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SUICIDE IN OLD AGE: AN INTERNATIONAL PERSPECTIVE

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Abstract

Suicide in the elderly is the product of many complex interactions among factors belonging to different domains. Trends of suicide in old age, with special concern on differences between countries and gender differences, are described. Factors most consistently associated with suicide in old age are also discussed. Among them is major depressive disorder as the strongest predictor of suicidal behaviour in old age. In addition, other psychopathology as well as behavioural and other personality characteristics, previous suicidal behaviour, factors that are particularly frequent in elderly attempters, physical illness, and life events are described. In most countries suicide trends in old age have been decreasing in recent decades. Due to the fact that potentially promising approaches to suicide prevention exist, there is a need for the investment in scientifically valid investigations to assess their efficacy.

Key words: suicide, elderly, suicide attempt, psychopathology, physical illness, life events

Izvleček

Samomor v starosti je posledica vzajemnega delovanja dejavnikov različnih področij. V prispevku so opisani trendi samomorilnega vedenja v starosti s posebnim poudarkom na razlikah med državami in spoloma. Opisani so tudi dejavniki, ki jih najpogosteje povezujejo s samomorom v starosti. Med njimi je, kot najpomembnejši dejavnik tveganja samomorilnega vedenja, depresija v starosti. Poleg tega je opredeljena tudi vloga ostalih duševnih motenj, vedenjskih in osebnostnih potez, predhodnega samomorilnega vedenja, najpogostejših dejavnikov pri samomorilnih poskusih, telesnih boleznih in življenjskih okoliščin. V večini držav se v zadnjih desetletjih zmanjšuje količina samomora v starosti.

Ker obstajajo možnosti za učinkovite preventivne pristope, je poudarjena vloga znanstveno veljavnih raziskav, ki bi dokazale učinkovitost različnih metod.

Ključne besede: samomor, starostniki, samomorilni poskus, psihopatologija, telesne bolezni, življenjske okoliščine

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INTRODUCTION

Suicide in old age is still exposed to controversies and misunderstandings. From one side, in fact, it is the object of idiosyncratic interpretations (eg, if subjects of advanced age are so close to their natural exit from life, why should they decide to hasten it?). From the other, the very answers to this question have fed a rationalistic view of elderly suicide that is widespread among community members: that self-killing may become an acceptable solution when facing the pains and miseries of old age (De Leo, 1988).

This common view is tragically reflected by the suicide note left by James Whale, a popular film director (*Frankenstein, The Invisible Man*), who died in 1957 at the age of 60. In his final message, he wrote: "The future is just old age and illness and pain. I must have peace and this is the only way."

Similarly logical/rational might seem the note left by George Eastman, the genial founder of Kodak, who gunshot himself at the age of 77 and wrote: "To my friends: My work is done. Why wait?"

Old age is a difficult period of life. Hopes and ideals have to be replaced by realism and concreteness, in order to better cope with the many challenges that characterise the days of most elderly persons. In addition, when ill, older adults may be difficult to treat: the frequency of co-morbidities and poly-pharmacy require an appropriate and specific training by medical professionals. Even their psychological problems seem difficult to manage. It is notorious, for example, that both Abraham (1949) and Fenichel (1951) were reluctant in acknowledging the fruitfulness of psychotherapeutic interventions with patients of advanced age.

Understanding elderly people (their world, needs, concerns, and expectations) may represent a too ambitious task for younger individuals. The American writer Philip Roth is far more resolute. In his beautiful novel *The Dying Animal* (2002), he writes: "No, you can't understand. The only thing you understand about the old when you are not old is that they have been stamped by their time. But understanding only that freezes them in their time, and so amounts to no understanding at all" (p. 36).

Suicidal behaviour clashes with the survival instinct. As such, suicide in old age is not dissimilar from suicide in other age groups. It elicits the same reactions, but –for what concerns older adults– with a few significant additions, mostly rooted in the culture of ageism: that suicide in the elderly is the product of a careful balancing of pros and cons; that is "rational"; that is understandable and, consequently, excusable (De Leo & Marietta, 1997).

When approaching the literature on elderly suicide, particularly from an international perspective, readers have to keep in mind that the available documents derive mostly from western scholars, generally of English mother-tongue. This constitutes a serious bias, which not only concerns the East and West of the world, but also countries of well established economies. This means that there are remarkable limitations to generalisations and shared interpretations. For example, even within the western world, there are important differences among the elderly people of Italy or Spain and their peers from UK or the USA. These differences have a certain impact on type and role of local risk factors for suicide; however, their extent has yet to be satisfactorily understood and surely would require more scientific attention than that received so far.

Although there appears to be substantial consensus – internationally – on the threshold of 65 years to define the beginning of old age, the improved conditions in quality of life, general health, and subsequent increased longevity today render less acceptable large aggregations of people of different age groups. This implies that individuals of 65–74 years of age should not be clustered with subjects of 85+ because the differences between them, just in terms of basic characteristics, are enormous.

In addition, it is well known that the differences in the ratio males/females change dramatically with the increasing of age, producing disproportionately higher rates in male subjects compared to their female counterparts (eg, De Leo & Heller, 2004). This suggests that some risk factors might be age-sensitive, particularly in males.

EPIDEMIOLOGY AND RISK FACTORS FOR SUICIDE IN OLD AGE

Although there is a considerable overlap between suicide risk factors in the elderly and other age groups, "late life suicide is characterised by less warning, higher lethality and greater prevalence of depression and physical illness" (Salib et al., 2005, p. 71).

Worldwide, the elderly have higher suicide rates than any other age group (De Leo et al., 2002a), with approximately 85 % taking their own lives on their first attempt (Howat & Davidson, 2002; Suominen et al., 2004).

Tab. 1: Estimated worldwide homicide and suicide rates

Age group	Homicide rate (per 100,000)		Suicide rate (per 100,000)	
	Males	Females	Males	Females
5-14	2.1	2.0	1.7	2.0
15-29	19.4	4.4	15.6	12.2
30-44	18.7	4.3	21.5	12.4
45-59	14.8	4.5	28.4	12.6
60+	13.0	4.5	44.9	22.1
Total	13.6	4.0	18.9	10.6

Age-standardised. Source: World Report on Violence and Health (WHO, 2002)

Epidemiological studies have revealed that while suicide is an universal phenomenon, it occurs at varying rates in different countries, thus providing strong evidence that social and cultural variables amplify any biological and psychological predisposition a person might have. Suicide is influenced by ecological and environmental characteristics, social fabric, individual predispositions and current circumstances. Causes for suicide are multifactorial, interlinked, cumulative, and often repetitive and progressive over a period of time. The impact of these factors stands on the pedestal of values, traditions and support systems for the individual (WHO/SEARO, 2001).

Unfortunately, the word "culture" elicits strong antibodies among many professionals, particularly in the medical domain. In fact, there are no manuals to categorise what "culture" represents in different contexts, no blood tests nor brain imaging techniques, and not even self-administered questionnaires. For obvious reasons, pharmaceutical companies are not particularly interested in funding research on cultural issues. Although the role of cultural factors in suicidal behaviours is of paramount importance, their studying is in its very early infancy. Clearly, to progress in this area, an integration of several different competencies is required.

Current trends in suicide rates disprove that ageing societies have increasing elderly suicide rates. On the contrary, looking at Fig. 1, it can be noticed that in most countries suicide trends have been decreasing in recent decades.

Fig. 1: Suicide rates among the elderly (65yr+), 32 selected countries

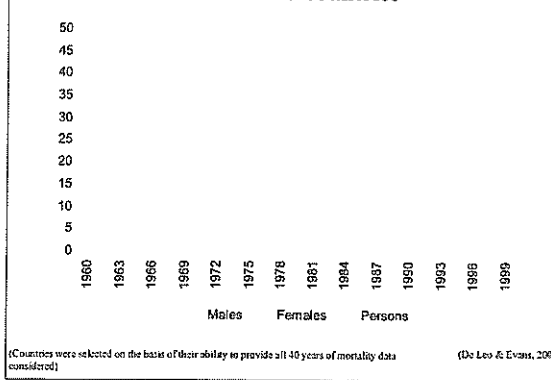


Fig. 2: Changes in age-specific global suicide rates among males, 1960-64 to 1995-99

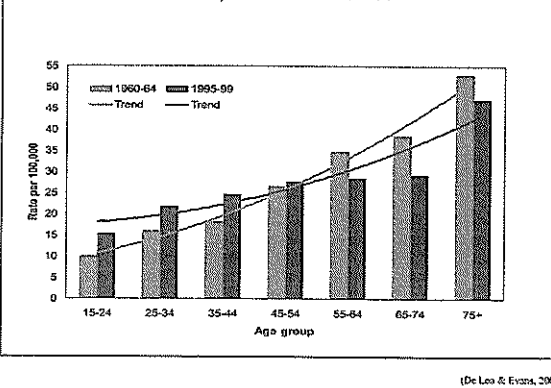
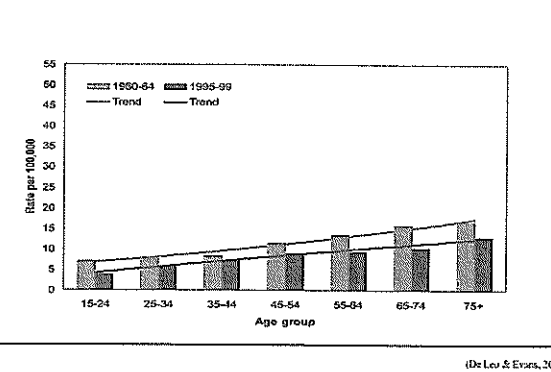


Fig. 3: Changes in age-specific global suicide rates among females, 1960-64 to 1995-99



In the last 30 years important differences have been observed in countries of different culture. In Anglo-Saxon countries (particularly USA, Australia and New Zealand) a decline of over 50% has taken place in elderly suicide rates, especially among white males. Explanations may be found in the development of elderly political and social activism, improved social services, changing attitudes towards retirement, increased economic security, and better psychiatric care. By contrast, the lack of a culture projected towards old age and specific services for older adults in Latin countries may account for the increase exhibited in suicide rates in a number of those countries. Moreover, the breakdown in traditional family structure may have provoked a significant decline in spontaneous sources of social support, in the absence of replacement by formal support or education on coping with age.

However, in global terms, compared to the '60s, there was a remarkable increase in youth and young adults suicide in males accompanied by a decrease in older adults, whilst in females there was a pretty generalised decline in all ages (Figs. 2 and 3).

The decline in elderly suicide might look as pretty paradoxical, since suicide rates have fallen among the elderly who, in general, have received no specific "anti-suicide" strategies, but only the improvement in health and social care available to the whole population. In addition, particularly in the western world public health, one witnessed emerging trends that could have an adverse

effect on elderly suicide rates. These included a generalised attitude at reducing hospital stays, a similarly general reduction in hospital resources (especially for geriatric patients), and the progressive affirming of right to end one's life movements.

Suicide does not constitute a major cause of mortality in old age. It still represents an unbearable tragedy, but in comparative terms, suicide in the elderly is not that top-ranking priority that it is in the 25-44 years old of both sexes, nor the second cause of death as in the youngest age group (15-24) (see Tab. 2). However, in some countries of the world its dimension may reach dramatic figures, as in the case of rural China, where men aged 75 and more have witnessed rates of 170/100,000 and women 104.4/100,000 (WHO, 2005; data based on selected samples) or in Hungary 162.7 and 48.5 per 100,000, respectively in men and women (WHO, 2005).

Tab. 2: Death attributed to selected causes in 32 countries, 2000

Cause	Males					Females				
	15-24	25-44	45-64	65+	All	15-24	25-44	45-64	65+	All
Motor Vehicle Accidents	28.4	10.2	1.8	0.4	1.8	24.7	6.2	1.3	0.2	0.7
Suicide	14.9	12.5	3.7	0.6	2.2	10.2	2.2	2.3	0.3	0.2
Homicide	10.7	4.9	0.6	0.1	0.7	5.7	2.5	0.3	0.0	0.2
Cerebrovascular Disease	0.8	2.6	5.4	9.6	8.0	1.8	4.1	6.8	12.7	11.4
Ischaemic Heart Disease	0.5	6.7	17.3	18.9	17.1	0.6	3.8	9.8	17.8	16.0
Influenza and Pneumonia	0.8	1.2	1.5	5.0	3.9	1.5	1.5	1.6	5.3	4.7
Diabetes Mellitus	0.2	1.3	2.8	2.3	2.2	0.6	1.9	4.1	2.8	2.9
Bronchus and Lung Cancer	0.1	2.0	10.2	7.4	7.3	0.2	2.9	8.4	3.0	3.5

(De Leo & Evans, 2004)

Despite huge variations in suicide rates between countries, fatal suicidal behaviours are more prevalent among elderly males than females everywhere (Pritchard & Hansen, 2005). In the WHO/EURO Multi-centre Study on Suicidal Behaviour, De Leo et al. (2001) found a mean suicide rate of 29.3 per 100,000 in subjects aged 65 and older. The male suicide rate was 49.5 per 100,000 and the female rate was 19.3 per 100,000 (De Leo et al., 2001), with a ratio males to females of approximately 2.5 to 1. However, with advancing age the ratio males/females further increases, with data from Italy evidencing rates in males of 80+ years of age 12 times higher than in females (De Leo, 1997) and in Australia, for the same age group, more than 9 times higher (De Leo & Heller, 2004).

Literature on the topic of gender differences in very advanced age is very limited. Whilst it seems plausible the existence of specific risk-factors for elderly males, it has been suggested that women in that age may carry more clearly defined protective factors. In fact, compared to men, despite their poor psycho-physical health secondary to greater longevity, poverty, widowhood, and abandonment, they have greater capacity to adjust, better preservation of social-networks, and greater self-sufficiency in daily activities. Furthermore, they appear to be more committed to children and grand-children than men.

Studies in multicultural societies, including Singapore (Kua et al., 2003), South Africa (Flisher et al., 2004), and the United States (Oquendo et al., 2004), point out the role of factors related to ethnicity. In South Africa, over the period of 1968-1990 (Flisher et al., 2004), the highest suicide rates were reported among the White elderly population, while the rate among the Asians and Coloureds of Asian and African ancestry was significantly lower for both sexes.

Tab. 3: Under-reporting of Suicide Facilitating Conditions

- Chronic Illness (Elderly)
- Euthanasia / Assisted Suicide (Elderly)
- Particular Suicide Methods (e.g. Accidents)
- Dubious Circumstances of the Act (Elderly)
- Social Conditions (Insurance Policy)
- Social Position of Deceased
- Political Pressures
- Lack of Standardised Certification Procedures
- Missing persons (Elderly)

Low socioeconomic status has been reported as a risk factor for elderly suicide in many nations worldwide (Berk et al., 2005; Wu & Bond, 2006). Yip (2001) suggested that the high suicide rate among the elderly in rural China might be related to limited access to health care facilities, along with the experience of serious hardships in everyday living, including lack of pensions and very limited government support.

All epidemiological considerations on old age suicide have to consider that suicide figures are particularly under-reported in this age group (De Leo &

Diekstra, 1990). Most common conditions that facilitate this under-reporting are listed in Tab. 3.

PSYCHOPATHOLOGY

Psychopathology is the most important risk factor for late-life suicide, and between 75% (in the US) (Conwell, 1997) and 97% (in Sweden) (Waern et al., 2002) of elderly suicide victims are diagnosed with at least one mental disorder.

Major depressive disorder is the strongest predictor of both non-fatal (the UK: Ruths et al., 2005) and fatal suicidal behaviour in old age (Canada: Preville et al., 2005), as well as suicidal ideation (Japan: Awata et al., 2005; Hong Kong: Yen et al., 2005). Depression is more frequently associated to suicide in old age than in younger ages (Neulinger & De Leo, 2001). Quan et al (2002) found that the elderly with depression were seven times more likely to suicide than those without, and any other mental illness conveyed a twofold increase in the likelihood of suicide. In a study of psychiatric disorders and personality factors in suicides in Oxford and surrounding areas, it was found that over 77% of the suicides, from a total of 195 cases, had a psychiatric disorder at the time of their death, with approximately 66% suffering from depression (Harwood et al., 2001). In Germany, Barnow & Linden (2002) found that a diagnosis of major depression was associated with a 40-fold increased risk of suicidality; yet this was only 3 times higher when a psychiatric illness other than major depression was present.

Studies conducted in the US showed that unremitting hopelessness after recovery from a depressive episode can also pose a risk for older adults (Szanto et al., 2002), whilst severity of depression has been found to correlate with both levels of suicidal ideation in the elderly (Alexopoulos et al., 1999; Heisel et al., 2005) and risk of suicide (Kessing, 2004).

Preville et al. (2005), in a case-control psychological autopsy study in Canada, reported that 75% of suicides aged 60+ could be diagnosed with minor and sub-threshold depression, compared with 13% in the control group.

Similar results were obtained in studies in Hong Kong, where 76% of elderly suicides were diagnosed with depressive disorders (Chiu et al., 2004), and 68% of suicide attempters suffered from current major depression (Tsoh et al., 2005). Also, Yen et al. (2005) in Taiwan, and Awata et al. (2005) in Japan found that depression was among the risk factors for suicidal ideation in the elderly.

Although depression increases the risk of suicidality in both Western and Asian countries, cultural factors might influence the way depressive psychopathology affects the levels of suicide risk and identification of the at-risk individuals. In Asian cultures depression tends to be manifested rather by somatisation and hypochondriacal complaints than obvious psychopathological symptoms (Chiu et al., 2003).

In clinical practice, as a rule of thumb, since it would not be feasible to screen all older primary care patients for suicidality, physicians should ask about suicidal thoughts in all older patients who present with symptoms of depression. There should be no reluctance to question patients about suicidal ideation, because there is no evidence that such questions can increase the likelihood of suicidal behaviour (Alexopoulos, 2005).

With regard to psychiatric conditions different from depression, there is paucity of data regarding suicide amongst elderly patients diagnosed with bipolar disorder (Aizenberg et al., 2006) and schizophrenia (Barak et al., 2004). Schizophrenia has been reported in approximately 6–17% of elderly suicides (Shah & De, 1998). To a lesser extent, anxiety disorders in older age may increase suicide risk (Waern et al., 2002), especially in case of anxiety-depression syndrome (Shah & De, 1998).

Personality disorders may also be associated with suicidal thoughts and behaviours among elderly individuals (Harwood et al., 2001); however, the condition is more frequently encountered in younger suicidal individuals (Krysinska et al., 2006; Neulinger & De Leo, 2001).

Behavioural or personality characteristics most frequently associated with suicide in late life include:

- frustrated need to be active or independent;
- dependency on others;
- loss of control;
- hostility;
- hopelessness and/or helplessness;
- limited openness to new experiences;
- inability to tolerate changes;
- inability to express psychological pain.

Mostly in Anglo-Saxon and Scandinavian countries, alcohol abuse constitutes an important risk factor in elderly suicide (Kolves et al., 2006; Waern, 2003).

Dementia is not regarded as a risk factor for suicide (De Leo, 1996; Conwell et al., 2002). When dementia is present, it is usually mild with co-morbid depression. Frontal lobe impairments may lead to impulsive, poorly planned attempts. It is unclear whether insight into the dementing process is a factor that increases the risk of suicidality (Padoani et al., 2001). However, one study has found a significantly increased rate of Alzheimer's neuropathology in the brains of older suicide victims (Rubio et al., 2001).

PREVIOUS SUICIDAL BEHAVIOUR

Non-fatal suicidal behaviour, both first attempts and repetitions, are much more frequent in younger individuals than in elderly subjects (Schmidtke et al., 2004), but a history of suicidal behaviour is a risk factor for repetition and completed suicide in the elderly (Hawton and Harriss, 2006). Studies in Hong Kong (Tsoh et al., 2005) confirmed that a history of suicide attempt is a predictor for eventual completed suicide also in Asian populations.

In general, elderly subjects are the suicide attempters with the highest suicide intent scores; their act is less manipulative and less impulsive; methods tend to be violent and there

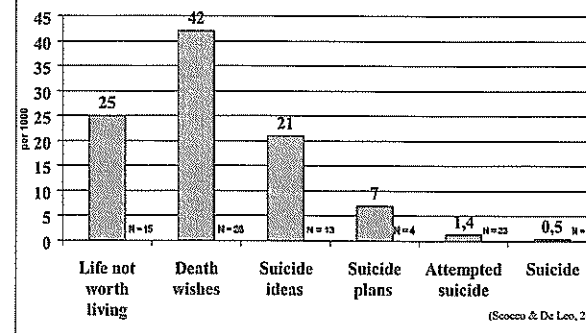
is less opportunity for rescue (De Leo et al., 2001). In old age, suicide attempts are much less frequent than in younger age groups; for example, in the context of the WHO/EURO Multi-centre Study of Suicidal Behaviour, the ratio attempted suicide to suicide in subjects aged 65 and older was approximately 2 to 1 (De Leo et al., 2001). As it can be seen in Tab. 4, the Gold Coast Community Survey clearly evidenced not only a lower frequency (lifetime) of suicide attempts in the elderly, but also a much reduced percentage of death thoughts and suicide ideation in old age compared to younger subjects (De Leo et al., 2005).

Tab. 4: The Gold Coast Community Survey, Australia (n=14,443)

Sample	Death Thoughts %	Suicide Ideation %	Attempted Suicide %
Gender Male	17.5	8.9	2.3
Female	21.4	10.8	3.9
Age 18-24	20.3	10.8	3.9
25-34	20.4	12.5	3.8
35-44	22.6	11.4	4.1
45-54	22.3	11.1	2.7
55-64	16.8	8.1	2.6
65-74	14.4	5.3	1.9
75+	12.5	5.6	1.6

(De Leo et al., 2005)

Fig.4: Prevalence of suicide ideation/behaviour in an elderly population of Padua, Italy



(Scocco & De Leo, 2002)

Scocco & De Leo (2002) have calculated the different distribution of death ideation, suicide ideation (including plans), suicide attempts and suicide deaths in an elderly population of Padua, Italy (Fig. 4). This study represents a pretty rare example of an elderly sample in which all suicide phenomena have been controlled for their main dimensions. As such, it provides a reliable indication of the quantitative relationship existing among single type of events.

Factors that are particularly frequent in elderly attempters are the following:

- Diagnosis of any mental disorder, particularly depression;
- Previous history of mental health treatment;
- Previous history of attempted suicide;
- Limited social interaction;
- Recent relationship stress;
- Chronic relationship problems;
- Recent financial stress;
- History of childhood adversity;
- Concerns of being burden on others;

- Tensions with caregivers.

For a detailed review of all the above mentioned factors, see for example De Leo & Spathonis (2004).

PHYSICAL ILLNESS

Although there have been studies focusing on suicide risk in the elderly related to particular diagnoses, e.g. coronary artery disease (Artero et al., 2006) and cancer (Labis, 2006), including prostate cancer (Llorente et al., 2005), Juurlink et al. (2004) and Erlangsen et al. (2005) reported that treatment for multiple illnesses is strongly related to a higher risk of suicide. However, the impact of physical illness upon suicidality is not completely understood, as the majority of the elderly population experience a physical illness, and only a small minority actually engages in suicidal behaviours. The influence of other risk factors, including depression and substance abuse, may relegate physical illness to the place of a secondary contributing factor (Draper, 2006; Snowdon & Baume, 2002).

In any case, factors that have been more consistently related to the risk of suicide include:

- painful physical conditions;
- respiratory disorders involving breathlessness;
- somatic diseases characterised by functional limitations;
- fear of illness (eg, blindness, cancer);
- co-morbidity between physical illness and depressive disorder;
- co-morbidity between physical illness and alcohol abuse.

Also the above factors can be examined in bigger detail in De Leo & Spathonis (2004).

LIFE EVENTS

Elderly people are particularly vulnerable to unexpected life events. Many authors have contributed to the study of the relationship between life events and suicidal behaviour (for a review, see De Leo & Spathonis, 2004). The following factors represent the most frequently quoted events:

- widowhood and divorce;
- loneliness and loss of social ties;
- loss of prestige, role, and social status;
- abrupt or involuntary retirement;
- death of spouse;
- cumulative recent losses;
- loss of relatives, friends, and also pets;
- important family conflicts.

In summary, as in other ages in life, suicide in the elderly is the product of many complex interactions among factors belonging to different domains. However, factors most consistently associated with suicide in old age appear to be depression (both major and minor) (Ruths et al., 2005; Waern, 2002), family conflict (Kolves et al., 2006; Harwood et al., 2006), physical illness (Harwood et al., 2006; Juurlink et al., 2004), and loneliness (Dennis et al., 2005; Hawton & Harriss, 2006).

On the basis of identified risk factors and conditions that may predispose to suicide in old age, a number of intervention and strategies could be formulated. These would primarily deal with early identification and treatment of depression, treatment of delusional disorders (especially the hypochondriacal ones), attention to the needs of elderly alcoholics, promotion and monitoring of physical health, and caution in prescribing potentially dangerous drugs. Complementary to these suggestions are: education of primary care providers and education about the treatability

of many late life problems, provision of education to nursing homes and other institutions for the elderly, promotion of activities that foster personal identity and social integration, measures to counter social isolation, provision of financial security, community education regarding the aging process, retirement planning, and independence. Special attention should be dedicated to male elderly people in fighting suicide, since rates are higher for them than in women in every part of the world. In this regard, there is a need for innovative techniques, considering that, so far, better results in suicide prevention have been achieved with elderly females (and female subjects of all ages) compared to males (De Leo et al., 2002b).

CONCLUSIONS

Suicide in the elderly still constitutes a sadly frequent event. Active out-reach, continuity of care, and increased level of emotional support seem to be key-elements in providing protection against suicide, at least in female subjects.

Detection of suicide risk in elderly subjects still appears inadequate. They rarely refer their suicidal ideation and appear substantially disconnected from health care providers. Especially for isolated, disable, poorly educated, and socially unskilled elderly people, a telephone contact at their domicile seems to represent a viable option (De Leo et al. 1995, 2002b). However, available scientific evidence teaches us that strategies in use carry a more visible effect with female subjects. This may be due to women's attitude to more easily communicate their inner feelings and receive emotional support. Men – and especially today's elderly men – are less willing to express their emotions and probably not truly engageable in therapeutic projects based only on verbalization of their suffering.

Although there are potentially promising approaches to suicide prevention (e.g. restricting access to means, detection and treatment of depression, dialectical behaviour therapy, etc.), none have been systematically investigated in the elderly. Hence, the major recommendation remains the investment in scientifically valid investigations (e.g., randomised control trials) to assess the efficacy of specific suicide prevention activities. In the absence of such investigations, valuable financial and organisational resources may be wasted, and the impetus for suicide prevention may be lost.

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