

# **FROM EPIDEMIOLOGY TO PSYCHOLOGICAL AUTOPSIES: AN EVALUATION OF THE FEATURES OF SUICIDE IN THE ELDERLY POPULATION OF A HIGH-RISK PROVINCE.**

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## *Summary*

Among the industrialized countries the suicide is one of the main ten causes of death among the subjects aged 65 and more.

In this paper we summarise both the results of one recent study of us and the findings from the international literature on the topic of suicide epidemiology and prevention in the elderly.

The information was collected through the analysis of the data kept at the Republic Procuration of the two provinces and through the methods of psychopathological autopsies made on elderly patients who committed suicide, who had been treated at the Psychiatric Clinic of the University of Eastern Piedmont.

The importance of the psychiatric, organic, neurocognitive and psychosocial evaluation in prevention of suicidal behaviour in the elderly was discussed.

## *Key Words:*

suicide, elderly, prevention

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## **Introduction**

Suicide is one of the ten principal causes of death among the elderly in industrialised countries (Murray et al, 1996). Population studies show that suicide rates among subjects aged  $\geq 65$  years are higher than in other age groups, and increase with increasing age (De Leo et al, 2001; Shah et al, 2002; Turvey et al, 2002). The WHO has recently underlined the importance of considering suicide in local contexts with the aim of improving our understanding of the problem and increasing the possibilities of prevention (The world health report 2001 - Mental Health: New Understanding, New Hope. WHO online edition 2005).

In a recent study (Zeppegno et al, 2005), we compared suicidal behaviours in elderly subjects aged  $\geq 65$  years resident in two adjacent provinces of Northern Italy. In the analysed eleven-year time span 184 suicides were committed by people aged 65 and over. Risk factor analysis showed that the risk of suicide was greater among the unmarried inhabitants of the mountain province aged more than 74 years (suicide rate 66.06 per 100,000 inhabitants among males, and 20.18 among females) without any significant differences between genders (M/F ratio = 1.46/1). It also highlighted the importance of social isolation, psychiatric disorders, and chronic, disabling organic diseases. The aim of this study is to focus on those subjects who committed suicide, which had been previously treated at the Psychiatric Clinic of the University of Eastern Piedmont (UPO).

## **Methods**

This study was realized both through the analysis of the data kept at the Court archives in Novara and Verbania (Torre et al, 1999; Torre et al, 2001), and the methods of psychopathological autopsies made on patients who committed suicide, who had been treated at the Psychiatric Clinic of the UPO. From 45 files all the cases of suicide and violent death notified to the Court and was analysed in order to identify all the cases of suicide occurred in

the two provinces between 1990 and 2000. People aged 65 and over were selected among all the cases of suicide filed by the two Courts.

The provinces of Novara and Verbania are two bordering territories of Northern Italy with different socio-demographic and geographical characteristics. Verbania is a mainly mountainous province and has a low population density of 70.5 inhabitants/km<sup>2</sup>, whereas Novara mainly consists of flat land with a high concentration of agricultural and industrial areas, and has a population density of 256.2 inhabitants/km<sup>2</sup> (ISTAT, 2001).

SMRs (Standardized Mortality Ratios) analysis with confidential intervals (c.i. 95%) was used to evaluate the significance of the differences between the rates observed in our population and those observed in North West Italy in the same period (ISTAT, 1990-2000).

The data so obtained were analysed and processed in order to evaluate frequencies and contingency tables; Chi-square test was applied to compare the different outcomes. The Mantel-Hanszel test was used in order to evaluate the suicide trend. The statistical significance was reached only if the p value was <0.05.

## **Results**

Among the 184 cases of suicide notified to the Courts the Psychiatric Clinic of the UPO had treated 38 subjects (20.65%) before their death. 26 males (68.4%) and 12 females (31.6%) had at least one hospitalisation at the Psychiatric clinic of the UPO. The mean number of hospitalisations is 1.74 (Standard deviation  $\pm$  0.83) and 20 subjects (52.6%) had more than one hospitalisation.

The Mantel-Hanszel analysis of the trend shows no significant trend during the examined time-span ( $p > 0.05$ ) (Figure I).

| Figure I. Suicide trend.

The characteristics of the sample are summarised in table I, II, III. IV.

Table I. Sociodemographic characteristics of the sample.

Table II. Suicide methods.

Table III. Suicide related factors

Table IV. DSM-IV-TR diagnosis.

Only 5 patients (13.2%) had previously attempted suicide. No woman who finally committed suicide had ever attempted suicide before. The most of the patients (84.2%) committed suicide at least after one month after the discharge from the Psychiatric Clinic of the UPO; the 37.5% of them even after at least one-year. Among those who committed suicide in the month after discharge the 83.3% of suicides (5 patients) had been ascribed to psychiatric factors and the remaining 16.7 % (1 patient) to economic troubles. Most of the patients (80%) who had been diagnosed addiction committed suicide in the three months following the discharge, while among those who had been diagnosed anxiety disorders the 71.4% committed suicide more than three months after the discharge. No significant difference was found among those suffering schizophrenia or mood disorders.

The Mental Health Services took in charge 29 patients (76.3%) after the hospitalisation; 7 patients (18.4%) had been taken in charge by private psychiatrists. All those patients who refused to be taken in charge by psychiatrists committed suicide in the three months following the discharge.

## **Discussion**

An attempt at suicide by an elderly person is not an impulsive gesture but a premeditated act

(Leenars, 1992), which explains why most attempts actually have a fatal outcome. It is well known that decisions to harm oneself are conditioned by various factors: the availability and accessibility of the means, the influence of imitation, society's collective image of the different means and the degree of conscious or unconscious intention underlying the choice. Elderly men and women both use generally more violent means to commit suicide than people in other age groups, and we found that more than 75% of the cases analysed by us involved highly lethal methods such as hanging, precipitation, drowning and the use of firearms. The greater lethality of the chosen method not only means that failed attempts are rare, but also precisely reflects the intentional nature of the act. However, it is also true that the characteristic frailty of the elderly makes it less likely that they can survive any physical insult, and the fact that less lethal means are often sufficient for the purpose should not be underestimated.

Although the development of suicidal ideation and the implementation of self-harming actions is due to various causes occurring at different times in an individual's personal history and makes it impossible to draw generalised conclusions concerning the genesis of suicidal behaviours, we believe that it is worth discussing a number of aspects in some detail.

Depressive disease is rarely recognised in the elderly, particularly because of its anomalous presentation (frequently masked depression). Elderly subjects verbalise their disorders more rarely and use their bodies to express their malaise. Furthermore, in addition to its somatic manifestations, depression in the elderly is often also associated with symptoms of anxiety (Reynolds, 1995). One study by Richardson et al. (Richardson et al, 1989) has shown that the key symptoms leading to a greater risk of suicide in the elderly include persistent insomnia, marked feelings of guilt and inadequacy, hypochondriac deliria, psychomotor agitation, and a sense of desperation. These characteristics not only make it difficult to diagnose depression, but also hinder the differential diagnosis of dementia and depression. Particular care is

necessary in the case of depressive pseudo-dementia, which is similar to dementia but without its gross behavioural disorders, and there is a considerable difference between the clinical picture and cognitive test scores, which are never such as to indicate severe dementia. On the other hand, it is difficult to make a differential diagnosis between depressive pseudo-dementia and initial cognitive decline.

Another aspect worthy of discussion is that of psychiatric comorbidity. DSM-IV-TR and the previous editions identify a particular diagnostic category called “Mood Disorder due to a general medical condition”, whose essential characteristic is a substantial and persistent alteration in mood that is considered to be due to the direct physiological effects of a general medical condition (DSM-IV-TR, 2002). Unlike Major Depressive Disorder, Mood Disorder due to a general medical condition, with depressive manifestations, seems to be equally distributed between the sexes (Isometsa, 2005). The frequency of suicide depends on the general medical condition: chronic, untreatable and painful conditions (cancer, spinal lesions, peptic ulcer, Huntington’s disease, AIDS, end-stage renal disease, cranial lesions) lead to a higher risk of suicide, but other organic disorders requiring attention are cardiovascular and endocrine diseases, Parkinson’s disease, and stroke. It is also essential to make differential diagnosis between these disorders and Disorders of Adaptation to a recent (<3 months) physical disease.

Mood Disorder induced by substances is also frequent in the elderly. The drugs that have been identified in its etiopathogenesis include propranolol, diuretics, methyldopa, reserpine, clonidine, neuroleptics, barbiturates, benzodiazepines, steroids, opioid analgesics, indomethacin, digitalis, levodopa, flunarizine, amantadine, cimetidine, and the sulfamides. It is also possible to encounter Mood Disorder induced by substances during the course of alcoholism.

Particular attention should also be given to cognitive decline too. Studies based on

psychological autopsies (Chiu et al, 2004) have not yet been capable of precisely establishing the incidence of senile dementia among the elderly committing suicide. Furthermore, senile dementia is characterised by polymorphous symptoms that mainly depend on its aetiology and the location of the brain lesions. Limited awareness of the disease may play a protective role in some subjects, but there are many cases in which insight is preserved until the most advanced phases of the disease, and awareness of “pathological aging” and the experience of decreasing self-sufficiency can induce them to attempt suicide. It is also necessary to remember the forms that are associated with psychotic symptoms, and those that have a psychiatric and, particularly, depressive onset.

The effects of widowhood and mourning in general, indigence and poor social support on the elderly have been traditionally emphasised, and our study highlighted a further problem related to events of loss: in our sample, the majority of such events occurred more than six months before the suicide, both in the general and in the psychiatric population.

This may have two explanations. The first is a clinical explanation that leads us to hypothesise the need to consider a further diagnostic category of complicated mourning: an exacerbation of the depressive symptoms characterising the initial phases of normal mourning, which persist for more than six months after the death of a spouse. The second is a socio-environmental explanation: the intensive family and social support offered to subjects suffering the pain of mourning during the initial phases of the experience of loss gradually decreases over time, and the weakening of this supportive network leaves them in a situation of such marked solitude that they feel life no longer has any value and is therefore no longer worth living (Kolves et al, 2006).

Other stressing events involved in causing depressive states and self-injuring behaviours include retirement and a change of residence, particularly institutionalisation. Social isolation, which not only makes it difficult to ask for help and generates feelings of uselessness, the loss

of a social role and ineluctability, but also make it difficult to gain access to the services that can provide the necessary aid, has always been indicated as one of the factors characterising the situation of the elderly who commit suicide, together with feelings of solitude, helplessness and hopelessness (Zouk et al, 2006). In our study (Zeppegno et al, 2005), we found that social isolation was a risk factor for suicide in the mountainous province, where the presence of small villages that are often isolated or poorly served by public transport to the neighbouring towns limit personal social contacts, particularly in the case of subjects affected by any kind of disability. Furthermore, the closed and inward-looking nature typical of mountain communities makes it culturally more difficult to express psychological discomfort.

## **Conclusions**

Suicidal behaviour is due to the interaction of multiple factors, especially the possible presence of psychiatric or organic diseases, and the painful events of life. In a previous study (Zeppegno et al, 2005), based on the information provided by the Court archives, we found that most of the subject who committed suicide (about 60%) suffered by mood disorders. In this study emerged that only the 31.58% of the patients discharged by the Psychiatric Clinic of UPO suffered by mood disorders. This dissimilarity may be due to the fact that most of those patients had never been considered capable of suicide behaviour and suitable for a recovery.

Some patients who committed suicide had not been diagnosed a psychiatric but an organic disease at the discharge from the Psychiatric Clinic; this highlights the difficulties encountered in making a correct diagnosis in the elderly. These patients, in fact, were thought to have a psychiatric disease at the admission to the hospital.

Few patients had previously attempted suicide. The presence of a previous attempt of suicide is generally considered predictive of a potential suicide. It appears that this risk factor is less

significant in the elderly.

In the light of the highlighted risk factors, it is important to take careful and individualised responsibility for their elderly patients by means of regular contacts. This is particularly true if they have chronic, disabling diseases or have suffered events of loss, and should include neurocognitive assessments and the evaluation of depressive symptoms, bearing in mind that the clinical picture of elderly subjects is often blurred and accompanied by symptoms of anxiety or somatic symptoms. It is also essential to analyse the patients' needs, especially their social needs, paying particular attention to those who are not sufficiently supported by a family or social network.

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