The social and epidemiological context of suicidal behaviour

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17 SUMMARY

Exactly a century has passed since Durkheim, with the publication of his famous sociological study *Le Suicide*, inaugurated the intensive search, by sociologists and social psychiatrists, for the determinants of temporal and spatial variations of rates of suicidal behaviour. In spite of a century’s effort, it remains essentially unclear why rates of suicidal behaviour should vary so much between places and periods. These variations are not only of paramount scientific interest but of tremendous public health import as well. This is especially so since the WHO Office for Europe adopted, in its blueprint *Health For All* (1985), the prevention of inequalities in health as its overarching target. When a European living in Hungary has a suicide risk over 4 times higher than an otherwise comparable European in the UK or the Netherlands, this is evidence of major health inequalities which, firstly, should be understood, and, subsequently, minimized.

Two, frequently opposed, methodological traditions can be distinguished within epidemiology in general but in psychiatric epidemiology and suicidology in particular. The first, known as the *ecological* and initiated by Durkheim, aims to understand the suicidal behaviour of groups of individuals. The second, known as the *individual*, seeks to characterize the etiology of suicidal behaviour as it occurs in individuals. A wide conceptual and methodological gap, known as *cross-level bias*, separates these two research traditions. The present volume was inspired by a fascination with this conceptual and methodological gap, and a wish to bridge it. The chief aim was the theoretical development and empirical testing of a new model for understanding suicidal behaviour as it occurs in individuals and populations. According to this model, suicidal behaviour cannot be exhaustively described at the ecological or the individual levels, whether in isolation or combined. Rather, it is proposed, additional description at a third level, intermediate between the individual and the ecological, is called for. This level has been called the *sociocultural matrix* and is proposed to be located at the interface between the individual and his or her relevant social groups. It is within this matrix that, *first*, exposure to risk factors for suicidal behaviour, and, *second*, the actual behaviour (suicidal ideation, attempts or deaths) take place.

The first chapter situates the problem of *cross-level bias*, and the conceptual gap between the individual and ecological approaches, in history. It is linked with the conflicts in approach which exist between clinicians (operating at the individual level) and public health officials (dealing with ecological data). A public health official who, on the basis of ecological associations, makes inferences about the etiology of individual ill-health falls into the trap of the cross-level bias by committing the *ecological fallacy*. The classical example of this is Durkheim’s prediction, on the
basis of the generally lower suicide rates in Catholic compared with Protestant countries, that, therefore, Catholics will be at lower risk of suicide than Protestants. A clinician who makes predictions about the public health based on patterns observed in individual patients falls into the cross-level trap from the opposite side by committing the, less well-known, but equally serious, clinical fallacy. The strong association, in individuals, between unemployment and suicidal behaviour, does not imply that countries with high levels of unemployment (such as Spain) therefore have a high suicide rate.

The departure point for the development of the new model is provided by the association, as it exists in individuals, between exposure to a risk factor and the risk of suicidal behaviour - epidemiologists like to characterize this type of association by using the relative risk. Psychiatric epidemiologists / suicidologists have borrowed this measure of association from the epidemiology of chronic, non-infectious diseases. Two assumptions underlie the use of the relative risk (or rate). First, it is assumed that the risk can be quantified once the level of exposure of the individual is known, irrespective of the context in which exposure takes place. Second, the outcome of interest is necessarily conceived of as discrete (such as suicidal vs not-suicidal). The chief hypothesis examined in this volume is that the sociocultural matrix in which the suicidal behaviour occurs, exerts an important modifying influence on its etiology. The sociocultural matrix is composed of the various groups to which individuals belong such as their street, neighbourhood, country, their ethnic or religious group, their professional identity or social class. This modification of the etiology of suicidal behaviour may take place, first at the level of the exposure, and, second, at the level of the outcome and its classification.

Section B of this dissertation (chapters 2 thru 9) deals with the contextual modification of the etiology of suicidal behaviour at the level of the risk factor (ecological effect modification in the narrow sense). Chapter 2 proposes that the relative risk for suicidal behaviour as a result of exposure to a risk factor is not constant but variable, as a function of the context in which the exposure takes place. This is illustrated using Platt’s finding that the strength of association, in individuals, between unemployment and suicidal behaviour, varies inversely with the prevalence of unemployment in the individuals’ locality. This phenomenon, the increase or decrease of the magnitude of the relative risk as a function of the prevalence of this risk factor in the study population, is known, in epidemiology, as ecological effect modification. In this thesis the nomer risk concentration / dilution is being used. It is being linked, conceptually, with the notions of social selection, deviance amplification, and (de)formalization of restraints, known from the fields of sociology, criminology and social
psychology respectively. It is hypothesized that these processes may modify the elementary psychosocial causation of suicidal behaviour. The degree of risk of deviant behaviour associated with, for instance, unemployment, depends on whether the unemployment result from poor individual performance as opposed to general economic decline (social selection), the extent to which unemployment is being considered as deviant (deviancy amplification), and the extent to which it is associated with loss of normal routines (deformalization of restraints). Each of these mechanisms depends on the prevalence of unemployment in the exposed individual's immediate environment. The net result of their joint action (i.e. concentration or dilution of risk) will depend on their relative balance, the risk factor and outcome being studied, and, probably, the size of the study group. It is possible to test the hypothesis of risk dilution / concentration as a function of the risk factor's prevalence, in two ways. First, by examining whether a regular association exists between, on the one hand, the prevalence of a given risk factor in a number of social groups, and, on the other hand, the strength of association, at the level of individuals in these groups, between exposure to this risk factor and suicidal behaviour. This strategy has been applied in chapters 4, 5 and 7. Second, ecological effect modification may be demonstrated by examining the shape of the ecological regression line. This was done in chapters 8 and 9. In chapter 3 it is deduced, mathematically, that, in the presence of ecological effect modification (risk dilution / concentration), the ecological association between aggregate levels of the risk factor, and population rates of the outcome (in this case; suicidal behaviour) will be a curvilinear one.

Chapters 4 and 5 examine the risk factor ethnicity in connection with suicide and attempted suicide respectively. Chapter 4, a geographical, small-area analysis of suicide in South-London, indicates that the magnitude of the relative risk of suicide in members of given ethnic groups, dilutes (concentrates), if the ethnic density (i.e. the proportion of inhabitants of the same ethnic group) in their electoral wards increases (decreases). The results presented in chapter 5 suggest that unemployment in ethnic minority groups (among whom unemployment is rife) in South-East London is a weaker risk factor for attempted suicide compared to unemployment among Whites whose unemployment rates are lower. The analyses reported in chapter 7 examine the association between suicide acceptance and religiousness in 28085 individuals in 19 Western countries. Countries in which suicide is considered as being more acceptable and where religion's influence has waned, have higher suicide rates. A negative association between religiousness and suicide acceptability is also apparent at the individual level. However, for men, the negative association between religiousness and suicide acceptability is more pronounced (concentrated) in countries where religion's influence is more dominant. This may be interpreted, for instance, by using the concept of (de)formalization.
of restraints.

Chapters 8 and 9 focus on the shape of the ecological association between aggregate levels of religiousness and suicide rates in, respectively, 26 countries in Europe and America (n=37688), and 11 provinces in the Netherlands (n=3003). In both studies this association is represented better by a curvilinear line (inverted J) than by the straight one which would be expected if a straightforward Durkeimian proportional association applied. This suggests that the effect of the protective factor religiousness dilutes in more highly religious contexts.

The finding that ethnic density modifies the risk of suicidal behaviour in ethnic groups (chapter 4) has often been attributed to the higher levels of social integration and support supposed to exist in ethnically more homogeneous groups. A more specific but hitherto untested hypothesis states that higher levels of shared religious commitment and identity may contribute to this. Chapter 6 was written in order to bridge the gap between the chapters dealing with ethnicity (4 and 5) and those focusing on religiousness (7, 8 and 9). In a nested case-control design (n=1839), the hypothesis that the lower levels of suicide acceptance among African compared with White Americans are attributable to the former's higher levels of religious commitment, could not be rejected.

Section C of this book (chapters 10 thru 14) focuses on how influences arising from the sociocultural matrix may modify the etiology of suicidal behaviour at the level of the outcome. It is argued, in chapter 10, that, although clinicians and health statisticians, tend to conceive of suicidal behaviour as an all or nothing phenomenon, suicidal behaviour in populations is more likely to be continuously distributed. Those cases of suicidal behaviour which are recognized and registered, represent only a small fraction of the total suicide potential in populations. It is suggested that this continuous distribution of suicidal behaviour depends on variations along at least two dimensions. First, suicidal intent (linked with depression), and second, severity (linked with aggression). In most countries, only those self-inflicted deaths for which a high level intent can be demonstrated can be registered as suicides whilst, of course, only those cases severe enough to have actually died, qualify. It is suggested that this is an arbitrary dichotomization of a continuum of suicidal behaviour which, furthermore, is influenced by cultural, political and religious influences as well. It is suggested that this will result in differential misclassification of suicidal behaviour which will bias the study of its etiology. Differential misclassification is said to be present when a risk factor for a certain outcome is also, simultaneously, a risk factor for its misclassification. Opiate addiction is an
important example of this; it is a risk factor for suicidal behaviour, but, given addicts' habitual propensity to take accidental overdoses as well, the distinction, between accidental and suicidal deaths of opiate addicts is blurred and difficult to determine by coroners. Chapter 11, 12 and 13 examine the phenomenon of differential misclassification of suicidal behaviour historically and empirically. The presence of differential misclassification is one reason why suicide prevention and research should not be conducted in isolation from consideration of alternative causes of death or injury.

There is a further reason why rates (in ecological research) and risks (in individual research) of alternative outcomes should be taken into account in suicide research and prevention. Classification of causes of death (or injury) gives rise to a division of total mortality into mutually exclusive causes. These mutually exclusive causes compete with each other as nobody dies more than only once. When a society decides, by changing its classification practices, by focused prevention activities, or by changing medical practices at the end of life (e.g. euthanasia), to reduce (increase) mortality of one cause, then, inevitably, mortality though other, competing causes, will rise (fall). Successful prevention of accidental death among the young may lead to increased suicide mortality among them. The proportional mortality due to suicide among opiate addicts will increase if AIDS prevention programmes become more successful. The independent (or mixed) suicide risk will decrease, spuriously, if euthanasia becomes more widespread. Finally, prevention of suicide will lead to decompression of mortality through other causes. The dilemma of decompression of mortality (or, possibly, morbidity, in cases of non-fatal suicide attempts) is especially poignant in the case of suicide because it is likely that this cause of death shares many of its risk factors with other causes of death or injury; this implies that there will be replacement of outcomes rather than mere competition between them. The theory of competition between, and replacement of outcomes, is another reason, in addition to that provided by the problem of differential misclassification, why the risk, and the base rate, of alternative causes of death in individuals or populations respectively, should be take into account in suicide research.

Chapter 11 demonstrates, on the basis of a history of decriminalization of suicidal behaviour, that its classification is not culture-free but, rather, dependent on many religious, political and administrative influences. In chapter 12, a proportional mortality study (n=104396) demonstrates that the level of misclassification of suicidal behaviour in England & Wales depends on the suicide method used, the age and sex of the victim and the professional background of the coroner. However, even when temporal shifts in these variables are controlled for, it appears that, between
1974 and 1991, the level of misclassification of suicide in England & Wales has risen sharply - additional reason to continue studying this phenomenon. Chapter 13 tests the hypothesis that ethnicity and country of birth are risk factors, not only for suicide, but also for its misclassification. This hypothesis could not be rejected even after ethnic differences in preferred method were controlled for. Compared with non-ethnic minorities, cases of intentional death of ethnic minorities were 2.4 times less likely to be registered as suicides. Compared with Whites from England & Wales, Scottish immigrants who died through their own hand, were 5.8 times less likely to receive a suicide verdict.

The cohort study (n=5362) reported in chapter 14 tests the hypothesis that developmental risk factors for suicide such as emotional instability and conduct disorder, are not specific to suicide but shared with other causes of premature (younger than 50 years) death. The most striking finding is that behavioural difficulties at school age, irrespective of the presence or not of emotional instability, increase risk, not only of suicide (relative risk 1.8) but also of unnatural (relative risk 1.5) and natural premature death (relative risk 1.2). The steady increase of the magnitude of the relative risk according to the certainty with which a case of death could be attributed to suicide, is an empirical illustration of the presence of etiological continuity (i.e. shared risk factors) between different forms of death which compete with suicide. This indicates that prevention of suicide in vulnerable individuals may cause more decompression of mortality though other causes than would be expected on the basis of the theory of competing outcomes alone.

In the final chapter, drawing together the theoretical and empirical evidence presented in the preceding chapters, a tentative new model for suicidal behaviour is presented. This model is to be distinguished from traditional ecological and individual models for suicidal behaviour by the presence, between the ecological and individual levels, of a third, intermediate layer, the sociocultural matrix, consideration of which helps bridge the cross-level bias. In the sociocultural matrix one finds, on the one hand, processes such as deviance amplification, social selection, social integration and deformalization of restraints, which underlie ecological effect modification but which, at the same time, can, in principle, be made operational psychologically at the level of the individual. On the other hand, affecting the etiology of suicidology at the level of the outcome, the sociocultural matrix influences the classification of suicidal behaviour and hence, the degree to which to which the true suicide potential of populations and individuals, becomes recognized and manageable. Last but not least, the context-dependent subdivision of total mortality into mutually exclusive, competing, and, in the case of suicide, replacing, causes of death, will modify the apparent (mixed) risk or rate of suicide.

Summary
The relevance of this multi-level model for the conduct of clinical practice, public health and research is finally pointed out. Clinicians should remember that, since suicide shares many of its risk factors with other causes of premature death, they should consider themselves responsible, not only for the prevention of suicide in their clientele, but for the prevention of death of whichever cause. The dilemma posed by the principle of decompression of mortality and replacement by alternative outcomes, should be considered more explicitly. Furthermore, the notion of the sociocultural matrix implies that primary prevention of suicidal behaviour does not merely depend on the removal of exposure to risk factors in individuals but that social manipulation of the context in which this exposure takes place, may be of value as well.

For those who are charged with the public health, the implications of the proposed model, are uncomfortable. Prevention of regional differences in morbidity or mortality is often based on the assumption that higher community rates of ill-health result from higher levels of exposure to risk. Logically therefore, prevention programmes attempt to achieve a levelling out of exposure profiles. The principle of ecological effect modification, part of the proposed model of suicidal behaviour, implies that the relative health gains which may be harvested as a result of such efforts will diminish once programmes become more successful and bring about a concentration of risk in those, most vulnerable, individuals whose exposure is most difficult to modify. In addition, an apparent reduction of suicide mortality may be the result of increased mortality due to competing or replacing causes. In the Netherlands, euthanasia could start to replace suicide in this manner. Suicide prevention, at the individual as well as the population level, should never be conducted in isolation from the management of overall mortality.

The proposed multilayer model of suicidal behaviour offers exciting opportunities for further research, not only of suicidal behaviour but also of other forms of psychological ill-health, to which it can be applied without much modification. Transcultural psychiatric and suicidological research can contribute to a further clarification of the aspects of the sociocultural matrix which modify the etiology of suicidal behaviour. The fact that, even in a small country such as the Netherlands, suicide rates vary considerably by geographic region, begs the question whether this relates to variation in the distribution of (exogenous) risk factors amenable to modification, or whether (genetically?) vulnerable individuals are concentrated (i.e. socially selected) into high rate regions. This, and other issues will be accessible to further research only if is possible to link anonymous statistical (i.e. ecological) data, to information on individuals. Given the paramount importance of suicide as a public health problem, it is urged that the ban on personal identification in health-statistical datasets
should be abolished as soon as possible.