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A National Survey of Day Care Centers Hosting People With Dementia in Italy

Fabio Matascioli¹ | Patrizia Lorenzini²  | Francesco Giaquinto³ | Roberta Vaccaro⁴ | Emanuela Salvi⁵ | Giulia Carnevale⁶ | Nicoletta Locuratolo² | Nicola Vanacore²  | Ilaria Bacigalupo² | The Permanent Table of the National Dementia Plan Study Group | The DCCs Study Group

¹TAM Onlus, Social Cooperative, San Giorgio a Cremano, Naples, Italy | ²National Centre for Disease Prevention and Health Promotion, Italian National Institute of Health, Rome, Italy | ³Department of Experimental Medicine, University of Salento, Lecce, Italy | ⁴Scientific and Cultural Laboratories, Cognitive Therapy Centre (CTC), Como, Italy | ⁵National Center for Drug Research and Evaluation, Italian National Institute of Health, Rome, Italy | ⁶FONDEM Study Group, Italian National Institute of Health, Rome, Italy

Correspondence: Patrizia Lorenzini (patrizia.lorenzini@iss.it)

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ABSTRACT

Objectives: A national survey was conducted in the Italian Day Care Centers hosting people with dementia (DCCs). This national survey aimed to describe the characteristics, the organizational structure and the opening period during the COVID-19 pandemic of the DCCs.

Methods: A list of all national DCCs was provided by representatives from each Italian region.

The online questionnaire consisted of two main parts: a profile section (location, access) and a data collection form (organization, services, treatments, activities, and any discontinuation of the services due to the COVID-19 outbreak).

Results: A total of 1084 DCCs were included in the study after verifying their actual capacity to accommodate persons with dementia. Overall, 443 facilities (41%) completed the profile section and 300 (27,7%) also completed the data collection form. Most of the DCCs participating in the survey were privately owned facilities affiliated with the Regional Health Service (88.5% vs. 11.5% of public facilities). The imbalance in favor of private facilities was present in all three Italian macro-areas, particularly in the North, where almost all facilities were private (private vs. public, North 97.1% vs. 2.9%, Center 65.5% vs. 34.5%; Southern and Islands 75.5% vs. 24.5%). Only one-fifth of the facilities exclusively admitted people with dementia. As regards the pandemic period, only 6% of facilities remained always open in 2020, in 2021 the percentage increased, with 48% of the facilities reported as open.

Conclusions: This paper presents an overview of the current situation of DCCs in Italy, showing still considerable heterogeneity based on geographic location. The survey finally highlights how the COVID-19 pandemic emergency has impacted the activities of these types of facilities.

1 | Introduction

Dementia is one of the major causes of disability and dependency in daily living among older people worldwide. It is a condition that has a significant impact not only on the

individuals affected but also on their caregivers and families [1]. Patients need a range of services from both inside and outside the health sector, such as primary health care, specialist medical care, community-based services, rehabilitation, long-term care, and palliative care [2]. Rehabilitation is regarded as a

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Key Points

- First survey in Italian DCCs
- The analysis showed a distribution of semi-residential facilities not aligned with epidemiological estimates of dementia cases, and differences in terms of the facility's profile among the different macro areas.
- Public facilities have more staff and more persons with dementia
- During pandemic period in 2020, only 6% of the facilities remained open, in 2021 about half

fundamental aspect of healthcare; its objective is to assist individuals in achieving and maintaining optimal functioning and independence for as long as possible [3]. In this context, The World Alzheimer Report 2023 emphasizes the importance of delaying the onset of dementia or slowing its progression after diagnosis [4].

Day Care Centers (DCCs) represent “a system of professionally delivered, integrated, home and community-based, therapeutic, social and health-related services provided to individuals to sustain living within the community” [5] and constitute an essential component of the care continuum [6].

DCCs play a fundamental role in the care pathway and support the health and social needs of adults with dementia and caregiving. Services include health monitoring, socialization, meals, and assistance with activities of daily living [7], targeting vulnerable populations often characterized by multimorbidity and social disadvantage [8].

DCC services aim to offer meaningful activities, a safe environment for the attendees and a respite for family caregivers [9, 10], and can be useful in slowing down the progression of dementia [11]. Center attendance and participation in interventions within them positively impacted on older people's mental health, social contacts, physical function, and quality of life [12].

It has been observed that regular use of adult day services may protect against the adverse impact of sleep disturbances [13, 14]. Furthermore, it is effective in reducing behavioral and psychological symptoms of dementia (BPSDs) and in alleviating caregivers' burden [15–20]. Cognitive training programs in day centers are associated with benefits in maintaining cognitive function for patients with early-stage Alzheimer's disease who are undergoing medical treatment [21].

As a respite and support service, day centers can provide family caregivers a feeling of safety and relief, reduce the caregiver's burden, and increase their motivation in their caregiving role [22].

DCC services may be used as a supplement or as an alternative to home care, offering support to caregivers who are employed elsewhere or need a break from their daily tasks [23].

DCC emerged in Italy in the early 1980s [24]. Initially, they were focused exclusively on adults with mild disability, mainly providing animation and socialization interventions. In the following years, the target population gradually changed, and adult day care centers increasingly focused on individuals who were not self-sufficient and/or had dementia [25]. Dementia day care is provided in various settings, including specialised dementia centers and general elderly care centers, which usually serve a limited number of individuals with dementia within a broader service [26, 27]. This pattern is also observed in Italy [15], where some specialized facilities are exclusively dedicated to individuals with Alzheimer's disease—referred to as Alzheimer's day care centers. However, not all Italian regions have both types of facilities [24].

In December 2020, the Italian Parliament approved a grant of 15 million euros for the Italian National Dementia Plan from 2021 to 2023. The Italian Fund for Alzheimer's and other dementias aims to develop innovative strategies from a public health perspective and to deepen the understanding of dementia care in Italy [28, 29]. An important objective among those identified by the National Dementia Plan is the creation of a national service map based on data collected through surveys of dementia facilities [30]. This survey aims to provide a comprehensive overview of Italian DCCs, including aspects such as resources, service and staff organization, diagnostic work-up and the opening period during the pandemic, and an update of the online map of these services [31]. Considering the impact of COVID-19 on people with dementia [32–35], a specific question was also proposed concerning the activity of DCCs during the pandemic.

2 | Materials and Methods

2.1 | Surveyed Facilities

To promote coordinated action with the different regional and local health authorities, the representatives of the Regions and Autonomous Provinces participating in the Permanent Table of the National Dementia Plan have been actively involved in drawing up updated lists and contact details of DCCs in territories of their pertinence. The list obtained from the regional delegates, containing 1206 facilities, was checked, and some facilities were removed because they did not accommodate elderly people. The final list was 1084 services.

Only DCCs hosting people with dementia operating in Italy were included in the survey. These facilities were geographically dispersed throughout the country. Geographical macro areas have been defined according to the categorization of the Italian National Statistics Institute (ISTAT) [36].

2.2 | Questionnaire

The survey questionnaire consisted of two sections: a profile section and a data-collection form.

The profile section, consisting of 9 questions, collected information related to the year 2022 on the following issues: (i) the address and contact details of the facility; (ii) the type of relationship with the national healthcare agency; (iii) the type of users; (iv) the category of day center; (v) the days and hours of weekly operation.

The data collection form, consisting of 22 questions, required information referred to the year 2019 about: (i) procedures of admission and discharge for persons with dementia; (ii) the composition of the workforce; (iii) services provided; (iv) in-depth analysis of additional services (e.g., availability of a transportation service); (v) total number of yearly training hours and for each professional role; (vi) waiting time for accessing the service and the average period of attendance; (vii) the number of patients managed/treated annually and the number of accesses (viii) relationship with family members.

Finally, respondents were asked about the DCCs' activity during the pandemic years 2020 and 2021, whether the service was always open or partially closed, and the length of any possible closure. The survey questionnaire was developed online by computer experts on a platform that allowed continuous monitoring of the survey.

2.3 | Procedure

The survey was launched in July 2023 and concluded in October 2023. It is important to note that only facilities that were active in 2023 and had also been operating in 2019 were able to provide retrospective data for the pre-pandemic period.

Five DCCs participated in a pilot phase to test the system's functionality. DCCs were invited to participate in the study through a cover letter sent by email. Data from facilities that agreed to participate were recorded in the online platform after obtaining consent. Data were exported for statistical analysis in compliance with the privacy policy. Only data from the facilities that were confirmed to assist people with dementia were included in the analysis.

2.4 | Statistical Analysis

A descriptive analysis of the collected data was conducted, reporting the results globally and by three Italian macro-areas (North, Center and South/Islands). Categorical variables were reported as absolute numbers and percentages; continuous parameters were described as median and interquartile range (IQR) and/or mean and range (min-max). The comparisons of characteristics of the facilities among macro-areas were made using the Kruskal-Wallis test for continuous variables and the Chi-square test or Fisher's exact test for categorical variables.

The mean number of dementia cases per DCC was calculated by dividing the estimated number of cases by the total number of DCCs in each Region. Dementia cases for each Region were estimated by multiplying the European dementia prevalence, stratified by age and gender [3], by the population of residents

aged 65 and over in each Italian Region in 2022, according to data from the ISTAT [36].

A comparison of the characteristics between public and private facilities with agreement with local authorities, was conducted using univariate and multivariate logistic regression, with public facilities as the dependent variable.

A *p*-value less than 5% was considered statistically significant. All data analyses were performed using STATA software, version SE 17 (Stata Corp, College Station, Texas, USA).

3 | Results

Overall, 1084 DCCs were identified across Italy. The total number of DCCs accepting people with dementia that participated in the survey was 443, with an overall response rate of 40.9%; the percentage varied in the macro-areas from 40.0% in the North to 41.4% in the Center and 46.2% in the South and Islands (Supporting Information S1: Table 1). The mean number of estimated dementia cases per DCC was 1017 in the whole country, increasing from 699 in the North to 1108 in the Center and 3145 in the South and Islands of Italy, with differences at the regional level (Supporting Information S1: Table 1 and Figure 1a).

Out of the 443, a subgroup of 300 facilities provided data concerning the activity of the last year before the pandemic, 2019 (Figure 1b).

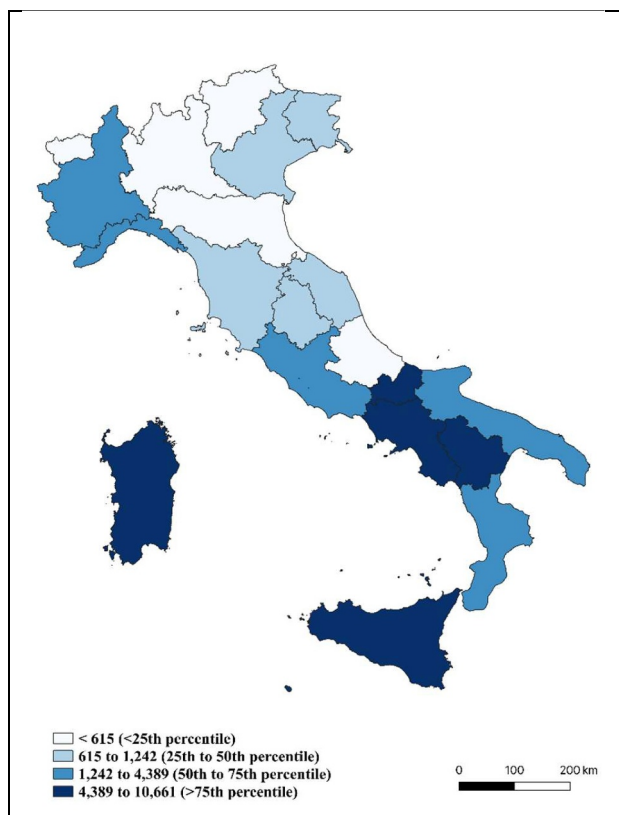
A comparison between the 300 fully responders versus 143 partially responders DCCs revealed that the two groups were similar in terms of geographical distribution, mean number of places available, average duration of facility operation, and average number of opening days per week. However, the facilities that fully responded were more frequently centers dedicated exclusively to individuals with dementia, compared to those that partially responded.

3.1 | Main Organizational Characteristics of DCCs

Most of the facilities (88.5%) surveyed were privately owned and covered by the national social-health system, and 11.5% were public. This data varied significantly across macro-areas, as the percentage of public facilities was higher in the central regions (34.5%) and in the South and Islands (24.5%) and dropped drastically in the North (2.9%) (Table 1). The users covered an average of 46% of the fee, with a higher percentage in the North (52%) and lower in the Center (32%) and in the South and Islands (30%). A total of 214 (48%) facilities were managed by private non-profit organizations (data not shown).

Only about one-fifth of the facilities exclusively accepted people with dementia, with a remarkably higher frequency in the central (43.7%) and southern regions (61.2%) compared to the North (7.8%) (Table 1). Only 1.4% of the centers were open for less than 5 days a week, 52.9% were open for 5 days, 36% for 6 days, and 9.7% were open every day, usually those placed within residential facilities. Moreover, the majority of DCCs

A



B

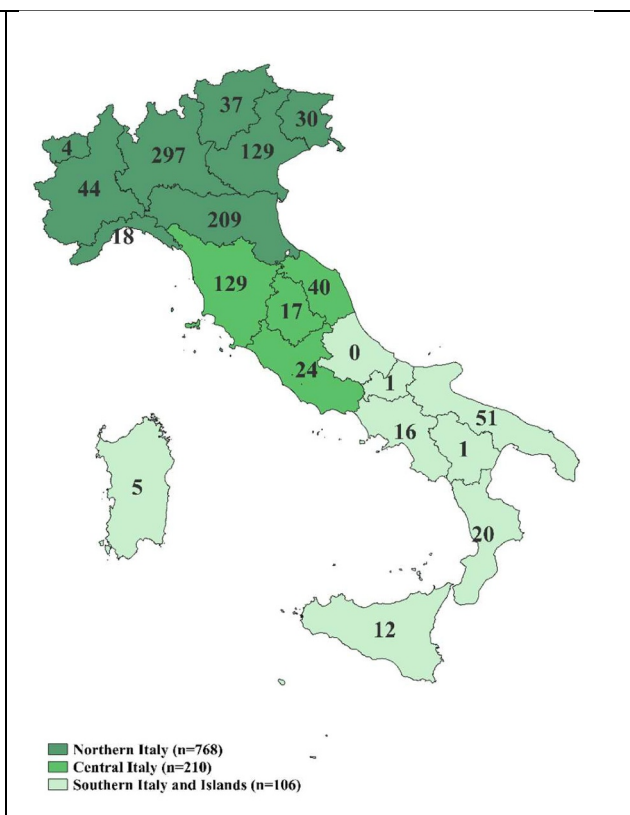


FIGURE 1 | A Estimated mean number of dementia cases per DCC at the regional level; B Distribution of Italian DCCs by Italian region and geographic macro-area (ISTAT definition).

(90.7%) remained open during the summer period without differences for macro-area (data not shown).

Regarding the availability of services during the pandemic period, only 6% of facilities were always open in 2020, DCCs in the South managed to stay open more often than the ones in the Center and the North. In 2021, the percentage of facilities that were always open rose to 48% without significant geographical differences (Table 1).

3.2 | Workforce of DCCs

Almost half (47.6%) of the facilities were managed by a medical figure; the percentage rose to 53.3% when considering the subgroup of Alzheimer's day centers.

Most of the structures located in northern and central Italy employed fewer than 10 professional figures; on the contrary, the facilities located in the South and Islands showed a higher number of professionals (Supporting Information S1: Table 2). The total number of healthcare professional workers employed in the 300 Italian surveyed facilities was 3284 (132 medical staff, 134 psychologists or neuropsychologists, 495 nurses, 2457 other healthcare professional workers, and 66 administrative staff)(data not shown).

Regarding the staff composition, noteworthy differences were observed across macro-areas. In the South, the majority of

facilities (85.7%) had at least one medical figure, in contrast to the North and the Center, where 28.4% and 24.6% of DCCs had physicians on the staff, respectively (Table 1). The presence of the psychologist or neuropsychologist also showed differences according to geographical distribution; this role was present in almost three-quarters (74.3%) of facilities in the South, compared to one-third of facilities in the Center (33.3%) and the North (30.3%). More than half of the medical figures (59.8%) and psychologists or neuropsychologists (55.2%) were temporary workers in the DCCs (Supporting Information S1: table 2).

Additionally, at the national level, the number of annual hours of professional training attended by the staff amounted to a median of 6.2 h per worker, with more than a twofold difference between the northern and the southern regions and Islands (6.7 vs. 3.1 h) (Table 1).

3.3 | Patient Care in Adult DCCs: Access, Discharge, and Duration of Stay in DCCs

The mean number of people with dementia who accessed the service in 2019 was 1141, with differences at the macro-area level (Table 2). In terms of the pathway of access to the facility, family members made a formal request in 36.5% of cases. The primary care physician and the multidimensional assessment unit were the authors of the formal access request more frequently in central and southern regions than in the North

TABLE 1 | Characteristics of Italian DCCs at the national level and by geographical macro-area.

Organizational features Referred to 2022 (<i>n</i> = adherent DCCs)	Italy (<i>n</i> = 443)	North (<i>n</i> = 307)	Center (<i>n</i> = 87)	South/Islands (<i>n</i> = 49)	<i>p</i>
Type of facility, <i>N</i> (%)					
Public	51 (11.5%)	9 (2.9%)	30 (34.5%)	12 (24.5%)	< 0.001
Private under agreement with NHS	392 (88.5%)	298 (97.1%)	57 (65.5%)	37 (75.5%)	
Type of residents, <i>N</i> (%)					
Exclusively people with dementia	92 (20.8%)	24 (7.8%)	38 (43.7%)	30 (61.2%)	< 0.001
Both people with and without dementia	245 (55.3%)	203 (66.1%)	32 (36.8%)	10 (20.4%)	
Total number of places					
Median (IQR)	20 (15–30)	20 (15–30)	15 (10–20)	30 (20–30)	< 0.001
Mean (min-max)	22.1 (4–135)	23.5 (5–135)	16.1 (4–44)	23.8 (10–30)	
Number of weekly opening days					
Median (IQR)	5 (5–6)	5 (5–6)	6 (5–6)	6 (6–6)	< 0.001
Mean (min-max)	5.5 (2–7)	5.5 (2–7)	5.6 (2–7)	5.8 (5–6)	
Years of activity					
Median (IQR)	16 (10–21)	17 (12–21)	16 (9–21)	9 (6–11)	< 0.001
Mean (min-max)	15.7 (0.3–42)	16.8 (0.3–42)	15.7 (0.7–37)	9.5 (2.1–24)	
Referred to 2019	Italy (<i>n</i> = 300)	North (<i>n</i> = 208)	Center (<i>n</i> = 57)	South/Islands (<i>n</i> = 35)	<i>p</i>
DCCs with at least 1 professional in the following categories, <i>N</i> (%):					
Physician (neurologist, geriatrician, psychiatrist)	103 (34.3%)	59 (28.4%)	14 (24.6%)	30 (85.7%)	< 0.001
Psychologist (psychologist, neuropsychologist)	108 (36.0%)	63 (30.3%)	19 (33.3%)	26 (74.3%)	< 0.001
Nurse	223 (74.3%)	159 (76.4%)	38 (66.7%)	26 (74.3%)	0.326
Social and health care assistant	247 (82.3%)	167 (80.3%)	47 (82.5%)	33 (94.3%)	0.133
Rehabilitation therapist (physiotherapist, speech therapist, psychiatric rehabilitation therapist, occupational therapist)	197 (65.7%)	134 (64.4%)	33 (57.9%)	30 (85.7%)	0.019
Community coordinator	68 (22.7%)	42 (20.2%)	24 (42.1%)	2 (5.7%)	< 0.001
Educator	164 (54.7%)	113 (54.3%)	28 (49.1%)	23 (65.7%)	0.295
Social worker	83 (27.7%)	49 (23.6%)	15 (26.3%)	19 (54.3%)	0.001
Number of annual hours of training per worker, median (IQR)	6.2 (2.1–13.3)	6.7 (2.7–13.3)	5.3 (2–17.5)	3.1 (0.7–5.7)	0.044
Referred to 2020/2021	Italy (<i>n</i> = 300)	North (<i>n</i> = 208)	Center (<i>n</i> = 57)	South/Island (<i>n</i> = 35)	<i>p</i>
Opening period in 2020, <i>N</i> (%)					
Always open	18 (6.0%)	12 (5.8%)	1 (1.8%)	5 (14.3%)	< 0.001
Closed for < 3 months	56 (18.7%)	26 (12.5%)	12 (21.1%)	18 (51.4%)	
Closed for ≥ 3 months	211 (70.3%)	164 (78.8%)	44 (77.2%)	11 (31.4%)	
Opening period in 2021, <i>N</i> (%)					
Always open	144 (48.0%)	94 (45.2%)	27 (47.4%)	23 (65.7%)	0.150
Closed for < 3 months	44 (14.7%)	32 (15.4%)	7 (12.3%)	5 (14.3%)	
Closed for ≥ 3 months	99 (33.0%)	75 (21.2%)	18 (31.6%)	6 (17.1%)	

Note: Missing values: Type of residents (*n* = 106, 23.9%), Number of weekly opening days, (*n* = 1, 0.2%), Years of activity (*n* = 18, 4.1%), DCCs with at least 1 professional in the following categories (*n* = 32, 10.7%), Total number of hours of training per worker (*n* = 220, 49.7%), Opening period in 2020 (*n* = 15, 5.0%), Opening period in 2021 (*n* = 13, 4.3%).

Abbreviations: NHS (national health service).

TABLE 2 | Patients' care in adult day care centers: access, discharge and duration of stay at the national level and by geographical macro-area.

Access, discharge and duration of stay Referred to 2019	Italy (n = 300)	North (n = 208)	Center (n = 57)	South/Islands (n = 35)	p
Number of patients in charge in 2019, mean (min-max)	37 (0-300)	40 (0-300)	25 (3-63)	36 (0-240)	0.484
Number of persons with dementia in charge in 2019, mean (min-max)	25 (0-300)	24 (0-300)	22 (2-63)	34 (0-240)	0.152
Number of accesses in 2019, mean (min-max)	1793 (0-10771)	2014 (0-10771)	1095 (3-6105)	1559 (0-7288)	< 0.001
Number of accesses of persons with dementia in 2019, mean (min-max)	1141 (0-10771)	1110 (0-10771)	987 (3-6105)	1555 (0-7288)	0.070
Who can submit the request for access to the center, in percentage?, (multiple response) mean (min-max)					
Practitioner	8.8% (0-100)	7.5% (0-100)	8.1% (0-100)	17.7% (0-100)	0.003
Social assistant	22.0% (0-100)	22.4% (0-100)	23.7% (0-100)	16.7% (0-100)	0.717
Support administrators	10.1% (0-100)	9.2% (0-100)	16.7% (0-100)	0	0.631
Multidimensional assessment unit	23.7% (0-100)	20.5% (0-100)	28.2% (0-100)	36.1% (0-100)	0.002
Family members	36.5% (0-100)	38.7% (0-100)	30.5% (0-100)	30.8% (0-100)	0.118
Waiting time to access the center, months, N (%)					
< 1	127 (42.3%)	96 (46.2%)	14 (24.6%)	17 (48.6%)	0.047
1-3	71 (23.7%)	41 (19.7%)	17 (29.8%)	13 (37.1%)	
3-6	27 (9.0%)	18 (8.7%)	8 (14.0%)	1 (2.9%)	
6-12	8 (2.7%)	5 (2.4%)	3 (5.3%)	0	
> 12	1 (0.3%)	1 (0.5%)	0	0	
The average period of DCC attendance of people with dementia, months, N (%)					
3	5 (1.7%)	5 (2.4%)	0	0	0.033
6	29 (9.7%)	22 (10.6%)	3 (5.3%)	4 (11.4%)	
12	70 (23.3%)	56 (26.9%)	8 (14.0%)	6 (17.1%)	
18	57 (19.0%)	44 (21.2%)	9 (15.8%)	4 (11.4%)	
24	44 (14.6%)	22 (10.6%)	16 (28.1%)	6 (17.1%)	
30	22 (7.3%)	12 (5.8%)	5 (8.8%)	5 (14.3%)	
36	21 (7.0%)	13 (6.2%)	3 (5.2%)	5 (14.3%)	
> 36	26 (8.7%)	15 (7.2%)	8 (14.0%)	3 (8.6%)	
Where are people with dementia sent upon discharge, in percentage?, mean (min-max)					
Home with home care	26.8% (0-100)	24.0% (0-100)	36.2% (0-100)	29.4% (0-100)	0.135
Another semi-residential facility	16.0% (0-100)	16.4% (0-100)	22.6% (0-100)	4.8% (0-50)	0.087
Residential facility	35.7% (0-100)	44.6% (0-100)	10.2% (0-85)	22.1% (0-100)	< 0.001
Discharge due to death	12.0% (0-90)	8.4% (0-70)	20.4% (0-90)	20.9% (0-70)	0.003
Transfer to hospital	7.4% (0-95)	7.8% (0-95)	5.4% (0-25)	8.5% (0-50)	0.818
Rehabilitation facility	11.1% (0-100)	10.0% (0-100)	9.9% (0-80)	17.7% (0-60)	0.020

(Continues)

TABLE 2 | (Continued)

Access, discharge and duration of stay Referred to 2019	Italy (n = 300)	North (n = 208)	Center (n = 57)	South/Islands (n = 35)	p
Other	9.2% (0–100)	4.3% (0–100)	33.4% (0–100)	10.9% (0–100)	0.012
The main reason for discharge from the center, N (%)					
Achievements of goals	5 (1.7%)	1 (0.5%)	0	4 (1.14%)	0.001
Achievements of time limits	6 (2.0%)	2 (1.0%)	3 (5.3%)	1 (2.9%)	
Change in the support needs of the patient's family members	19 (6.3%)	17 (8.2%)	1 (1.8%)	1 (2.9%)	
Worsening of the patient's condition	238 (79.3%)	164 (78.8%)	48 (84.2%)	26 (74.3%)	
Death	4 (1.3%)	2 (1.0%)	1 (1.8%)	1 (2.9%)	
Other	2 (0.7%)	2 (1.0%)	0	0	

Note: Missing values: Number of patients in charge in 2019 (n = 50, 16.7%), Number of accesses in 2019 in 2020 (n = 47, 15.7%), Waiting time to access the center (n = 66, 22.0%), Average length of stay in the center (n = 26, 8.7%), Where are people with dementia sent upon discharge? (n = 57, 19.0%), Main reason for discharge (n = 26, 8.7%).

(Table 2). Furthermore, in 75% of cases, the waiting time to access the service was less than 6 months, and in nearly half (42.3%) of facilities, it was less than a month. Moreover, it is noted that the majority of individuals (56.9%) attended the facility for a period ranging from one to 2 years (Table 2).

Upon discharge, an average of 26.8% of cases involved people with dementia being sent to home with home care assistance, while 35.7% were referred to residential facilities. This finding is consistent with the main reason for discharge, which is the worsening of the patient's condition in 79.3% of cases (Table 2).

3.4 | Care Services, Psychosocial, Educational and Rehabilitation Treatments

In 85.3% of cases, the facilities developed specific therapeutic plans for each patient (data not shown). The services provided most frequently were nursing care (78.7%), animation, socialization, and recreational activities (89.0%), cognitive stimulation or rehabilitation (80.3%), and physiotherapy and physical rehabilitation activities (64.7%). Only about one-tenth of the facilities offered nutritional services (12.3%) (Table 3). The transfer service from home to the center and back was included in 28.7% of DCCs and was available with an additional cost in 44.7% of facilities (data not shown).

Finally, in terms of relationships with family members, 90% of the facilities reported maintaining regular contact between staff and relatives. However, only in 25% of cases this contact evolved into self-help and mutual support groups for caregivers, and in 17.3% of cases, it led to the formation of social empowerment groups (data not shown).

3.5 | Comparison Between Public and Private Under Agreement Facilities

A small proportion (11.5%) of the structures participating in the survey were entirely public, the majority were private under

agreement with public authorities (municipality, local health authority, social field, other).

The characteristics associated with public facilities were identified by means of a multivariate model. The univariate associations are reported in Supporting Information S1: Table 3. Public DCCs were more frequent in the Center and the South of Italy with respect to the North, they showed a higher probability of having fewer than 20 places compared to private facilities and they were more likely to exclusively accommodate individuals with dementia (Table 4).

4 | Discussion

The current survey has contributed to capturing, albeit partially, the characteristics and peculiarities of semi-residential services where people with dementia are also accommodated. It is important to emphasize that this is the first time a national survey has been carried out in Italy on Day Care Centers hosting people with dementia. The survey participation rate was, unfortunately, only 40.9% of contacted facilities, with no difference according to macro-areas. The survey response rate is, however, consistent with the response rates obtained from other similar surveys [26]. A first analysis shows that the distribution of semi-residential facilities is not aligned with epidemiological estimates of dementia cases (Supporting Information S1: Table 1). Disparities were observed both at the macro-area level and within regions. The same inequality in the organisation of services has also been observed in the centers dedicated to the diagnosis and care of patients [30]. Data collected from the 443 facilities that completed the profile form revealed a significant difference in terms of facility profile among the different macro areas.

To ensure specialised rehabilitation interventions and psychosocial support for patients, the composition of the staff is a priority [4, 15]. Furthermore, the Italian guideline on dementia and MCI recommends for cognitive symptoms to offer personalized activities to promote engagement, pleasure and interest [37]. Data acquired from 300 facilities that completed the data

TABLE 3 | Care services, psychosocial, educational and rehabilitation treatments provided by Italian DCCs at the national level and by geographical macro-area.

Provision of care services and treatments Referred to 2019	Italy (n = 300)	North (n = 208)	Center (n = 57)	South/Islands (n = 35)	p
Care services, N (%)					
Medical care	126 (42.0%)	98 (47.1%)	14 (24.6%)	14 (40.0%)	0.009
Specialized medical care	65 (21.7%)	35 (16.8%)	9 (15.8%)	21 (60.0%)	< 0.001
Nursing care	236 (78.7%)	168 (80.8%)	40 (70.2%)	28 (80.0%)	0.219
Physiotherapy and physical rehabilitation activities	194 (64.7%)	132 (63.5%)	33 (57.9%)	29 (82.9%)	0.042
Psychosocial and behavioral therapy	127 (42.3%)	78 (37.5%)	22 (38.6%)	27 (77.1%)	< 0.001
Stimulation activity/cognitive rehabilitation	241 (80.3%)	169 (81.3%)	43 (75.4%)	29 (82.9%)	0.572
Nutritionist	37 (12.3%)	24 (11.5%)	3 (5.3%)	10 (28.6%)	0.004
Social assistance	99 (33.0%)	60 (28.8%)	16 (28.1%)	23 (65.7%)	< 0.001
Occupational therapy	132 (44.0%)	84 (40.4%)	28 (49.1%)	20 (57.1%)	0.125
Animation, socialization, recreational activities	267 (89.0%)	187 (89.9%)	52 (91.2%)	28 (80.0%)	0.187
Support and training activities for family members and caregivers	167 (55.7%)	116 (55.8%)	25 (43.9%)	26 (74.3%)	0.017
Alzheimer's garden	84 (28.0%)	48 (23.1%)	21 (36.8%)	15 (42.9%)	0.014
Psychosocial, educational and rehabilitation treatments and interventions, N (%)					
Cognitive stimulation	264 (88.0%)	181 (87.0%)	50 (87.7%)	33 (94.3%)	0.472
Reality orientation therapy	176 (58.7%)	109 (52.4%)	37 (64.9%)	30 (85.7%)	0.001
Reminiscence therapy	138 (46.0%)	81 (38.9%)	33 (57.9%)	24 (68.6%)	0.001
Doll therapy	127 (42.3%)	81 (38.9%)	29 (50.9%)	17 (48.6%)	0.198
Pet therapy	87 (29.0%)	55 (26.4%)	23 (40.4%)	9 (25.7%)	0.110
Validation therapy	84 (28.0%)	52 (25.0%)	18 (31.6%)	14 (40.0%)	0.150
Conversationalism	140 (46.7%)	93 (44.7%)	34 (59.6%)	13 (37.1%)	0.065
Cognitive - behavioral therapy	145 (48.3%)	88 (42.3%)	28 (49.1%)	29 (82.9%)	< 0.001
Touch therapy/massage	56 (18.7%)	41 (19.7%)	8 (14.0%)	7 (20.0%)	0.608
Shiatsu	3 (1.0%)	3 (1.4%)	0	0	0.512
Light therapy	7 (2.3%)	4 (1.9%)	0	3 (8.6%)	0.024
Sensorial garden	72 (24.0%)	42 (20.2%)	19 (33.3%)	11 (31.4%)	0.066
Horticultural therapy	139 (46.3%)	88 (42.3%)	33 (57.9%)	18 (51.4%)	0.091
Music therapy	92 (30.7%)	64 (30.8%)	18 (31.6%)	10 (28.6%)	0.953
Dance movement therapy	62 (20.7%)	34 (16.3%)	16 (28.1%)	12 (34.3%)	0.016
Aromatherapy	59 (19.7%)	34 (16.3%)	15 (26.3%)	10 (28.6%)	0.091
Art therapy	86 (28.7%)	58 (27.9%)	17 (29.8%)	11 (31.4%)	0.891
Snøezelen	27 (9.0%)	22 (10.6%)	4 (7.0%)	1 (2.9%)	0.284

collection form showed significant differences across three macro-areas in terms of both the number of employees and their qualifications. Staffing levels, as in other surveys, were higher in DCCs that have a larger proportion of participants with dementia [38] and that were public [39]. In addition, a higher percentage of patients had a diagnosis of dementia in public structures than in private under agreement centers, as observed in Adult Day Services Center [40].

The findings of the present study demonstrate that a limited number of centers employ psychologists (36%), with approximately half of these having an educator on their staff. This has

given rise to concerns regarding the adequacy of the staff composition to facilitate the provision of psychosocial interventions. In order to provide context, a comparison was made between the results obtained and the national recommendations set out in the Italian guidance on dementia day care centers [15]. This comparison highlights a discrepancy between current practices and the recommended standards, particularly with regard to the presence of specialised professionals. However, it is important to note that Mossello's paper focuses exclusively on Alzheimer's day centers, whereas our survey encompassed day centers that do not exclusively accept people with dementia.

TABLE 4 | Variables associated with being public DCCs, OR estimated by multivariate logistic regression.

Outcome: Being a public DCCs	OR	95% CI		p
Geographical macro-area				
North	1.00			
Center	9.34	2.15	40.55	0.003
South	11.25	1.99	63.55	0.006
Total number of places <=20 (vs. > 20 places)	6.46	1.49	28.05	0.013
Type of residents				
Both people with and without dementia	1.00			
Exclusively people with dementia	5.66	1.38	23.17	0.016
Available professional roles (yes vs. no)				
Physician	1.77	0.45	7.01	0.417
Nurse	0.34	0.10	1.17	0.088
Social worker	1.40	0.44	4.44	0.571
Availability of care services (yes vs. no)				
Specialized medical care	1.27	0.33	4.95	0.728
Occupational therapy	1.36	0.45	4.13	0.589
Alzheimer's garden	0.62	0.20	1.91	0.405

Interestingly, regarding treatments and services provided within the DCCs, in most of the facilities, a specific therapeutic plan for each patient was developed (data not shown). However, there is more extensive and personalized planning of specialized rehabilitative and psychosocial interventions in the DCCs in the South and Islands compared to the North and Central regions (Table 2).

A regional difference in the variety of care services offered in DCCs was observed. A cluster of services was provided more frequently in DCCs located in the South and Islands compared to those in the North and Center, such as general and specialized medical care, physiotherapy and physical rehabilitation activities, psychosocial and behavioral therapy, the presence of a nutritionist and a social assistant, and the availability of an Alzheimer's garden; the same was for a group of treatments such as reality orientation, reminiscence, cognitive-behavioral and dance movement therapy.

Diet represents a significant modifiable risk factor for dementia [41]. Unfortunately, only a small part of the facilities offered a nutritional service and the number of nutritionists in the facilities is very low.

Similarly, the support and training activities for family members and caregivers were more frequently offered in facilities in the southern macro-area (Table 3). These findings were aligned with the higher proportion of dementia-specific facilities present in southern regions, as previously reported.

It is noteworthy that the waiting time to enter the surveyed facilities appeared relatively short, less than 1 month in about half of the facilities. However, nearly half of the patients remained in the facility for less than 18 months. A recent study involving family caregivers of people with dementia in Italy

highlighted that the limited time that the patient can be entrusted to the center creates many problems for the patient and the caregiver, as revealed by a 2024 survey [42].

Finally, although most facilities reported regular consultations between staff and family members, this interaction only partially evolved into self-help or social empowerment groups.

The impact of the COVID-19 pandemic in Italy has been dramatic, especially for people with dementia and their caregivers [32–35]. Unfortunately, due to preventive restrictions, there was an almost total closure of the service in 2020, partially resumed in 2021, affecting many facilities, especially in the North and in the Center of Italy. This closure is in line with epidemiological data on the spread of the virus [33].

In conclusion, within the limitations of the data collected, we can affirm that a significant snapshot of the national territory regarding semi-residential services for people with dementia has been highlighted. Unfortunately, less than half of the facilities responded to the survey.

Facilities that participated in the survey appeared to be more recently established and offered more specialized services in the South and Islands compared to those in the North and Central regions (see Table 1 for years of activity in and Table 4 for services and treatments provided). However, these findings should be interpreted with caution. Firstly, we acknowledge that participation rates in the survey varied across geographical areas. Notably, in the South and Islands, a higher proportion of responding day care centers cater exclusively to individuals with dementia. This highlights a growing need for specialized services to ensure the delivery of tailored and effective care for this population. Moreover, as shown in the Supporting Information S1: Table 1, the ratio between estimated dementia cases and available

day care centers (DCCs) is significantly imbalanced between the North and South, with DCCs being more than four times more available in the North. This disparity may imply that DCCs in the South are more likely to host individuals with dementia, potentially placing greater pressure on these facilities and reinforcing the need for targeted investment in specialized dementia care.

In the North, the older age and lower specialization, coupled with a higher prevalence of privately managed facilities, seem to favor more generalist and care-oriented interventions. In contrast, in the Central and Southern regions and Islands, the higher specificity and greater presence of public facilities favor more specialized rehabilitative interventions, with more structured and institutionalized access to these services. The findings of this study have highlighted a number of issues for semi-residential institutions and considerable differences in care in different geographic areas, which also lead to inequalities for caregivers.

The Italian National Dementia Plan, issued in 2015, envisages, as part of Objective 2, the establishment of an integrated network for dementia and the implementation of integrated management. Specifically, it focuses on patient care and continuity of assistance across different stages of the disease and in various life and care contexts [43].

The Guidance on Integrated Care Pathway for People with Dementia [44] also emphasizes integrated patient management and the significance of different settings, including day care centers.

As their disease progresses, people with Alzheimer's or other dementias generally receive more care from family members, unpaid caregivers, and community-based and residential care providers [45]. In the absence of a cure for dementia, treatment goals may include the maintenance of quality of life, the maximisation of physical function, the promotion of social engagement and a safe environment [45]. In a recent study, it was observed that people who attend day care centers, compared to those who do not, have a positive impact on self-reported quality of life [46].

It is, therefore, important to ensure an adequate number of semi-residential facilities for people with dementia, capable of offering services that can improve the quality of life for both the patient and the caregiver. In Italy, access to these services is still very uneven, which results in health inequalities.

The creation and implementation of standardised outcome measures for semi-residential facilities is necessary in order to analyze their effectiveness and ensure a consistent level of care [47]. To our knowledge, this is one of the very few national-level studies on day care centers [27, 38–40, 46]. This underlines the urgency, as recalled by the WHO documents [1–3], to promote and develop national and regional social and health policies in this specific care setting.

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Ethics Statement

The study protocol was approved by the Ethics Committee of the Italian National Institute of Health (Protocol 0024270; 22 June 2022).

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Permanent Table of the National Dementia Plan Study Group

Gennarina Arabia (Catanzaro), Alessandro Amorosi (Milano), Ilaria Bacigalupo (Roma), Anna Maria Bargagli (Roma), Luisa Bartorelli (Roma), Cristina Basso (Padova), Manuela Berardinelli (Roma), Maria Pompea Bernardi (Catanzaro), Caterina Bianchi (Roma), Lorenzo Blandi (Pavia), Federica Boschi (Bologna-Ravenna-Modena), Amalia Cecilia Bruni (Lamezia Terme (CZ)), Alessandra Caci (Aosta), Paolo Cafarra (Parma), Marco Canevelli (Roma), Andrea Capasso (Napoli), Susanna Cipollari (Macerata-Roma), Mariapia Cozzari (Giovinezza (BA)), Alfonso Di Costanzo (Campobasso), Teresa Di Fiandra (Roma), Annalisa Di Palma (Napoli), Andrea Fabbo (Bologna-Modena), Federica Francescone (Roma), Carlo Gabelli (Padova), Sabina Gainotti (Roma), Francesca Galeotti (Roma), Giuseppe Gambina (Verano), Marina Gasparini (Roma), Maria Assunta Giannini (Roma), Micaela Gilli (Trento), Marcello Giordano (Palermo), Annarita Greco (Napoli), Antonio Guaita (Abbiategrosso (MI)), Fabio Izzicupo (Senigallia (AN)), Fiammetta Landoni (Roma), Elisa Lidonnici (Genova), Nicoletta Locuratolo (Roma), Giancarlo Logroscino (Bari-Tricase (LE)), Alessandra Lombardi (Trento), Gilda Losito (Roma), Francesca Lubian (Bolzano), Maria Cristina Lupinetti (Pescara), Sara Madrigali (Firenze), Camillo Marra (Roma), Filippo Masera (Ancona), Massimiliano Massaia (Torino), Antonio Mastromattei (Roma), Antonio Matera (Potenza), Manlio Matera (Sesto Fiorentino (FI)), Francesco Mazzoleni (Sondrio), Carla Melani (Bolzano), Serena Meloni (Cagliari), Elena Memeo (Bari), Marco Musso (Torino), Antonella Notarelli (Firenze), Marco Onofri (Pescara), Ernesto Palummeri (Genova), Valeria Panetta (Potenza), Carlo Petrini (Roma), Tommaso Piccoli (Palermo), Alessandro Pirani (Ferrara), Stefano Piras (Cagliari), Gabriella Porro (Milano), Mario Possenti (Milano), Elena Rendina (Roma), Antonino Riolo (Trieste), Luciana Riva (Roma), Emanuela Salvi (Roma), Sara Santini (Pescara), Silvia Scalmana (Roma), Nando Scarpelli (Perugia), Piero Secreto (Torino), Monica Segnanfreddo (Aosta), Stefano Sensi (Chieti-Pescara), Carla Severino (Campobasso), Patrizia Spadin (Milano), Patrizia Spallino (Torino), Anna Laura Spinelli (Spoleto), Andrea Stracciari (Bologna), Marco Trabucchi (Roma), Nicola Vanacore (Roma), Antonio Zaccardi (Trieste)

The DCCs Study Group

Hend Aabid (Osio Sotto), Angela Marie Abbatecola (Atina), Giuseppina Abbati (Calusco D'Adda), Danilo Achilli (Stradella), Ilaria Adami (Ala), Giulia Almici (Paratico), Cristina America

(Chieri), Emma Angheben (Trento), Rita Antonini (Bastia Umbra, Corciano, Perugia), Alessandra Apuzzo (Ceriano Laghetto), Lorenzo Archetti (Castrezzato), Armando Armandi (Brugherio), Lilli Armanni (Bienno), Alessandra Arzano (Bagnolo Mella), Claudia Avanzi (Curtatone), Giuseppe Avaro (Monza), Edi Bacci (Civitella In Val Di Chiana), Silvia Baglioni (Bovezzo), Marina Baiolla (Livinallongo Del Col Di Lana), Claudio Baldacci (Monteroni D'Arbia), Luca Baldassarre (Bologna), Marco Barazzetta (Carugate), Giancarlo Barbieri (Spinetoli), Sabrina Baroncelli (Prato), Alberto Barzaghi (Selvazzano Dentro), Paola Basoni (Neviano Degli Arduini, Tizzano Val Parma), Paola Bassilici (Firenze), Maria Candida Battigaglia (Fidenza), Michela Battilana (Montecchio Maggiore), Paolo Battocchio (Mel), Stefano Bellinelli (Trescore Balneario), Gloria Belotti (Bergamo), Guido Angelo Benigni (Meda), Michela Bernardi (Trento), Pierangelo Bernini (Zavattarello), Giuseppe Bertuletti (Almenno San Salvatore), Antonella Biffi (Erba), Nicola Biondi (Fuavecchio), Emanuela Birra (Sesto San Giovanni), Michele Bisaccia (Gallarate), Ermanno Biselli (Massa), Giovanna Boccolieri (Monza), Gianpaolo Boldori (Milano), Iris Maria Cristina Bonandrini (Trenzano), Simona Bonato (Castelnuovo Del Garda), Cristiana Bonfanti (Cinisello Balsamo), Marta Bosio (Bogliasco), Paolo Botrugno (Cavriana), Giorgio Bottani (Milano), Andrea Brandolini (Anzola Dell'Emilia, Calderara Di Reno, Crevalcore, Sala Bolognese, San Giovanni In Persiceto, Sant'Agata Bolognese), Valeria Bresciani (Rovereto), Francesco Brugnara (Trento), Roberto Cabras (Rovato), Stefano Cacciatori (Verona), Giusi Alessandro Calabrese (Terni), Tiziano Camnasio (Villa Cortese), Angela Campisi (Milano), Elisabetta Cancellaro (Foggia), Silvia Candido (San Lazzaro Di Savena), Maurizio Cansone (Cologno Al Serio), Ivonne Capelli (Pianoro), Rossella Cappa (San Pietro In Cariano), Valentina Cappelletti (Rovereto), Davide Giovanni Cappello (Bareggio), Cristiano Casavecchia (Osimo), Antonella Cataldi (Casamassima), Agnese Catone (Campegine), Corrado Cattaneo (Desenzano Del Garda), Chiara Chiereghin (Chioggia), Laura Chierici (Borgoforte), Alessandro Chiti (Bientina), Giovanna Cipriani (Castelfranco Veneto), Domenica Liliana Cirasino (Ostuni), Roberta Cirelli (Dalmine), Roberta Colombetti (Crema), Luigi Colombo (Albavilla), Claudia Colussi (Morsano Al Tagliamento), Mauro Comella (Darfo Boario Terme), Giovanna Coppedè (Casciana Terme), Laura Corbellini (Nave), Francesco Cormio (Cerignola), Luca Corradini (Modena), Massimo Corso (Lucca), Maura Costantini (Laveno-Mombello), Gianfranco Costantino (Manfredonia), Rosa Angela Crespolini (Villa Di Serio), Barbara Crotti (Rodengo-Saiano), Nicola Cucca (Casalecchio Di Reno), Anna Curtale (Nonantola), Sara Dal Prà (Dueville), Elisa Dalle Nogare (Valdagno), Giovanni D'Arrigo (Messina), Stefania Dazzani (Imola), Gabriella De Falco (Ronco Briantino), Paolo De Patre (Mariano Comense), Floriana De Vanna (Giovinazzo), Maddalena Rachele Dehò (Pavia), Sonia Del Barba (Morbegno), Elena Del Re (Chiavenna), Chiara Del Toro (Siena), Carlo D'Elia (Venezia), Giuseppe Della Vedova (Bondeno), Annalisa Di Palma (Napoli), Giovanna Di Soccio (Campobasso), Antonio Di Staso (Trezzo Sull'Adda), Lucia Epifani (San Benedetto Del Tronto), Maria Antonietta Erriquez (Bari), Marco Esposito (Carpino), Antonio Fabbroni (Molfetta), Eugenio Facchinetti (Palazzolo Sull'Oglio), Elisabetta Facheris (Treviglio), Angela Maria Falanga (Roma), Francesco Fariello (San Miniato), Elena Fasson (Este), Mario Faverzani (Ponte Di Legno), Daniela Felicioni (Città Di Castello, Umbertide), Mara

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(Roma), Gianluca Milana (Roma), Ludovica Selvaggi (Pales-trina), Sofia Tarantino (Roma), Chiara Terribili (Roma), Giulia Vuolo (Ischia).

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Supporting Information

Additional supporting information can be found online in the Supporting Information section.

Supporting Information S1: gps70172-sup-0001-suppl-data.docx.