



Italian guidance on Dementia Day Care Centres: A position paper

Enrico Mossello¹ · Marco Baccini² · Francesca Caramelli¹ · Carlo Adriano Biagini³ · Alberto Cester⁴ · Luc Pieter De Vreese⁵ · Gianluca Darvo⁶ · Claudio Vampini⁷ · Mabel Gotti⁸ · Andrea Fabbo⁹ · Alessandra Marengoni¹⁰ · Maria Chiara Cavallini¹¹ · Guido Gori¹² · Rabih Chattat¹³ · Monica Marini¹⁴ · Davide Ceron¹⁵ · Alessandro Lanzoni¹⁶ · Paolo Pizziolo¹⁷ · Andrea Mati¹⁸ · Iole Zilli¹⁹ · Claudia Cantini²⁰ · Veronica Caleri²⁰ · Elisabetta Tonon²⁰ · David Simoni²¹ · Patrizia Mecocci²² · Andrea Ungar¹ · Giulio Masotti¹ on behalf of the Italian Group on Dementia Day Care Centres

Received: 4 November 2022 / Accepted: 17 January 2023
© The Author(s) 2023

Abstract

Dementia Day Care Centres (DDCCs) are defined as services providing care and rehabilitation to people with dementia associated with behavioural and psychological symptoms (BPSD) in a semi-residential setting. According to available evidence, DDCCs may decrease BPSD, depressive symptoms and caregiver burden. The present position paper reports a consensus of Italian experts of different disciplines regarding DDCCs and includes recommendations about architectural features, requirements of personnel, psychosocial interventions, management of psychoactive drug treatment, prevention and care of geriatric syndromes, and support to family caregivers. DDCCs architectural features should follow specific criteria and address specific needs of people with dementia, supporting independence, safety, and comfort. Staffing should be adequate in size and competence and should be able to implement psychosocial interventions, especially focused on BPSD. Individualized care plan should include prevention and treatment of geriatric syndromes, a targeted vaccination plan for infectious diseases including COVID-19, and adjustment of psychotropic drug treatment, all in cooperation with the general practitioner. Informal caregivers should be involved in the focus of intervention, with the aim of reducing assistance burden and promoting the adaptation to the ever-changing relationship with the patient.

Keywords Dementia · Dementia day care centre · Long-term care · Behavioural symptoms · Caregiver

Introduction

The establishment of Dementia Day Care Centres (DDCCs) dates back to 1979 in the UK [1]. Across the years, several scientific data have supported the use of semi-residential care for people with dementia, despite some limitations such as heterogeneous care models, diverse outcome measures and lack of randomized intervention studies. The large majority of studies showed efficacy in reducing depressive symptoms [2, 3] and behavioural and psychological symptoms in dementia (BPSD) [2–6] as well as in stimulating preserved cognitive abilities [4], although a few less recent studies reported no significant effects [7, 8]. Several studies found that semi-residential care may also represent a

valuable support of family caregivers, reducing caregiver burden [2, 3, 9–11], although a systematic review on this topic concluded that, taken as a whole, literature data are ambiguous [12].

Several factors may explain the conflicting data, including the number of days/hours the participants attended the DDCC (in some cases only 1–2 days per week). Some patient and caregiver-related factors can limit the frequency of utilization of this service, including perceived loss of autonomy, denial, guilt or economic constraints [13]. Context factors, such as poor availability, social system complexity or lack of adequate information may further decrease the access [13]. The quality and types of psychosocial interventions delivered (the less recent of the cited articles generally used 'low-tech' interventions) also could impact on the results, as well as methodological constraints. Indeed, with these patients, equivalence between the comparison groups is difficult to achieve, and randomization is also often impossible [14].

✉ Enrico Mossello
enrico.mossello@unifi.it

Extended author information available on the last page of the article

Moreover, in some studies participants of the control group received some amount of treatment. For example, control caregivers in the study of Zank and Schacke [4] received respite care at home, so they did not meaningfully differ from caregivers using adult day care for their relative.

Semi-residential care can decrease the risk of hospitalization [8], possibly through the prevention of BPSD exacerbations and the monitoring of chronic pathologies and geriatric syndromes. Whether it would also help to postpone the dementia patient's admission to a nursing home is still a matter of debate. Wimo et al. showed that attending a DDCC could avoid or delay permanent institutionalization [7], but other studies did not replicate or even reverse this finding [8, 15, 16]. However, admission to a nursing home may be independent of the patient's condition and the caregiver's stress and may be due to contingencies (e.g. caregiver illness) or to caregiver age (13). Other unmeasured factors such as an increased propensity to institutionalization when the patient starts spending a lot of time away from home might also play a role (15, 16). In this respect, the effect might also depend on when the patient enters the DDCC, i.e. whether in the advanced stages of the disease, when the patient is severely impaired or at an earlier stage. In the first case, caregivers may be so burdened that the relief provided by DDCC might actually hasten institutionalization [17].

In Italy, the first experiences of semi-residential care for older subjects date back to the 1980s, with social services dedicated to older subjects with preserved functional autonomy, while the first day care centres for disabled older subjects affected by dementia date back to the 1990s, in the Lombardia, Emilia-Romagna and Toscana regions [18]. The presence of DDCCs has been subsequently included among “Essential levels of assistance” guaranteed by the Italian National Health Service for people with dementia in need of “rehabilitation, reorientation and safeguarding” [19]. With regard to funding, the Italian National Health Service covers the healthcare costs of the service (e.g. nursing, physiotherapy), which represents 50% of the total fee, while social costs (including basic daily care and accommodation) are charged to the person with dementia and his/her family, in proportion to the income, and the remaining share is covered by the municipality [20, 21].

In the present document, DDCCs are defined as *semi-residential structures aimed at providing social and health care for a specific target of people with dementia, namely those suffering from clinically significant BPSD who require assistance and rehabilitation approach for a definite period of time*. People who attend DDCCs should preferably be able to walk, independently or with assistance.

Since 2011, the “Italian Group on Dementia Day Care Centres”, a multidisciplinary group of professionals involved in geriatric medicine, has been working on drafting an expert consensus on day care for older subjects with dementia [22].

This article presents the recommendations developed by the experts' panel.

The following chapters include a summary of the guidance regarding different areas of care analysed by the authors, namely care pathway, care environment, requirement of personnel, main psychosocial interventions, use of psychoactive treatment, management of geriatric syndromes, infection prevention, and support to family and caregivers.

Methods

The guidance presented in this article has been developed by a multidisciplinary panel of experts including geriatricians, psychiatrists, psychologists, architects, nurses, physiotherapists, occupational therapists, social health educators and music therapists. All panellists were professionals with many years of experience in long-term care for dementia and/or experts in research methodology. Multiprofessional subgroups were set up with the aim of searching the literature and developing guidance on specific issues:

- DDCC definition, norms, and care pathway
- Physical environment
- Personnel
- Psychosocial interventions
- Drug treatment
- Geriatric syndromes
- Caregiver support

The experts were not asked to compulsorily conduct a systematic literature review with specific keywords, because the purpose of the work was not to develop a formal guideline. The proposals from each subgroup were discussed by the entire panel at subsequent meetings on the sidelines of the Italian conference on Alzheimer's day care centres. The work started in 2011 and since then the text has undergone numerous revisions and updates, which were also necessitated by advances in scientific research in this area.

The outbreak of the COVID-19 pandemic slowed the panel's work and also prompted the addition of specific recommendations on the prevention of infections. Following the COVID-19 pandemic, several DDCCs have also adopted instruments of telecare, including tele-monitoring with information–communication technology techniques and the use of technology to foster social inclusion and provide remote psychosocial and rehabilitative interventions. Although the authors acknowledge the importance of this promising field, they also believe that the available literature is not sufficient yet to provide a guidance on telecare in DDCCs.

Care pathway for dementia day care recipients

The admission to DDCCs should follow an assessment of the patient by a memory clinic [23, 24] and a comprehensive assessment by the healthcare district commission about the appropriateness of admission, which usually decides for a limited (3–6 months), renewable period of attendance. Once the admission is confirmed, an individualized care plan (ICP) is drawn up by the DDCC staff, in agreement with family members and the general practitioner (GP). The ICP includes clinical, social, psycho-affective and functional problems identified during the comprehensive geriatric assessment; identifies the care needs and the strategies to pursue assistance targets; establishes regular checks, aimed at evaluating the results achieved and/or to update objectives or strategies [23, 24].

We recommend that the admission to DDCCs be gradual and preceded by a contact with family members. The ICP must guarantee social inclusion, psychosocial interventions, physical activity and nursing and rehabilitative interventions as needed, to be performed individually or in small groups. If necessary, the discharge from the service can be followed by a home care assistance aimed at facilitating the return at home or the possible transfer to a different long-term care service.

Environment as a therapeutic intervention

DDCCs architectural features should be based on the peculiar needs of people with dementia with the purpose of providing adequate conditions of safety and comfort, supporting their independence, and creating a meaningful and stimulating environment. Scientific evidence supports the significant impact of environment on both health and well-being of people with dementia [25]. Particularly, an adequate living arrangement seems able to reduce the occurrence of behavioural disorders, to maintain preserved functional capacities and to support spatial and temporal orientation. Therefore, the environment could become an important pillar of assistance together with pharmacological and psychosocial treatments [26, 27]. Conversely, unsuitable environmental characteristics can trigger or increase behavioural disorders [28, 29]. An environmental element with a specific psychosocial purpose is represented by therapeutic garden that may help to decrease BPSD [30–32]. Moreover, the facility must be provided with an infirmary, in order to enable an adequate first aid in case of sudden injury or illness.

Building design must also take into account the needs of care team to facilitate their work and to reduce physical

and emotional burden. The DDCCs should be fully accessible, possibly located within the city centre, next to community meeting places, to foster integration in social context.

Minimal structural requirements of semi-residential services for older subjects with disability include: localization in places easy to reach, to support social inclusion, availability of spaces devoted to socialization and common activities, availability of at least one accessible bathroom for every 10 care recipients and a maximum capacity of 30 care recipients [33]. In keeping with the minimal requirement of 40–45 sq m per resident in residential care services for disabled older adults [34] and subtracting the minimum surface of overnight spaces, we advise a minimum surface area of 25–30 sq m for each day care recipient.

Table 1 summarizes the main design features that should be respected for the realization of the DDCCs, in parallel with specific impairments and needs of people with dementia that should be addressed.

Personnel of DDCCs and their roles

The working group in DDCCs includes social and healthcare personnel, with specific skills in caring for older people with dementia and BPSD, capable of working together as a team. Aims of staff activity include taking care of day care recipients, promoting their interaction with each other, supporting caregivers, maintaining contacts with the socio-cultural entities outside DDCCs and cooperating with local services and GPs.

Minimal organization requirements of semi-residential services for disabled older subjects [33] include the presence of a service coordinator and the predisposition of an ICP for each care recipient. Specific qualifying standards for DDCC include a minimum of 80 min of total assistance per care recipient per day and the availability of nurse, nursing assistant and psychologist [19]. A more recently approved official document [41] includes a list of different professional roles involved in dementia care, whose presence we recommend in a DDCC (Table 2).

The coordinator is responsible for interaction with healthcare district, GPs, local services and family members. The coordinator is also in charge of service organization, administration, monitoring of performance and of quality assurance. The care team as a whole is responsible for drafting and executing the ICP, including the identification of a case coordinator (case manager), who coordinates interventions included in the plan. Personnel included in the care with specific roles and expected workload for a standard (15 care recipients) DDCC are summarized in Table 2 [18, 41, 42].

Table 1 Needs and/or impairments of people with dementia and relative recommendations of DDCCs design

| Needs and/or impairments of people with dementia | Design recommendations |
|--|---|
| <i>Safety</i> | |
| Reduced awareness of environmental risks [35] | Eliminate physical and psychological barriers, both in indoor and outdoor spaces. Forbid or hide non-controlled areas or spaces that could represent a source of potential danger [35] |
| <i>Usability and space–time orientation</i> | |
| Inability to use space properly, resulting in anxiety, agitation and aberrant behaviours [36] | Eliminate physical and perceptual barriers that may limit the use of spaces and objects. Use implicit and explicit signage to ease orientation and identification of spaces and objects [36] |
| <i>Familiarity, comfort</i> | |
| Worsening social interaction associated with impersonal environment and furnishings [36–38] | Design spaces with domestic appearance and size [36–38] |
| <i>Environmental well-being, sensory aspects</i> | |
| Orientation, autonomy and mood affected by environmental characteristics (lighting, noise, temperature and odour) [28, 36, 39] | Provide suitable lighting levels for the type of activity carried out, allow for the regulation of temperature, the dispensation of aromas and the presence of environmental stimuli, such as music, images and colours. Reduce noise level [28, 36, 39] |
| <i>Flexibility</i> | |
| Time-dependent variations of needs of people with dementia and caregivers [40] | Flexibility and adaptability of spaces, according to the degree of disability, type of activities carried out and daily organization [40] |
| <i>Occupational well-being</i> | |
| Increasing work and psychological burden of care team due to environmental characteristics [40] | Provide spaces for the exclusive use of staff that allow visual control of care recipients' spaces. The configuration of the space and the type of furnishings must facilitate care and therapeutic activities, indoor and outdoor [26, 40] |
| <i>Outdoor spaces (therapeutic garden)</i> | |
| Psychological and behavioural well-being associated with the contact of natural elements and physical activity [31–33] | Provide safe spaces, which facilitate physical activity, orientation and control by the staff. Seed native plants to facilitate recognition of the seasons and sensory stimulation (sight, smell, hearing, touch, aromas and fountain with running water) [31–33] |
| <i>Emergency and health care services</i> | |
| First aid for acute injuries and illnesses | An infirmary must be provided, with adequate equipment (examination bed; sphygmomanometer; stethoscope; thermometer; pulse oximeter; glucometer; bladder catheter kit; portable oxygen tanks; BLS-D kit; AED; EKG unit) |

DDCCs dementia day care centres, BLS-D basic life support defibrillation; AED automated external defibrillator, EKG electrocardiogram

Psychosocial interventions

Scientific evidence is available supporting the efficacy of psychosocial interventions (PSIs) in reducing cognitive decline and BPSD and in promoting well-being and quality of life of people with dementia and their carers [46–48]. PSIs include activities aimed at enhancing preserved abilities and capacities of each patient, reducing social isolation and preserving self-esteem and personal identity [49].

PSIs can be grouped into four categories, according to their focus: cognition and function oriented, behaviour oriented, emotion oriented and sensory stimulation oriented (summarized in Tables 3a, b). Cognition- and function-oriented interventions (Table 3a) are aimed at maintaining cognitive and daily functioning as long as possible [46]. The group of behaviour-, emotion- and sensory stimulation-oriented interventions (Table 3b) has a crucial role for the

treatment of BPSDs [50, 51] and should be considered as a first-line treatment in this setting [51], due to limited efficacy and increased risk of adverse events associated with antipsychotics. The evidence currently available on each intervention is summarized in the last column of the tables. All the listed interventions have been shown to have some positive effects, although, for some of them, the results are more uncertain than for others. Thus, all interventions could be delivered to dementia day care recipients, but the choice to apply one of them rather than another also depends on local factors (e.g. centre resources, space, available professionals) and on the preferences and specific requirements of the care recipients.

The proposed activities should be simple and of limited duration, to avoid tiredness or stress; activities should also be person-centred according to stage of illness, needs and wishes of recipients. Therefore, a careful clinical, functional

Table 2 Professional roles and activities within the care team

| Professional role | Expected workload (hours per week)* | Activity |
|--|---|--|
| Nursing assistant | 100 | Supervision and assistance in daily life activities, promotion of autonomy in urinary function, feeding and mobility |
| Nurse | 18 | Specific competence needed in geriatric and dementia care. Detection of clinical changes. Regular contact with caregiver and GP. Treatment and prevention of geriatric syndromes |
| Physiotherapist | 6 | Functional assessment and evaluation of motor skills. Drawing up of individual rehabilitation plans. Promotion of group physical activity |
| Occupational therapist | 18 (including occupational therapist and/or social health educator) | Psychosocial and rehabilitative interventions promoting cognitive stimulation, independence, reduction of BPSD and environmental adaptation. Focus on occupations meaningful for daily living and maintenance of autonomy |
| Social health educator | | Psychosocial, educational and rehabilitative interventions promoting cognitive stimulation, psychological well-being, reduction of BPSD and environmental adaptation. Focus on social inclusion and integration into the community |
| Geriatrician or other dementia specialist | 6 | Pharmacological treatment of BPSD, prevention and treatment of geriatric syndromes, promotion of comprehensive assessment, staff training, contact with GP. Monitoring and encouraging vaccinations |
| Psychologist | 6 | Psychosocial interventions cognitive and/or emotion oriented, including cognitive stimulation therapy. Support of family and prevention of burnout of personnel |
| Qualified music therapist; qualified art therapist | 6 | Music therapy and art therapy projects (groups of 3–7 patients at least twice a week) aimed at decreasing depressive symptoms and BPSD and enhancing social skills |
| <i>Organizational aspects</i> | | |
| Assistance and working times | | The recommended number of day care recipients simultaneously present is 15–20, with a ratio of one operator for three patients. Additional hours should be forecasted for monthly meetings, discussion with caregivers, post-discharge return at home, integration of new care recipients |
| Personnel selection | | The selection should be performed according to specific attitudes and education, professional capacity and motivation. During opening hours, the presence should be ensured of at least one healthcare provider certified in BLS/AED in order to respond to an emergency and provide care |
| Continuous staff training | | The launch of the Italian Continuous Medical Education program in 2002 established the obligation of continuing education for Italian health professionals [43, 44] In addition to refresh courses, meetings with staff from other structures should be organized. Contact with local universities and tutoring of healthcare professional trainees should be encouraged [45] |

BPSD behavioural and psychological symptoms of dementia, GP general practitioner, ICP individualized care plan, BLS basic life support, AED automated external defibrillator

*Expected workload is intended for a standard Dementia Day Care Centre that accommodates 15 care recipients

Table 3 Psychosocial interventions: main features and evidence of efficacy

| <i>Psychosocial interventions: cognitive and function oriented activities</i> | |
|---|---|
| Intervention | Evidence of efficacy |
| Cognitive training | Stimulation of specific cognitive areas through individual or group sessions <i>Uncertain beneficial effect on memory in dementia [46, 55]</i> |
| Cognitive rehabilitation | Intervention aimed at cognitive functions necessary for daily living activities deemed relevant for the person <i>In moderate dementia positive effects on stimulated cognitive function and on disability, delay of nursing home admission [56]</i> |
| Cognitive stimulation therapy | Structured stimulation of cognitive functions, emotions and social skills, oriented to patient's well being <i>Improvement of cognitive abilities (comparable to cholinesterase inhibitors), social interaction and quality of life [57, 58]</i> |
| Physical activity | Specific programs for different stages of cognitive deterioration, possible more effective if combined with cognitive tasks <i>Reduced decline of autonomy. Possible cognitive improvement associated with aerobic exercise. Non-consistent data on fall risk [59–67]</i> |
| Occupational therapy | Intervention based on meaningful activities of daily life <i>Improvement of autonomy, quality of life, mood and caregiver's stress. Short-term improvement of BPSD [68–70]</i> |
| <i>Psychosocial interventions: emotion, behaviour and sensory stimulation oriented activities</i> | |
| Intervention | Evidence of efficacy |
| Systemic Intervention | Functional analysis of behaviour, including the identification of "unmet needs". Person-centred-care <i>Comparable effectiveness to drug therapies on decreasing agitation. Improvement of quality of life [71–73]</i> |
| Music-therapy | Using music with a therapeutic purpose and for individually planned outcomes, including both active and receptive approaches [74–76] <i>Effectiveness of music therapy on reducing agitation, depression, anxiety, overall behavioural problems, and increasing quality of life [78–81]; limited or no evidence on cognitive function [82]</i> |
| Art therapy | Using art as therapy, either referring to "art appreciation" programs or "making visual art" laboratories, aimed at enhancing well-being [77]. <i>Little evidence on effectiveness of dance-therapy [83]</i> |
| Animal-assisted therapy or activities carried out with the presence of people or objects | Using animals, familiar objects (dolls) or people (clown) for therapeutic purposes <i>Art therapy improves neuropsychiatric symptoms, social behaviour and self-esteem in small trials [77, 84, 85]</i> |
| Personally targeted activities | A wide range of activities and interventions that are important and meaningful to the person <i>Benefits of animal-assisted therapy on anxiety, depression and agitation. Limited evidence on the psychological wellbeing of doll-therapy [77, 86, 87]</i> |
| Multisensory stimulation | Use of multisensory environmental stimulation (snoezelen) or aroma. Therapeutic Garden (TG) providing sensory stimulation <i>Possible efficacy on BPSD [88, 89]</i> <i>Possible efficacy on apathy, agitation, wandering and mood in severe dementia (snoezelen). Uncertain effects of aromatherapy on agitation [90]. TG may reduce BPSD [30–32]</i> |
| <i>BPSD</i> behavioural and psychological symptoms of dementia | |

and cognitive assessment is required, coupled with the knowledge of personal history. The effectiveness over time of PSIs should be assessed through validated scales, such as the Neuropsychiatric Inventory [52] and the Cohen–Mansfield Agitation Inventory for behavioural assessment [53]. Moreover, the effects of PSIs on quality of life should be regularly evaluated through a scale validated for the specific level of dementia [54]. Examples of tailored, person-centred interventions are presented in a video recorded at the Monteoliveto Centre in Pistoia (<https://www.youtube.com/watch?v=oGeP8nGCMRg>).

Drug treatment of BPSD

While PSIs must be considered as the first-line treatment of BPSD, the association of pharmacological interventions has a synergistic effect in improving neuropsychiatric symptoms, especially in long-term care [91]. Pharmacological intervention may be considered in case of severe BPSD unresponsive to non-pharmacological measures and when BPSD entail great suffering or risk [92].

Antipsychotics (APs) are still the therapy with more consistent documentation of efficacy in the short term, but with a risk of serious adverse events, including higher risk of mortality and stroke. Atypical APs are prescribed at least in 25% of patients with dementia [93]; since 2000 their use has been the object of warning about their safety in patients with dementia. In 2008, the warning was extended to typical APs too. The warning issued by the national and international regulatory authorities reports about an increased mortality rate in people with dementia treated with APs, with the risk being even higher with typical in comparison with atypical ones [94]. Therefore, when required, the use of atypical APs is still preferred over typical ones for the treatment of psychosis and aggressive behaviour in DDCCs [92]. Limited evidence is available regarding long-term use of APs. A prolonged treatment may be appropriate for cases with persistent and severe symptoms which show a good clinical response, although an attempt to reduce and eventually discontinue the therapy should be periodically considered [95].

Drug treatments of BPSD alternative to APs include selective serotonin reuptake inhibitors and trazodone, with citalopram having the strongest evidence for agitation, but with an increased risk of QT prolongation [96]. Other drugs with possible efficacy on BPSD include memantine [97], antiepileptics [98] and ginkgo biloba extract [99]. The use of analgesic drugs has been reported to reduce BPSD in nursing home residents [100].

According to available recommendations [92, 101, 102], psychopharmacological management in DDCCs should include the thorough appraisal of previous drug treatments, the assessment of type, frequency, severity and

possible triggers of BPSD using standardized scales (e.g. Neuropsychiatric Inventory) and the possibility of drug de-prescription at admission and of a gradual dose tapering. Monotherapy should be preferred, starting treatment using the minimum effective dose, discontinuing after 2 weeks in the absence of an evident clinical response and attempting the interruption after 4 months in case of efficacy. A careful monitoring of possible adverse events should include the evaluation of new-onset or worsening of parkinsonism, immobilization and fall risk, presence of cardiovascular disease, QTc interval, serum potassium levels and co-occurring prescriptions. Exchange of information with the GP and the memory clinic on this issue is recommended.

Prevention and treatment of geriatric syndromes

Geriatric syndromes are typical conditions of old age, resulting from physiological and pathological changes, with common risk factors, often coexisting in the same person and carrying the risk of worse prognosis [103].

The main geriatric syndromes that can be observed in DDCCs are listed below.

- *Falls* are frequent in people with dementia in long-term care and may lead to severe consequences, including fractures, head trauma, hospitalization, institutionalization, worsening disability and depression. Main risk factors for falls include sensory impairments, imbalance, specific drugs and polypharmacy, hypotension and environmental obstacles [104].
- *Delirium* is a dysfunction of awareness and attention, with fluctuating course during the day, that develops over a short period of time (hours to days), represents an acute change that cannot be explained by a coexisting neuropsychiatric condition, and is related to an underlying potentially reversible cause (acute medical condition drugs), although being often multifactorial. Delirium is frequent in dementia and should be recognized and differentiated from BPSD in DDCCs [105, 106].
- *Immobilization syndrome* is the consequence of interruption or reduction of physical activity [107], due to ageing-associated mobility disability and vulnerability of the organism. In dementia, even minor pathological conditions may limit physical activity.
- *Pressure sores* are ischaemic skin lesions caused by immobilization and worsened by malnutrition, urinary/faecal incontinence and peripheral hypoperfusion [108, 109].
- *Urinary incontinence* is highly prevalent in dementia and is associated with both psychological (reduction in self-esteem, depression and sleep disturbance), medical con-

- sequences (pressure sore risk), and increased care burden and risk of nursing home admission [110, 111].
- *Malnutrition* in dementia is typically represented by protein–calorie undernutrition due to low intake of nutrients, potentially leading to loss of muscle mass and strength (sarcopenia) [112] with consequent increased risk of falls and worsening disability, reduced wounds’ healing capacity, weakening of immune response and higher risk of mortality [113].
 - *Dysphagia* is often associated with neuromotor signs (e.g. parkinsonism) and behavioural symptoms [114] and is typically present in severe stages of dementia. It increases the risk of aspiration pneumonia, dehydration, malnutrition and death [115].
 - *Chronic and recurrent pain* is an unpleasant sensory and emotional experience and in people with dementia may be the cause of BPSD, such as agitation and aggression [116], and is also associated with the decline of cognitive function and functional status [117].

Table 4 itemizes the assessment tools and types of interventions (treatment and prevention) proposed for each geriatric syndrome.

Vaccinations

Influenza and pneumococcal infections are recognized to be a significant health problem and cause of death, especially in fragile persons such as dementia people in DDCCs [136]. Vaccination is an effective measure to prevent the impact of these infections. Long-Term-Care Committee of the Society for Healthcare Epidemiology of America recommends in long-term care facilities (LTCF) residents should receive vaccination at the beginning of the influenza season unless a contraindication exists or the patient refuses [137, 138]. Moreover, the Society strongly supports influenza and pneumococcal vaccination of all healthcare personnel (HCP), including those who do not provide direct care [139]. Coronavirus disease (COVID-19) [140] and herpes zoster [141] vaccinations are also recommended.

Infection prevention: the lesson from the COVID-19 pandemic

In addition to the devastating effects on people's lives, with hundreds of deaths per day in the first phase of the pandemic, since 2020 COVID-19 pandemic has deeply impacted on the care of older adults with Alzheimer’s disease. A recent review investigated the effects of the COVID-19 lockdown on neuropsychiatric symptoms, in people with dementia or mild cognitive impairment [142].

Data from 21 studies all around the world showed that symptoms such as depression, anxiety, agitation, irritability and apathy increased in this population during the lockdown, likely due to isolation and loss of services. The COVID-19 confinement also increased caregivers’ stress, independently of the dementia severity [143].

The serious effects of COVID-19 pandemic on both DDCCs users and services clearly emerged in a specific survey conducted in Italy, promoted by the Italian Group on Dementia Day Care Centres (unpublished data). Eighty-one out of 470 centres (private centres, $n=45$; public centres, $n=36$), mostly in Northern ($N=44$) or Central ($N=30$) Italy, filled the questionnaire. On the date of the survey (April 2021), 28 centres were still closed due to the pandemic, and 53 had resumed activity after a period of suspension. Among the active centres, only 10% retained the number of care recipients admitted as in the pre-pandemic period, whereas the number was reduced by more than 50%, or less than 50%, in 21 and 24 centres, respectively. Overall, there was a 60% reduction in the number of care recipients. Moreover, several centres had changed the number of days they were open and/or the opening hours.

As well as continuing to provide assistance in situations that require reduced physical contact, day care health workers must maintain their own safety and that of the users. To this purpose, guidelines have been drawn up by scientific societies and health authorities in individual countries [144] that will probably be modified according to the evolution of the pandemic. Specific procedures of containment are recommended, including:

- (a) the periodic sanitization of environments;
- (b) the identification of a “COVID-manager” for the prevention and control of healthcare-related infections; he/she must be a person, specifically trained for COVID-19, who knows the place of care and its problems according to the type of patients in the facility to observe, prevent and manage critical issues in real time;
- (c) the monitoring of own body temperature by all healthcare workers before the start of the work shift, with a ban on entering the facility and starting the shift if a body temperature above 37.5 °C or other symptoms relevant to COVID-19 are detected;
- (d) the obligation for caregivers to report the onset of symptoms (fever, cough, respiratory difficulties, anosmia, ageusia, etc.) of both the subject and the other cohabitants before accessing the day care centres;
- (e) depending on the characteristics of the care recipients, the possibility of rotating attendance to encourage more people to take part in the activities by extending the opening hours; users can therefore also be organized in two daily shifts (morning and afternoon) according to the preferences expressed by caregivers; social distancing must be guaranteed in the same environment;

Table 4 Assessment tools and treatment/prevention of geriatric syndromes

| Syndrome | Assessment tools | Possible interventions |
|-----------------------------------|---|---|
| <i>Falls</i> | Collecting anamnestic information on previous falls, comorbidity and medications Assessment of orthostatic hypotension [118] Evaluation of lower limb performance (Tinetti Scale) and sarcopenia (SPPB) [112] Risk of fracture (FRAX) Confusion assessment method 4AT Test [120, 121] | Promotion of physical activity and rehabilitation (including use of mobility aids), revision of pharmacological treatment and therapies for osteoporosis. Removal of environmental risk factors and increased risk awareness of family members [118, 119] |
| <i>Delirium</i> | Risk of fracture (FRAX) Confusion assessment method 4AT Test [120, 121] | Systematic detection of acute clinical events. Mobilization, correction of sensory deficits, cognitive and orientation stimulation, encourage hydration, psychopharmacological therapy change and pain management [122] |
| <i>Pressure sores</i> | Predicting pressure ulcer risk (Braden Scale) Detection of predisposing factors Staging of present lesions [109] Collecting anamnestic information Bladder diary [124, 125] | Regular mobilization, repositioning, use of pressure injury prevention devices, treatment of predisposing factors (urinary/faecal incontinence, undernutrition). Systematic skin inspection in patients at risk [109, 123] Treatment of reversible forms. Prompted or scheduled voiding. Removal of environmental obstacles. Avoid the use of bladder catheter to manage urinary incontinence [126] Choice of appropriate absorbent pads [124, 125] |
| <i>Urinary incontinence</i> | | |
| <i>Malnutrition</i> | Body weight and mid-upper arm circumference monitoring [127] Sarcopenia assessment using dynamometer [113] Mini Nutritional Assessment or Malnutrition Universal Screening Tool (MUST) [128, 129] | Adequate nutritional intake. Appropriate care strategies. Focus on dysphagia (see below). Consider protein and energy supplements [131, 132] |
| <i>Dysphagia</i> | Evaluation of eating behaviour (Eating Behaviour Scale) [130] Screening for dysphagia (water swallow test) [133] Detect clinical conditions possibly related with dysphagia, including drug use (e.g. antipsychotics) [115] | Adaptation of food texture and fluid consistency to severity of dysphagia. Focus on posture during meal, oral hygiene and dentures. Medication review. Implementation staff knowledge about careful feeding by hand in severe stages [134] |
| <i>Chronic and recurrent pain</i> | History of pain or risk factors for chronic pain. Detection of behavioural pain indicators with scales validated in dementia (PAINAD) [135] | Treatment of causes when possible. Physical activity and physiotherapy. Pharmacological pain management [100] |

SPPB short physical performance battery, FRAX Fracture Risk Assessment Tool

(f) the need to follow up remotely care recipients who cannot access the centre, to maintain contact and monitor clinical conditions;

(g) the rescheduling of many internal activities to ensure security; for example, occupational therapy, cognitive stimulation and physiotherapy activities should be carried out in small groups, in large, airy spaces or outdoors, trying to encourage the maintenance of social distance.

Support and training for informal caregivers

Family and caregivers represent the main assistance resource for people with dementia. Over time, care needs gradually intensify, and therefore care modalities should undergo continuous and dynamic changes [145]. *Formal caregivers* provide professional and paid assistance, while *informal caregivers*, usually a family member (the spouse and/or children), give assistance voluntarily and for free. The latter experience an emotional and social, as well as physical, burden that can be alleviated by psychosocial and educational interventions [146, 147]. Unfortunately, though widely available in European countries, services of counselling, support and education for informal caregivers of people with dementia are rarely utilized [148].

Gradual personality changes in people with dementia, often resulting in alteration of the relationship with their caregivers, can represent the beginning of a process of atypical or anticipatory mourning for carers [149]. For these reasons, caregivers' well-being should be cared for, with social support being an important protective factor [150] and specific interventions such as cognitive-behavioural therapy (CBT), including grief-specific strategies, should be taken into account [151].

Caregiver education is usually organized as a group activity, aimed at improving the adaptation of carers to assistance needs, establishing a healthy relationship, teaching coping strategies and promoting the interpretation of verbal and non-verbal language [152].

In DDCCs, it is possible to modify the level of caregivers' stress [2], not only by the relief from daily assistance, but also with the treatment of BPSD and through support, information and training of family members. The working group within DDCCs should take care of family members since the admission to the service. A *caregiver assessment* should be coupled with patient assessment and includes schooling, work activity, degree of kinship and cohabitation with the patient, other relatives to assist, availability of other formal or informal caregivers, presence of interpersonal conflicts, and the level of physical, emotional and social burden. Care burden should be assessed at admission and reassessed periodically with specific scales, such as the Caregiver Burden Inventory [153]. The *interventions* offered by DDCCs to families include active listening, individuals

or group interventions, education on the characteristics of the disease, including legal issues, support to relational approach at home, management of pharmacological therapy, and adaptation of home environment. During the COVID-19 pandemic, regular telephone contacts and videoconferencing have become common forms of care support, which have been appreciated by caregivers [154], and their use should be maintained by DDCCs, especially for subjects who attend the service only few days per week. Psychotherapy for caregivers may be indicated in selected cases. Moreover, DDCCs can be an appropriate setting to discuss advance care planning for severe stages of the disease [155].

Conclusions

DDCCs should be considered an integral part of the treatment of dementia with behavioural and psychological symptoms, as they provide both psychosocial interventions for affected subjects and support for caregivers. The availability of an adequate physical environment, trained personnel and appropriate care approaches are crucial to attaining the therapeutic goals. The many existing centres in Italy are heterogeneous in terms of architectural features, organization, available professionals and interventions provided. Even most worrying are the inhomogeneous distribution and the overall shortage of such services. This paper is intended as a guide and a support for the organization of DDCCs and possibly for monitoring the quality of care delivered.

Funding Open access funding provided by Università degli Studi di Firenze within the CRUI-CARE Agreement. This work was supported by the Fondazione Cassa di Risparmio di Pistoia e Pescia, Pistoia, Italy. The sponsor had no role in the design and writing of the paper and in the decision to submit the article for publication.

Declarations

Conflict of interest The authors have no competing interests to declare that are relevant to the content of this article.

Statement of human and animal rights The paper does not include any research with human participants or animals directly performed by the authors.

Informed consent For this type of study formal consent is not required.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not

permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

References

- Arie T (1979) Day care in geriatric psychiatry, 1978. *Age Ageing Suppl.* <https://doi.org/10.1093/ageing/8.suppl.87>
- Mossello E, Caleri V, Razzi E et al (2008) Day Care for older dementia patients: favorable effects on behavioral and psychological symptoms and caregiver stress. *Int J Geriatr Psychiatry* 23:1066–1072. <https://doi.org/10.1002/gps.2034>
- Logsdon RG, Pike KC, Korte L et al (2016) Memory care and wellness services: efficacy of specialized dementia care in adult day services. *Gerontologist* 56:318–325. <https://doi.org/10.1093/geront/gnu012>
- Zank S, Schacke C (2002) Evaluation of geriatric day care units: effects on patients and caregivers. *J Gerontol B Psychol Sci Soc Sci* 57:348–357. <https://doi.org/10.1093/geronb/57.4.p348>
- Dröes RM, Meiland F, Schmitz M et al (2004) Effect of combined support for people with dementia and carers versus regular day care on behaviour and mood of persons with dementia: results from a multi-centre implementation study. *Int J Geriatr Psychiatry* 19:673–684. <https://doi.org/10.1002/gps.1142>
- Femia EE, Zarit SH, Stephens MA et al (2007) Impact of adult day services on behavioral and psychological symptoms of dementia. *Gerontologist* 47:775–788. <https://doi.org/10.1093/geront/47.6.775>
- Wimo A, Mattsson B, Adolfsson R et al (1993) Dementia day care and its effects on symptoms and institutionalization—a controlled Swedish study. *Scand J Prim Health Care* 11:117–123. <https://doi.org/10.3109/02813439308994913>
- Engedal K (1989) Day care for demented patients in general nursing homes. Effects on admissions to institutions and mental capacity. *Scand J Prim Health Care* 7:161–166. <https://doi.org/10.3109/02813438909087234>
- Bangerter LR, Liu Y, Kim K et al (2021) Adult day services and dementia caregivers' daily affect: the role of distress response to behavioral and psychological symptoms of dementia. *Aging Ment Health* 25:46–52. <https://doi.org/10.1080/13607863.2019.1681934>
- Zarit SH, Stephens MA, Townsend A et al (1998) Stress reduction for family caregivers: effects of adult day care use. *J Gerontol B Psychol Sci Soc Sci* 53:S267–S277. <https://doi.org/10.1093/geronb/53b.5.s267>
- Tretteteig S, Vatne S, Rokstad AM (2017) The influence of day care centres designed for people with dementia on family caregivers – a qualitative study. *BMC Geriatr* 17:5. <https://doi.org/10.1186/s12877-016-0403-2>
- Tretteteig S, Vatne S, Rokstad AM (2016) The influence of day care centres for people with dementia on family caregivers: an integrative review of the literature. *Aging Ment Health* 20:450–462. <https://doi.org/10.1080/13607863.2015.1023765>
- Stephan A, Bieber A, Hopper L et al (2018) Barriers and facilitators to the access to and use of formal dementia care: findings of a focus group study with people with dementia, informal carers and health and social care professionals in eight European countries. *BMC Geriatr* 18:131. <https://doi.org/10.1186/s12877-018-0816-1>
- Zarit SH, Stephens MA, Townsend A et al (2003) Give day care a chance to be effective: a commentary. *J Gerontol B Psychol Sci Soc Sci*. <https://doi.org/10.1093/geronb/58.3.p195>
- McCann JJ, Hebert LE, Li Y (2005) The effect of adult day care services on time to nursing home placement in older adults with Alzheimer's disease. *Gerontologist* 45:754–763. <https://doi.org/10.1093/geront/45.6.754>
- Wattmo C, Wallin AK, Londo E et al (2011) Risk factors for nursing home placement in Alzheimer's disease: a longitudinal study of cognition, ADL, service utilization, and cholinesterase inhibitor treatment. *Gerontologist* 51:17–27. <https://doi.org/10.1093/geront/gnq050>
- Gaugler JE, Zarit SH (2001) The effectiveness of adult day services for disabled older people. *J Aging Soc Policy* 12:23–47. https://doi.org/10.1300/J031v12n02_03
- Pesaresi F (2018) *Manuale del centro diurno - Anziani non autosufficienti e anziani affetti da demenza*. Maggioli Editore.
- Italian National Health Service. National LEA Committee (May 30, 2007). *Prestazioni residenziali e semiresidenziali*.
- Italian Jurisdiction, L. No. 328 (Nov 8, 2000). *Legge quadro per la realizzazione del sistema integrato di interventi e servizi sociali*.
- Italian Ministerial Decree, DM. No. 308 (May 21, 2001). *Regolamento concernente "Requisiti minimi strutturali e organizzativi per l'Autorizzazione all'esercizio dei servizi e delle strutture a ciclo residenziale e semi-residenziale, a norma dell'articolo 11 della legge 8 novembre 2000, n. 328"*.
- Italian Group on Dementia Day Care Centres Available from: www.centridiurnialzheimer.it. Access date 2022 Sept 13.
- Presidency of the Council of Ministers Unified Conference. *Deliberation 30 October 2014. Piano Nazionale Demenze – Strategie per la promozione ed il miglioramento della qualità e dell'appropriatezza degli interventi assistenziali nel settore delle demenze*.
- Presidency of the Council of Ministers Unified Conference. *Deliberation 26 October 2017. Linee di indirizzo Nazionali sui Percorsi Diagnostico Terapeutici Assistenziali (PDTA) per le demenze*.
- Del Nord R (2002) *Architettura per l'Alzheimer*. Edizioni Regione Toscana.
- Zanetti O, Metitieri T (2002) *La riabilitazione cognitiva e cognitivo-comportamentale nel paziente demente*. In: Trabucchi M (ed) *Le Demenze*, 3rd edn. Utet, Torino, pp 561–583
- Cester A, De Vreese LP, Minelli PP et al (2000) *Spazio e Ambiente*. Vega, Biella
- Gollin D, Basso D, Miclwath J et al (2004) *La gestione integrata clinico-ambientale: lo spazio come risorsa terapeutica*. *G Gerontol* 52:490–499
- Stabilini F (2006) *Design e spazio terapeutico*. FinMark, Bologna
- Pedrinola A, Tamburin S, Brasioli A et al (2019) An indoor therapeutic garden for behavioral symptoms in alzheimer's disease: a randomized controlled trial. *J Alzheimers Dis* 71:813–823. <https://doi.org/10.3233/JAD-190394>
- Detweiler MB, Myers LC (2008) Does a wander garden influence inappropriate behaviors in dementia residents? *Am J Alzheimer Dis Other Demen* 23:31–45. <https://doi.org/10.1177/1533317507309799>
- Ford Murphy P, Miyazaki Y, Detweiler MB et al (2010) Longitudinal analysis of differential effects on agitation of a therapeutic wander garden for dementia patients based on ambulation ability. *Dementia* 9:355–373. <https://doi.org/10.1177/147130121037533>
- Italian Welfare Minister Decree n. 307, May 21, 2001. *Requisiti minimi strutturali e organizzativi per l'autorizzazione all'esercizio dei servizi e delle strutture a ciclo residenziale e semiresidenziale, a norma dell'articolo 11 della legge 8 novembre 2000, n. 328*
- Italian Prime Minister Decree, Dec 22, 1989. *Atto di indirizzo e coordinamento dell'attività delle regioni e province autonome*

- concernente la realizzazione di strutture sanitarie residenziali per anziani non autosufficienti non assistibili a domicilio o nei servizi semiresidenziali.
35. Feliciano L, Vore J, LeBlanc LA et al (2004) Decreasing entry into a restricted area using a visual barrier. *J Appl Behav Anal* 37:107–110. <https://doi.org/10.1901/jaba.2004.37-107>
 36. Chaudhury H, Cooke HA, Cowie H et al (2018) The Influence of the Physical Environment on Residents With Dementia in Long-Term Care Settings: A Review of the Empirical Literature. *Gerontologist*. <https://doi.org/10.1093/geront/gnw259>
 37. Cester A (1995) *Legare i vecchi*. EdUP, Roma
 38. Cester A, Gumirato G (1997) I percorsi della contenzione dal caos al metodo. Vega, Biella.
 39. Tessari A, Cester A (2015) Ruolo del colore nella protesi ambientale: studio sulla percezione dei contrasti cromatici in soggetti con demenza. Proceedings of the 9th conference ISTISAN Congress 15/C6, Il contributo dei centri per i Disturbi Cognitivi e le Demenze nella gestione integrata dei pazienti. Rome, Italy.
 40. Hodges L, Bridge C, Chaudhary K (2006) *Dementia Design Guidelines: home and community care capital works program*. Sydney: Home Modification Information Clearinghouse, University of Sydney. Available from: <http://www.homemods.info>. Access date 2020 Sept 13.
 41. Italian Presidency of the Council of Minister, Unified Conference, 2017 Oct 26. Linee di Indirizzo Nazionali sui Percorsi Diagnostico Terapeutici Assistenziali (PDTA) per le demenze.
 42. Decree of the Regional Council of Emilia-Romagna (DGR), No. 514. 2019 Apr 20. Primo provvedimento della Giunta Regionale attuativo dell'art.23 della L.R. 4/2008 in materia di accreditamento dei servizi socio-sanitari. Allegato DF - Centri diurni dedicati alle demenze.
 43. Italian jurisdiction, D. Lgs n. 502 (30 Dec 1992). Riordino della disciplina in materia sanitaria, a norma dell'articolo 1 della legge 23 ottobre 1992, n. 421
 44. Italian jurisdiction, D. Lgs n. 229 (19 Jun 1999). Norme per la razionalizzazione del Servizio sanitario nazionale, a norma dell'articolo 1 della legge 30 novembre 1998, n. 419.
 45. Bökberg C, Ahlström G, Karlsson S et al (2014) Best practice and needs for improvement in the chain of care for persons with dementia in Sweden: a qualitative study based on focus group interviews. *BMC Health Serv Res* 14:596. <https://doi.org/10.1186/s12913-014-0596-z>
 46. McDermott O, Charlesworth G, Hogervorst E et al (2019) Psychosocial interventions for people with dementia: a synthesis of systematic reviews. *Aging Ment Health* 23:393–403. <https://doi.org/10.1080/13607863.2017.1423031>
 47. Scales K, Zimmerman S, Miller SJ (2018) Evidence-based non-pharmacological practices to address behavioral and psychological symptoms of dementia. *Gerontologist* 58:S88–S102. <https://doi.org/10.1093/geront/gnx167>
 48. Kim SK, Park M (2017) Effectiveness of person-centered care on people with dementia: a systematic review and meta-analysis. *Clin Interv Aging* 12:381–397. <https://doi.org/10.2147/CIA.S117637>
 49. Liang JH, Xu Y, Lin L et al (2018) Comparison of multiple interventions for older adults with Alzheimer disease or mild cognitive impairment A PRISMA-compliant network meta-analysis. *Medicine*. <https://doi.org/10.1097/MD.00000000000010744>
 50. Nickel F, Barth J, Kolominsky-Rabas PL (2018) Health economic evaluations of non-pharmacological interventions for persons with dementia and their informal caregivers: a systematic review. *BMC Geriatr* 18:69. <https://doi.org/10.1186/s12877-018-0751-1>
 51. Farlow M, Shamlivan TA (2017) Benefits and harms of atypical antipsychotics for agitation in adults with dementia. *Eur Neuropsychopharmacol* 27:217–231. <https://doi.org/10.1016/j.euronuro.2017.01.002>
 52. Cummings JL, Mega M, Gray K et al (1994) The neuropsychiatric Inventory: comprehensive assessment of psychopathology in dementia. *Neurology* 44:2308–2314. <https://doi.org/10.1212/wnl.44.12.2308>
 53. Cohen-Mansfield J (1986) Agitated behaviors in the elderly II. preliminary results in the cognitively deteriorated. *J Am Geriatr Soc* 4:722–727. <https://doi.org/10.1111/j.1532-5415.1986.tb04303.x>
 54. Bowling A, Rowe G, Adams S et al (2015) Quality of life in dementia: a systematically conducted narrative review of dementia-specific measurement scales. *Aging Ment Health* 19:13–31. <https://doi.org/10.1080/13607863.2014.915923>
 55. Oltra-Cucarella J, Ferrer-Cascales R, Clare L et al (2018) Differential effects of cognition-focused Interventions for people with Alzheimer's disease: a meta-analysis. *Neuropsychology* 32:664–679
 56. Regan B, Wells Y, Farrow M et al (2017) MAXCOG-maximizing cognition: a randomized controlled trial of the efficacy of goal-oriented cognitive rehabilitation for people with mild cognitive impairment and early Alzheimer disease. *Am J Geriatr Psychiatry* 25:258–269
 57. Huntley JD, Gould RL, Liu K et al (2015) Do cognitive interventions improve general cognition in dementia? A meta-analysis and meta-regression *BMJ Open* 5:e005247
 58. Woods B, Aguirre E, Spector AE et al (2012) Cognitive stimulation to improve cognitive functioning in people with dementia. *Cochrane Database Syst Rev*. <https://doi.org/10.1002/14651858.CD005562.pub2>
 59. Forbes D, Forbes SC, Blake CM et al (2015) Exercise programs for people with dementia. *Cochrane Database Syst Rev*. <https://doi.org/10.1002/14651858.CD006489.pub4>
 60. Brett L, Traynor V, Stapley P (2016) Effects of physical exercise on health and well-being of individuals living with a dementia in nursing homes: a systematic review. *J Am Med Dir Assoc* 17:104–116. <https://doi.org/10.1016/j.jamda.2015.08.016>
 61. Du Z, Li Y, Li J et al (2018) Physical activity can improve cognition in patients with Alzheimer's disease: a systematic review and meta-analysis of randomized controlled trials. *Clin Interv Aging* 13:1593–1603. <https://doi.org/10.2147/CIA.S169565>
 62. Wang X, Wang H, Ye Z et al (2020) The neurocognitive and BDNF changes of multicomponent exercise for community-dwelling older adults with mild cognitive impairment or dementia: a systematic review and meta-analysis. *Aging (Albany NY)* 12:4907–4917. <https://doi.org/10.18632/aging.102918>
 63. López-Ortiz S, Valenzuela PL, Seisdedos MM et al (2021) Exercise interventions in Alzheimer's disease: A systematic review and meta-analysis of randomized controlled trials. *Ageing Res Rev*. <https://doi.org/10.1016/j.arr.2021.101479>
 64. Braz de Oliveira MP, Moreira Padovez RFC, Serrão PRMDS et al (2022) Effectiveness of physical exercise at improving functional capacity in older adults living with Alzheimer's disease: a systematic review of randomized controlled trials. *Disabil Rehabil* 16:1–12. <https://doi.org/10.1080/09638288.2022.2037744>
 65. Zhou S, Chen S, Liu X et al (2022) Physical activity improves cognition and activities of daily living in adults with Alzheimer's disease: a systematic review and meta-analysis of randomized controlled trials. *Int J Environ Res Public Health* 19:1216. <https://doi.org/10.3390/ijerph19031216>
 66. Li F, Harmer P, Eckstrom E et al (2021) Efficacy of exercise-based interventions in preventing falls among community-dwelling older persons with cognitive impairment: is there enough evidence? an updated systematic review and meta-analysis. *Age Ageing* 50:1557–1568. <https://doi.org/10.1093/ageing/afab110>
 67. Kouloutbani K, Venetsanou F, Markati A et al (2022) The effectiveness of physical exercise interventions in the management of neuropsychiatric symptoms in dementia patients: a systematic


- review. *Int Psychogeriatr* 34:177–190. <https://doi.org/10.1017/S1041610221000193>
68. Graff MJ, Vernooij-Dassen MJ, Thijssen M et al (2007) Effects of community occupational therapy on quality of life, mood, and health status in dementia patients and their caregivers: a randomized controlled trial. *J Gerontol A Biol Sci Med Sci* 62:1002–1009. <https://doi.org/10.1093/gerona/62.9.1002>
 69. Laver K, Cumming R, Dyer S et al (2017) Evidence-based occupational therapy for people with dementia and their families: what clinical practice guidelines tell us and implications for practice. *Aust Occup Ther J* 64:3–10. <https://doi.org/10.1111/1440-1630.12309>
 70. Gitlin LN, Arthur P, Piersol C et al (2018) Targeting behavioral symptoms and functional decline in dementia: a randomized clinical trial. *J Am Geriatr Soc* 66:339–345. <https://doi.org/10.1111/jgs.15194>
 71. Mohr W, Rädke A, Afi A et al (2021) Key intervention categories to provide person-centered dementia care: a systematic review of person-centered Interventions. *J Alzheimers* 84:343–366. <https://doi.org/10.3233/JAD-210647>
 72. Dyer SM, Harrison SL, Laver K et al (2018) An overview of systematic reviews of pharmacological and non-pharmacological interventions for the treatment of behavioral and psychological symptoms of dementia. *Int Psychogeriatr* 30:295–309. <https://doi.org/10.1017/S1041610217002344>
 73. Jones M. *Gentle Care: Changing the experience of Alzheimer's Disease in a positive way*. Burnaby BC; 1996.
 74. Innes A, Hatfield K (2004) *Healing Arts Therapies and Persons-Centered Dementia Care*. Jessica Kingsley Publishers, London, Bradford Dementia Group Good Practice Guide
 75. Odell-Miller H (2016) The role, function and identity of music therapists in the 21st century, including new research and thinking from a UK perspective. *BJMT* 30:5–12. <https://doi.org/10.1177/1359457516639549>
 76. Bruscia KE (1998) *Defining Music Therapy*, 2nd edn. Barcelona Publishers, Gilsum, NH
 77. Chancellor B, Duncam A, Chatterjee A (2014) Art therapy for Alzheimer's disease and other dementias. *J Alzheimers Dis* 39:1–11. <https://doi.org/10.3233/JAD-131295>
 78. Pedersen SKA, Andersen PN, Lugo RG et al (2017) Effects of music on agitation in dementia: a meta-analysis. *Front Psychol* 8:742. <https://doi.org/10.3389/fpsyg.2017.00742>
 79. Leggieri M, Thaut MH, Fornazzari L et al (2019) Music intervention approaches for Alzheimer's disease: a review of the literature. *Front Neurosci* 13:132. <https://doi.org/10.3389/fnins.2019.00132>
 80. van der Steen JT, Smaling HJ, van der Wouden JC et al (2018) Music-based therapeutic interventions for people with dementia. *Cochrane Database Syst Rev*. <https://doi.org/10.1002/14651858.CD003477.pub4>
 81. Vink A, Hanser S (2018) Music-based therapeutic interventions for people with dementia: a mini-review. *Medicines (Basel)* 5:109–116. <https://doi.org/10.3390/medicines5040109>
 82. Fusar-Poli L, Bieleninik Ł, Brondino N et al (2018) The effect of music therapy on cognitive functions in patients with dementia: a systematic review and meta-analysis. *Aging Ment Health* 22:1097–1106. <https://doi.org/10.1080/13607863.2017.1348474>
 83. Karkou V, Meekums B (2017) Dance movement therapy for dementia. *Cochrane Database Syst Rev*. <https://doi.org/10.1002/14651858.CD011022.pub2>
 84. Gori G, Zilli I, Pizziolo P (2016) Preliminary results of a research project we initiated at the public day care centre (DCC) for Alzheimer Le Civette in Florence. *Italy Dual Diagn Open Acc* 1:2. <https://doi.org/10.4172/2472-5048.100026>
 85. Delfa-Lobato L, Guàrdia-Olmos J, Feliu-Torruella M et al (2021) Benefits of cultural activities on people with cognitive impairment: a systematic review. *Front Psychol*. <https://doi.org/10.3389/fpsyg.2021.762392>
 86. Mossello E, Ridolfi A, Mello AM (2011) Animal-assisted activity and emotional status of patients with Alzheimer's disease in day care. *Int Psychogeriatr* 23:899–905. <https://doi.org/10.1017/S1041610211000226>
 87. Cantarella A, Borella E, Faggian S et al (2018) Using dolls for therapeutic purposes: a study on nursing home residents with severe dementia. *Int J Geriatr Psychiatry* 33:915–925. <https://doi.org/10.1002/gps.4872>
 88. Travers C, Brooks D, Hines S et al (2016) Effectiveness of meaningful occupation interventions for people living with dementia in residential aged care: a systematic review. *JBIS Database Sys Rev Implement Rep* 14:163–225. <https://doi.org/10.11124/JBISIR-2016-003230>
 89. Ballard C, Corbett A, Orrell M et al (2018) Impact of person-centred care training and person-centred activities on quality of life, agitation, and antipsychotic use in people with dementia living in nursing homes: A cluster-randomised controlled trial. *PLoS Med*. <https://doi.org/10.1371/journal.pmed.1002500>
 90. Abraha I, Rimland JM, Trotta FM et al (2017) Systematic review of systematic reviews of nonpharmacological interventions to treat behavioural disturbances in older patients with dementia. The SENATOR-OnTop series *BMJ Open*. <https://doi.org/10.1136/bmjopen-2016-012759>
 91. Brodaty H, Arasaratnam C (2012) Meta-analysis of nonpharmacological interventions for neuropsychiatric symptoms of dementia. *Am J Psychiatry* 169:946–953. <https://doi.org/10.1176/appi.ajp.2012.11101529>
 92. Reus VI, Fochtmann LJ, Eyler AE et al (2016) The American psychiatric association practice guideline on the use of antipsychotics to treat agitation or psychosis in patients with dementia. *Am J Psychiatry* 173:543–546. <https://doi.org/10.1176/appi.focus.15107>
 93. Banerjee S (2009) The use of antipsychotic medication for people with dementia: time for action. <http://psychrights.org/research/digest/nlps/banerjeereportongeriaticneurolepticuse.pdf>.
 94. Ralph SJ, Espinet AJ (2018) Increased all-cause mortality by antipsychotic drugs: updated review and meta-analysis in dementia and general mental health care. *J Alzheimers Dis Rep* 2:1–26. <https://doi.org/10.3233/ADR-170042>
 95. Van Leeuwen E, Petrovic M, van Driel ML et al (2018) Withdrawal versus continuation of long-term antipsychotic drug use for behavioural and psychological symptoms in older people with dementia. *Cochrane Database Syst Rev*. <https://doi.org/10.1002/14651858.CD007726.pub3>
 96. Henry G, Williamson D, Tampi RR (2011) Efficacy and tolerability of antidepressants in the treatment of behavioral and psychological symptoms of dementia, a literature review of evidence. *Am J Alzheimer Dis Other Dem* 26:169–183. <https://doi.org/10.1177/1533317511402051>
 97. Ballard CG, Gauthier S, Cummings JL et al (2009) Management of agitation and aggression associated with Alzheimer disease. *Nat Rev Neurol* 5:245–255. <https://doi.org/10.1038/nrneurol.2009.39>
 98. Yeh YC, Ouyang WC (2012) Mood stabilizers for the treatment of behavioral and psychological symptoms of dementia: an update review. *Kaohsiung J Med Sci* 28:185–193. <https://doi.org/10.1016/j.kjms.2011.10.025>
 99. Savaskan E, Mueller H, Hoerr R et al (2018) Treatment effects of Ginkgo biloba extract EGB 761 on the spectrum of behavioral and psychological symptoms of dementia: meta-analysis

- of randomized controlled trials. *Int Psychogeriatr* 30:285–293. <https://doi.org/10.1017/S1041610217001892>
100. Husebo BS, Ballard C, Sandvik R et al (2011) Efficacy of treating pain to reduce behavioural disturbances in residents of nursing homes with dementia: cluster randomised clinical trial. *BMJ*. <https://doi.org/10.1136/bmj.d4065>
 101. Kales HC, Gitlin LN, Lyketsos CG (2015) Assessment and management of behavioral and psychological symptoms of dementia. *BMJ*. <https://doi.org/10.1136/bmj.h369>
 102. Biagini CA, Bianchetti A, Cembrani F, et al (2014) Il trattamento farmacologico dei sintomi psicologici e comportamentali in corso di demenza: aspetti clinici e medico-giuridici. *Psicogeriatrics Suppl.* 1.
 103. Inouye SK, Studenski S, Tinetti ME et al (2007) Geriatric syndromes: clinical, research and policy implications of a core geriatric concept. *J Am Geriatr Soc* 55:780–791. <https://doi.org/10.1111/j.1532-5415.2007.01156.x>
 104. Quigley PA, Campbell RR, Bulat T et al (2012) Incidence and cost of serious fall-related injuries in nursing homes. *Clin Nurs Res* 21:10–23. <https://doi.org/10.1177/1054773811414180>
 105. American Psychiatric Association (2013) *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)*. 5th edn. Washington DC.
 106. Bellelli G, Morandi A, Di Santo SG et al (2016) “Delirium Day”: a nationwide point prevalence study of delirium in older hospitalized patients using an easy standardized diagnostic tool. *BMC Med* 14:106. <https://doi.org/10.1186/s12916-016-0649-8>
 107. Hébert R, Roy P (2007) Le syndrome d’immobilisation. In: Arcand M, Hébert R (eds) *Précis pratique de gériatrie*. Edisem/Maloine, Paris, pp 477–491
 108. Regional Health Council of Tuscany. *Ulcere da pressione: prevenzione e trattamento*. Linee Guida. 2016. Available from: <https://www.regione.toscana.it/-/fulcere-da-pressione-prevenzione-e-trattamento-linea-guida>. Access date 2022 Sept 13.
 109. National Institute for Health and Care Excellence. *Pressure ulcers: prevention and management*. Available from: <https://www.nice.org.uk/guidance/cg179>. Access date 2022 Sept 13.
 110. Abrams P, Cardozo L, Fall M et al (2002) The standardisation of terminology of lower urinary tract function: report from the standardisation Sub-committee of the international continence society. *Neurourol Urodyn* 21:167–178. <https://doi.org/10.1002/nau.10052>
 111. Offermans MP, Du Moulin MF, Hamers JP et al (2009) Prevalence of urinary incontinence and associated risk factors in nursing home residents: a systematic review. *Neurourol Urodyn* 28:288–294. <https://doi.org/10.1002/nau.20668>
 112. Cruz-Jentoft AJ, Bahat G, Bauer J et al (2019) Sarcopenia: revised European consensus on definition and diagnosis. *Age Ageing* 48:16–31. <https://doi.org/10.1093/ageing/afy169>
 113. Volkert D, Beck AM, Cederholm T et al (2022) ESPEN practical guideline: clinical nutrition and hydration in geriatrics. *Clin Nutr* 41:958–989. <https://doi.org/10.1016/j.clnu.2022.01.024>
 114. Gilmore-Bykovskiy AL, Rogus-Pulia N (2018) Temporal associations between caregiving approach, behavioral symptoms and observable indicators of aspiration in nursing home residents with dementia. *J Nutr Health Aging* 22:400–406. <https://doi.org/10.1007/s12603-017-0943-y>
 115. Payne M, Morley JE (2018) Editorial: dysphagia, dementia and frailty. *J Nutr Health Aging* 22:562–565. <https://doi.org/10.1007/s12603-018-1033-5>
 116. Cohen-Mansfield J, Lipson S (2008) The utility of pain assessment for analgesic use in persons with dementia. *Pain* 134:16–23. <https://doi.org/10.1016/j.pain.2007.03.023>
 117. Scherder EJ, Eggermont L, Plooijs B (2008) Relationship between chronic pain and cognition in cognitively intact older persons and in patients with Alzheimer’s disease. The need to control for mood. *Gerontology* 54:50–58. <https://doi.org/10.1159/000113216>
 118. National Institute for Health and Care Excellence. *Falls in older people: assessing risk and prevention 2013*. Available from: <https://www.nice.org.uk/guidance/cg161>. Access date 2022 Oct 10.
 119. Ries JD, Hutson J, Maralit LA et al (2015) Group balance training specifically designed for individuals with Alzheimer’s disease: impact on berg balance scale, timed up and go, gait speed, and mini-mental state examination. *J Geriatr Phys Ther* 38:183–193. <https://doi.org/10.1519/JPT.000000000000030>
 120. Inouye SK, van Dyck CH, Alessi CA et al (1990) Clarifying confusion: the confusion assessment method. a new method for detection of delirium. *Ann Intern Med* 113:941–948. <https://doi.org/10.7326/0003-4819-113-12-941>
 121. Lees R, Corbet S, Johnston C et al (2013) Test accuracy of short screening tests for diagnosis of delirium or cognitive impairment in an acute stroke unit setting. *Stroke* 44:3078–3083. <https://doi.org/10.1161/STROKEAHA.113.001724>
 122. Oh ES, Fong TG, Hsieh TT et al (2017) Delirium in older persons: advances in diagnosis and treatment. *JAMA* 318:1161–1174. <https://doi.org/10.1001/jama.2017.12067>
 123. Coleman S, Nixon J, Keen J et al (2014) A new pressure ulcer conceptual framework. *J Adv Nurs* 70:2222–2234. <https://doi.org/10.1111/jan.12405>
 124. Wagg A, Gibson W, Ostaszkiwicz J et al (2015) Urinary incontinence in frail elderly persons: report from the 5th international consultation on incontinence. *Neurourol Urodyn* 34:398–406. <https://doi.org/10.1002/nau.22602>
 125. Eustice S, Roe B, Paterson J (2000) Prompted voiding in the management of urinary incontinence in adults. *Cochrane Database Syst Rev*. <https://doi.org/10.1002/14651858.CD002113>
 126. Hooton TM, Bradley SF, Cardenas DD et al (2010) Diagnosis, prevention, and treatment of catheter-associated urinary tract infection in adults: 2009 international clinical practice guidelines from the infectious diseases society of America. *Clin Infect Dis* 50:625–663. <https://doi.org/10.1086/650482>
 127. Schaap LA, Quirke T, Wijnhoven HAH et al (2018) Changes in body mass index and mid-upper arm circumference in relation to all-cause mortality in older adults. *Clin Nutr* 37:2252–2259. <https://doi.org/10.1016/j.clnu.2017.11.004>
 128. Guigoz Y, Vellas B, Garry PJ (1996) Assessing the nutritional status of the elderly: the mini nutritional assessment as part of the geriatric evaluation. *Nutr Rev* 54:S59–65. <https://doi.org/10.1111/j.1753-4887.1996.tb03793.x>
 129. Stratton RJ, Hackston A, Longmore D et al (2004) Malnutrition in hospital outpatients and inpatients: prevalence, concurrent validity and ease of use of the “Malnutrition universal screening tool (MUST)” for adults. *Br J Nutr* 92:799–808. <https://doi.org/10.1079/bjn20041258>
 130. Tully MW, Matrakas KL, Muir J et al (1997) The Eating behavior scale. a simple method of assessing functional ability in patients with Alzheimer’s disease. *J Gerontol Nurs* 23:9–15. <https://doi.org/10.3928/0098-9134-19970701-08>
 131. Dunne TE, Neargarder SA, Cipolloni PB (2004) Visual contrast enhances food and liquid intake in advanced Alzheimer’s disease. *Clin Nutr* 23:533–538. <https://doi.org/10.1016/j.clnu.2003.09.015>
 132. Wu HS, Lin LC, Wu SC et al (2014) The effectiveness of spaced retrieval combined with montessori-based activities in improving the eating ability of residents with dementia. *J Adv Nurs* 70:1891–1901. <https://doi.org/10.1111/jan.12352>
 133. Rofes L, Arreola V, Almirall J et al (2011) Diagnosis and management of oropharyngeal dysphagia and its nutritional and respiratory complications in the elderly. *Gastroenterol Res Pract*. <https://doi.org/10.1155/2011/818979>

134. Baijens LW, Clavé P, Cras P et al (2016) European society for swallowing disorders - European union geriatric medicine society white paper: oropharyngeal dysphagia as a geriatric syndrome. *Clin Interv Aging* 11:1403–1428. <https://doi.org/10.2147/CIA.S107750>
135. Mosele M, Inelmen EM, Toffanello ED et al (2012) Psychometric properties of the pain assessment in advanced dementia scale compared to self assessment of pain in elderly patients. *Dement Geriatr Cogn Disord* 34:38–43. <https://doi.org/10.1159/000341582>
136. Ridda I, Dastouri F, King C et al (2014) Vaccination of older adults with dementia against respiratory infections. *Infect Disord Drug Targets* 14:133–139. <https://doi.org/10.2174/1871526514666140713153645>
137. Bradley SF (1999) Prevention of influenza in long-term-care facilities. long-term-care committee of the society for health-care epidemiology of America. *Infect Control Hosp Epidemiol* 20:629–637. <https://doi.org/10.1086/501687>
138. Nace DA, Archbald-Pannone LR, Ashraf MS (2017) Pneumococcal vaccination guidance for nursing home residents: recommendations from AMDA infection advisory committee. *J Am Med Dir Assoc* 18:99–104. <https://doi.org/10.1016/j.jamda.2016.11.010>
139. Frentzel E, Jump RLP, Archbald-Pannone L et al (2020) Recommendations for mandatory influenza vaccinations for health care personnel from AMDA's infection advisory subcommittee. *J Am Med Dir Assoc* 21:25–28. <https://doi.org/10.1016/j.jamda.2019.11.008>
140. W.H.O. (2022) Global Covid-19 Vaccination Strategy in a Changing World. Jul 2022 update.
141. Dooling KL, Guo A, Patel M et al (2018) Recommendations of the advisory committee on immunization practices for use of herpes zoster vaccines. *MMWR Morb Mortal Wkly Rep* 67:103–108
142. Soysal P, Smith L, Trott M et al (2022) The Effects of COVID-19 lockdown on neuropsychiatric symptoms in patients with dementia or mild cognitive impairment: a systematic review and meta-analysis. *Psychogeriatrics* 22:402–412. <https://doi.org/10.1111/psyg.12810>
143. Cohen G, Russo MJ, Campos JA (2020) Living with dementia: increased level of caregiver stress in times of COVID-19. *Int Psychogeriatr* 32:1377–1381. <https://doi.org/10.1017/S1041610220001593>
144. Istituto Superiore di Sanità. Rapporto ISS COVID-19 n. 61/2020 - Indicazioni ad interim per un appropriato sostegno alle persone con demenza nell'attuale scenario della pandemia di COVID-19.
145. Moore KJ, Lee CY, Sampson EL et al (2019) Do interventions that include education on dementia progression improve knowledge, mental health and burden of family carers? A systematic review *Dementia (London)* 19:2555–2581. <https://doi.org/10.1177/1471301219831530>
146. Jensen M, Agbata IN, Canavan M et al (2015) Effectiveness of educational interventions for informal caregivers of individuals with dementia residing in the community: systematic review and meta-analysis of randomised controlled trials. *Int J Geriatr Psychiatry* 30:130–143. <https://doi.org/10.1002/gps.4208>
147. Gilhooly KJ, Gilhooly ML, Sullivan MP et al (2016) A meta-review of stress, coping and interventions in dementia and dementia caregiving. *BMC Geriatr* 16:106. <https://doi.org/10.1186/s12877-016-0280-8>
148. Lethin C, Leino-Kilpi H, Roe B et al (2016) Formal support for informal caregivers to older persons with dementia through the course of the disease: an exploratory, cross-sectional study. *BMC Geriatr* 29:32. <https://doi.org/10.1186/s12877-016-0210-9>
149. Chan D, Livingston G, Jones L et al (2013) Grief reactions in dementia carers: a systematic review. *Int J Geriatr Psychiatry* 28:1–17. <https://doi.org/10.1002/gps.3795>
150. Moore KJ, Crawley S, Vickerstaff V et al (2020) Is preparation for end of life associated with pre-death grief in caregivers of people with dementia? *Int Psychogeriatr* 32:753–763. <https://doi.org/10.1017/S1041610220000289>
151. Meichsner F, Wilz G (2018) Dementia caregivers' coping with pre-death grief: effects of a CBT-based intervention. *Aging Ment Health* 22:218–225. <https://doi.org/10.1080/13607863.2016.1247428>
152. Lai CKY, Chung JCC (2007) Caregivers' informational needs on dementia and dementia care. *Asian J Gerontol Geriatr* 2:78–87
153. Novak M, Guest C (1989) Application of a multidimensional caregiver burden inventory. *Gerontologist* 29:798–803. <https://doi.org/10.1093/geront/29.6.798>
154. Chirico I, Ottoboni G, Giebel C et al (2022) COVID-19 and community-based care services: experiences of people living with dementia and their informal carers in Italy. *Health Soc Care Community* 30:e3128–e3137. <https://doi.org/10.1111/hsc.13758>
155. Italian Jurisdiction, L. No. 219 (Dec 22, 2017). Norme in materia di consenso informato e di disposizioni anticipate di trattamento

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Authors and Affiliations

Enrico Mossello¹  · Marco Baccini² · Francesca Caramelli¹ · Carlo Adriano Biagini³ · Alberto Cester⁴ · Luc Pieter De Vreese⁵ · Gianluca Darvo⁶ · Claudio Vampini⁷ · Mabel Gotti⁸ · Andrea Fabbo⁹ · Alessandra Marengoni¹⁰ · Maria Chiara Cavallini¹¹ · Guido Gori¹² · Rabih Chattat¹³ · Monica Marini¹⁴ · Davide Ceron¹⁵ · Alessandro Lanzoni¹⁶ · Paolo Pizziolo¹⁷ · Andrea Mati¹⁸ · Iole Zilli¹⁹ · Claudia Cantini²⁰ · Veronica Caleri²⁰ · Elisabetta Tonon²⁰ · David Simoni²¹ · Patrizia Mecocci²² · Andrea Ungar¹ · Giulio Masotti¹ on behalf of the Italian Group on Dementia Day Care Centres

¹ Department of Experimental and Clinical Medicine, Research Unit of Medicine of Ageing, University of Florence, Florence, Italy

² IRCCS Don Gnocchi Foundation, Florence, Italy

³ Division of Geriatric Medicine, Azienda USL Toscana Centro, Pistoia, Italy

⁴ Geriatrician and Psychiatrist, Padua, Italy

⁵ Department of Mental Health and Addictions, Cognitive Clinic, Azienda USL Modena, Italy

- ⁶ Department of Architecture, University of Florence, Florence, Italy
- ⁷ Psychiatric and Psychogeriatric Service, San Francesco Hospital, Garofalo Health Care, Verona, Italy
- ⁸ Psychotherapist and Psychoanalyst, Italian Society of Interpersonal Psychoanalysis, Florence, Italy
- ⁹ Cognitive Disorders and Dementia Unit, Health Authority and Services of Modena, Modena, Italy
- ¹⁰ Department of Clinical and Experimental Sciences, University of Brescia, Brescia, Italy
- ¹¹ Continuity of Care Agency, Department of Geriatrics, Azienda Ospedaliero-Universitaria Careggi, Florence, Italy
- ¹² Scientific Director, PAS Pubbliche Assistenze Foundation, Florence, Italy
- ¹³ Department of Psychology, University of Bologna, Bologna, Italy
- ¹⁴ Staff Coordinator, Healthcare Executive, Tuscany Region, Italy
- ¹⁵ Opera Immacolata Concezione Foundation, Padua, Italy
- ¹⁶ Cognitive Disorders and Dementia Unit, Primary Care Department, Health District of Modena, Modena, Italy
- ¹⁷ Anglia Ruskin University, Cambridge, UK
- ¹⁸ Piante Mati, Pistoia, Italy
- ¹⁹ Cooperativa Elleuno, Firenze, Italy
- ²⁰ IRCCS Don Gnocchi Foundation, Florence, Italy
- ²¹ Health Area Manager, Arnera Cooperativa Sociale, Pontedera, Italy
- ²² Section of Gerontology and Geriatrics, Department of Medicine, University of Perugia, Perugia, Italy