

Dementia management in the COVID-19 crisis era

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Abstract

The COVID-19 crisis has perplexed the management of dementia. Repetitive confinement and quarantine measures, the high vulnerability of older adults to severe acute respiratory syndromes and the difficulties of healthcare systems to cope with the overwhelming care needs, have placed people with dementia at even greater disadvantage compared to the pre-crisis period. Here, data on the particularities of the treatment of COVID-19 infections in older adults with dementia, COVID-19 crisis-related changes in dementia management and the increase of caregiver burden are succinctly presented. Moreover, light is shed on the ramifications of ageist attitudes and on the challenges of allocating limited healthcare resources, which threaten clinicians with moral injury. Despite not being a one size fits all strategy, telemedicine services seem to embody a pragmatic way to overcome, at least partially, the effects of the reduction or even suspension of non-emergency diagnostic and therapeutic in-person dementia care services during the COVID-19 crisis. In addition, increasing awareness among medical and non-medical professionals about the principles of healthcare ethics, transparent decision-making and implementation of distress-mitigating interventions for hospital workforces could facilitate moral injury prevention and sufficient coping with moral stress in the field of dementia care in the COVID-19 crisis and beyond it.

Key words: COVID-19; dementia treatment; caregiver burden; moral injury; telemedicine

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INTRODUCTION

The COVID-19 crisis

It has already been almost two years since the World Health Organization declared Coronavirus disease 2019 (COVID-19) a pandemic. The term coronavirus disease 2019 (COVID-19) refers to an acute respiratory infection which is caused by the novel RNA virus severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) [1,2]. The clinical impact of the new virus ranges from asymptomatic phenotypes to acute respiratory distress syndrome, metabolic acidosis, liver, kidney and heart failure, but has also implications for mental health [3–5]. These clinical uncertainties in conjunction with the appearance of new virus variants being increasingly transmissible and the detrimental socioeconomic effects of draconic measures (e.g. con-

finement, quarantine) have created a stressful healthcare and public terrain that encumbers public health, global economy and social cohesion [6]. Coronavirus disease cannot be approached as a healthcare challenge solely concerning infectious disease specialists and pneumonologists as it co-exists or even interacts with other morbidities that continue to affect individuals. Interestingly, vertical and primary focus on preventing and containing COVID-19, seems to have led to disruptions in healthcare service provision-, access- and supply chains. Of note, older adults with dementia have paid an enormous death toll since the outbreak of the COVID-19 crisis, since they are particularly vulnerable to its detrimental effects [7,8].

Dementia symptoms and treatment

Dementia embodies a complex phenotype and a therapeutic challenge. The term dementia denotes a syndrome that is characterized by a triad of symptom groups: persistent deterioration of cognitive function upon a relatively stable level of consciousness (e.g. memory-, attention-, language deficits), behavioural and psychological (neuropsychiatric) symptoms such as apathy, depressive mood, anxiety, agitation, irritability, hallucinations, and disturbances in complex and basic activities of daily living [9]. Dementia can be caused by various diseases. Neurodegenerative diseases- including Alzheimer disease (AD) and Lewy bodies disease, and cerebrovascular disease constitute the most common causes of dementia [10]. The pharmacological treatment of dementia in Europe is based on medications, which ideally mildly ameliorate or stabilize cognitive symptoms, as well as on psychopharmacological agents in order to treat neuropsychiatric symptoms [11,12]. The other backbone of dementia management encompasses non-pharmacological interventions, such as cognitive training, occupational therapy and physical exercise, counselling services for patient caregivers and environmental modifications aiming to help people with dementia and their families to deal with the multifaceted ramifications of patient's functional decline [13]. Due to the lack of one-size-fits-all therapy, dementia management embodies a quite challenging task.

COVID-19 crisis and dementia symptoms

The drastic measures imposed by governments to keep the pandemic at bay, as for instance those of home confinement and social distancing, significantly affect the mental health of older adults living with dementia.

Their outdoor and social activities, physical contact with their families and friends, visits to their doctors or day-care centres have been significantly diminished. In this context, there are indications of cognitive, neuropsychiatric and functional worsening in people with dementia during the confinement period [8,14–18]. Higher prevalence and severity of neuropsychiatric symptoms, such as agitation, apathy, depression, anxiety and changes in appetite, were shown to correlate closely with the duration of confinement and lower cognitive function, while an overall worsening of cognitive symptoms with or without a decrease of functional independence was observed during confinement in parts of the studied samples [15,16,19–21]. It should be underscored that most of these studies included relatively small cohorts, they did not consider longitudinal changes in dementia symptoms and they were conducted over the telephone. Despite these limitations, such studies shed light on the negative effects of the COVID-19 crisis on the mental health of older adults with dementia.

COVID-19 symptoms in people with dementia

People with dementia are at high risk for becoming seriously infected with COVID-19. Their difficulties to firmly grasp the dangers related to the COVID-19 crisis and adhere to the necessary preventive measures, as well as the residence of a part of them at nursing homes, where the chance of transmission is higher, make older adults with dementia particularly vulnerable to COVID-19 infection [20–23]. Moreover, older adults suffering from chronic diseases such as dementia develop more serious and lethal forms of COVID-19 [14]. They are more vulnerable to the development of severe neuropsychiatric phenotypes, including delirium, stroke, seizures and encephalitis-like presentations [24,25], which are associated with poor prognosis. Risk factors include old age, dementia and multiple drug use. The consequences of COVID-19, such as organ failure, electrolyte abnormalities and sepsis, may also contribute to the presence of delirium. The association between dementia and serious COVID-19 symptoms does not exclusively stem from the well-studied increased mortality rate of dementia; it may also mirror the consequences of ageist approaches in allocating healthcare resources in exceptional resource-limited constellations such as those of significant surges in COVID-19 cases [26,27]. A further factor that may underpin this association is the common initial manifestation of the infection in older adults with atypical symptoms such as altered mental

status without cough or fever which can stymie early diagnosis and initiation of the appropriate therapeutic interventions [21,23,28].

The aim of this review is to succinctly capture the challenges related to dementia management which confront medical and non-medical professionals and caregivers in the complex context of the COVID-19 crisis. The following lines point to the necessity of paving the way towards pragmatic strategies, in order to optimally meet the healthcare needs of people with dementia, ease the burden of their caregivers and improve the quality of life of both.

Pharmacological treatment of individuals with dementia and COVID-19 infection

Respiratory system

COVID-19 infection affects a wide range of organs and systems and subsequently may lead to alterations of drug pharmacokinetics as well as to a higher vulnerability to adverse effects related to psychotropics commonly prescribed to people with dementia [29–31]. Frequently affected in symptomatic COVID-19 cases, the respiratory system may be suppressed by psychotropics such as benzodiazepines, despite their crucial role in alleviating symptoms of anxiety in contexts with severe pneumonia or acute respiratory distress syndrome. Moreover, certain antipsychotics, such as risperidone and olanzapine, have been shown to be related to respiratory distress [32–35]. Individuals on clozapine, such as patients suffering from dementia due to Parkinson's disease or Lewy bodies [36], deserve particular attention, since this atypical antipsychotic might lead to serious pneumonia [37–40]. In the absence of guidelines regarding the use of benzodiazepines and antipsychotics in patients with COVID-19, clinicians are called to carefully weigh in each individual case the risks and benefits of initiating or continuing such medications and to properly adjust their dosages.

Cardiovascular system

Even though no final conclusions have been drawn with regard to the impact of arterial hypertension and cardiovascular diseases on the outcome of COVID-19 infection, the effects of psychotropic medication on cardiovascular system should be taken into account in the treatment of patients infected by COVID-19 [41]. Antipsychotics are associated with severe cardiovascular adverse effects, e.g. ventricular arrhythmia with subsequent corrected-QT (QTc) prolongation and sud-

den cardiac death [42]. Particularly, the mortality rate of older adults with dementia, being under antipsychotic therapy, is significantly high [43]. Moreover, tricyclic antidepressants (TCAs) exert cardiotoxic effects [44]. They pertain to increased risk for arrhythmias, tachycardia and coronary heart disease and are contraindicated in older adults. Finally, because of the high risk for QTc prolongation, upper limits for the selective serotonin reuptake inhibitors (SSRIs) citalopram and escitalopram dosing in older adults have been recommended, although scientific evidence is not solid yet [45].

Haematological changes

In many cases of COVID-19, lymphopenia and leukopenia have been reported [46, 47]. These findings are associated with unfavourable prognosis, mainly because they increase the risk of further infections. Therefore, medications affecting white blood cell production should be prescribed with caution or be avoided, if possible. For instance, the initiation of a treatment with clozapine, which can lead to blood dyscrasia with severe agranulocytosis [48] and subsequently increase the risk for pneumonia and further complications [49], should be carefully determined even in patients with dementia due to Lewy bodies who suffer from psychotic symptoms. Furthermore, COVID-19, along with immobilization and hypoxia pertains to increased risk of deep vein thrombosis [50]. Certain antipsychotics, such as clozapine, quetiapine and risperidone, might further increase this possibility, too [51]. On the other hand, SSRIs have been shown to be related to higher risk for gastrointestinal tract bleeding and intracranial bleeding [52].

Hepatic and renal function alterations

COVID-19 can lead to acute liver and kidney injury [53]. Acknowledging that psychotropics rely on hepatic metabolism and/or renal excretion, dosage adjustments are likely to become inevitable. TCAs, atypical antipsychotics and lithium, which have been accused of hepatotoxicity or nephrotoxicity, should be avoided in patients with acute liver and/or kidney injury.

Neuropsychiatric side effects of suggested COVID-19 treatments (Table 1)

Remdesivir

Remdesivir is an antiviral agent which inhibits the RNA-dependent-RNA-polymerase of SARS-CoV-2 and subsequently decreases viral load [54]. No neuropsychi-

Table 1. Potential side effects of suggested COVID-19 treatments on mental health of people with dementia

Suggested Covid-19 Treatments	Potential Neuropsychiatric Side Effects
Remdesivir	Rare side effects including excessive sweating and shivering may mimic panic attack symptoms Drug-drug interactions with psychotropic medication
Chloroquine and hydroxychloroquine	Delirium, agitation, suicidality, personality changes, depression, sleep disturbances, psychotic symptoms Drug-drug interactions with psychotropic medication
Corticosteroids	Agitation, depression, anxiety, euphoria, hypomania, insomnia, irritability, delirium, psychotic symptoms, cognitive deterioration Drug-drug interactions with psychotropic medication
Colchicine	Delirium, seizures
Monoclonal antibodies	None

chiatric side effects of remdesivir have been reported so far [55]. Rare side effects including excessive sweating and shivering may be erroneously interpreted as symptoms of a panic attack. However, remdesivir may elevate the levels of hepatic enzymes and perplex the use of hepatically metabolized or hepatotoxic psychotropic drugs.

Chloroquine and hydroxychloroquine

Chloroquine, an anti-malarian drug, and hydroxychloroquine, its derivative compound that is widely used in rheumatology, had initially emerged as a potential treatment of COVID-19. However, the use of (hydroxy)chloroquine is currently not recommended in patients with COVID-19. Both chloroquine and hydroxychloroquine are associated with various neuropsychiatric side effects, such as delirium, agitation, suicidality, personality changes, depression, sleep disturbances and psychotic symptoms, to which people with dementia are particularly sensitive [55,56]. They are metabolized by CYP3A4, which is either inhibited or induced by many psychotropics, while chloroquine and hydroxychloroquine inhibit CYP2D6, pertain to QTc prolongation and decrease seizure threshold. Thus, treating people with dementia and COVID-19 infection with (hydroxy)chloroquine exposes them to drug-drug interactions, resulting in lower effectiveness and higher risk for cardiovascular, neurological and other side effects.

Corticosteroids

Since SARS-CoV-2 provokes an excessive inflam-

matory response, corticosteroids were proposed as potential treatment, as they have anti-inflammatory effects. Nonetheless, since corticosteroid use in individuals with COVID-19 infection is related to delayed viral clearance and did not convincingly improve survival in all patients, corticosteroids should be used with extreme caution in the treatment of COVID-19 [57]. Their well-known neuropsychiatric and cognitive side-effects such as agitation, depression, anxiety, euphoria, hypomania, insomnia, irritability, delirium, psychosis and cognitive deterioration may complicate a dementia syndrome [58]. Moreover, corticosteroids induce CYP3A4 and CYP2C19, so potential drug-drug interactions should be also taken into account [59].

Colchicine

Due to its anti-inflammatory features, colchicine has been proposed as a treatment against COVID-19 infection [60]. Toxic levels of colchicine are related to delirium or seizures, which occur with higher incidence in individuals with dementia than in the general population [61,62]. Clinicians should be aware of the possible drug-drug interactions of colchicine, as its metabolism and excretion may be affected by drugs, such as clarithromycin, cyclosporine, ketoconazole, ritonavir, azithromycin [63,64].

Monoclonal antibodies

Three monoclonal antibody products have received Emergency Use Authorizations (EUAs) from the Food and Drug Administration (FDA) for the treatment of mild to moderate COVID-19 so far, mainly

bamlanivimab plus etesevimab, casirivimab plus imdevimab and sotrovimab [65–67]. The former two can additionally be prescribed as post-exposure prophylaxis (PEP) for individuals who are at high risk of acquiring COVID-19. No neuropsychiatric side effects or negative effects on cognitive function of the aforementioned monoclonal antibody products have been reported yet.

Nonpharmacological management of dementia in the era of the COVID-19

Social distancing- and generalized lockdown measures led to the reduction or even to the suspension of non-emergency diagnostic and therapeutic healthcare services for older adults with dementia (e.g. reduction of the size of therapy groups at Day Care Centres) and deprived people with dementia of in-person mental healthcare services. ‘Telemedicine’ provides a model of care provision, based on new technologies, which has proven valuable in mitigating the detrimental effects of the COVID-19 crisis on traditional care of older adults with dementia [68–70]. Telephone-calls and video conferences using platforms available online like WhatsApp, Zoom, FaceTime and Teams facilitate ongoing follow-up and management of patients with dementia. They even enable assessment of cognitive functions of older adults with cognitive complaints, since online audio-visual versions of popular neuro-cognitive instruments such as the Mini-Mental State Examination (MMSE) and the Montreal Cognitive Assessment (MoCA) have been developed [71]. Moreover, the use of electronic health record systems through online platforms like Google Forms and e-mails notifying patients of necessary diagnostic examinations or medical prescriptions have greatly contributed to all this effort.

To a large extent, the daily schedule of Dementia Day Care Centres went on-line [69,70]. Webinars and podcasts on the COVID-19 crisis were organised. Videos with recommendations on strategies to minimize the risk of virus transmission, on physical activity at home, on exercises for cognitive stimulation and speech/swallowing interventions for people with dementia are publicly available via websites of such centres and further institutions for dementia and ageing. Moreover, every day real-time group sessions were carried out online for people with dementia to boost their memory and physical condition and individualized psychotherapeutic sessions via phone-

calls or online were offered. Cognitive and physical enhancement exercises and videos were also sent to the email address of caregivers on a regular basis [69]. In cases of caregiver-patient dyads with no access to the internet, virtual illiteracy or disabilities impeding their participation in the aforementioned programs, or absolute absence of a supportive social network, healthcare professionals (social workers, nurses, psychologists) conducted home visits following all necessary preventive measures for COVID-19 transmission. They not only provided psychosocial support, cognitive stimulus exercises, information guides for COVID-19 written in a simple and comprehensive way, but also tried to familiarize older adults with the use of the internet, video conference applications, so that after a few visits they could participate in online sessions.

New technologies also facilitated the operation of long-term care facilities for people with dementia in the COVID-19 crisis. Videoconferences were employed for observing and addressing the behavioural symptoms of patients with dementia living in long-term care facilities and curbed the rates of their hospital admissions [72]. Devices like smartphones and tablets have enabled the communication of older people living in such facilities with their families and friends, since visiting has been radically restricted or even suspended [73]. Video calling formed an alternative way to remain in touch with relatives and friends during the crisis, avoid social isolation and affective destabilization, while smart devices provide the opportunity to listen to music and download useful apps for stimulus memory games [73–75].

The integration of telemedicine and technological devices into dementia management is not a straightforward process. Important barriers have been brought into light by healthcare professionals, people with dementia and their caregivers [72]. First of all, older adults and even more older adults with dementia may face great difficulties to become familiar with the operation of technological devices or internet services, the use of which may be hampered by the lack of the necessary resources (smartphones, tablets, webcams) or low connection quality particularly in rural or remote areas [69,72]. Of note, visual and/or auditory sensory impairments related to ageing may set up further barriers. What is more, successful participation in therapeutic video conference sessions mostly depends on the motivating and supporting endeavours of the

caregiver and is rarely possible in cases of patients left alone during such sessions, while increasing severity of cognitive deficits undermines their participation in telemedicine [76].

Dementia caregiver challenges in the era of the COVID-19

Caregivers of people with dementia are very prone to developing depression and anxiety symptoms as well as to report low quality of life [77], since caring for people with dementia embodies a chronic stressor [78]. Caregiver burden mainly depends on patients' needs for support in activities of daily living, their neuropsychiatric symptoms and their memory- and executive function deficits. It is also contingent on the physical and emotional resilience of the carer [79]. Resilience is related to the degree of dependence caring, the presence of depressive and anxiety symptoms and the health-related quality of life of the caregiver [80]. Therefore, both caregiver-related and patient-related factors influence caregiver's burden.

Caregivers of people with dementia belong to the hidden victims of the outbreak of the COVID-19 pandemic. Confinement measures increased caregivers' stress independently of the severity of symptoms of the individual with dementia, but the more severe the symptoms were, the higher the stress experienced by the caregiver [81]. Decline in cognition, communication, affective symptoms, movement disturbances and low compliance with the measures imposed by governments during the COVID-19 crisis were associated with increased caregivers' psychological and physical burden, particularly where the available support sources were limited [82–84]. Despite the lack of general agreement [85], confinement duration seems to correlate with the severity of caregiver depressive symptoms. This association may be attributed to the detrimental effects of social distancing and mobility restrictions on psychological support of caregivers [86]. Interestingly, even in the absence of significant changes in neuropsychiatric symptoms of patients before and after the outbreak of COVID-19 pandemic, caregiver distress severity during the confinement period was influenced not only by memory deficits and neuropsychiatric symptoms of patients, but also by caregiver hyperarousal and avoidance symptoms, reflecting the traumatic dimension of the pandemic, and worries directly linked to the COVID-19 crisis [78]. Quite unexpectedly, caregivers with high resilience

were shown to be more vulnerable to significant increase in anxiety levels during lockdown than caregivers with low resilience [86]. Furthermore, tension and stress in families which had been called to replace the main caregiver because of COVID-19 infection have been reported due to the subsequent changes in the roles of family members and their relationships [87]. Hence, there is an urgent need for psychotherapeutic interventions, so that levels of depression, anxiety and caregiver burden are reduced.

Strategies for easing caregiver burden include avoiding isolation, attending group support meetings and sharing the burden of care with other family members and other caregivers [88]. As the access to community services providing mental healthcare for people with dementia and their caregivers has been restricted during the COVID-19 crisis, caregivers have taken advantage of telemedicine services. Webinars and podcasts for caregivers providing useful information, support, self-help guidance and ways of enriching the daily routine of people with dementia with creative activities, while being obliged to stay at home, were organized and are still available on demand [89]. In addition, video conferences promote a more direct interaction which encompasses not only verbal but also non-verbal communication. In this way, telemedicine embodies a feasible strategy to support caregivers and families of older adults with dementia [90].

Further factors perplexing dementia management during the COVID-19 crisis: Ageism and moral injury

The COVID-19 pandemic has given rise to ethical issues related to healthcare of older adults which challenge and can morally injure healthcare providers in acute phases of the crisis. In such phases, geriatric patients tend to be treated as a lower priority for healthcare systems. Older age pertains to a less favourable pathophysiological response to COVID-19 infection, higher proneness to severe symptoms, drug side effects and a higher fatality ratio compared to younger individuals [91]. This evidence underpins ageist attitudes which may contaminate clinical practice. Ageism is defined by the World Health Organisation (WHO) as the 'stereotyping, prejudice and discrimination against people on the basis of their age' [92,93]. Clinical syndromes like dementia are considered to be a reason for older adults' stigma because of their impaired cognitive and functional performance and

potential and partial loss of agency. Ageism correlates with adverse health in multiple ways, as well as with impaired memory and depression [91,94,95].

The management of the COVID-19 crisis has often exceeded the capacities of healthcare systems, as indicated by deficiencies in intensive care unit beds and ventilators. In the battle of resource allocation procedures, older adults and even more older adults with dementia seem to be placed at disadvantage as a consequence of a widespread implicit bias [96], arising from the conviction that older adults should or even wish to “make way” for younger people in the current deep crisis [97]. Moreover, the necessary modifications in healthcare services, so that the increasing treatment needs of patients with COVID-19 are adequately met, may undermine the proper operation of non-urgent healthcare services, from which the overall health of older people mostly benefits [91,98].

Many critical questions arise as clinicians are confronted with the challenges of allocation of limited healthcare resources. Dealing with these challenges is not always based on fair and transparent criteria. Triage protocols considering non-medical criteria like age and disability status of the patient in decision-making may result in the exclusion of older adults with dementia from proper diagnostic endeavours and therapeutic interventions [99]. Furthermore, clinicians are called upon to take crucial decisions in demanding practice environments, while clinical practice guidelines are not always clear-cut. The difficulties in shared decision-making in cases of individuals with dementia being partially or totally incapable of participating in decision-making [100] is further complicated by difficulties in the communication with patients' families due to mobility restrictions and the immense physical and emotional burden of clinicians serving on the frontline during the current severe pandemic crisis [101]. These circumstances form a terrain of moral stress and ethical dilemmas [102] on which medical and non-medical healthcare professionals treating patients with dementia are frequently bound to make decisions directly contrasting those they would make in a less stressful and demanding setting.

Moral injury refers to the psychological distress which occurs in individuals who are exposed to traumatic or unusually stressful events that transgress their moral values or ethical code. Morally injurious events include perpetration, omission or being a witness of acts that violate moral and predictive expectations

and/or betrayal by a trusted authority [103–105]. The core symptoms of moral injury encompass shame, guilt, spiritual/existential conflict and loss of trust in self, others, and/or transcendental beings. Moral injury in healthcare workers is closely associated with frustration, burnout, thoughts, or decision to quit the profession. These symptoms are commonly accompanied by physical symptoms, such as headaches, muscle tension, gastrointestinal and sleep disturbances [106,107]. Of note, moral injury does not embody a mental disorder, even though it shares symptoms with post-traumatic stress disorder (PTSD). Nevertheless, moral injury can contribute to or even trigger the development of a variety of mental health problems, such as adjustment disorder, depression, burnout and PTSD [103,107,108], which deprive healthcare services of workforces with moral sensitivity, empathy and prosocial behaviour, characteristics particularly desired in the field of dementia care [109,110]. Healthcare providers with symptoms of moral injury may benefit from an amalgamation of validated psychological treatments, such as cognitive behavioural therapy (CBT), compassion focused therapy and psycho-education sessions with family members [103,111]

Conclusionary remarks: The way ahead

The outbreak of the COVID-19 pandemic crisis has further perplexed the complex management of dementia. The puzzle of the new setting consists of pieces with variable characteristics. It includes (i) the high vulnerability of older adults with dementia to severe phenotypes of the COVID-19 infection, which may be negatively affected by psychotropic medication (e.g. suppressive effects of benzodiazepines on respiratory function, cardiotoxic effects of antipsychotics and older antidepressants), (ii) the neuropsychiatric side effects of COVID-19 treatment, (iii) the reduction or even suspension in acute phases of the pandemic of non-emergency diagnostic and non-pharmacological therapeutic care services for individuals with dementia, (iv) the increasing caregiver burden and (v) medical- and nonmedical healthcare providers frustrated by physical exhaustion, ethical dilemmas and moral injury, pertaining for instance to pursuing non-medical criteria (e.g. age, disability status) for allocating limited healthcare resources. Healthcare providers of older adults with dementia are called to cope with highly demanding circumstances and deal with tasks which at least partially seem to be sisyphian.

Pragmatic, albeit not one size fits all strategies such as telemedicine services and boosting the resilience of healthcare professional have been proposed and implemented as ways to alleviate the detrimental effects of the COVID-19 crisis on dementia management. Despite the initial enthusiasm, online and telephone healthcare services do not efficiently facilitate the establishment of physician-patient therapeutic alliance and interpersonal engagement compared to face-to-face services [69,90], while inaccuracies because of non-standardized conditions of the virtual encounter and the insufficiently validated transfer of cognitive screening tools from paper-based mode to a virtual setting undermine diagnostic procedures. Moreover, there is a need for targeted training of professionals and organizational support [112,113], so that healthcare services can benefit from the use of new technologies. Mental healthcare services based on new technologies may more adequately be understood as services complementing and enriching traditional face-to-face care provision, rather than distinct and independent healthcare services [74,75]. Interestingly, tele-psychogeriatrics has been proposed as a platform for connecting primary health care centres in remote areas, which provide face-to-face care, with highly specialized university psychogeriatric clinics [114].

Practical steps could facilitate moral injury prevention and efficient coping with moral stress. Practical courses on becoming aware of the principles of healthcare ethics and transparent decision-making can minimise biased exclusion criteria during the triage and resource allocation procedures, which otherwise may place older adults with dementia at a disadvantage. Such courses are not bound to provide specific 'right answers' to the ethical issues confronting dementia care providers, but they are supposed to highlight productive lines of thought in navigating such issues [115,116]. In addition, effective (online) listening and communication with supervisors, easily accessible professional support (e.g. web- or telephone based hotlines, hospital-based teams providing counselling on handling stress), models such as the structured forum Schwartz rounds [117], (one-to-one) peer support and last but not least organizational adjustments (e.g. shortened shifts, staff involvement in organisational decisions), may pave the way towards enhanced resilience against moral injury during the COVID-19 pandemic surge and beyond it [103,106,108,118].

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