

# National Suicide Registry Malaysia (NSRM)

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## SUMMARY

To create a nationwide system to capture data on completed suicide in Malaysia i.e. the morbidity, geographic and temporal trends and the population at high risk of suicide. Data from this registry can later be used to stimulate and facilitate further research on suicide. This paper describes the rationale and processes involved in developing a national suicide registry in 2007. The diagnosis of suicide is based on the ICD-10 codes for fatal intentional self-harm (X60-X84). A case report form with an accompanying instruction manual had been prepared to ensure systematic and uniform data collection. State Forensic Pathologist's offices are responsible for data collection in their respective states, and in turn will submit the data to a central data management unit. Data collection began in July 2007 and currently in data cleaning process. Training for source data producers is ongoing. In 2008, the NSRM plans to involve university hospitals into its network as currently only Ministry of Health hospitals are involved. The NSRM will be launching its online application for case registration this year while an overview of results will be available via its public domain at [www.nsr.gov.my](http://www.nsr.gov.my) beginning 20 April 2008. To efficiently capture the data on suicide, a concerted effort between various agencies is needed. A lot of conceptual work and data base development remains to be done in order to position preventive efforts on a more solid foundation.

## KEY WORDS:

*Suicide, Suicidal, Para suicide, Registry database, Fatal intentional, self-harm*

## INTRODUCTION

Nationwide epidemiological data on suicides will not only be useful in identifying high-risk groups and changes in suicidal behaviour over time, it will also provide baseline for testing the outcomes associated with specific intervention and prevention programs. Although the National Registration Department (NRD) reports annual causes of mortality, it would seem that rates of death by suicide appear rather low. For example in 1999, the NRD reported only 79 suicidal deaths, whereas a cross sectional study done in Kuala Lumpur Hospital during the same period only identified 76 cases<sup>1</sup>. It is postulated that among the difficulties that could have caused these discrepancies include: the degree of subjectivity of identifying a death by suicide, lack of structured data describing the 'manner of death' for cases of traumatic or non-natural deaths, and inconsistencies in the way terms are defined, data collected and coded.

In response to this, the National Suicide Registry Malaysia was officially initiated in 2007 to compile the census of

suicidal deaths that occur in Malaysia via its network of forensic services. This initiative is sponsored by the Psychiatric and Mental Health Services and the Forensic Medicine Services of the Ministry of Health Malaysia (MOH); while the Clinical Research Centre CRC provides the technical expertise. It is managed by a Joint Technical Committee comprising these three agencies. The NSRM is affiliated with the Clinical Research Centre (CRC) Network of Registries.

The ground work for the implementation of this registry had taken place since 2005 including: preparation of a module for data collection; discussions with stakeholders, namely relevant departments within the Ministry of Health and the Royal Malaysian Police; training of officers dealing with death certification which include processes for queries and feedbacks; developing a system for data collection and analysis; and preparing for data dissemination.

The NSRM is governed by an advisory committee which consists of policy-makers and senior clinicians to ensure that the NSRM stay focused on its objectives and to assure its continuing relevance and justification.

## Literature Review

### A. Epidemiology of Suicide

#### *Demographics*

In industrialised nations there has been an increase in male suicide rates within all age groups, but most worryingly is the trend in younger cohorts<sup>2</sup>. It is generally rare to encounter suicides in children under 10, but young children are capable of deliberate self-harm and suicidal acts. Almost all children have a basic understanding of what suicide is by age 11<sup>3</sup>. There have been sporadic newspaper reports on school children who commit suicide – and this registry aims to capture systematic data on this. Another age group at high risk of suicide is the elderly population.

Urban life has often been blamed for creating isolating anomic environments with high suicide rates. This may be a cause for concern because 62% of Malaysians are staying in urbanized areas<sup>4</sup>. However, there has not been empirical research support for this. A more systematic nationwide suicide database would be able to show whether there are actual differences between urban and rural areas. Other factors of interest are the influence of marital status, ethnicity or religious beliefs.

#### *Methods of Suicide*

In 1965-1970, the most common methods of suicide in Kuala Lumpur were by hanging (50%), caustic soda ingestion

(12.8%), jumping from height (11.4%) and swallowing insecticides (7.9%). Within two decades, the pattern changed: hanging had gone down to 34%, poisoning predominates with 39% and jumping from height had doubled to 22%<sup>1</sup>. Thus, methods of suicide appear to reflect on availability of means.

Other special conditions related to suicide e.g. homicide-suicide and suicide pact will also be investigated.

### **B. Factors Contributing to Suicide and Suicidal Behaviours**

Suicide is a process in which neurobiological, psychological, cultural and social variables contribute to produce the end result. Different contributing factors lend unequal weights with no single one having been proven to be necessary or sufficient to cause suicide. Healthcare service providers, however, need to recognize populations which may be especially vulnerable to suicide when faced with a stressor or combination of stressors that may hold dark or intolerable personal implications.

#### *Sociological, Economic and Cultural Factors*

Although available literature supports the hypothesis of a link between unemployment and increased rates of suicide and parasuicide, it is a controversial link. One possible contributor to unemployment is large increases in the sizes of successive birth cohorts<sup>5</sup>. Meanwhile, there does not appear to be a straightforward and predictable link between income and suicide risk. In many developed countries where gross national product has been increasing over the past decades, suicide rates have also been increasing. By contrast, Wilkins, Adams and Brancker<sup>6</sup>, found that people in the poorest quintile had a suicide mortality rate 1.5 times that of the wealthiest quintile in 1971, and more than twice as high in 1986.

#### *Psychiatric Conditions*

Among a wide variety of causes, mental disorder features consistently in the matrix of causation. Retrospective studies based on psychological autopsies (reconstruction of events leading up to a suicide) and/or record linkages (review of medical, psychological and social records of persons who have completed suicide) have been conducted in various countries. The majority of these report the presence of a mental disorder or a recent history of mental disorder in a high proportion of persons who die by suicide (ranging from 11% to 92%)<sup>7</sup>. Many studies identify mood disorders (particularly depression) as the most frequent disorder in persons who complete suicide, affecting from 30% to 70%<sup>8</sup>. Other disorders found more commonly among suicide completers than in the general population include substance abuse disorders and schizophrenia.

#### *Genetic and Family Background*

There is some evidence that suicide tends to run in families. However, it is difficult to differentiate between possible genetic factors involved in suicide such as the presence of a family member as a role model, and effect of psychiatric disturbance in families<sup>9</sup>. Kety<sup>10</sup> pointed out that neither environmental nor genetic influence alone may be sufficient to cause suicide, but suggested that a major inherited factor is an inability to control impulsive behaviour.

#### *Life Events*

Rich, Richard, Fogarty and Young<sup>11</sup> found that between 27% and 39% of people who completed suicide had experienced a stressful life event within the six weeks preceding their suicide attempt. The majority of these precipitating events were losses or interpersonal conflicts. Those who were diagnosed as suffering from drug or alcohol abuse were more likely to have an identifiable precipitating event before their suicide than those with other psychiatric diagnoses. Paykel, Prusoff and Myers<sup>12</sup> found that, in a clinical sample, among events that best differentiated suicidal from non-suicidal persons were severe conflict with the partner or spouse, serious illness in the family and serious illness (hospitalization or absence from work over one month) in the suicidal person. Tournant and Hanigan<sup>13</sup> described that students who attempted suicide or had serious suicidal ideation could be differentiated from non-suicidal groups using the following variables: running away from home, dropping out of school, "bad trips," rejection from social groups and being physically attacked. In addition, break-up of a relationship featured prominently in several studies. However, failure in interpersonal relationships and school problems did not result in suicide unless they occurred in a chaotic or disturbed family context<sup>7</sup>.

#### *AIDS/Terminal Illness*

American studies found astonishingly high rates of completed suicide in terminally ill patients, equivalent to 463 per 100,000 per year in California; 681 per 100,000 per year in New York City; and 222 per 100,000 per year in Texas<sup>7</sup>. The fact that a person is terminally ill is not, in itself, sufficient cause for suicide. As with other suicidal acts, there is generally considerable ambivalence on the part of the suicidal person, despite the terminal illness. Depression caused by social isolation and the strain of being terminally ill may be diminished by appropriate psychotherapeutic interventions, and by the support of family, friends, and the community<sup>7</sup>.

### **C. High-Risk Groups**

#### *Adolescents and Young Adults*

Suicide is a leading cause of death for young adults - it is among the top three causes of death in the population aged 15-34 years. This represents a massive loss to societies of young persons in their productive years of life<sup>14</sup>. Suicidal thinking or parasuicide among adolescents was usually linked to the presence of conduct or emotional disorder and somatization. Family dysfunction and parental arrests were two variables independently related to suicidality<sup>7</sup>. An important subgroup of suicidal youth consists of well-behaved, anxious, perfectionist youngsters who cope poorly with change. However, the majority of suicides occur in depressed and/or substance abusing youngsters, often with a seemingly trivial humiliation as a precipitating factor<sup>7</sup>.

For young adult males, relevant factors might include a range of stressors associated with the transition to adult roles and relationships (higher education, work, marriage, etc.), the timing of the onset of mental disorders (notably schizophrenia), and adults' easier access to alcohol and drugs. The publicizing suicides of well-known persons may also create clusters of suicide amongst the youth<sup>7</sup>.

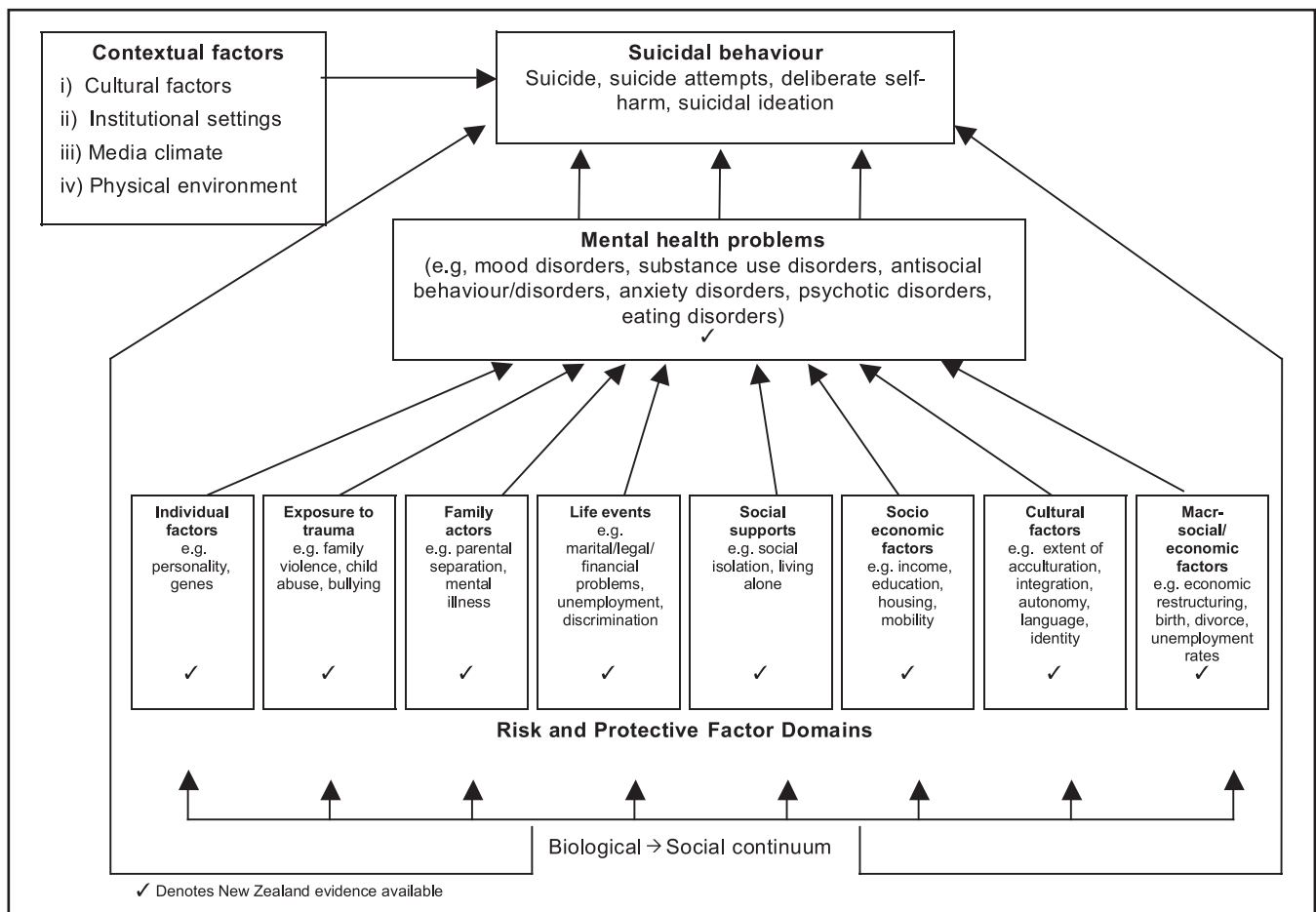


Fig. 1: Pathways to Suicidal Behaviour<sup>1</sup>

#### Late Middle-aged and Elderly Persons

Late middle-aged and elderly persons have consistently had high suicide rates. Medical advances have extended the lifespan of the very old, but their quality of life has yet to catch up with this increased longevity. Suggested risk factors for suicide among seniors are generally similar to those for other groups, and include unemployment, isolation, poor health, pain, depression, alcoholism, low self-esteem, feeling rejected, a history of mental illness, and previous suicide attempts<sup>7</sup>. Loss is the major theme in suicide among the elderly - loss of companions, of health, of mobility, of usefulness to others, and of independence<sup>7</sup>.

However, preventive measures have shown results in developed countries. These measures include ensuring that seniors have continued social support, valued social roles, and an adequate quality of life (for example, appropriate housing)<sup>7</sup>.

#### Persons in Custody

Persons in custody constitute another high-risk group, which is about 4<sup>7</sup> to 10 times<sup>15</sup> higher than the general populace. Inmate suicide was more common among males and showed; that being single, separated, divorced or widowed appeared to be a risk factor; that hanging was the most common method; that a previous history of psychiatric hospitalization or outpatient psychiatric treatment was common; and that a high proportion of persons who committed suicide had made

an attempt within the previous year. In the majority of cases the suicide occurred in the prisoner's own cell. History of alcohol abuse or drug abuse featured in half to two third of cases. The remand period or the first six months after sentencing represent a high-risk period. There was a moderate association between violent or weapons-related offences and suicide. However, the most studies do not report any comparisons between the suicides and the general prison population, making it difficult to judge the predictive value of the characteristics being highlighted<sup>7</sup>.

#### Parasuicide as a Risk Factor

Parasuicide (non-lethal suicidal behaviour, commonly referred to as "attempted suicide") occurs most frequently in young persons, particularly females. Long-term follow-up studies by Sakinofsky *et al.*<sup>16</sup> found that 10 to 13% of parasuicides ultimately take their lives.

Beautrais had summarized the factors that led to suicidal behaviour based on studies done in New Zealand, as shown in Figure 1.

#### OBJECTIVE

The National Suicide Registry Malaysia (NSRM) aims to:

1. Determine the prevalence of suicide in Malaysia.
2. Determine the factors that are associated with suicide i.e. demographics, social factors and risk factors (psychiatric illness, physical illness, and life events) as outlined above.

3. Identify methods of suicide and special circumstances of suicidal acts i.e. homicide-suicide and suicide pacts.
4. Outline the strategy for intervention, promotion and prevention based on the above findings.

Data from this project will provide more accurate statistics on suicide in Malaysia. This is important for health prioritizing and identifying of areas which health providers should focus on.

#### **MATERIALS AND METHODS**

- Study Design: Data collection will be done in a prospective manner.
- Subjects and sampling: All cases of sudden or 'non-natural' deaths handled by all public-based hospitals in Malaysia.
- Inclusion criteria: The registry defines suicide as a death resulting from intentional use of physical force or power against oneself with a preponderance of evidence indicating that the use of force was intentional. This will be based on a post-mortem examination of the dead body and other supporting features and will be coded according to the International Statistical Classification of Diseases and Related Health Problems version 10 (ICD-10). Codes for fatal intentional self-harm are covered in Chapter XX – External Causes of Mortality and Morbidity (X60-X84)<sup>17</sup>.
- Instrument: Mixed mode; an online- and paper-based Case Report Forms (CRF). The technical committee reviewed the literature and collected views of prospective participants before determining the final design of the CRF. The committee also prepared an instruction manual (hard and soft copies) alongside the CRF to ensure systematic and efficient data collection. With due regard to the sensitive nature of data acquisition, a specific chapter was specifically dedicated to techniques for interviewing grieving family members<sup>18</sup>. Regional and national-level training will also be carried out to enhance the competence and capability of officers involved in this project. For more detailed information on the variables, kindly visit our website at [www.nsr.gov.my](http://www.nsr.gov.my) (will be available from 20 April 2008 onwards).

#### *Data Flow Process*

The registry will be coordinated at the central data management centre i.e. the Suicide Registry Unit (SRU). However, this will depend on separate data collection efforts in each state coordinated by the State Forensic Pathologists' office.

All hospitals that are identified as Source Data Providers (SDPs) will develop an alert system to identify cases. Data will be collected via interviews with the family members or significant others or police; and review of medical records or other official documents. The relevant variables will be recorded in the paper-based CRF with carbon copy.

These CRFs will be sent to the State Forensic Pathologist's office and subsequently submitted via a web-based CRF by the State Coordinator to the Suicide Registry Unit. The web application will allow the respective SDP to securely upload data as well as to download confidential communication when required. A verification process by the State Forensic

Pathologist have been put in place to ensure that the diagnosis of intentional self-harm/ poisoning has been justified.

The Registry Manager based in the SRU will track data returns and prompt State Coordinators to submit data whenever they fall behind schedule in reporting. The original paper-based CRF will be collected by the SRU later for archiving and data cleaning purposes; while carbon copies will be retained and archived by the State Forensic Pathologist office. Strict data protection procedures will be put in place, following standard disease registration practices, and in compliance with applicable regulatory guidelines.

#### *Progress*

In 2007, efforts were mostly focused on finalizing instruments, training of SDPs, and developing a viable web-based system. Training was carried out regionally from April – June 2007. Data collection had been done manually beginning July 2007 and is still in the data cleaning process. Some of the difficulties in data collection identified were rapid staff turnovers (some of those already trained had been promoted and transferred elsewhere), lack of interview area, no informant available (in some cases) and limited resources in the forensics unit. For 2008, a national-level meeting has been scheduled to give feedback to the SDP and to expose them to the online registration system. The NSRM have also invited the universities to participate in this registry beginning this year.

Data will be reported in collapsed figures or trends, and will not give details of the individual. Real-time brief reports will be made available via the NSRM's official website [www.nsr.gov.my](http://www.nsr.gov.my), while more detailed queries will have to go through the advisory committee. Meanwhile, annual reports will be produced to give a clearer picture of national trends.

#### **CONCLUSION**

Suicide rates are a recognized health outcome indicator internationally<sup>14</sup>. This project will provide information on the natural history and causation of suicide; the contributing factors most amenable to preventive efforts; and the most appropriate target population(s). This information will aid in planning and place preventive efforts on a more solid foundation<sup>19</sup>. This registry will be able to provide both state- and national-level data.

Suicidal acts will incur medical costs which include emergency transport, medical, hospital, rehabilitation, pharmaceutical, ancillary, and related treatment costs, as well as funeral or coroner expenses for fatalities and administrative costs<sup>20</sup>. Better and evidence-based efforts at suicide prevention may be able to reduce suicide rates in Malaysia and allow the government or families to offset these costs. Apart from that, a structured investigation into the process of identification and reporting of non-natural deaths (specifically suicide) will assist in streamlining the management of dead bodies and ascertaining the manner of death. Indirectly it will also provide a training exercise for medical officers in reporting deaths by suicide.

The uniqueness of NSRM lies in its multidisciplinary platform. Although this presents some communication problems, it also offers advantages in the form of pooling of resources and expertise. After all, suicide is a very complex phenomenon. Being a registry, the NSRM might not be able to provide in-depth details about the causation of suicide. However, it would certainly identify trends and form the baseline for further research in this area.

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