Psychological autopsy studies – a review

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Summary – Psychological autopsy is one of the most valuable tools of research on completed suicide. The method involves collecting all available information on the deceased via structured interviews of family members, relatives or friends as well as attending health care personnel. In addition, information is collected from available health care and psychiatric records, other documents, and forensic examination. Thus a psychological autopsy synthesizes the information from multiple informants and records. The early generation of psychological autopsies established that more than 90% of completed suicides have suffered from usually co-morbid mental disorders, most of them mood disorders and/or substance use disorders. Furthermore, they revealed the remarkable undertreatment of these mental disorders, often despite contact with psychiatric or other health care services. More recent psychological autopsy studies have mostly used case-control designs, thus having been better able to estimate the role of various risk factors for suicide. The future psychological autopsy studies may be more focused on interactions between risk factors or risk factor domains, focused on some specific suicide populations of major interest for suicide prevention, or combined psychological autopsy methodology with biological measurements. © 2001 Éditions scientifiques et médicales Elsevier SAS

INTRODUCTION

‘Psychological autopsy’ refers to a research method by which comprehensive retrospective information is collected concerning victims of completed suicide. The aim of the procedure is to get as clear and accurate a view of the life situation, personality, mental health and possible treatment provided by health care facilities preceding suicide as possible. This process faces some unavoidable methodological problems, but can usually be undertaken, and offers some unique insights into the process of suicide [14, 19]. By now, more than 20 major psychological autopsy projects have been carried out in diverse countries and cultures – in North America, Europe, Australia and New Zealand, Israel, Taiwan and India, with a number of further major projects ongoing in various settings. Thus we currently have an accumulating global base of information about the pathways to suicide, the characteristics of the victims, and some common problems in preventing suicide that these life histories reveal. The present paper reviews the history, methodology, and some relevant findings from these studies.

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Some researchers of self-destructive behaviour had actually investigated suicides already in the 1920s in Paris and the 1930s in New York by collecting information about a victim from various available sources [14, 32]. However, the first modern psychological autopsy study of consecutive suicides was conducted by Eli Robins and his colleagues in the Washington University in St. Louis, MO, USA, in 1956–57 [32]. They carefully investigated 134 consecutive suicides during a period of 1 year. Their findings were replicated by Dorpat and Ripley in a second study in the Seattle area a few years later [16]. At the same time, Robert Litman, Norman Farberow and Edwin Schneidman at the Los Angeles Suicide Prevention Center (LASPC) had developed a method to help the medical examiner’s office to decide whether a deceased had completed suicide or died accidentally; Edwin Schneidman has been credited for coining the term ‘psychological autopsy’ [14]. However, although the LASPC group was very influential in many ways, their focus was largely in classifying causes of death. For the future psychological autopsies the work by Robins et al. [32] was a more important model, as it deliberately investigated suicides, involved standardised interviews of the next of kin, and examined all consecutive suicides in a defined catchment area.

The first European psychological autopsy study was conducted by Barracough and coworkers in West Sussex and Portsmouth in England in 1966–69, carefully examining 100 consecutive suicides [5]. Since then, several psychological autopsy studies have been conducted in a number of countries in Europe, North America, Australia and New Zealand, Israel, Taiwan and India. Studies published by the end of year 2000 [1-6, 8, 9, 12, 13, 15, 16, 18, 21, 25, 28, 31-36, 38] have been listed in Table I (for brevity, only one key reference is made for each project). Overall, the findings from these studies are highly convergent irrespective of culture, and provide an accumulating base of information concerning the factors related to suicide. However, there are still few studies that include rural suicides or elderly victims, and too few studies conducted outside Western or Northern Europe, the USA, or Canada.

The first generation of these studies were uncontrolled, descriptive studies of consecutive suicide cases. As such, they provided valuable first insights into the

### Table I. The psychological autopsy studies of unselected general population suicides.

<table>
<thead>
<tr>
<th>Study [ref]</th>
<th>N</th>
<th>Sample</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robins et al., 1959 [32]</td>
<td>134</td>
<td>unselected</td>
<td>USA</td>
</tr>
<tr>
<td>Dorpat and Ripley, 1960 [16]</td>
<td>114</td>
<td>unselected</td>
<td>USA</td>
</tr>
<tr>
<td>Barracough et al., 1974 [5]</td>
<td>100</td>
<td>unselected</td>
<td>UK</td>
</tr>
<tr>
<td>Chynoweth et al., 1980 [13]</td>
<td>135</td>
<td>unselected</td>
<td>Australia</td>
</tr>
<tr>
<td>Mitterauer, 1981 [28]</td>
<td>145</td>
<td>unselected</td>
<td>Austria</td>
</tr>
<tr>
<td>Shafii et al., 1985 [35]</td>
<td>21</td>
<td>adolescent</td>
<td>USA</td>
</tr>
<tr>
<td>Rich et al., 1986 [31]</td>
<td>283</td>
<td>unselected</td>
<td>USA</td>
</tr>
<tr>
<td>Arato et al., 1988 [3]</td>
<td>200</td>
<td>unselected</td>
<td>Hungary</td>
</tr>
<tr>
<td>Brent et al., 1988 [8]</td>
<td>67</td>
<td>adolescent</td>
<td>USA</td>
</tr>
<tr>
<td>Runeson, 1989 [33]</td>
<td>58</td>
<td>adolescent</td>
<td>Sweden</td>
</tr>
<tr>
<td>Conwell et al., 1991 [15]</td>
<td>141</td>
<td>elderly</td>
<td>USA</td>
</tr>
<tr>
<td>Apter et al., 1991 [2]</td>
<td>43</td>
<td>young male</td>
<td>Israel</td>
</tr>
<tr>
<td>The National Suicide Prevention Project in Finland [21]</td>
<td>1397</td>
<td>unselected</td>
<td>Finland</td>
</tr>
<tr>
<td>Lesage et al., 1994 [25]</td>
<td>75</td>
<td>young male</td>
<td>Canada</td>
</tr>
<tr>
<td>Cheng, 1995 [12]</td>
<td>116</td>
<td>unselected</td>
<td>Taiwan</td>
</tr>
<tr>
<td>Shaffer et al., 1996 [34]</td>
<td>119</td>
<td>adolescent</td>
<td>USA</td>
</tr>
<tr>
<td>Foster, 1997 [18]</td>
<td>117</td>
<td>unselected</td>
<td>UK (N. Ireland)</td>
</tr>
<tr>
<td>Waern et al., 1999 [38]</td>
<td>85</td>
<td>elderly</td>
<td>Sweden</td>
</tr>
<tr>
<td>Appleby et al., 1999 [1]</td>
<td>84</td>
<td>young adult</td>
<td>UK</td>
</tr>
<tr>
<td>Vijayakummar and Rajkumar, 1999 [36]</td>
<td>100</td>
<td>unselected</td>
<td>India</td>
</tr>
<tr>
<td>Cavanagh et al., 1999 [9]</td>
<td>45</td>
<td>unselected</td>
<td>UK (Scotland)</td>
</tr>
</tbody>
</table>

**HISTORY OF THE PSYCHOLOGICAL AUTOPSY METHOD**

Some researchers of self-destructive behaviour had actually investigated suicides already in the 1920s in Paris and the 1930s in New York by collecting information about a victim from various available sources [14, 32]. However, the first modern psychological autopsy study of consecutive suicides was conducted by Eli Robins and his colleagues in the Washington University in St. Louis, MO, USA, in 1956–57 [32]. They carefully investigated 134 consecutive suicides during a period of 1 year. Their findings were replicated by Dorpat and Ripley in a second study in the Seattle area a few years later [16]. At the same time, Robert Litman, Norman Farberow and Edwin Schneidman at the Los Angeles Suicide Prevention Center (LASPC) had developed a method to help the medical examiner’s office to decide whether a deceased had completed suicide or died accidentally; Edwin Schneidman has been credited for coining the term ‘psychological autopsy’ [14]. However, although the LASPC group was very influential in many ways, their focus was largely in classifying causes of death. For the future psychological autopsies the work by Robins et al. [32] was a more important model, as it deliberately investigated suicides, involved standardised interviews of the next of kin, and examined all consecutive suicides in a defined catchment area.

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The first generation of these studies were uncontrolled, descriptive studies of consecutive suicide cases. As such, they provided valuable first insights into the
nature of fatal suicidal behaviour, but also had some methodological limitations. During the last decade a second generation of psychological autopsies has emerged. Such studies (e.g., [1, 12, 18, 25, 34, 36]) have mostly applied a case-control design, had their living control subjects drawn from a representative general population sample, and used standardised interviews to ascertain mental disorders and their co-morbidity, among both their cases and their controls.

THE PSYCHOLOGICAL AUTOPSY METHODOLOGY

General features

The psychological autopsy procedure has two main elements, 1) extensive interviews of family members and other close intimates; and 2) collecting all possible medical, psychiatric and other relevant documents of the deceased. A typical psychological autopsy has one or two main informants, e.g., a spouse, partner, parent or adult child, or other next of kin, and often another informant representing the attending health care personnel. In addition, other informants, including other next of kin, friends, or attending personnel may also be interviewed. An excellent practically oriented methodological review of psychological autopsy, particularly useful for researchers within the United Kingdom, has recently been published by Hawton et al. [19]. In the following, the methodology of the research phase of the National Suicide Prevention Project in Finland in 1987–88, the largest psychological autopsy project undertaken, is described in more detail in order to illustrate a psychological autopsy procedure.

The psychological autopsy procedure of the research phase of the National Suicide Prevention Project in Finland

The National Suicide Prevention Project was set up by the Finnish National Board of Health in 1986, and its explicated aim was to reduce suicide mortality in Finland. During the research phase of the project, all suicides committed in Finland between April 1, 1987 and March 31, 1988 (N = 1397) were carefully recorded and analysed using the psychological autopsy method.

The definition of suicide was based on the Finnish law for determining causes of death – in every case of violent, sudden or unexpected death the possibility of suicide is assessed by police and medicolegal investigations involving autopsy and forensic examinations. For the 12-month duration of the research phase of the project this data gathering was more detailed than usual. Data concerning victims classified as suicides in forensic examination were collected via comprehensive interviews with the relatives and attending health care personnel, from psychiatric, medical and social agency records, and from suicide notes. The interviews were conducted by all together 245 mental health professionals, about half (47%) of whom were psychologists, the remaining being mostly psychiatric nurses (27%), social workers (15%), or physicians (8%). The interview forms were planned for the project, and the professionals were trained in their use. Four types of interview were conducted:

– 1) Face-to-face interviews of family members were usually conducted in their homes, with informed consent obtained beforehand. The interview was usually undertaken about 4 months after the suicide, and had a mean duration of 2 hours and 45 minutes. The structured interview forms contained 234 items concerning the victim’s everyday life and behaviour, family factors, use of alcohol and other drugs, previous suicidality, help-seeking and recent life events. This interview could be undertaken in 1155 (83%) of the 1397 suicide cases;

– 2) Health care professionals who had attended the victim during the previous 12 months were interviewed face-to-face with a structured form containing 113 items about the victim’s state of health, treatment in the health care system, psychosocial stressors and level of functioning; this interview was conducted in 612 (43.8%) of the cases. In the remaining cases, there usually were so few health care contacts that no professional who would have known the deceased well was available;

– 3) The last contact with health or social agency professionals was separately evaluated by interviewing the attending person either face-to-face or by telephone with a semi-structured interview containing eight items. This was undertaken in 860 (61.6%) of the cases; and

– 4) Additional unstructured interviews were made by telephone if needed. These informants could include other relatives, friends, or other intimates.

Information was also taken from death certificates (100%), psychiatric and medical records (1129 [80.8%] of the cases), police and forensic reports (99.9%), suicide notes (left by 389 [27.8%] of the cases), and other available records on the cases. A multidisciplinary team discussed all the cases, and comprehensive case reports
were written on the basis of all information available [21, 24, 27].

Investigating mental disorders as a part of the psychological autopsy

Almost all psychological autopsy studies have investigated mental disorders of suicide victims as a part of their study design. This necessitates both collecting information from various attending treatment facilities as well as interviewing the attending personnel and the next of kin by using structured interview methods. At present most studies apply structured interviews available for clinical research. It is essential that if personality disorders are to be investigated, the focus is not exclusively in victims’ behaviour during the final months. Integrating information from several sources is desirable as, e.g., parents of adolescent are not always aware of the substance use problems their offspring may have had.

In the National Suicide Prevention Project in Finland, the mental disorders of suicide victims were examined in a diagnostic study of a non-stratified random sample of 229 (16.4%) of the total 1397 suicides. The retrospective diagnostic evaluation of the cases according to DSM-III-R criteria, weighing and integrating all available information, took place in two phases [21]. First, two pairs of psychiatrists independently made provisional best estimate diagnoses, the reliability of which was tested; second, all cases involving any diagnostic disagreement were reanalysed with a third psychiatrist to achieve consensus for the final best estimate diagnoses. The reliability achieved ranged from moderate to excellent (kappa 0.52 to 0.94) [21]. However, some smaller psychological autopsy studies in which the information is collected and diagnoses assigned by only a few interviewers and diagnosticians, have reported excellent reliability (kappa 0.80–1.00) in virtually all diagnostic categories (e.g., [10-12, 17, 25]). Having fewer interviewers and diagnosticians likely reduces methodological error variance, and results in higher reliability.

Overall, the more than 20 major psychological autopsy projects have documented that with rare exceptions, the presence of a mental disorder is a necessary, although not a sufficient condition for a completed suicide to occur. The findings of these studies are summarised in Table II. The two most prevalent categories of mental disorders among completed suicides are mood disorders and substance use disorders. Furthermore, co-morbidity of mental disorders seems to be the rule [1, 11, 17, 18, 21, 36]. The second-generation controlled psychological autopsies have confirmed the remarkable impact of concurrent mood and substance use [12] or mood and personality disorders [17] in multiplying the risk for suicide.

Control cases

The choice of an appropriate control group has been debated during the evolution of the method. Ultimately the type of control subject is determined by the hypotheses tested. As most researchers have been looking for risk factors for suicide as compared with the general population using a case-control design, a natural choice may be age- and gender-matched control cases. However, it is difficult to exclude biases introduced by the fact that the cases are deceased whereas the controls are not. Ideally, information on the living controls should be obtained from their next of kin in order to avoid information bias. How high a proportion of the eligible controls consent to this is another matter. Living psychiatric control cases might be the choice when investigating possible specific risk factors that operate in the selected high-risk populations, as the risk factors for completed suicide often are factors selecting patients to be referred to psychiatrists, and do not necessarily help in differentiating between high and low risk within a high-risk population.

Some authors have advocated use of controls matched for bereavement, such as victims of traffic accidents or other causes of death. While similarity in terms of bereavement is an obvious advantage, a problem is that victims of traffic accidents are unlikely to represent a random sample of the general population. Overall, the choice of controls depends on the scientific question the researchers attempt to answer [19].

Table II. The prevalence of mental disorders preceding suicide in the psychological autopsy studies.

<table>
<thead>
<tr>
<th>Mental disorder</th>
<th>Range of current prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depressive disorders</td>
<td>30–90%</td>
</tr>
<tr>
<td>Bipolar disorder</td>
<td>0–23%</td>
</tr>
<tr>
<td>Schizophrenia</td>
<td>2–12%</td>
</tr>
<tr>
<td>Alcohol dependence/abuse</td>
<td>15–56%</td>
</tr>
<tr>
<td>Personality disorders</td>
<td>0–57%</td>
</tr>
<tr>
<td>Any mental disorder</td>
<td>81–100%</td>
</tr>
</tbody>
</table>

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Ethical considerations

Ethical questions are particularly important when interviewing subjects who have recently lost their family member in often traumatic, anxiety- and guilt-provoking, sometimes chaotic conditions. The psychological autopsy is usually conducted between 3 to 12 months after the occurrence of suicide, in order to permit time for bereavement.

It is common practice to approach the interviewee first by a letter and then via telephone. The interviewees are to be fully informed about the study, and can only be interviewed if they give informed consent to participate, and have full right to refuse at any point in time. The integrity of the deceased is to be respected. This may sometimes be difficult when, e.g., the deceased suffered from personality pathology or abused substances; however, even then can research questions be formulated in a respectful and understanding manner, rather pointing out the ultimate suffering of both the victim and the next of kin.

Psychological autopsy researchers usually find that the family members actually find the research interview relieving rather than stressful. If needed, any next of kin needing further psychological support or psychiatric treatment should be helped to get in contact with the respective facilities.

Psychological autopsy and suicide prevention

Communication of suicide intent

Communication of suicide intent is an obvious sign of suicide risk, although its absence is by no means a guarantee of no risk. Suicide communication has been a focus of investigation in almost all psychological autopsy studies. However, precisely what constitutes ‘communication of suicide intent’ is far from equivocal, and the range of victims who reportedly communicated their intent varies therefore widely. If only very explicit statements of intent are included, then it appears that about one-third to one-half of all victims have communicated their intent to family members, and a roughly similar proportion (but not necessarily the same subjects) to health care professionals during the final few months.

One of the reasons why suicides seem so commonly to occur as a surprise is that in completed suicides, communication of intent is not very common tempo-

rally close to the act. This may perhaps be because of a deliberate decision not to let anyone intervene, ambivalence concerning the subject, or hopelessness. For example, of those 100 suicides having met a health care professional the very day of suicide in Finland in 1987-88, only 21% had communicated their intent.

Thus the pathway leading to a completed suicide does not usually include telling about the intent to someone during the final days. If the subject had been ambivalent of the decision and sought help by contacting a professional, then this help-seeking had failed.

Recovery of health care contracts

A contact with health care facilities is a necessary prerequisite for health care to intervene in preventing suicide. Thus investigating whether subjects who complete suicide have been in any contact with health care preceding suicide is important in order to estimate the potentials of health care interventions. Overall it seems that about half of the eventual suicides have been in contact with various health care settings during their final month. The data on health care contacts preceding suicide recently has been systematically reviewed.

Specific treatment received for mental disorders

Overall 30–90% of all suicides have suffered from depressive disorders preceding the fatal act. Major depression is the most important single mental disorder related to suicide risk, so it is pertinent to investigate how depression was treated before suicide. The psychological autopsy literature concerning adult suicides has been convergent in documenting that the vast majority of these have received no specific treatment for depression, and if they have, it seems usually to have been inadequate. Only about one-third have received antidepressant therapy, and very few regular psychotherapy, or ECT. If strict criteria are used to define adequate treatment, almost all suicides in major depression seem to have occurred in untreated or undertreated cases. For suicide prevention the need to improve the quality of care and continuous follow-up in the treatment of major depression has seemed evident. However, the high likelihood of various types of psychiatric and somatopsychiatric co-morbidity, a variable period (up to almost 30 years) between first psychiatric contacts and completed suicide, and the common lack
of communication of suicidal intent to health care professionals revealed by these studies unavoidably complicate this task.

This prevailing view of non- or undertreatment has recently been challenged by a study suggesting that a considerable proportion of elderly suicides in the Gothenburg area in Sweden in 1994 to 1996 had actually been more adequately treated before completed suicide. This might reflect increasing awareness of depression and suicide risk among physicians during the early 90s, and improving treatment of depression among elderly in the general population. It may also suggest limitations in the potential to prevent suicides by improving the treatment of depression. A major question – besides replication – is whether these findings concerning elderly suicides can be generalised to other age groups. A psychological autopsy study of subjects completing suicide during lithium treatment suggested that poor compliance with the treatment may be a major obstacle for suicide prevention. Thus, mere provision of treatment is unlikely to be successful.

The findings concerning the treatment received have been quite similar also regarding other mental disorders. Subjects with substance use disorders seem to have rarely received any specific treatment for their disorder, even if they had been in contact with health care. Also, in suicides among subjects with schizophrenia undertreatment may be a contributing factor. However, whether any psychiatric treatment actually is effective in reducing suicide mortality remains unknown. Study of completed suicides can only help in generating reasonable hypotheses, and raising awareness of quality of care problems.

THE FUTURE OF PSYCHOLOGICAL AUTOPSY

Given the number of psychological autopsies already published, future psychological autopsies should be more carefully targeted into high-risk groups and questions relevant for suicide prevention, such as the treatment they received as compared with other patients. Due to its multifactorial etiology, integrating different domains of risk factors is likely to further advance understanding of suicide. The studies which combine psychiatric and psychosocial domains of risk factors in psychological autopsy (e.g., [10, 17]), or in which it has been used in investigating family history of suicidal behaviour [21] or in a postmortem autoradiographical 5-HTT binding study [26] are excellent examples of seminal applications of psychological autopsy.

REFERENCES


