

Health and Functional Status in Elderly Patients Living in Residential Facilities in Italy

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Abstract Over the last fifty years the aging of the population in Italy has been one of the fastest among developed countries and healthcare professionals have witnessed a rapid increase in the complexity of the case mix of older patients. In Italy in 2006, Residential Facilities (RFs) cared for 230,468 people aged 65 and over. Due to the increase in the overall proportion of the aged in the general population (especially of the very old (i.e. over 85) and the sharp decline in the number of extended families (with a consequent lack of informal support), the probability of an increase in the number of RF residents in future years is very high. The objective of this work is twofold. Firstly, to describe the availability of institutions in Italy by analyzing the territorial distribution of residential facilities, rehabilitation centres and the hospital structure with the intent of gathering both quantitative and qualitative data. Secondly, to examine the health conditions of the elderly in these institutions. Functional status, multiple pathology and medical conditions requiring care have been evaluated in 1,215 elderly subjects living in Residential Facilities across five Italian regions.

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1 Introduction

The national and international debate on demographic aging in recent years has been focused on a number of aspects. The main problem addressed has been the effect of

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aging on the welfare and health care systems in various countries. Italy is the European country with the highest proportion of elderly. In fact, in 2009, 20.1% of the population was aged 65 and over, corresponding to about 12 million individuals. Furthermore, this proportion is predicted to increase over the next few decades, rising to a figure of 32.5% in 2050. However, the condition of being elderly does not necessarily imply the loss of autonomy; in fact health improvements among the elderly have led to an increase in disability-free life expectancy. Nevertheless, the rapid ageing of the population has caused an increasing level of disability and the consequent need for long-term care.

All OECD countries are agreed on the general policy direction of maintaining disabled older people in their homes where possible rather than in residential institutions. This tendency may guarantee a better quality of life by providing assistance to the elderly without breaking down the social network. According to the international literature, supply of long-term care at home is not always the most appropriate, above all when highly qualified and specialised health care is required. Therefore, these findings indicate that residential institutions are likely to play a key role if home care or hospitalization are inappropriate [2]. In the latter case, in fact, a prolonged stay in a hospital bed frequently gives rise to a loss of residual capabilities and a consequent worsening of quality of life [1]. In Italy, the number of beds in elderly residential institutions is lower than other European countries, with a territorial heterogeneity. The south of Italy, in fact, is totally inadequate in the supply of residential care. The lack of statistics on the health conditions of the institutionalized elderly hinders the assessment of the effects of some illnesses. As a result, information on the need for care, therapy and rehabilitation is deficient.

The purpose of this study is twofold. Firstly, to analyze the supply of residential services taking into account the territorial distribution of social and health institutions, rehabilitation centres ex article 26 and hospital structures (particularly the long-stay wards). Secondly, to analyze the health conditions of the institutionalized elderly. For this purpose, the Italian Ministry of Health has funded an elderly residential care survey addressing five Italian regions (PROGRES-Older people; PROGetto RESidenze). The five regions are Veneto in the north-east, Umbria in the centre, Calabria in the south, Sicily and Sardinia, both Italian islands conventionally linked to southern Italy. The data analyzed was in reference to the demographic and clinical characteristics of residents, staffing arrangements and discharge rates (Phase 1). Further to this, a representative sample of institutions and residents was studied in greater detail (Phase 2 and 3). [4]

2 Methods

Official statistical data provided by the National Institute of Statistics (Istat) and the Ministry of Health were analysed. In particular, the Residential Facilities Survey (2004), Hospital Discharge Files and the Survey on Rehabilitation Centres ex art 26 were used.

The Residential Facilities Survey, conducted annually by Istat since 1999, gathers information on admissions to residential facilities and their residents, producing data on the structure of the institutions, staff, recipients and economic information. The aim of

the survey is to describe the supply of residential facilities from both a qualitative and quantitative perspective.

The Hospital Discharge Files, established in 1991 under a specific law, is the administrative instrument that gathers information on general admissions and outpatients across the national territory. This data source was used to identify long-stay hospitalization. Finally, the third source allows for the integration of data regarding public hospital beds dedicated to rehabilitation ex article 26. Moreover, this survey provides data on users, period of care and type of staff.

Descriptive statistical analyses were conducted to describe the distribution of residential institutions in Italy and to depict the health conditions of the institutionalized elderly.

The available data enabled the health conditions of institutionalized elderly to be demonstrated, which included autonomy in mobility, in daily activities and in the presence of severe mental (cognitive and behavioural) disturbances.

In addition to this, a factorial analysis was applied taking into account the supply of alternative services and aids (living conditions, informal aid, home care and inappropriate and long-stay hospitalizations).

To further the analysis of the five abovementioned regions, we used PROGetto strutture RESidenziali per Anziani (Residential Facilities for Older People Project) called PROGRES-Older People, initiated by the National Health Institute.

The project PROGRES-Older People includes three phases. Phase 1 was aimed at gathering accurate data on RFs, RF features, demographic and clinical characteristics of residents, staffing arrangements and discharge rates. The main aim of Phase 2 and 3 was to assess a representative sample of facilities (Phase 2) and residents (Phase 3) in greater detail. The selection of facilities to be used in the study was taken from regional RF registers prepared and periodically updated with the aim of authorizing and regulating facility functioning. Facilities with less than four beds were excluded. Furthermore, since most RFs have no strict age limits for admission, 23 facilities (3% of all RFs selected) with more than 50% of residents under 65 were also excluded from the analyses.

At the end of Phase 1 (November 2003), we identified and surveyed 754 RFs in five regions. Information about RFs, their staff and management characteristics as well as suicidal behaviour which occurred has been published elsewhere.

For Phase 2, we randomly selected a stratified sample of RFs surveyed in Phase 1 in order to obtain a fair representation in the sample of all categories of RFs (eg those with the highest number of beds) which otherwise may have been lost during the sampling procedure.

For each RF surveyed, the sample size of the elderly to be studied was estimated according to the distribution of older people living in each of the five regions, to the size of each RF and to the financial resources needed to cover the cost of the individual assessment of patients. Based on these criteria, we estimated a number of 280 subjects to be assessed in each region as fairly representative of the regional population of older people, as well as of the residential population. Each resident was assessed with a 'Patient Form' covering socio demographic, clinical and treatment-related variables. The prevalence of multiple pathologies was evaluated. A few conditions requiring skilled care, namely more severe impairment in mobility, double incontinence, severe disturbances in speech and communication and severe decline in sight and/or hearing, were investigated. A physician or a nurse of the facility who was in contact with the patients and was aware of their clinical history and present status was involved in

patient assessment. The ‘Patient Form’ included the Resident Assessment Instrument (in Italian, Valutazione Anziano Ospite di residenza-VAOR [7]). Trained research assistants interviewed patients using the Mini Mental State Examination (MMSE) [5] to define global cognitive impairment, and caregivers using the Neuropsychiatric Inventory (NPI) [3] to assess the behavioural and psychological symptoms (BPS) of patients. Functional status was assessed using the Index of Independence in Activities of Daily Living (ADLs).

The MMSE is a widely used neurocognitive test measure by means of sixteen items; including orientation, language, verbal memory, attention, visuospatial function and mental control with scores ranging from 30 (no impairment) to 0 (maximum impairment). The total score of the MMSE was corrected for age and years of education.

The NPI was used to measure the BPS in elderly people with or without dementia. It is a valid and reliable inventory to assess twelve neuropsychiatric dimensions such as delusion, hallucination, agitation, depression, anxiety, euphoria/elation, apathy/indifference, lack of inhibition, irritability, aberrant motor behaviour, night-time disturbances and appetite/eating patterns. An informant rated the frequency and severity of each of these dimensions and the multiplication of the two scores was used as a final codification. The score for each dimension ranges from 0 to 12 with a maximum total score of 144 in the twelve-item version. A product equal to 0 means that there is no symptom. If the score is between 1 and 3 the symptom is not clinically relevant. A score of 4 or more means that the symptom is clinically relevant and probably deserves a deeper clinical evaluation and adequate pharmacological and/or non pharmacological treatment.

The Multiple Correspondence Analysis (MCA) was used to highlight correspondences between some variables describing social habits of elderly people living in RFs. In this analysis we also added some passive variables, such as dimension of RFs and the type of administration of RFs (Health Authorities, private, religious and mixed).

3 Results

3.1 *General overview*

The descriptive analyses showed heterogeneity in the availability of residential institutions across the Italian regions: the north of Italy seems to be able to face the demand the most appropriately.

The activity rates of residential institutions and hospital structures was higher in the northern regions. Since rehabilitation centres were more widespread in the south than in the north, it seems likely that these services are substitutes for residential care. However, some central and southern regions such as Umbria, Calabria, Sicily and Basilicata had the lowest level of all care services.

Focusing on social and health institutions, territorial heterogeneity was shown, particularly for nursing homes; a lack of these services in southern Italy was observed.

The distribution of non self sufficient elderly recipients of social and health institutions revealed a high prevalence of totally dependent elderly, in particular in the north.

Mobility difficulties were territorially homogeneous and more frequent than other dependencies: 40% of recipients were mobile with the help of personnel, while 35% were not at all mobile. The islands and the south had a lower value of residents with autonomous movement.

In regards to cognitive and behavioural mental disorders, 45% of patients had little or no disturbance, 27% moderate and 29% had a severe disorder. Territorial variability was also displayed in a higher proportion in the northern regions of those with severe disorders.

It was also found that the health conditions of the institutionalized elderly was consistent with the Italian supply of residential services. The territorial distribution of residential institutions might be partly affected by northern Italy having the highest share of very old people and elderly with severe health conditions who need more care.

The north-south gradient is confirmed by the multivariate analysis. It showed that the northern regions had more residential, semi-residential institutions and home care than the south. Nevertheless, the south was characterized more by informal care.

3.2 *PROGRES project*

Regarding the PROGRES project, Phase 1 was completed in November 2003. Seventy-six (8.9%) of the 853 RFs in the five regional registers did not reply, despite several requests to do so. The response rate differed across regions, with a 100% rate in Veneto, Umbria and Sardinia, 89.9% in Calabria and 65.6% in Sicily.

Twenty-three facilities, 3.0% of the participating RFs, hosted more than 50% of residents under the age of 65. Therefore, only 754 of the 777 eligible RFs were further examined, and all analysis of patients presented in this paper is based on this sample.

The 754 surveyed RFs represented about 17% of the 4,304 RFs for older people operating in Italy, as identified by the Italian Institute of Statistics as of December 31, 2000. There was a mean number of 198 residential beds per 10,000 people aged 65 years and older, with great variability in the availability of beds across the five different regions, eg, the Veneto-Calabria bed ratio was 4.3:1.

One-hundred and thirty-two (17.5%) RFs had more than 100 residential beds, and 26 (3.4%) had more than 200 places. Bed occupancy was greater than 90% in three regions (Veneto, Umbria and Calabria).

3.2.1 *Characteristics of RFs*

Staff coverage was generally high. In fact, most RFs had 24-hour staff coverage (n=724; 96%). In many RFs, resident turn-over was very low. In 302 (40.1%) and 93

(12.3) of the surveyed RFs there were no discharges and no admissions, respectively, in 2001. Only 141 (18.7%) RFs discharged more than nine patients in 2001.

Most RFs were managed by locally run ($n=220$; 29.2%) or religious ($n=182$; 24.1%) institutions; the others were run by private, non-profit ($n=158$; 21.0%) or private, for-profit organizations ($n=131$; 17.4%); a very small percentage were directly managed by the Italian Health Service (IHS) ($n=30$; 4.0%); the remaining RFs were of mixed management type. The majority of RFs relied on combined public-private funding ($n=414$; 54.9%), whereas the percentage of facilities funded by the IHS ($n=124$; 16.4%) was lower than those hosting self-paying residents only ($n=144$; 19.1%). In more than half of the RFs, all residents contributed to expenses for their stay through pension deductions or other forms of payment. Only in 12.7% of surveyed facilities did no residents financially contribute to their expenses.

3.3 *Characteristics of patients*

The sample is made up of 1,215 subjects resident in RFs. All were Caucasian, with a mean age of 83 years (SD 7.8), 73.1% ($n=888$) were female. In terms of age distribution, only one-sixth of the respondents were younger than 75. In the oldest age classes there were more women. From the total numbers of patients, 74.5% of women and only 51.0% of men were in the class of 80 years and older. Twenty-seven percent of the women were older than 90 years. Education level was rather low: 27% were illiterate, 58% attended 1-5 years of schooling, 7.9% 6-8 years, 7.1% 9 years and more. A significantly higher prevalence of widowhood was found in women compared with men (60.5% and 53.8%).

The MMSE was administered to 895 patients (73.7%). The remaining subjects were excluded because of behavioural disorders (12.5%), neuro-sensorial disorders (66.1%) or refusal to participate (21.4%). The mean MMSE score corrected by age and years of education, was 18.5 (SD +8.7).

The NPI was filled out for 1,192 patients (98.1%, missing data for 23 residents and the overall mean NPI total score was 9.7 (SD±14.3). 628 patients (51.7%) had at least one clinically relevant item. Apathy, depression and irritability were the most common symptoms in the sample patients with clinically relevant symptoms, while the mean NPI total in the same group was higher for elation, hallucinations and delusions.

The item exploring conflictual relationships (CRs) shows that 10.7% of the residents presented conflicts with other residents, 8.6% with staff, 7.9% ($n=93$) with the person sharing the room, 5.5% with relatives. However, among these residents, only 1.2% presented CRs for all the above-mentioned categories (staff, relatives and residents) and 2.6% with at least two categories.

As regards the use of medication in the week preceding the interview, 19.8% of the residents received anxiolytics, while 12.8% received antipsychotics and the same proportion antidepressants. Hypnotics were administered to 8.8% of the sample.

Three indicators summarizing the health status of social and health residential institution recipients across five Italian regions were calculated. The first indicator evaluated the number of diseases for each recipient, the second estimated the presence of severe illness. The third indicator was calculated taking into account the same diseases used by the National Household Survey on Health conditions, in order to

compare the health status of residential institution recipients with the health status of the elderly living with family.

The descriptive analyses showed that 45% of elderly recipients in residential institutions had at least three diseases and 75% had had at least one severe illness, painting a picture of multiple and chronic diseases. In contrast, it seems that the elderly living with family have a better health status. In fact, 17% had never had any illness and only 30% had had at least one disease compared with 52% of elderly residential recipients. The different health status between elderly in residential institutions and those living with family is also caused by the different age distribution of the two groups. In particular, in residential institutions the elderly were older and the percentage of people aged 80 years and over was 43% compared to only 10% of those living with family.

The different age distribution is related to different gender distribution. Residential institutions had a 73% proportion of females, while that of women living with family was 58%. Moreover, family structure also contributes to the differentiation between the two groups: 34% of recipients in residential institutions were unmarried, 58% were widowers and more than 46% had lived alone before leaving home. In contrast to this, 57% of the elderly living with family were married while only 27% lived alone.

In conclusion, it seems there is a higher likelihood of being institutionalized due to bad health status caused by multichronic diseases or a severe disease, and in the absence of an informal network able to support health-care activities.

The relationship between the abovementioned third indicator, the class of MMSE, the sex and the age of each resident was investigated with Multivariate Correspondence Analysis. Furthermore region and dimension of RFs (in class) were included as supplementary variables. The analysis showed that 52% of inertia is due to the first axis and 9% is due to the second axis.

The presence of no severe illness, no cognitive problems and residing in small structures seems to characterize the patients in Umbria and in Sardinia. The presence of at least one or two severe illnesses, severe or moderate cognitive problems, being at least 80 years old, female and in a medium or large structure characterizes the elderly patients in Sicily. In Veneto, mild cognitive problems in males aged between 70 and 79 years residing in middle-sized structures are in the majority. Finally, Calabria is characterized by small structures and patients with three or more severe illnesses and it is distant from the other regions.

Therefore the MCA analysis highlights the differences in illnesses, cognitive problems, ages and gender distribution between the five regions considered. And also it discriminates between the different dimensions of the RFs.

In order to analyze the social aspect of residential living, we conducted a Multiple Correspondence Analysis on some variables investigating social activities. Some questions were on whether the patient was able to go outside alone, read or had some hobbies, stayed alone, worked in group activities, went to sleep later, participated in religious activities and was strictly religious. The MCA highlighted the fact that generally the elderly who lived in smaller RFs with a religious administration preferred being alone and found strength in their religious beliefs; people who lived in medium RFs with Health Authority administrations seemed to be more independent with some hobbies and participated in some activities. Finally, the elderly who lived in the biggest RFs with private administration were not independent and did not participate in any activities.

4 Conclusion

Despite the public health importance of the issues presented in this work and the financial burden of maintaining a large number of the aged in residential facilities, information in Italy on older residents of such facilities has been quite limited. This highlights the importance of the PROGRES-Older people Project.

The percentage of people aged 65 years and older in Italy is currently the highest in the world, and this phenomenon highlights the importance of monitoring how the social and medical needs of this age group can best be met. Our project provides regional and national public health authorities with reliable, accurate data to be used for planning and management purposes.

An examination of the diseases and disabilities of subjects placed in residential facilities is an important step towards developing and targeting effective care strategies. The assessment of the disabling consequences of illnesses provides useful information on the need for assistance, therapy and rehabilitation. The interventions required by the majority of subjects living in residential facilities are assistance in personal care and mobility, and in the management of behavioural disturbances. These requirements should determine the staffing profiles of residential facilities.

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