Received: 18 April 2021 | Accepted: 26 April 2021

DOI: 10.1111/appy.12473

SPECIAL ISSUE ARTICLE

ASIA-PACIFIC PSYCHIATRY | WILEY

Suicide prevention in older adults

Carlos Augusto de Mendonça Lima[1] | Diego De Leo[2,3] | Gabriel Ivbijaro[4,5] | Igor Svab[6]

[1]Centre Médical du Jorat, WPA Section of Old Age Psychiatry, Mézières, Switzerland

[2]Australian Institute for Suicide Research and Prevention, Griffith University, Brisbane, Australia

[3]Slovene Centre for Suicide Research, University of Primorska, Koper, Slovenia

[4]NOVA University, Lisbon, Portugal

[5]Faculty of Management, Law and Social Sciences, University of Bradford, Bradford, UK

[6]Department of Family Medicine, University of Ljubljana, Ljubljana, Slovenia

Correspondence
Carlos Augusto de Mendonça Lima, Centre Médical du Jorat, WPA Section of Old Age Psychiatry, Route de Servion 4, CH-1083 Mézières, Switzerland.
Email: climasj@yahoo.com

Abstract

Background: Suicide among older adults is a multifactorial problem with several interrelated factors involved that vary with age, gender and culture. The number of suicides is highest in those aged 70 years or older in almost all regions of the world. With the increase in life expectancy, and the decrease in mortality due to other causes of death, we could expect the absolute number of older adults' suicide continue increasing.

Methods: Review of the literature on suicide protective factors of suicide among older adults.

Results: Improvements on social determinants of health and the timely detection and early treatment of affective disorders are key interventions. Prevention based on community actions and training of gatekeepers may have positive impact. Community programs that promote a sense of usefulness, belonging and that contribute to preserve social integration should be encouraged. Governments should develop the improvement of retirement programs and the development of support systems. The access to general health and mental health services should be facilitated and Primary Care professionals should receive proper training to detect and manage older persons at risk. Actively promoting a culture of coping to different stages of life and to the changes imposed by the advancing of age should form the essential part of a process bringing to better successful aging avenues.

Conclusions: Suicide prevention in older adults should broaden its focus and pay attention to the many socio-environmental conditions that may be relevant in older age, especially social isolation, financial security and physical health.

KEYWORDS
COVID-19, older adults, suicide, suicide behavior, suicide prevention

1 | INTRODUCTION

In 2016, there were 817 000 suicide cases globally and an all-age rate of 11.1 deaths per 100 000 (world population). The total number of suicide deaths globally increased between 1990 and 2016 by 6.7% (from 0.4 to 15.6%), but the age-standardized suicide death rate decreased by 32, 7% (27.2–36.6%) from 16.6 deaths (15.2–17.6) per 100 000 in 1990 to 11.2 deaths (10.4–12.1) per 100 000 in 2016 (Global Burden Disease, 2019). The overall mortality by suicide is approximately 1.49% of the total deaths in a year (GBD, 2019). The ratio between suicide and suicide attempts is estimated to be around 1–20 (WHO, 2019), while the psychological consequences of a suicide can affect more than 100 people in a person's social network. The number of people who die by suicide is highest in those aged 70 years or older for men and women in almost all regions of the world (WHO, 2014).

Rates of suicide have decreased in all regions and countries (GBD, 2019) and suicide rates in older adults have decreased more

than in other age groups. It is possible that older adults have benefited more than younger people from the improvements in general health assistance and quality of life (Shah et al., 2014). Non-fatal suicidal behavior decreases proportionally with increasing age (De Leo & Scocco, 2000; Shah et al., 2008). Approaching the natural end of life is not necessarily accompanied by an increased frequency of suicidal thoughts or death wishes (De Leo et al., 2005).

Suicide prevention strategies have contributed to the reduction in the number of suicides (WHO, 2019) but the majority of the recommendations are focused on younger adolescents and younger adults (WHO, 2014). The study of protective factors for suicide in old age is just beginning.

The aims of this paper are (a) to review characteristics of suicide in older adults; (b) to describe risk and protective factors for suicide prevention in older adults; (c) to recommend adjustments to suicide prevention strategies in older adults to provide guidance to clinicians, public mental health professionals, politicians and decision-makers.

2 | METHODOLOGY

We have used narrative review methodology to choose key papers and data to review the list of key risk and protective factors for suicide proposed by WHO (2014, 2019) taking into account the potential impact of the aging process and propose suicide prevention strategies for implementation in older adults. We have also taken into account their own experience of working in this clinical field to enrich the material presented.

3 | CHARACTERISTICS OF SUICIDE IN OLDER ADULTS

Older adults have different suicide risk and protective factors compared to younger adults and may require a different approach to suicide prevention and this should be taken account when implementing interventional strategies to prevent suicide (Rabheru, 2004).

It is important to differentiate negative emotions resulting from stressors associated with this life period such as poor physical health, frailty, loss of independence, autonomy, bereavement and social and financial status from symptoms of depressive disorder. Older adults may be subject to ageist attitudes, which can contribute to difficulty detecting suicidal thoughts (Pope, 2017). Depression is underdiagnosed in old age. One reason for this is because sadness may be considered normal in old age as a result of co-morbidity and social disadvantage (De Leo & Diekstra, 1990).

A diagnosis of depression is strongly associated to suicide (De Leo 2001) and suicide can also occur in the absence of mental disorders (Nelson & Ramirez, 2017). Suicide methods vary by country, gender and age. Older adults tend to choose more lethal methods resulting in lower suicide/suicide attempts ratios compared to other age groups with evidence of greater determination to die as older people make more efforts to avoid being rescued by someone. The higher incidence of concomitant health disorders in older adults results in increased frailty making them less likely to recover from a suicide attempt if they are found (Conwell & Thomson, 2008; De Leo et al., 2009; Dombrovski et al., 2008).

4 | INTEGRATING RISK AND PROTECTIVE FACTORS IN SUICIDE PREVENTION OF OLDER ADULTS

Risk and protective factors interact cumulatively to affect an individual's vulnerability to suicidal behavior (WHO, 2014). Identification of risk and protective factors is the key to suicide prevention strategies. Research specifically focused on suicide prevention of older adults is still in its early stages (Stoppe, n.d.). We will now summarize the risk factors that need to be considered when assessing suicide risk with specific reference to older adults using a systematic approach. Table 1, adapted from WHO publications (WHO, 2014, 2019), summarizes the risk factors that need to be considered when assessing suicide risk with specific reference to older adults using a systematic approach.

5 | RISK FACTORS PERTINENT TO SUICIDE PREVENTION IN OLDER ADULTS

5.1 | Health systems

Psychiatric conditions are highly prevalent in older adults who have died as a result of a suicide: they are present between 71 and 95% of them, with affective disorder being the most common of them (Conwell, 2014a; Conwell & Thomson, 2008; Shah & De, 1998). Somatic and functional-impairment significantly increases the risk of suicide in subjects aged over 65 years and serious physical illnesses may be independently associated with suicide among males (Conwell et al., 2002; De Leo et al., 1999; Waern et al., 2002).

Hospitalization can be a risk factor for suicide in older adults (Karvonen et al., 2009; O'Dwyer & De Leo, 2016). In one study, approximately 30% of suicides in older adults between 1988 and 2003 occurred within 1 month of discharge from hospital (Karvonen et al., 2009) with almost 80% of diagnoses made during the hospitalization non-psychiatric. In Denmark, men over 80 years hospitalized with medical illnesses had the highest suicide rate of all age groups (Erlangsen et al., 2005).

Many older adults who take their life have consulted their general practitioner (GP) shortly before their death. In one study 76.9% of cases visited their GP within 3 months prior to death by suicide, 8% within 2 days, 22% between 3 and 7 days, 30% between 1 and 4 weeks and 27% of cases between 1 and 3 months prior to death by suicide (Draper et al., 2014).

There is a need for timely access to health care and a primary care team skilled in suicide risk assessment to reduce the risk of suicide in

TABLE 1 Key risk and protective factors for suicide and possible negative impact of aging (De Leo et al., 1999; WHO, 2014, 2019)

	Community level	Negative impact of aging
Risk factors	I—Disaster, war, conflict, epidemic	• Reduced available somatic and mental health care
	II—Acculturation and dislocation	• Higher risk of abandon in case of immigration of younger adults • Fewer coping skills to adapt to new cultures
	III—Stigma and discrimination	• Higher risk of double jeopardy because of old age and mental disorder
	IV—Trauma by violence, abuse and neglect	• Increased risk of becoming victim of trauma by violence, abuse and neglect
Protective factors	I—Social integration, good living conditions, access to recreational community activities	• Higher risk of reduced social integration opportunities
	Health systems level	Negative impact of aging
Risk factors	I—Barriers to accessing healthcare	• Increase pressure on health care • Decreased focus on mental health care • Increased barriers to access care due to physical and health insurances reimbursement • Price of drugs to high
Protective factors	I—Effective mental and somatic health care	• Reduced access to effective mental and somatic health care
	II—Palliative care	• Few services available • Exclusion of older adults by triage criteria
	Society level	Negative impact of aging
Risk factors	I—Access to suicidal means	• Access to more prescribed and not prescribed drugs
	II—Inappropriate media reporting	• Sensationalizing suicide by media impacts the perception of risks
	III—Stigma associated with help-seeking behavior	• Reduced help-seeking behavior • Higher exclusion of necessary care • Increased stigma in societies with higher tendency to stigmatize persons that are older and have mental health problems
Protective factors	I—Specific legal protection and promotion of human rights for older adults (including protection against violence, neglect and abuse)	• Fewer such legislation for older adults
	II—Specific legislation concerning protection and promotion of social determinants of health and mental health in old age	• Fewer such legislation for older adults
	Relationships level	Negative impact of aging
Risk factors	I—Social isolation and loneliness	• Increased risk of social isolation and loneliness
	II—Unsolved relationship conflicts, bereavement	• Increased chances that old conflicts remain unsolved • Increased risk of losing someone
	III—Trauma by violence, abuse and neglect	• Increased risk of becoming victim of trauma by violence, abuse and neglect.
Protective factors	I—Strong social relationships	• Fewer opportunities to develop strong social relationships
	II—Effective legal protection against violence, abuse and neglect.	• Fewer such legal protection for older adults
	Individual level	Negative impact of aging
Risk factors	I—Previous suicide attempts	• Higher risk of accumulation of previous suicide attempts
	II—Mental disorders	• Increased risk of more frequent and more severe mental disorders • Reduced access to treatment
	III—Harmful use of alcohol, caffeine, tobacco and prescribed and non-prescribed drugs	• Increased risk of harmful use of such substances
	IV—Recent, severe and chronic health disorders	• Increased risk of recent, severe and chronic disorders
	V—Chronic pain	• Increased risk of having chronic pain

(Continues)

TABLE 1 (Continued)

	Community level	Negative impact of aging
	VI—Financial restriction	• Increased risk of having reduction of financial income
	VII—Hopelessness feelings	• Increase risk of having damageable hopelessness feelings
	VIII—End of life issues	• Higher risk to die
Protective factors	I—Life skills and lifestyle practice	• Reduced skills for problem solving, positive coping
	II—Religion or spiritual beliefs	• Reduced opportunities to develop and practice religious or spiritual
	III—Good nutrition	• Higher risk of irregular intake of enough balanced food
	IV—Physical activity	• Risk of decreased physical activity by lesser offer of such opportunities or by physical limitations or lack of motivation
	V—Adequate sleep habits	• Risk of bad of somatic and mental symptoms on the already physiological changes of sleep with aging

older adults when they seek help (Cho et al., 2013; Uncapher & Arean, 2000). Health systems in many countries are designed to support older adults either because of limited resources of complex design. Barriers to access in older adults are worsened by low level of literacy, mobility issues and sensory deficits (Heine & Browning, 2014). It is important for health systems to be equipped to address these issues often associated with older adults including the use of community volunteers and policies that support easier access to transport for older people. Consideration should also be given to addressing finance to ensure that difficulties in covering the cost of care are not a barrier to access.

Older adults consume much more global health care and delays in delivering treatment contributes to increased risk of suicide (Parliamentary and Health Service Ombudsman, 2015). Receiving effective mental and somatic health care is a protective factor. The offer of palliative care may also significantly reduce suicide and the search for medical assisted suicide (Lennon, 2018; Mercadante & Piccione, 2020).

5.2 | Society and community

Limiting access to means of suicide is one of the most effective universal strategy to reduce suicide rates in the world (de Mendonça Lima, 2011). There is no convincing evidence that access restriction may be effective with populations of older adults. The ingestion of prescribed drugs is the most common means of suicide in several countries. Controlling the quantity of available drugs is mandatory for patients at risk (Jurlink et al., 2004; Voaklander et al., 2008). This risk may be heightened by multiple prescriptions and increases with medication strength. Limiting access to alcohol is also useful and all kind of arms should be kept safe.

There are few publications about the consequences of reporting older adults' suicide in the media. Suicide prevention strategies include media reporting because vulnerable individuals may be influenced to initiate a suicide attempt because of reports of suicide, particularly if the coverage is extensive, prominent, sensationalist and/or explicitly describes the method of suicide. The media can also help by reporting educational material about suicide to the public to encourage help seeking by those at risk (World Health Organization & International Association for Suicide Prevention, 2008).

Combating stigma and discrimination against older adults and promoting the social determinants of health, can contribute to suicide prevention and requires education to change beliefs and attitudes, and legal interventions to address age related discrimination (Graham et al., 2003). Providing effective, well-regarded health and social support services for older people with mental disorders should be the first priority of any strategy to reduce stigma and discrimination.

Culture and religion influence suicide rates (Searight & Gafford, 2005). Social determinants of health are associated with mental disorders by contributing to their onset or course (de Mendonça Lima, 2011). Addressing the adverse social determinants of health will play a role in suicide prevention and communities where older adults live may be protective against suicide because of social capital including opportunities for intergenerational interaction and integration that supports resilience.

Older persons are likely to experience negative health changes in the wake of a disaster, over and above the negative health changes that occur normally with aging. Because a disaster affects all people living in an affected area, its public health consequences may be considerable (Dorly et al., 2005; Oriol, 1999). In particular, these disasters and other stressful situations, may increase susceptibility to depression (Capurso et al., 2007). However, even in the absence of an affective disorder, these factors can markedly upset the life of an individual, often creating living conditions too difficult to be accepted, which may increase the risk of suicide at very advanced age.

The extent to which older persons suffer from natural and non-natural disasters and their exclusion from humanitarian assistance, research and emergency preparedness, amount to neglect and structural abuse (HelpAge International, 2016a; World Health Organization, 2003). Several reports state that in situations of emergency, older persons are at higher risk of violence, including sexual and domestic abuse,

exploitation by family members (HelpAge International, 2016b; HelpAge International, 2016c; UNHCR, 2020). We seldom have hard data to demonstrate the extent of the problem or to prove the correlation between the abuse suffered and the mortality and morbidity of older people in these situations, including death by suicide.

5.3 | Relationships

Isolation occurs when a person feels disconnected from his or her closest social circle and is often associated with depression and feelings of loneliness and despair (Rubenowitz et al., 2001). In combination with other risk factors, loneliness can lead to an increased risk for suicidal behavior, in particular for older persons living alone (Casiano et al., 2013; Sisask et al., 2008) and is particularly relevant for older adults during lockdown measures associated with the COVID-19 pandemic (Courtet et al., 2020).

The existence of relationship conflicts in the family or the presence of a very tense climate or discord may also represent suicide risk factor (De Leo, Draper, et al., 2013a) which may be particularly intense at the end of life because the incapacity to solve family conflicts increases the risk of suicide.

Previous traumatic experiences can have consequences in later life and are associated with increased likelihood of suicidal behavior (De Leo et al., 2002; Draper et al., 2014). Older adults are often dependent on others for help and may be subject to trauma as, according to WHO, around one in six older people experience some form of abuse in the past year (World Health Organization, 2020). A 2017 systematic review of elder abuse prevalence studies in the community in 28 countries found that 15.7% of people aged 60 and over had suffered some form of abuse over the previous year (Yon et al., 2017) and a 2019 systematic review of prevalence studies in institutions revealed that 64.2% of staff admitted to having committed a form of elder abuse in the past year (Katona et al., 2009; Yon et al., 2019).

All forms of elder abuse represent a risk factor for suicide in older adults. Attention should be paid to the identification of abuse in older adults as part of suicide prevention strategies (Salvatore et al., 2018). Services should be available to support older adults who at increased use of elder abuse whether in their home or other care settings.

5.4 | Individual

The risk of suicide can be influenced by individual vulnerability or resilience (WHO, 2014).

The presence of previous attempts of suicide in older adults strongly predicts the risk of repeated suicide attempts and fatal suicidal behavior (Hawton & Harriss, 2006; Yoshimasu et al., 2008). During a period of 12 months following the index episode of attempted suicide, 11% of participants of the WHO/EURO Multicentre Study on Suicidal Behavior aged 65 years and over repeated their not-fatal behavior, and 13% of them died by suicide (De Leo et al., 2001).

Depressive disorder occurs in 8–16% of the general older adult population (Conwell, 2014b) and has been identified as the most powerful independent risk factor for suicide in old age (Reynolds & Kupfer, 1999). Recent studies on subjects of 60 years of age and over, based on psychological autopsy, have shown that depression is less frequently present in older adults who die of suicide when compared to younger people who die of suicide (Neulinger & De Leo, 2001a).

Even if depression is the primary presenting condition age-related medical conditions are often concomitant (Montano, 1999)

making the identification of depression difficult or delaying its treatment. Depression in older adults is often accompanied by symptoms of anxiety or a full-blown anxiety disorder which increase the risk of suicide (Diefenbach et al., 2009; Fawcett, 2009).

Alcohol abuse remains an important risk indicator for both sexes in older adults although it represents a less common risk factor for suicide in older adults when compared to young adults (Conwell & Thomson, 2008; Krysinska et al., 2006). Alcohol abuse increases the risk of suicide through its interaction with other factors that are particularly prevalent among older adults, such as depressive symptoms, medical conditions, a negatively perceived health status, and poor control of social environment.

Psychotic disorders are much less common in older people who die by suicide that in younger individuals (De Leo et al., 2009; Harwood & Jacoby, 2000). Personality disorders appear to be less frequently associated with cases of suicide in older adults compared to younger persons (Neulinger & De Leo, 2001b). Specific personality traits including cognitive rigidity, apprehensiveness and anankastic traits seem to be particularly common among suicides in older adults (Conwell, 2014a; Draper et al., 2014).

Dementia is not significantly associated with an increased risk of suicide (Schneider et al., 2001) and the few cases reported in the literature relate to subjects with preserved insight, who are aware of the seriousness of the diagnosis, with evidence of depressive symptoms, and not showing any positive response to anti-dementia drug treatment (Haw et al., 2009a).

Older adults are prone to multimorbidity. Long term physical conditions such as respiratory, metabolic and cardiac disorders, including chronic pain, are associated with increased risk of suicide (Goldblatt, 2000; Lönnqvist, 2001) and somatic complaints are common in older adults living in the community. Somatic symptoms, particularly chronic pain, have been found to predict not only suicidal thoughts and mortality from suicide (Jeong et al., 2014). Housing, retirement status and social context are important in older adults. Older adults are especially exposed to changes in income, social status and family roles and risk of suicide is particularly high in the first 2–3 years after the termination of employment and retirement (De Leo & Diekstra, 1990). Financial uncertainty may lead to an increase of the suicide risk through interaction with other risk factors such as depression, anxiety, violence and the harmful use of alcohol (Chang et al., 2013; Turvey et al., 2002).

Appropriately supported housing is one of the most important needs in people's lives (Burrows & Laflamme, 2005; Law et al., 2016; Navarro et al., 2010). Tenuous or inappropriate housing is a factor linked to a higher risk of suicide (Baum, 2008) and precipitating

factors for suicidal behavior among older adults include forced relocation, a recent placement in a nursing home or the anticipation of such an event (Loebel et al., 1991; Torresani et al., 2014) Suicide risk should be actively monitored after home relocation in older adults and family and loved one should be encouraged and supported to maintain meaningful connections. Homelessness in older adults is increasing and is associated with increased physical and mental difficulties (Baggett et al., 2010). Homeless individuals also suffer from geriatric conditions decades earlier than housed older adults, including cognitive or visual impairment, incontinence and frailty (Brown et al., 2017).

Hopelessness, shame and guilt are risk factors for suicide (Abramson et al., 2000; Hastings et al., 2002; Haw et al., 2009b) and for those aged 80 years and older the loss of a partner including the loss of a pet increases the risk of suicide, particular during the first year after the death particularly in men (De Leo, Cimitan, et al., 2013; Turvey et al., 2002).

Recognizing age dependent gender differences is important in suicide prevention. In most countries, males have higher rates of suicide (Bertolote & Fleischmann, 2009), while females have higher rates of non-fatal suicidal behavior (Canetto, 1995; Hawton & Harriss, 2008) and men are generally less likely than women to seek treatment for psychological problems because of societal expectations of male behavior (Cochran & Rabinowitz, 2003).

A family history of suicide is an individual risk factor for suicide (Jordan & McIntosh, 2011; Van Orden et al., 2010) especially as those left behind can face stigma as a barrier to grieving and support (Farberow, 2001; Mann & Currier, 2010) putting themselves at increased risk of mental illness and suicide (Qin et al., 2002).

Although a relatively rare phenomenon, older adults are disproportionately represented among both perpetrators and victims of domestic murder-suicide (Bell & McBride, 2010; Malmquist, 2006; Malphurs & Cohen, 2005). Most cases of murder-suicide are committed by men against a female spouse with a firearm (Bell & McBride, 2010), 100 with 40% providing assistance to a spouse with a long-term illness or with a disability (Malphurs & Cohen, 2005).

6 | SUICIDE PREVENTION IN OLDER ADULTS

The study of protective factors for suicide in old age is in its infancy but has identified some protective factors include high levels of education, high socioeconomic status, engagement in valuable activities and religious involvement including participation in faith related social activities (De Leo, 2002; Fiske et al., 2009; Gagne & Whitehurst, 2010). The presence of significant levels of social support, either represented by intimate friends or relatives, can constitute an important protective factor. A recent psychological autopsy study has evidenced that individuals who died by suicide were particularly missing the help from both relatives and friends (Dombrovski et al., 2008). Marriage seems to constitute a protective factor, particularly for older adult males (Harwood et al., 2000).

Successful suicide prevention strategies need to balance risk and protective factors and relate these to the life course highlighting what is pertinent to older adults taking into account how these differ in significance according to the cultural and social context (De Leo, 1999).

The evidence on the effectiveness of suicide prevention interventions for older adults remains limited. A multi-factorial approach and multiple levels of suicide prevention could reduce suicide in older adults (Erlangsen et al., 2011). The International Association for Suicide Prevention Interest Group on Suicide in Old Age (Lapierre et al., 2011) has reviewed 19 studies with an empirical assessment of a suicide prevention program for adults aged between 60 years and older. The recommendations stressed the need for multi-component approaches, to be based on available scientific evidence, with an organized system of distribution of resources while monitoring the effectiveness of each intervention that could support the efforts through various levels.

Communication of suicidal thoughts tends to be less common among men and older adults who die by suicide than it is among women and younger people (Conwell et al., 2002). Older people tend to minimize their psychological problems and consider them to be related to physical illness. As a result, family and friends can be the first to note that an older adult is at risk of suicide (Dombrovski & Szanto, 2005; Erlangsen et al., 2011). Social services and communities' members can represent potential gatekeepers (Wasserman, 2001). The training of gatekeepers at community level may be a potentially useful method to identify older individuals at risk for suicide (De Leo et al, 2013b). It is clear, however, that every effort needs to be done to promote the integration of older people in social groups and communities. By providing a social support network, connectedness can help to moderate isolation (Conwell, 2014a) and loneliness.

Older adults are more likely to approach a Primary Care team professional for help, rather than specialist mental health services (Raue et al., 2014; Michel, 2000; Rutz, 2001; Suicide Prevention Resource Center, 2007). Primary care staff members are available, accessible, knowledgeable and committed to providing care. Other reasons why focus should be made on Primary Care staff are (World Health organization, 2000):

- primary care staff have a long and close contact with the community and are well accepted by local people;
- they provide the vital link between the community and the health care system;
- they are the primary source of health care in several low-income countries;
- their knowledge of the community enables them to gather support from family, friends and organizations;
- they can offer continuity of care;
- they are often the entry point to the health services for those in need.

Elements of a national prevention strategies that could be of relevance also for late life suicide are (De Leo & Arnautovska, 2016): (a) awareness of suicide and its public health dimension; (b) recognizing suicide risk factors and controlling those that are modifiable; (c) coordination of mental health and substance abuse control

TABLE 2 Evidence-based public health strategies of suicide prevention and recommendations of implementation for older adults

Strategy	Description	Actions
National suicide prevention strategy	A national strategy indicates a government's clear commitment to dealing with the issue of suicide	*Government (national & regional level)* • Develop a national strategy for suicide prevention • Include specific issues for suicide prevention in old age
Surveillance	A surveillance system collects information about all national deaths by suicide and, when possible, of suicide attempts and try to identify the risk and protective factors	*Government (national & regional level)* • Develop a national surveillance strategy of deaths by suicide and suicide attempts *Local healthcare system* • Give proper and timely input to the national surveillance system of deaths by suicide and suicide attempts
Means restriction	Restriction of access to lethal means of suicide entails various points of application, such as drugs, firearms or pesticides	*Government (national & regional level)* • Restrict - sales of lethal means, such as firearms and pesticides, - amount of medication bought per person • Ensure safe storage of firearms and medication at warehouses and at home through public awareness and policies • Inform the public carefully about reduction of access
Responsible media reporting	Bi-directional relationship between media reporting and suicidal behavior	*Public health response* • Existing WHO guidelines for responsible media reporting • Additional and locally adapted guidelines to reduce sensationalizing of possible old age-related suicides
Stigma and discrimination reduction	Stigma against older people with mental disorders leads to the development of negative attitudes. These negative attitudes lead in turn to discrimination against these persons such poor-quality treatment and care, marginalization within care systems, "warehousing" outside the health care system, inadequate funding at national and local levels, inequity in reimbursement for treatment, unnecessary institutionalization.	*Government (national & regional level)* • Plan, fund and provide health and social services for older people as part of general health and social care system • Develop specific policies and laws around stigma/ discrimination at all levels of government • Necessary resources should be allocated for the development and realization of information campaigns within education and through the media • Politicians should ensure that professionals, family carers and patients have a "voice" • National and local justice systems should provide explicit effective and accessible protection against stigma and discrimination; • Services should be planned to ensure equity of provision to older people with mental disorders. *Public health response* • Ensure that professionals' own practice is free from stigma and discrimination • Plan and develop services, and ensure that they avoid stigma and discrimination • Ensure that all educational and continuing professional development curricula contain appropriate material on mental disorders in old age and training to develop awareness of stigma and discrimination • Ensure that professional bodies have policies in place to identify and reduce stigma and discrimination • Ensure that local workplace policies are in place to identify and reduce stigma and discrimination • Help patients, families and other professional carers to cope with the stigma and discrimination that they experience
Training for health workers, police, firemen, other gatekeepers	Interventions to increase presence of individuals qualified to identify suicidal individuals and refer them to appropriate services	*Public health response* • Continued education and training programs • Increase the number of volunteers to participate in the programs through public awareness
Access to health care	Appropriate and accessible treatment for somatic and mental disorders, including drugs and substance use and palliative care	*Public health response* • Provide economical support to health and mental health services • Ensure accessibility to mental healthcare services and palliative care *Local healthcare system*

(Continues)

TABLE 2 (Continued)

Strategy	Description	Actions
		• Plan and adjust resources to maintain/improve treatment and follow-up of older adults with mental disorders. • Ensure availability of staff for mental healthcare • Provide mental health support to frontline and healthcare workers
Treatment of mental disorders	Pharmacological and psychological treatment of all mental disorders in old age	*Local or national healthcare system* • Develop guidance for assessment of mental disorders and suicide risk *Mental healthcare providers* • Treatment and assessment of at-risk individuals • Develop guidance for mental health support in for primary care professionals and when to refer to the mental healthcare system • As untreated older adults have a higher risk of suicide, ensure appropriate care for: - recent, severe or chronic somatic health disorders, including chronic pain - anxiety, depressive, PTSD symptoms - cognitive impairments, including delirium and dementia - alcohol and drug misuse - suicidal behavior - psychotic and other psychiatric disorders
Reduction of harmful use of substances	Interventions to reduce harmful use of alcohol and other drugs have been shown to reduce suicide rates	*Government (national & regional level)* • Restrict availability of alcohol and other drugs *Healthcare response* • Follow-up individuals at risk *Public health response* • Increase awareness of the harmful effects and discourage misuse of alcohol and drugs
Postvention	Continuous and useful chain of care and follow-up of suicide attempters through availability of mental health resources	*Healthcare professionals* • Awareness of potential risk of further suicide attempts • Educate about mental health resources and appropriate care • Train staff for mental health responses • Mental health support for survivors of suicide attempters *Public health response* • Helplines for: suicidal patients suicide survivors • Train volunteer workers in mental Health • Support for family members of a suicidal old person

programs; (d) development and implementation of strategies to reduce the stigma associated with mental illness and suicidal behavior; and (e) creating programs to improve help-seeking behavior, particularly among males (WHO, 2014).

Suicide prevention strategies aimed at the group of older adults generally promote mental health, with particular emphasis on the early recognition and treatment of depression. To achieve these objectives, access to integrated mental health services and adequate treatment and support for older adults and their carers are needed (De Leo & Arnautovska, 2016). Studies on the effectiveness of mental health services for older adults provide encouraging evidence, in particular for those services involving community multi-disciplinary teams (Draper & Low, 2004). Table 2 summarizes some evidence-based public health strategies of suicide prevention and recommendations of implementation for older adults, adapted from WHO recommendations for the global population (WHO, 2014).

7 | SUICIDE PREVENTION IN OLDER ADULTS AND COVID 19

The current COVID 19 pandemic presents new challenges for older adults. We are just beginning to see the effects on morbidity, mortality and suicide rates worldwide. The traditional approach to suicide prevention needs to be re-considered to develop ways to address suicide prevention in older adults in this new context (Ivbijaro et al., 2020).

A 2019 narrative literature review proposed adopting a holistic approach adopting the six P's of (a) Personal resilience, (b) People, (c) Places, (d) Prevention, (e) Promoting collaboration, and (f) Promoting research as a matrix to guide the further development of suicide prevention interventions. It can be adapted for older adults during this period of increased loneliness associated with the COVID 19 pandemic ensure that there is collaboration across all sectors that provide services to older adults (Ivbijaro et al., 2019). The challenge is for systems to be better prepared, the voices of people with lived experience being heard to inform developments in strategy, particularly those from vulnerable and older populations (Niederktotenthaler et al., 2020).

We need to have strong primary care and community assets to support older adults (Ivbijaro et al., 2020). Epidemics and pandemics are global threats that will continue to happen. Evidence from the Spanish Flu epidemic 1918–1919 (Wasserman, 1992) and the 2003 SARS outbreak in Hong Kong (Yip et al., 2010) shows that these threats were associated with increased rates of death by suicide reinforcing the need for a holistic evidence-based approach toward suicide prevention in older adults including during periods of pandemic with primary care partnered with NGO's and third sector organizations with expertise in working with older adults as part of the solution (Ivbijaro et al., 2020).

8 | CONCLUSIONS

The number of suicides of older adults is decreasing (GBD, 2019)but more targeted actions are necessary to continue this progress. The improvements in health care and quality of life driving this improvement is unequal among the countries of the world.

The prevalence and incidence of suicide in older adults needs to be continually monitored so that trends associated with new developments affecting older adults including effects of pandemics, migration, homelessness, and refugee status can be recognized and responded to age appropriately in national and local suicide prevention strategies.

Combating stigma and discrimination and especially how it relates to older adults is likely to have an impact on suicide rates in this group and there should be active promotion of coping strategies adapted to different life stages taking into account changes related to advancing of age.

Suicide among older adults is a multifactorial problem with several interrelated factors that vary with age, gender and culture. Suicide prevention strategies for older adults should broaden their focus to address the many socio-environmental conditions relevant to older adults especially social isolation, financial security and physical health.

9 | LIMITATIONS

This is a narrative review that has only considered literature published in English.

DATA AVAILABILITY STATEMENT

The data supporting this article were derived from the cited resources available in the public domain.

ORCID

Carlos Augusto de Mendonça Lima https://orcid.org/0000-0002-3073-2478
Gabriel Ivbijaro https://orcid.org/0000-0002-9857-6192

REFERENCES

Abramson, L. Y., Alloy, L. B., Hogan, M. E., Whitehouse, W. G., Gibb, B. E., & Hankin, B. L. (2000). The hopeless theory of suicidality. In T. Jainer & D. Rudd (Eds.), *Suicide science* (pp. 17–32). Kluwer Academic Publishers.

Baggett, T. P., Singer, D. E., Rigotti, N. A., & O'Connel, J. J. (2010). The unmet needs of homeless adults. *American Journal of Public Health.*, *100*(7), 1326–1333.

Baum, F. (2008). *The new public health* (3rd ed.). Oxford University Press.

Bell, C. C., & McBride, D. F. (2010). Commentary: Homicide-suicide in older adults—Cultural and contextual perspectives. *Journal of the American Academy of Psychiatry and the Law*, *38*, 312–317.

Bertolote, J., & Fleischmann, A. (2009). A global perspective on the magnitude of suicide mortality. In D. Wasserman & C. Wasserman (Eds.), *Oxford textbook of suicidology and suicide prevention* (pp. 91–98). Oxford University press.

Brown, R. T., Hemati, K., Riley, E. D., Lee, C. T., Ponath, C., Tieu, L., Guzman, D., & Kushel, M. B. (2017). Geriatric conditions in a population-based sample of older homeless adults. *The Gerontologist*, *57*(4), 757–766.

Burrows, S., & Laflamme, L. (2005). Living circumstances of suicide mortality in a south African City: An ecological study of differences across race groups and sexes. *Suicide and Life-threatening Behavior*, *35*, 592–603.

Canetto, S. S. (1995). Elderly women and suicidal behavior. In S. S. Canetto & D. Lester (Eds.), *Women and suicidal behaviour*. Springer Publishing Company.

Capurso, A., Capurso, C., Solfrizzi, V., Colacicco, A. M., D'Introno, A., & Panza, F. (2007). Depression in old age: A diagnostic and therapeutic challenge. *Recenti Progressi in Medicina*, *98*, 43–52.

Casiano, H., Katz, L. Y., Globerman, D., & Sareen, J. (2013). Suicide and deliberate self-injurious behaviour in juvenile correctional facilities: A review. *Journal of Canadian Academy of Child and Adolescent Psychiatry*, *22*(2), 118–124.

Chang, S. S., Stuckler, D., Yip, P., & Gunnell, D. (2013). Impact of 2008 global economic crisis on suicide: Time trend study in 54 countries. *BMJ*, *347*, f5239.

Cho, J., Lee, W. J., Moon, K. T., Suh, M., Sohn, J., Ha, K. H., Kim, C., Shin, D. C., & Jung, S. H. (2013). Medical care utilization during 1 year prior to death in suicides motivated by physical illnesses. *Journal of Preventive Medicine and Public Health*, *46*(3), 147–154.

Cochran, S. V., & Rabinowitz, F. E. (2003). Gender-sensitive recommendations for assessment and treatment of depression in men. *Professional Psychology*, *2*, 132–140.

Conwell, Y. (2014a). Suicide later in life. Challenges and priorities for prevention. *American Journal of Preventive Medicine*, *47*, S244–S250.

Conwell, Y. (2014b). Suicide later in life. Challenges and priorities for prevention. *American Journal of Preventive Medicine*, *47*, S244–S250.

Conwell, Y., Duberstein, P. R., & Caine, C. (2002). Risk factors for suicide in later life. *Biological Psychiatry*, *52*, 193–204.

Conwell, Y., & Thomson, C. (2008). Suicidal behaviour in elders. *The Psychiatric Clinics of North America*, *31*, 333–356.

Courtet, P., Olié, E., Debien, C., & Vaiva, G. (2020). Keep socially (but not physically) connected and carry on: Preventing suicide in the age of COVID-19. *Journal of Clinical Psychiatry*, *81*(3), com13370.

De Leo, D. (1999). Cultural issues in suicide and old age. *Crisis*, *20*, 53–55.

De Leo, D. (2002). Struggling against suicide. *Crisis*, *23*, 23–31.

De Leo, D., & Arnautovska, U. (2016). Prevention and treatment of suicidality in older adults. In R. O'Connor & J. Pirkis (Eds.), *International handbook of Suicide prevention. Research, policy and practice*. Wiley Blackwell.

De Leo, D., Cerin, E., Spathonis, K., & Burgis, S. (2005). Lifetime risk of suicide ideation and attempts in an Australian Community: Prevalence, suicidal process, and help-seeking behaviour. *Journal of Affective Disorders*, *86*, 215–225.

De Leo, D., Cimitan, A., Dyregrov, K., Grad, O., & Andriessen, K. (2013). *Bereavement after traumatic death: Helping the survivors*. Hogrefe.

De Leo, D., & Diekstra, R. F. W. (1990). *Depression and suicide in late life*. Hogrefe & Huber.

De Leo, D., Draper, B., & Krysinska, K. (2009). Suicidal elderly people in clinical and community settings. In D. Wasserman & C. Wasserman (Eds.), *Oxford textbook of suicidology and suicide prevention* (pp. 703–719). Oxford University Press.

De Leo, D., Draper, B. M., Snowdon, J., & Kõlves, K. (2013a). Suicides in older adults: A case-control psychological autopsy study in Australia. *Journal of Psychiatric Research*, *47*, 980–988.

De Leo, D., Draper, B. M., Snowdon, J., & Kõlves, K. (2013b). Contacts with health professionals before suicide: Missed opportunities for prevention? *Comprehensive Psychiatry*, *54*, 1117–1123.

De Leo, D., Hickey, P., Meneghel, G., & Cantor, C. (1999). Blindness, fear of sight loss, and suicide. *Psychosomatics*, *40*, 339–344.

De Leo, D., Padoani, W., Lonnqvist, J., Kerkhof, A. J. F. M., Bille-Brahe, U., Michel, K., Salander-Renberg, E., Schmidtke, A., Wasserman, D., Caon, F., & Scocco, P. (2002). Repetition of suicidal behaviour in elderly Europeans: A prospective longitudinal study. *Journal of Affective Disorders*, *72*(3), 291–295.

De Leo, D., Padoani, W., Scocco, P., Lie, D., Arensman, E., Hjelmeland, H., Crepet, P., Haring, C., Hawton, K., Lonqvist, J., Michel, K., Pommereau, X., Querejeta, I., Phillipe, J., Salander-Renberg, E., Schmidtke, A., Fricke, S., Weinacker, B., Tamesvary, B., … Faria, S. (2001). Attempted and completed suicide in older subjects: Results from the WHO/EURO multicentre study of suicidal behaviour. *International Journal of Geriatric Psychiatry*, *16*, 300–310.

De Leo, D., & Scocco, P. (2000). Treatment and prevention of suicidal behaviour in the elderly. In K. Hawton & K. van Heeringen (Eds.), *The international handbook of suicide and attempted suicide* (pp. 555–570). Wiley.

de Mendonça Lima, C. A. (2011). Social determinants of health and promotion of mental health in old age. In S. Bährer-Kohler (Ed.), *Social determinants and mental health* (pp. 203–213). Nova Science Publishers.

Diefenbach, G. J., Woolley, S. B., & Goethe, J. V. (2009). The association between self-reported anxiety-symptoms and suicidality. *Journal of Nervous and Mental Disease*, *197*, 92–99.

Dombrovski, A. Y., & Szanto, K. (2005). Prevention of suicide in the elderly. *Annals of Long-Term Care*, *13*, 52–32.

Dombrovski, A. Y., Szanto, K., Duberstein, P., Conner, K. R., Houck, P. R., & Conwell, Y. (2008). Sex differences in correlates of suicide attempt lethality in late life. *American Journal of Geriatric Psychiatry*, *16*, 905–913.

Dorly, J. H. D., Huizink, A. C., Comijs, H. C., & Smid, T. (2005). Disaster and associated changes in physical and mental health in older residents. *European Journal of Public Health*, *15*(2), 170–174.

Draper, B., Kõlves, K., De Leo, D., & Snowdon, J. (2014). A controlled study of suicide in middle-aged and older people: Personality traits, age, and psychiatric disorders. *Suicide & Life-Threatening Behavior*, *44*, 130–138.

Draper, B., & Low, L. (2004). *What is the effectiveness of old-age mental health services?* Retrieved from http://www.euro.who.int/document/E83685.pdf.

Erlangsen, A., Nordentoft, M., Conwell, Y., Waern, M., de Leo, D., Lindner, R., Oyama, H., Sakashita, T., Andersen-Ranberg, K., Quinnett, P., Draper, B., Lapierre, S., & International Research Group on Suicide Among the Elderly. (2011). Key considerations for preventing suicide in older adults. *Crisis*, *32*, 106–109.

Erlangsen, A., Vach, W., & Jeune, B. (2005). The effect of hospitalization with medical illnesses on the suicide risk in the oldest old: A population-based register study. *Journal of the American Geriatric Society*, *53*, 771–776.

Farberow, N. (2001). Helping Suicide Survivors. In D. Lester (Ed.), *Suicide prevention. Resources for the millenium* (pp. 189–212). Brunner-Routledge.

Fawcett, J. (2009). Severe anxiety and agitation as treatment modifiable risk factors for suicide. In D. Wasserman & C. Wasserman (Eds.), *Oxford textbook of suicidology and suicide prevention* (pp. 407–411). Oxford University Press.

Fiske, A., Wetherell, J. L., & Gatz, M. (2009). Depression in older adults. *Annual Review of Clinical Psychology*, *5*, 369–389.

Gagne, P., & Whitehurst, L. (2010). Domestic homicide and homicide-suicide: The older offender. *Journal of the American Academy of Psychiatry and the Law*, *38*, 305–311.

Raue, P. J., Ghesquiere, A. R., & Bruce, M. L. (2014). Suicide risk in primary care: Identification and management in older adults. *Current Psychiatry Reports*, *16*(9), 466.

Global Burden Disease (GBD). (2019). Global, regional, and national burden of suicide mortality 1990 to 2016: Systematic analysis for the global burden of disease study 2016. *BMJ*, *364*, 194.

Goldblatt, M. J. (2000). Physical illness and suicide. In R. W. Maris, A. L. Berman, & M. M. Silverman (Eds.), *Comprehensive textbook of suicidology* (pp. 342–356). The Guilford Press.

Graham, N., Lindesay, J., Katona, C., Bertolote, J. M., Camus, V., Copeland, J. R. M., de Mendonça Lima, C. A., Gaillard, M., Nargeot, M. C. G., Gray, J., Jacobsson, L., Kingma, M., Kühne, N., O'Loughlin, A., Saraceno, B., Taintor, Z., & Wancata, J. (2003). Reducing stigma and discrimination against olderpeople with mental disorder: A technical consensus statement. *International Journal of Geriatric Psychiatry*, *18*, 670–678.

Harwood, D., & Jacoby, R. (2000). Suicidal behaviour among the elderly. In K. Hawton & K. van Heeringen (Eds.), *The international handbook of suicide and attempted suicide* (pp. 275–292). Wiley.

Harwood, D. M. J., Hawton, K., Hope, T., & Jacoby, R. (2000). Suicide in older people: Mode of death, demographic factors, and medical contact before death. *International Journal of Geriatric Psychiatry*, *15*, 736–743.

Hastings, M. E., Northman, L. M., & Tangney, J. P. (2002). Shame, guilt and suicide. In T. Jainer & D. Rudd (Eds.), *Suicide science* (pp. 67–79). Kluwer Academic Publishers.

Haw, C., Harwood, D., & Hawton, K. (2009a). Dementia and suicidal behaviour: A review of the literature. *International Psychogeriatrics*, *21*, 440–453.

Haw, C., Harwood, D., & Hawton, K. (2009b). Dementia and suicidal behaviour: A review of the literature. *International Psychogeriatrics*, *21*, 440–453.

Hawton, K., & Harriss, L. (2006). Deliberate self-harm in people aged 60 and over: Characteristics and outcome of a 20-year cohort. *International Journal of Geriatric Psychiatry*, *21*, 572–581.

Hawton, K., & Harriss, L. (2008). The changing gender ratio in occurrence of deliberate self-harm across the lifecycle. *Crisis*, *29*, 4–10.

Heine, C., & Browning, C. J. (2014). Mental health and dual sensory loss in older adults: A systematic review. *Frontiers in Aging Neuroscience*, *6*, 83.

HelpAge International. (2016a). *Older voices in humanitarian crises: Calling for change* Retrieved from https://www.helpage.org/what-we-do/emergencies/older-people-in-emergencies/

HelpAge International. (2016b). End the neglect: a study of humanitarian financing for older people. Retrieved from https://www.helpage.org/what-we-do/emergencies/older-people-in-emergencies/

HelpAge International. (2016c). Emergencies and humanitarian crises. Retrieved from https://www.helpage.org/what-we-do/emergencies/

Ivbijaro, G., Brooks, B., Kolkiewicz, L., Sunkel, C., & Lond, A. (2020). Psychological impact and psychosocial consequences of COVID 19 pandemic. Resilience, mental well-being and the coronavirus pandemic. *Indian Journal of Psychiatry.*, *62*, S395–S403. https://doi.org/10.4103/psychiatry.IndianJPsychiatry_1031_20

Ivbijaro, G., Kolkiewicz, L., Goldberg, D., Riba, M. B., Geller, J., Kallivayalil, R., Javed, A., Švab, I., Summergrad, P., Laher, S., & Enum, Y. (2019). Preventing suicide, promoting resilience: Is this achievable from a global perspective? *Asia-Pacific Psychiatry*, *11*(4), e12371. https://doi.org/10.1111/appy.12371

Jeong, H. G., Han, C., Park, M. H., Ryu, S. H., Pae, C. U., Lee, J. Y., Kim, S. H., & Steffens, D. C. (2014). Influence of the number and severity of somatic symptoms on the severity of depression and suicidality in community-dwelling elders. *Asia-Pacific Psychiatry*, *6*(3), 274–283.

Jordan, J. R., & McIntosh, J. L. (Eds.). (2011). *Grief after suicide: Understanding the consequences and caring for the survivors (Series in Death, Dying, and Bereavement)*. Routledge.

Jurlink, D. N., Herrmann, N., Szalai, J. P., Kopp, A., & Redelmeier, D. A. (2004). Medical illness and the risk of suicide in the elderly. *Archives of Internal Medicine*, *164*, 1179–1184.

Karvonen, K., Hakko, H., Koponen, H., Meyer-Rochow, V. B., & Rasanen, P. (2009). Suicides among older persons in Finland and time since hospitalization discharge. *Psychiatric Services*, *60*, 390–393.

Katona, C., Chiu, E., Adelman, S., Baloyannis, S., Camus, V., Firmino, H., Gove, D., Graham, N., Ghebrehiwet, T., Icelli, I., Ihl, R., Kalasic, A., Leszek, L., Kim, S., de Mendonça Lima, C. A., Peisah, C., Tataru, N., & Warner, J. (2009). World psychiatric association section of old age psychiatry consensus statement on ethics and capacity in older people with mental disorders. *International Journal of Geriatric Psychiatry*, *24*, 1319–1324.

Krysinska, K., Heller, T. S., & De Leo, D. (2006). Suicide and deliberate self-harm in personality disorders. *Current Opinion in Psychiatry*, *18*, 95–101.

Lapierre, S., Erlangsen, A., Waern, M., de Leo, D., Oyama, H., Scocco, P., Gallo, J., Szanto, K., Conwell, Y., Draper, B., Quinnett, P., & International Research Group for Suicide among the Elderly. (2011). A systematic review of elderly suicide prevention programs. *Crisis*, *32*, 88–98.

Law, C. K., Kõlves, K., & De Leo, D. (2016). Influences of population-level factors on suicides in older adults: A national ecological study from Australia. *International Journal of Geriatric Psychiatry*, *31*, 384–391.

Lennon, K. (2018). Palliative care may reduce suicide among lung care patients. *Chest Physician*, *13*. Retrieved from https://www.mdedge.com/chestphysician/article/166073/lung-cancer/palliative-care-may-reduce-suicide-among-lung-cancer.

Loebel, J. P., Loebel, J. S., Dager, S. R., Centerwall, B. S., & Reay, D. T. (1991). Anticipation of nursing home placement may be a precipitant of suicide among the elderly. *Journal of the American Geriatric Society*, *91*, 407–415.

Lönnqvist, J. (2001). Physical illness and suicide. In D. Wasserman (Ed.), *Suicide: An unnecessary death* (pp. 93–98). Martin Dunitz.

Malmquist, C. P. (2006). Combined murder-suicide. In R. I. Simon & R. E. Hales (Eds.), *Textbook of suicide assessment and management* (pp. 495–509). The American Psychiatric Publishing.

Malphurs, J. E., & Cohen, D. (2005). A statewide case-control study of spousal homicide-suicide in older persons. *American Journal of Geriatric Psychiatry*, *13*, 211–217.

Mann, J. J., & Currier, D. M. (2010). Stress, genetics and epigenetic effects on the neurobiology of suicidal behaviour and depression. *European Psychiatry*, *25*(5), 268–271.

Mercadante, S., & Piccione, T. (2020). Assisted suicide, euthanasia, or more need for palliative care? *Annals of Oncology.*, *31*(5), 659.

Michel, K. (2000). Suicide prevention and primary care. In K. Hawton & K. van Heeringen (Eds.), *The International handbook of Suicide and attempted Suicide* (pp. 661–674). Wiley.

Montano, C. B. (1999). Primary care issues related to the treatment of depression in elderly patients. *Journal of Clinical Psychiatry*, *60*, 45–51.

Navarro, C., Ayala, L., & Labeaga, J. M. (2010). Housing deprivation and health status: Evidence from Spain. *Empirical Economics*, *38*, 555–582.

Nelson, L. J., & Ramirez, E. (2017). Can suicide in the elderly be rational? In R. E. McCue & M. Balasubramaniam (Eds.), *Rational Suicide in the elderly. Clinical, ethical and sociocultural aspects* (pp. 1–21). Springer.

Neulinger, K., & De Leo, D. (2001a). Suicide in elderly and youth population: How do they differ? In D. De Leo (Ed.), *Suicide and euthanasia in older adults* (pp. 137–154). Hogrefe & Huber Publishers.

Neulinger, K., & De Leo, D. (2001b). Suicide in elderly and youth population: How do they differ? In D. De Leo (Ed.), *Suicide and euthanasia in older adults* (pp. 137–154). Hogrefe & Huber Publishers.

Niederktotenthaler, T., Gunnell, D., Arensman, E., Pirkis, J., Appleby, L., Hawton, K., John, A., Kapur, N., O'Connor, R. C., Platt, S., & the International COVID-19 Suicide Prevention Research Collaboration. (2020). Suicide research, prevention, and COVID 19. Towards a global response and the establishment of an international research collaboration. *Crisis*, *41*, 321–330. https://doi.org/10.1027/0227-5910/a000731

O'Dwyer, S., & De Leo, D. (2016). Older adults and suicide. In D. Wasserman (Ed.), *Suicide: An unnecessary death* (2nd ed., pp. 215–227). Cambridge University Press.

Oriol, W. (1999). Psychosocial issues for older adults in disasters. *Center for Mental Health Services*.

Parliamentary and Health Service Ombudsman. (2015). Breaking down the barriers: Older people and complaints about health care. Retrieved from https://www.ombudsman.org.uk/sites/default/files/Breaking_down_the_barriers_report.pdf

Pope, A. (2017). A psychological history of ageism and its implications for elder suicide. In M. C. RE & M. Balasubramaniam (Eds.), *Rational Suicide in the elderly. Clinical, ethical and sociocultural aspects* (pp. 63–74). Springer, Cham.

Qin, P., Agerbo, E., & Mortensen, P. B. (2002). Suicide risk in relation to family history of completed suicide and psychiatric disorders: A nested case-control study based on longitudinal registers. *Lancet*, *360*(9340), 1126–1130.

Rabheru, K. (2004). Special issues in the management of depression in older patients. *Canadian Journal of Psychiatry*, *49*, 41–50.

Reynolds, C. F., III, & Kupfer, D. J. (1999). Depression and aging: A look to the future. *Psychiatric Services*, *50*, 1167–1172.

Rubenowitz, E., Waern, M., Wilhelmson, K., & Allebeck, P. (2001). Life events and psychosocial factors in elderly suicides – A case-control study. *Psychological Medicine*, *31*, 1193–1202.

Rutz, W. (2001). The role of primary physicians in preventing suicide: Possibilities, short-comings, and the challenge in reaching male suicides. In D. Lester (Ed.), *Suicide prevention: Resources for Teg millennium* (pp. 173–187). Brunner-Routledge.

Salvatore, T., Dodso, K. D., Hull, A., Harr, D., & Brown, J. (2018). Elder abuse as a risk factor for suicidal behavior in older adults. *The Forensic Mental Health Practitioner*, *1*(1), 1–11.

Schneider, B., Maurer, K., & Frolich, L. (2001). Dementia and suicide. *Fortschritte der Neurologie-Psychiatrie*, *69*, 164–173.

Searight, H. R., & Gafford, J. (2005). Cultural diversity at the end of life: Issues and guidelines for family physicians. *American Family Physician*, *71*(3), 515–522.

Shah, A., Bhat, R., MacKenzie, S., & Koen, C. (2008). Elderly suicide rates: Cross/national comparison of trends over a 10-year period. *International Psychogeriatrics*, *20*, 673–686.

Shah, A., Zarate-Escudero, S., Bhat, R., De Leo, D., & Erlangsen, A. (2014). Suicide in centenarians: the international landscape. *International Psychogeriatrics*, *26*, 1703–1708.

Shah, A. K., & De, T. (1998). Suicide and the elderly. *International Journal of Psychiatry in Clinical Practice*, *2*, 3–17.

Sisask, M., Värnik, A., Kolves, K., Konstabel, K., & Wasserman, D. (2008). Subjective psychological well-being (WHO-5) in assessment of the severity of suicide attempt. *Nordic Journal of Psychiatry*, *62*(6), 431–435.

Stoppe G (n.d.) On behalf of the Mental Health/working group "Ageing of the population". *The Swiss Society for Public Health*

Suicide Prevention Resource Center. *Prevention of Suicide in primary care Elderly: Collaborative trial (PROSPECT)* (2007). The Suicide Prevention Resource Center. Retrieved from http://www.sprc.org/sites/default/files/Prevention%20of%20Suicide%20in%20Primary%20Care%20Elderly%20Collaborative%20Trial%20%28PROSPECT%29%20NREPP%20Lgacy%20Listing.pdf

Torresani, S., Toffol, E., Scocco, P., & Fanolla, A. (2014). Suicide in elderly South Tyroleans in various residential settings at the time of death: A psychological autopsy study. *Psychogeriatrics*, *14*, 101–109.

Turvey, C. L., Conwell, Y., Jones, M. P., Phillips, C., Simonsick, E., Pearson, J. L., & Wallace, R. (2002). Risk factors for late-life suicide: A prospective, community-based study. *American Journal of Geriatric Psychiatry*, *10*, 398–407.

Uncapher, H., & Arean, P. A. (2000). Physicians are less willing to treat suicidal ideation in older patients. *Journal of the American Geriatrics Society*, *48*, 188–192.

UNHCR. (2020). *UNHCR emergency handbook* (4th ed.) United Nations. Retrieved from https://emergency.unhcr.org/entry/251401/older-persons.

Van Orden, K. A., Witte, T. K., Cukrowicz, K. C., Braithwaite, S. R., Selby, E. A., & Joiner, T. E., Jr. (2010). The interpersonal theory of suicide. *Psychological Review*, *117*(2), 575–600.

Voaklander, D. C., Rowe, B. H., Dryden, D. M., Pahal, J., Saar, P., & Kelly, K. D. (2008). Medical illness, medication use and suicide in seniors: A population-based case-control study. *Journal of Epidemiology and Community Health*, *62*, 138–146.

Waern, M., Rubenowitz, E., Runeson, B., Skoog, I., Wilhelmson, K., & Allebeck, P. (2002). Burden of illness and suicide in elderly people: Case-control study. *British Medical Journal*, *324*, 1355.

Wasserman, D. (2001). Strategy in suicide prevention. In D. Wasserman (Ed.), *An unnecessary death* (pp. 211–216). Martin Dunitz.

Wasserman, I. M. (1992). The impact of epidemic, war, prohibition and media on suicide: United States, 1910-1920. *Suicide and Life Threatening Behaviour.*, *22*, 240–254.

WHO. (2014). *Preventing suicide: A global imperative*. World Health Organization.

WHO. (2019). *Suicide in the world*. World Health Organization.

World Health organization. (2000). *Preventing suicide: A resource for primary health care workers*. WHO.

World Health Organization. (2003). *Mental health in emergencies: Psychological and social aspects of health of populations exposed to extreme stressors*. World Health Organization.

World Health Organization. (2020). Fact sheet on elder abuse. Retrieved from https://www.who.int/news-room/fact-sheets/detail/elder-abuse

World Health Organization & International Association for Suicide Prevention. (2008). *Preventing suicide: A resource for media professionals*. WHO.

Yip, P. S., Cheung, Y. T., Chau, P. H., & Law, Y. W. (2010). The impact of epidemic outbreak: The case of severe acute respiratory syndrome (SARS) and suicide among older adults in Hong Kong. *Crisis*, *31*, 86–92. https://doi.org/10.1027/0227-5910/a000015

Yon, Y., Mikton, C. R., Gassoumis, Z. D., & Wilber, K. H. (2017). Elder abuse prevalence in community settings: A systematic review and meta-analysis. *Lancet Global Health*, *5*(2), e147–e156 Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/28104184/.

Yon, Y., Ramiro-Gonzalez, M., Mikton, C., Huber, M., & Sethi, D. (2019). The prevalence of elder abuse in institutional settings: A systematic review and meta-analysis. *European Journal of Public Health.*, *29*(1), 58–67. https://doi.org/10.1093/eurpub/cky093

Yoshimasu, K., Kiyohara, C., & Miyashita, K. (2008). Suicidal risk factors and completed suicide: Meta-analyses based on psychological autopsy studies. *Environmental Health and Preventive Medicine*, *13*(5), 243–256.

How to cite this article: de Mendonça Lima, C. A., De Leo, D., Ivbijaro, G., & Svab, I. (2021). Suicide prevention in older adults. *Asia-Pacific Psychiatry*, *13*(3), e12473. https://doi.org/10.1111/appy.12473