospective Study of Suicides and Controls among Psychiatric Patients. *Acta Psychiatrica Scandinavica* 65, 221-232.

Breier A. and Astrachan B. M. (1984) Characterization of Schizophrenic Patients who Commit Suicide. *American Journal of Psychiatry* 141, 206-209.

Brown J. (1979) Suicide in Britain. *Archives of General Psychiatry* 36, 1119-1124.

Burton J. D. K., Chambers D. R. and Gill P. S. (1985) *Coroners' Inquiries: A Guide to Law and Practice.* London: Kluwer Law.

Capstick A. (1960) Recognition of Emotional Disturbance and the Prevention of Suicide. *British Medical Journal* 16, 1179-1182.

Capstick S. (1961) The Methods of Suicide. *Medico-Legal Journal* 29, 33-38.

Carstairs G. M. (1962) Preventable Deaths. *The Lancet* ii, 248.

Chapman R. F. (1965) Suicide During Psychiatric Hospitalisation. *Bulletin of the Menninger Clinic* 29, 35-44.

Chia B. H. (1984) Physical Illness and Suicide. *Singapore Medical Journal* 25, 30-33.

Church I. L. and Phillips J. P. N. Suggestion and Suicide by Plastic Bag Asphyxia. *British Journal of Psychiatry* 144, 100-101.

Chynoweth R., Tonge J. I. and Armstrong J. (1980) Suicide in Brisbane - A Retrospective Psychological Study. *Australian and New Zealand Journal of Psychiatry* 14, 37-45.

Clift v Schwabe [1846] 3 C.B. 437.

Cohen J. (1961) A Study of Suicide Pacts. *Medico-Legal Journal* 29, 144-151.

Cornfield J. (1951) A Method of Estimating Comparative Rates from Clinical Data. Applications to Cancer of the Lung, Breast and Cervix. *Journal of the National Cancer Institute* 11, 1269-1275.

Coroners Rules 1953 Schedule 3 Form 18.

Coroners (Amendment) Act 1926.

Crammer J. L. (1984) The Special Characteristics of Suicide in Hospital In-Patients. *British Journal of Psychiatry* 145, 460-463.

CSM (1987) Fatal Interaction between Heminevrin (Chlormethiazole) and Alcohol. *Current Problems* 20, August. London: Committee on Safety of Medicines.

Davis (deceased), Re [1968] 1 Q.B. 72; [1967] 2 W.L.R. 1089; [1967] 1 All E.R. 688.

Dorpat T. L. and Ripley H. S. (1960) A Study of Suicide in the Seattle Area. *Comprehensive Psychiatry* 1, 349-359.

Dublin L. (1963) *Suicide: A Sociological and Statistical Study.* New York: Ronald Press.

Durkheim E. (1897) *Le Suicide: Etude de Sociologie.* Paris: Felix Alcan. Transl. Spaulding J. A. and Simpson G., Ed. Simpson G. (1952) *Suicide: A Study in Sociology.* London: Routledge and Kegan Paul

Eastwood M. R. and Peacocke J. E. (1975) Suicide, Diagnosis and Age. *Canadian Psychiatric Association Journal* 20, 447-449.

Eastwood R., Stiasny S., Meier R. and Woogh C. M. (1982) Mental Illness and Mortality. *Comprehensive Psychiatry* 23, 377-385.

Edmondson H. A., Hall E. M. and Myers R. O. (1956) Pathology of Alcoholism. In *Alcoholism.* Ed. Thompson G. N. Springfield, Ill: Thomas. pp. 230-290.

Elinson L., Goettler F. and Kuhl D. (1983) Epidemiologic Characterististics of Suicide in the City of Toronto. *Canadian Journal of Public Health* 74, 422-427.

Engelhardt H. T., Knight J. A. and Baird V. C. (1959) The Suicide Problem: Its Growing Importance for the Family Physician. *Southern Medical Journal* 52, 1536-1540.

Evenson R. C., Wood J. B., Nuttall E. A. and Cho D. W. (1982) Suicide Rates among Public Mental Health Patients. *Acta Psychiatrica Scandanavica* 66, 254-264.

Farberow N. L. (1981) Suicide Prevention in the Hospital. *Hospital and Community Psychiatry* 32, 99-104.

Farberow N. L., Ganzler S., Cutter F. and Reynolds D. (1971) An Eight Year Survey of Hospital Suicides. *Suicide and Life Threatening Behaviour* 1, 184-201.

Farberow N. L., Shneidman E. S. and Neuringer C. (1966) Case History and Hospitalization Factors in Suicides of Neuropsychiatric Hospital Patients. *The Journal of Nervous and Mental Disease* 142, 32-44.

Fernando S. and Storm V. (1984) Suicide among Psychiatric Patients of a District General Hospital. *Psychological Medicine* 14, 661-672.

Fishbain D. A. and Aldrich T. E. (1985) Suicide Pacts: International Comparisons. *Journal of Clinical Psychiatry* 46, 11-15.

Fleiss J. L. (1981) *Statistical Methods for Rates and Proportions.* 2nd Edition. New York: John Wiley.

Flood R. A. and Seager C. P. (1968) A Retrospective Examination of Psychiatric Case Records of Patients who Subsequently Committed Suicide. *British Journal of Psychiatry* 114, 443-450.

Gale S. W., Mesnikoff A., Fine J. and Talbott J. A. (1980) A Study of Suicide in State Mental Hospitals in New York City. *Psychiatric Quarterly* 52, 201-213.

Gardner E. A., Bahn A. K. and Mack M. (1964) Suicide and Psychiatric Care in the Ageing. *Archives of General Psychiatry* 10, 547-553.

Gardner M. J., Gardner S. B. and Winter P.D. (1989) *Confidence Interval Analysis (CIA) Microcomputer Program Manual, Version 1.0.* London: British Medical Journal.

Garvey T. (1985) Suicide in Hospitals. *British Journal of Psychiatry* 146, 101.

Goh S. E., Salmons P. H. and Whittington R. M. (1989) Hospital Suicides: Are there Preventable Factors?. *British Journal of Psychiatry* 154, 247-249.

Guze S. B. and Robins E. (1970) Suicide and Primary Affective Disorders. *British Journal of Psychiatry* 117, 437-438.

Hassall C. and Trethowan W. H. (1972) Suicide in Birmingham. *British Medical Journal* 18, 717-718.

Hawton K. (1978) Deliberate Self-Poisoning and Self-Injury in the Psychiatric Hospital. *British Journal of Medical Psychology* 51, 253-259.

Heiskanen O. and Sipponen P. (1970) Prognosis of Severe Brain Injury. *Acta Neurologica Scandinavica* 46, 343-348.

Hirohata T. (1968) Mortality from Gastric Cancer and Other Causes after Medical or Surgical Treatment for G.U.. *Journal of the National Cancer Institute* 41, 895-907.

Hoenig J. and Hamilton M. W. (1966) Mortality of Psychiatric Patients. *Acta Psychiatrica Scandinavica* 42, 349-361.

Hoffmann H. and Modestin J. (1987) Completed Suicide in Discharged Psychiatric Inpatients. *Social Psychiatry* 22, 93-98.
Holding T. A. and Barraclough B. M. (1975) Psychiatric Morbidity in a Sample of a London Coroners Open Verdicts. *British Journal of Psychiatry* 127, 133-143.

Holding T. A. and Barraclough B. M. (1977) Psychiatric Morbidity in a Sample of Accidents. *British Journal of Psychiatry* 130, 244-252.

Holding T. A. and Barraclough B. M. (1978) Undetermined Deaths – Suicide or Accident? *British Journal of Psychiatry* 133, 542-549.

Ihre B. J. E., Barr H. and Havermark G. (1964) Ulcer Cancer of the Stomach. *Gastroenterologia* 104, 78-91.

Innes G. and Millar W. M. (1970) Mortality Among Psychiatric Patients. *Scottish Medical Journal* 15, 143-148.

Jacobson S., Bagley C. and Rehin A. (1976) Clinical and Social Variables which Differentiate Suicide, Open and Accident Verdicts. *Psychological Medicine* 6, 417-421.

Jacobson S. and Jacobson D. M. (1972) Suicide in Brighton. *British Journal of Psychiatry* 121, 369-377.

Jameison G. R. and Wall J. H. (1936) Some Psychiatric Aspects of Suicide. *Arch Neurol Psychiatry* 36, 211-229.

James P. I. (1966) Blood Alcohol Levels Following Successful Suicide. *Quarterly Journal of Studies on Alcohol* 27, 23-29.

James P. I. and Levin S. (1964) Suicide Following Discharge from Psychiatric Hospital. *Archives of General Psychiatry* 10, 67-70.

Jennings C. (1981) *Statistics from the Southampton Psychiatric Case Register, 1974-1980.* Southampton Psychiatric Case Register.

Jennings C. (1982) *Annual Statistical Bulletin, 1981 No.2.* Southampton Psychiatric Case Register.

Jennings H. C. and Lunn J. E. (1962) A Study of Suicide in a Northern Industrial Town 1946-1960. *The Medical Officer* Dec, 397-399.

Jones K. (1965) Suicide and the Hospital Service. *British Journal of Psychiatry* 111, 625-630.

Koranyi E. K. (1977) Fatalities in 2070 Psychiatric Outpatients. *Archives of General Psychiatry* 34, 1137-1141.

Kraft D. P. and Babigian H. M. (1976) Suicide by Persons With and Without Psychiartic Contacts. *Archives of General Psychiatry* 33, 209-215.

Krause U. (1963) Long Term Results of Medical and Surgical Treatment of Peptic Ulcer. *Acta Chirurgica Scandinavica* Supplementum 310, 1-111.

Langley G. E. and Bayatti N. N. (1984) Suicides in Exe Vale Hospital, 1972-1981. *Symposium on Suicide in Hospital* 145, 463-467.

Lester D. (1969) The Subject as a Source of Bias in Psychological Research. *The Journal of General Psychology* 81, 237-248.

Levin M. L. (1953) The Occurrence of Lung Cancer in Man. *Acta Unio Int. Contra Cancrum* 19, 531-541.

Levy S. and Southcombe R. H. (1953) Suicide in a State Hospital for the Mentally Ill. *Journal Nervous Mental Disorders* 117, 504-514.

Lindskov J. (1975) Cause of Death in Patients with Gastric Ulcer. *Acta Chirurgica Scandinavica* 141, 670-675.

Lipschutz L. S. (1942) Some Administrative Aspects of Suicide in the Mental Hospital. *American Journal of Psychiatry* 99, 181-187.

McCarthy P. D. and Walsh D. (1966) Suicide in Dublin. *British Medical Journal* 1, 1393-1396.

McCulloch J. W., Philip A. E. and Carstairs G. M. (1967) The Ecology of Suicidal Behaviour. *British Journal of Psychiatry* 113, 313-319.

MacMahon K. (1983) Short-Term Temporal Cycles in the Frequency of Suicide, United States, 1972-1978. *American Journal of Epidemiology* 117, 744-751.

Markush R. E. (1977) Levin's Attributable Risk Statistic for Analytic Studies and Vital Statistics. *American Journal of Epidemiology* 105, 401-406.

Martin R. L., Cloninger C. R., Guze S. B. and Clayton P. J. (1985a) Mortality in a Follow-Up of 500 Psychiatric Outpatients I. Total Mortality. *Archives of General Psychiatry* 42, 47-54.

Martin R. L., Cloninger C. R., Guze S. B. and Clayton P. J. (1985b) Mortality in a Follow-Up of 500 Psychiatric Outpatients II. Cause-Specific Mortality. *Archives of General Psychiatry* 42, 58-66.

Medlicott R. W. and Medlicott P. A. W. (1969) Suicide in and after Discharge from a Private Psychiatric Hospital over a Period of Eighty-Six Years. *Australian and New Zealand Journal of Psychiatry* 3, 137-144.

Menninger K. A. (1938) *Man Against Himself.* New York: Harcourt, Brace.

Modestin J. and Kopp W. (1988) A Study of Clinical Suicide. *The Journal of Nervous and Mental Disease* 176, 668-674.

Morgan H. G., Pocock H. and Pottle S. (1975) The Distribution of Non-Fatal Deliberate Self-Harm. *British Journal of Psychiatry* 126, 319-328.

Morrison J. R. (1982) Suicide in a Psychiatric Practice Population. *Journal of Clinical Psychiatry* 43, 348-352.

Motto J. A. and Greene C. (1958) Suicide and the Medical Community. *Archives of Neurology and Psychiatry* 80, 776-781.

Murphy G. E. (1972) Clinical Identification of Suicidal Risk. *Archives of General Psychiatry* 27, 356-359.

Murphy G. E. (1983) On Suicide Prediction and Prevention. *Archives of General Psychiatry* 40, 343-344.

Murphy G. E., Armstrong J., Hermele S. et al. (1979) Suicide and Alcoholism. *Archives of General Psychiatry* 36, 65-69.

Murphy G. K. (1979) The "Undetermined" Ruling: A Medico-Legal Dilemma. *Journal of Forensic Science* 24, 483-491.

Myers D. H. and Neal C. D. (1978) Suicide in Psychiatric Patients. *British Journal of Psychiatry* 133, 38-44.

Nathan R. G. and Rousch A. F. (1984) Which Patients Commit Suicide? *American Journal of Psychiatry* 141, 1017-1017.

National Health Service Act 1977 S124(2).

Noreik K. (1975) Attempted Suicide and Suicide in Functional Psychoses. *Acta Psychiatrica Scandinavica* 52, 81-106.

Nuttall E. A. and Evenson R. C. (1980) A Comparison of Suicide and Undetermined Deaths in Psychiatric Patients. *Suicide and Life Threatening Behaviour* 10, 164-174.

Nuttall E. A., Evenson R. C. and Cho D. W. (1980) Patients of a Public State Mental Health System who Commit Suicide. *The Journal of Nervous and Mental Disease* 168, 424-427.

Odegard O. (1952) The Excess Mortality of the Insane. *Acta Psychiatrica Neurologica Scandinavica* 27, 353-367.

OPCS (1974) *Area Code for Recording Place of Residence and Place of Birth.* Office of Population Censuses and Surveys.

OPCS (1974-81) *OPCS Monitor DH2 (Deaths by Cause).* Office of Population Censuses and Surveys.

OPCS (1981a) *Census 1981 Small Area Statistics.* Office of Population Censuses and Surveys.

OPCS (1981b) *Topographical Arrangement of Registration Districts and Sub-Districts.* Office of Population Censuses and Surveys.

OPCS (1981c) Private Communication. Office of Population Censuses and Surveys.

OPCS (1981d) *Classification of Occupations.* Office of Population Censuses and Surveys.

Ovenstone I. M. K. and Kreitman N. (1974) Two Syndromes of Suicide. *British Journal of Psychiatry* 124, 336-345.

Parnell R. W. and Skottowe I. (1957) Towards Preventing Suicide. *Lancet* i, 206-208.

Patel N. S. (1973) Pathology of Suicide. *Medicine Science and the Law* 13, 103-109.

Patel N. S. (1974) A Study on Suicide. *Medicine Science and Law* 14, 129-136.

Paterson S. C. (1985) Drug Levels Found in Cases of Fatal Self-Poisoning. *Forensic Science International* 27, 129-133.

Paykel E., Myers J., Dienelt M. et al. (1969) Life Events and Depression. *Archives of General Psychiatry* 21, 753-760.

Perris C., Beskow J. and Jacobson L. (1980) Some Remarks on the Incidence of Successful Suicide in Psychiatric Care. *Social Psychiatry* 15, 161-166.

Platt S., Backett S. and Kreitman N. (1988) Social Construction or Causal Ascription: Distinguishing Suicide from Undetermined Deaths. *Social Psychiatry and Psychiatric Epidemiology* 23, 217-221.

Pokorny A. D. (1960) Characteristics of Forty-Four Patients who Subsequently Commited Suicide. *Archives of General Psychiatry* 2, 314-323.

Pokorny A. D. (1964) Suicide Rates in Various Psychiatric Disorders. *The Journal of Nervous and Mental Disease* 139, 499-506.

Pokorny A. D. (1966) A Follow-Up Study of 618 Suicidal Patients. *American Journal of Psychiatry* 122, 1109-1116.

Pokorny A. D. (1983) Prediction of Suicide in Psychiatric Patients. *Archives of General Psychiatry* 40, 249-257.

Pokorny A. and Kaplan H. (1976) Suicide following psychiatric hospitalization. *Journal of Nervous and Mental Disease* 162, 119-125.

R v Cardiff City Coroner, ex parte Thomas [1970] 1 W.L.R. 1475; [1970] 3 All E.R 469.

R v City of London Coroner, ex parte Barber [1975] 1 W.L.R. 1310; [1975] 3 All E.R. 538.

R v Coroner for the City of Portsmouth, ex parte Anderson [1987] 1 W.L.R. 1640; [1988] 2 All E.R. 604.

R v Huntbach, ex parte Lockley [1944] K.B. 606.
Rabiner C. J., Wegner J. T. and Kane J. M. (1982) Suicide in a Psychiatric Population. *The Psychiatric Hospital* 13, 55-59.

Robin A. A., Brooke E. M. and Freeman-Browne D. L. (1968) Some Aspects of Suicide in Psychiatric Patients in Southend. *British Journal of Psychiatry* 114, 739-747.

Robins E., Gassner S., Kayes J., Wo R. H. and Murphy G. E. (1959a) The Communication of Suicidal Intent: A Study of 134 Consecutive Cases of Successful (Completed) Suicide. *American Journal of Psychiatry* 115, 724-733.

Robins E., Murphy G. E., Wilkinson R. H., Gassner S. and Kayes J. (1959b) Some Clinical Considerations in the Prevention of Suicide Based on a Study of 134 Successful Suicides. *American Journal of Public Health* 49, 888-899.

Rorsman B. (1973) Suicide in Psychiatric Patients: A Comparative Study. *Social Psychiatry* 8, 55-66.

Rorsman B. (1974) Mortality Among Psychiatric Patients. *Acta Psychiatrica Scandanavica* 50, 354-375.

Rorsman B., Hagnell O. and Lanke J. (1982) Violent Death and Mental Disorders in the Lundby Study: Accidents and Suicides in a Total Population during a 25-Year Period. *Neuropsychobiology* 8, 233-240.

Rosen B. K. (1981) Suicide Pacts: A Review. *Psychological Medicine* 11, 525-533.

Rosenbaum M. (1983) Crime and Punishment - the Suicide Pact. *Archives of General Psychiatry* 40, 979-982.

Roy A. (1982a) Suicide in Chronic Schizophrenia. *British Journal of Psychiatry* 141, 171-177.

Roy A. (1982b) Risk Factors for Suicide in Psychiatric Patients. *Archives of General Psychiatry* 39, 1089-1095.

Roy A. (1983) Suicides in Depressives. *Comprehensive Psychiatry* 24, 487-487.

Roy A. and Glaister J. (1984) Suicide in Psychiatric Patients. *The Journal of the University of Ottawa* 9, 42-44.

Sainsbury P. (1955) *Suicide in London, an Ecological Study.* Maudsley Monograph No.1. London: Chapman and Hall.

Sainsbury P. (1975) Community Psychiatry. In *A Handbook for the Study of Suicide.* Ed. Perlin S. New York: Oxford University Press. Chapter 9.

Salmons P. H. (1984) Suicide in High Buildings. *British Journal of Psychiatry* 145, 469-472.

Schwartz D. A., Flinn D. E. and Slawson P. F. (1975) Suicide in the Psychiatric Hospital. *American Journal of Psychiatry* 132, 150-153.

Seager C. P. and Flood R. A. (1965) Suicide in Bristol. *British Journal of Psychiatry* 111, 919-932.

Shaw S. and Sims A. (1984) A Survey of Unexpected Deaths among Psychiatric In-Patients and Ex-Patients. *British Journal of Psychiatry* 145, 473-476.

Shepherd M. and Cooper B. (1964) Epidemiology and Mental Disorder: A Review. *Journal of Neurology, Neurosurgery and Psychiatry* 27, 277-290.

Sims A. (1973) Mortality in Neurosis. *The Lancet* ii, 1072-1076.

Sims A. and O'Brien K. (1979) Autokabalesis: An Account of Mentally Ill People who Jump from Buildings. *Medicine, Science and the Law* 19, 195-197.

Sims A. and Prior P. (1978) The Pattern of Mortality in Severe Neuroses. *British Journal of Psychiatry* 133, 299-305.

Sletten I. W., Brown M. L., Evenson R. C. and Altman H. (1972) Suicide in Mental Hospital Patients. *Diseases of The Nervous System* 33, 328-335.

Smith's Case [1696] Comb. 386.

Society of Actuaries. (1954) *Impairment Study 1951.* New York: Society of Actuaries.

SI (1968) Registration of Births, Deaths and Marriages Regulations 1968 (SI 1968 No 2049) Regulation 48(1) Schedule 1 Form 9.

Steele A. (1984) Newspaper Reporting of Suicide in Southampton. *4th Year Project.* Southampton: Faculty of Medicine.

Stenback A., Achte K. A. and Rimon R. H. (1965) Physical Disease, Hypochondria, and Alcohol Addiction in Suicides Committed by Mental Hospital Patients. *British Journal of Psychiatry* 111, 933-937.

Stengal E. and Cook N. G. (1958) *Attempted Suicide.* London: Oxford University Press.

Stengal E. and Cook N. G. (1961) Contrasting Suicide Rates in Industrial Communities. *Journal of Mental Science* 107, 1011-1019.

Stewart I. (1960) The Influence of Organic Disease. *The Lancet* ii, 919-920.

Suicide Act 1961 (S1).

Sundqvist-Stensman U. B. (1987a) Suicides among 523 Persons in a Swedish County with and without Contact with Psychiatric Care. *Acta Psychiatrica Scandinavica* 76, 8-14.

Sundqvist-Stensman U. B. (1987b) Suicides in Close Connection with Psychiatric Care: An Analysis of 57 Cases in a Swedish County. *Acta Psychiatrica Scandanavica* 76, 15-20.

Surtees S. J. (1977) Deaths from Falling at Beachy Head. *The Lancet* ii, 872.

Surtees S. J. (1982) Suicide and Accidental Death at Beachy Head. *British Medical Journal* 284, 321-324.

Temoche A., Pugh T. F. and MacMahon B. (1964) Suicide Rates among Current and Former Mental Institution Patients. *Journal of Nervous and Mental Disorders* 138, 124-130.

Thomson I. G. (1970) Suicide and Mortality in Depression. *International Association for Suicide Prevention* 1970, 140-143.

Thurston G. (1971) Private Communication.

Thurston G. (1976) *Coronership.* Chichester: Barry Rose.

Tsuang M. T. (1978) Suicides in Schizophrenics, Manics, Depressives and Surgical Controls: A Comparison with General Population Suicide Mortality. *Archives of General Psychiatry* 35, 153-155.

Tsuang M. T. and Simpson J. C. (1985) Mortality Studies in Psychiatry: Should they Stop or Proceed?. *Archives of General Psychiatry* 42, 98-103.

Tsuang M. T. and Woolson R. F. (1978) Excess Mortality in Schizophrenia and Affective Disorders: Do Suicides and Accidental Deaths Soley Account for this Excess? *Archives of General Psychiatry* 35, 1181-1185.

Tsuang M. T., Woolson R. F. and Fleming J. A. (1980) Causes of Death in Schizophrenia and Manic-Depression. *British Journal of Psychiatry* 136, 239-242.

Tuckman J., Youngman W. F. and Kreizman G. (1966) Suicide and Physical Illness. *The Journal of General Psychology* 75, 291-295.

Viskum K. (1975) Ulcer, Attempted Suicide and Suicide. *Acta Psychiatrica Scandinavica* 51, 221-227.

Walk D. (1967) Suicide and Community Care. *British Journal of Psychiatry* 113, 1381-1391.

Walsh B., Walsh D. and Whelan B. (1975) Suicide in Dublin: II The Influence of Some Social and Medical Factors on Coroners' Verdicts. *British Journal of Psychiatry* 126, 309-312.

Walsh D. and Walsh B. (1970) Mental Illness in the Republic of Ireland - First Admissions. *Journal of the Irish Medical Association* 63, 365-370.

Walter S. D. (1976) The Estimation and Interpretation of Attributable Risk in Health Research. *Biometrics* 32, 829-849.

Warlingham Park Hospital Enquiry (1976) *Report of the Committee of Enquiry into Deaths by Suicide of Patients at Warlingham Park Hospital.* London: Croydon Area Health Authority.

Warnes H. (1968) Suicide in Schizophrenia. *Diseases of the Nervous System* 29, 35-40.

Weiss J. M. A. (1954) Suicide - An Epidemiological Analysis. *Psychiatric Quarterly* 28, 225-252.

West D. J. (1965) *Murder Followed by Suicide.* London: Heinemann.

WHO (1977,1978) World Health Organisation Manual of the International Statistical Classification of Diseases, Injuries and Causes of Death. Volumes I and II. Geneva: WHO.

Wilson G. C. (1968) Suicide in Psychiatric Patients who have Received Hospital Treatment. *American Journal of Psychiatry* 125, 752-757.

Wing J. K. and Hailey A. M. (1972) *Evaluating a Community Psychiatric Service.* London: Oxford University Press. Chapter 4.

Winokur G. and Tsuang M. (1975) The Iowa 500: Suicide in Mania, Depression and Schizophrenia. *American Journal of Psychiatry* 132, 650-651.

Yap P. M. (1958) *Suicide in Hong Kong with Special Reference to Attempted Suicide.* Hong Kong: Oxford University Press.

Yarden P. E. (1974) Observations on Suicide in Chronic Schizophrenics. *Comprehensive Psychiatry* 15, 325-333.