

Suitability of social services for the elderly: analysis of degree of fit between needs and services

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Abstract

Increased life expectancy coupled with decreased birth rates has led to a notable ageing of the population. In the social care sector, resources for the elderly should be allocated by means of objective instruments that ensure an appropriate fit between elderly people's needs and the characteristics of the services. This paper analyses the appropriacy of actual assignments of resources in a sample of 632 elderly users of social services, evaluating the degree of fit between these assignments and those made by a Decision Making Model (DMM) which is strictly based on an objective assessment of user's needs and characteristics. The results show that current assignments cannot be explained by relying solely on biopsychosocial variables, thus suggesting that the allocation of users to services has been affected by external factors which are not related to actual user needs.

Key words: Elders; Decision-Making; Psychosocial variables; Gerontology.

The progressive ageing of the population in developed societies has led to all countries taking steps towards developing health and social policies which guarantee the quality of life of elderly people. The characteristics of fragility in this group entail considerable complexity in their care, which calls for interdisciplinary teams and the use of long-term care services.

Within this framework, attempts have been made to integrate health and social services for attending to frail elderly people. Integrated services are a discrete set of techniques and organisational models that seek to connect, in a well-planned and orderly manner, the health system with other personal services - such as long-term care - in order to address the needs of people with multiple difficulties by improving their care and quality of life. (Kodner & Spreeuwenberg, 2002; Leutz, 1999; Nies, 2004). An example is SIPA (Services Intégrés pour les Personnes Âgées fragiles), which enables the planning of care for a defined population in a specific territory by combining community primary care services, a multidisciplinary team and a case manager along with the possibility of deploying different health resources (hospitals, day hospitals, palliative care, home health care, etc.) as well as social resources (home care, day centres, supervised housing, technical support etc.), according to an established protocol of care. Its use has been associated with an increase in community services, a reduction in admissions to hospitals and institutions (Béland et al., 2008) and, furthermore, lower costs (Béland et al., 2006).

Another similar model is that of Balance of Care (BoC), whose objective is to analyze the different possible scenarios when arranging attention for people who require social services. The BoC, initially developed to plan care for people with chronic illnesses, was later extended to other areas, such as gerontology, where it is used to plan social and health services for the elderly, prioritizing community care over residential care (Hughes & Challis, 2004). It focuses on identifying those who are eligible to enter a facility, but who could

remain in the community if there were sufficient social and health resources available to respond to their needs more cost-effectively. The BoC has proven its worth in the decision-making process for planning said services destined to specific collectives such as adults with mental health issues (Tucker et al., 2018) and people with dementia (Risco et al., 2017).

These classification systems enable strategies and funding policies to be determined, however, they do not facilitate the decision-making process for assigning elderly people to the services which best meet their needs.

In Spain, the system of care for dependency is universally accessible and provides long-term care. It uses a co-payment system to which users contribute according to their financial ability. Once a person is given access to a service, this is provided indefinitely, until: (i) it is renounced voluntarily, (ii) their personal and/or socio-family situation changes, prompting them to be placed in another service more in accordance with their new needs, or (iii) they pass away.

The implementation of *Ley 39/2006 de Promoción de la Autonomía Personal y Atención a las Personas en Situación de Dependencia*, involved setting up criteria (assessment scales) to establish degrees of dependence and, accordingly, guarantee access to the social services, these criteria being common to all the Autonomous Communities of Spain. The implementation of this law enabled some of the existing differences between regions to be eliminated, but it still did not guarantee an adequate fit between the users' characteristics and care necessities and the benefits and services which the resources offered (Comunicación Imagen y Opinión Pública, 2005; Fundación Sar, 2007). This fit between the users' needs and the services and care provided by the various facilities should, however, be considered an essential requirement, not only to guarantee adequate attention and quality of life for the elderly, but also to optimize and rationalize the use of resources and social services.

Taking these considerations into account, it would be helpful to have an instrument which assists professionals in assigning users to their “optimal service”, that is, the one whose characteristics are best suited to the elderly person’s needs. An instrument of this type would also help to avoid arbitrariness from allocating resources based on subjective assessments. The design of said instrument should be based on objective criteria; therefore, in the first place, we must identify the variables which, according to the literature, should make up the pillars of a decision-making process for an adequate assignment of services. And, in second place, the design should extract the prototypical user profile each service is aimed at.

The following variables are cited by research on social services for the elderly as being the most relevant for determining whether a person needs to use these social services and whether they should be allocated to them: social support (Dizy, 2008; Freedman, Berkman, Rapp & Ostfeld, 1994; Serrano & de Tena-Dávila, 2004), housing characteristics (Sabartés, Galí, González, Román & González, 2004), functional ability, (Almomani, McDowd, Bani-Issa & Almomani, 2014; Bharucha et al., 2004; Bernal & Barbero, 2006; Gaugler et al., 2000; Helvik, Skancke, Selbæk & Engedal, 2014; Lim, 2009) and cognitive status (Almomani et al., 2014; Bharucha, Pandav, Shen, Dodge & Ganguli, 2004; Cohen-Mansfield & Wirtz, 2011, Helvik et al., 2014; Laborda, Murguía, Rabanaque, Zeballos & Pascual, 2002).

The principal long-term care services provided to the elderly in Spain, and the features of the users they are targeted at, are as follows:

a) Residential assistance services:

- Nursing Homes: Centres that offer communal housing with round-the-clock accommodation and which provide continuous, comprehensive care to people with severe dependence (physical and/or cognitive), habitability problems in their housing and/or lack of

informal social support. In some cases they may offer short stays to provide respite for informal carers.

- Community Housing: Small/medium sized facilities which provide shared housing, 365 days per year, for a maximum of up to 12 elders with a high level of functional autonomy, without social support and with inadequate housing.

- Supervised Apartments: Independent dwellings for one/two people with a high degree of independence but with inadequate housing and no social support; grouped together for the provision of collective services all year round.

b) Non-residential or community assistance services:

- Day Care Centres: Facilities which provide day care for people with moderate dependence, who require personal, therapeutic or social support, and who have adequate housing and a social network which is sufficient to guarantee their care outside of the Centre. Care is provided on weekdays, from Monday to Friday, either full-time or part-time.

- Home Care Service: Personal and domestic care which is provided in the home, several days per week, to people with: (i) low functional autonomy and good social support, (ii) incomplete social networks and mild functional dependency. The intensity varies from a minimum of 12 hours per month to a maximum of 90 depending on each individual case.

In Spain, Day Care Centres and Home Care Service are the only services which can be provided simultaneously.

A Proposal for a Decision Making Model (DMM)

With the aim of guaranteeing an optimal fit between needs and resources, we put forward a Decision Making Model (DMM) to guide professionals in assigning services and as a source optimization instrument for those managing these services. The model combines the variables highlighted in the literature as predictors of use for the different services,

considering these to be, on the one hand, “primary” or “first level” for decision-making and, on the other, prerequisites for access to long-term care resources for the elderly in Spain.

The DMM (see Figure 1 in Analysis) is structured along two dimensions: external variables (social support and housing) and internal variables (functional ability and cognitive status), organized hierarchically. The first dimension enables discrimination between subjects who require residential attention, and those who can be assisted in community services. Three levels of social support are established (little, partial and good), and two for housing (good and major shortcomings). In the second dimension, the dependency or autonomy of the potential user is taken into account, thus establishing two levels (high function and low function) both for functional ability and for cognitive status.

The DMM prioritizes community over residential services and proposes the service which can be considered “optimal”, ideal or first choice, without excluding the possibility of combining different services for non-residentials (Home Care Service and Day Care Centres). It includes an additional situation (labelled as “Out of the System/Other services”) for those who do not meet the access prerequisites for any of the services included in the Model, which implies that these subjects should undergo assessment before being assigned to other services which prioritize the promotion of personal autonomy (Telecare, Home-catering, Mobility support, cognitive stimulation workshops, etc.).

The requirements which were taken into account for the elaboration of the DMM (Solano y López, 1998) were: (i) it should use clinically significant criteria for grouping cases, founded on theoretical grounds which have been widely accepted by professionals. Data collection, from which the classification criteria are derived, must be part of the usual practice, (ii) it should have adequate reproducibility characteristics; (iii) it should allow for cases to be grouped, such that each group has similar resource consumption needs (intragroup homogeneity) and, simultaneously, the difference between groups according to these

parameters become maximum (intergroup heterogeneity), thus obtaining mutually exclusive groupings; (iv) it should generate a limited number of groups, thus allowing for the feasibility of the system.

The proposed Model has a strong theoretical grounding, but its suitability must be evaluated. This paper, therefore, has the following aims: (a) to compare the *actual assignment* with those that would be obtained by applying the DMM (*theoretical reassignment*) to a sample of elderly users of social services, and (b) to analyse to what extent the *actual assignment*, adequately address the needs and the characteristics of potential users according to the access prerequisites and the services provided.

Method

Participants

The sample was made up of 632 elderly users of public social services in Galicia, Spain (355 users of Home Care Service, 78 of Day Care Centres, 34 of Community Housing, 15 of Supervised Apartments and 150 of Nursing Homes). In order to guarantee a sufficient sample size for all the services, a proportional random sampling was employed. For Home Care Service and Nursing Homes, a sample, stratified by province, was selected. 9 Nursing Homes and 20 Home Care Service providers were contacted and all agreed to participate. The subjects were selected randomly until reaching the number required to ensure representativeness. In the other services, given the reduced number of places, the total population was used, with a response rate of 93.7% of Supervised Apartments users, 94.4% of Community Housing and 33.5% of Day Care Centres.

Instruments

The *Inventario de Recursos Sociales en Ancianos (Inventory of Social Resources in the Elderly)* (Díaz, 1985) was used to assess *social support*. This inventory measures network size, type of support (emotional/instrumental) and frequency and satisfaction of relationships.

The inventory is divided into four sections dedicated to spouse, children, other relatives and friends/neighbours. Scores can be of two types: a) objective (the number of areas of interaction, sources of emotional and instrumental support - each one rated from 1 to 4), and b) subjective (degree of satisfaction with each of the areas of interaction - each one rated from 1 to 3). *Housing characteristics* were assessed by means of an *ad hoc* questionnaire, comprising 15 items referring to conditions of habitability, architectural barriers and services available (see Appendix 1). A score of 10 or less indicates inadequate living conditions (major shortcomings). In the current study, the scale scored 0.74 on Cronbach's Alpha. Two indices were used to assess functional ability: (i) *Lawton Index (LI)* (Lawton, 1972; Lawton & Brody, 1969) for the assessment of *instrumental functional ability*. The LI establishes the following categories: 0-1= total dependency; 2-4= severe dependency; 5= moderate dependency; 6-7= mild dependence; 8= independence. In our study, Cronbach's Alpha for this scale was 0.82; and (ii) *Barthel Index (BI)* (Mahoney & Barthel, 1965) in order to assess the *basic functional ability* of the users. To interpret the scores, the proposal of five categories of dependence was adopted: <20= total dependence, 20-35= severe dependence, 40-55= moderate dependence, ≥ 60 = mild dependence, 100= independence. In this study, Cronbach's Alpha was 0.95. Finally, the Spanish version of the *Short Portable Mental Status Questionnaire* (Pfeiffer, 1975), drawn up by Martínez et al. (2001), was employed for evaluating *cognitive status*. This screening system evaluates orientation, memory and calculus via 10 items, registering one point for each error. According to the final score, 4 levels of deterioration are obtained: 0-3= without impairment, 4-5= mild impairment, 6-8= moderate impairment and 9-10= severe impairment. In our study, the scale scored 0.91 on Cronbach's Alpha.

Procedure

The necessary administrative authorisations were requested and the research team collected data in the centres (Nursing Homes, Day Care Centres, Supervised Apartments/Community Housing) by applying the scales to the users or, where this was not possible (high degree of dependency), by accessing files provided by the Centre and/or families. With respect to Nursing Homes and Supervised Apartments/Community Housing users, the Housing Conditions Scale was applied retrospectively, by asking the users about their housing characteristics before admission to the centre. In the case of Home Care Service, the service attendants were asked to collaborate voluntarily in applying the assessment scales. Those who agreed (98.3% of cases) received a training session from the research team and were responsible for data collection, under their supervision.

Analysis

On integrating the access criteria with the subjects' variables, the DMM generated 16 classification conditions, applying the cut-offs shown in Figure 1: (i) social support: Little, when the subject lacks spouse, children, other friends and relations or, when they do have them but none of the members of their network provide instrumental support or they do so at a frequency of less than once a month; Partial, when the subject does have instrumental support, but no more than once or twice a month; Good, when the subject has instrumental support at least once a week; (ii) housing conditions: Major shortcomings, score ≤ 10 , and Good if score > 10 ; (iii) instrumental functional ability: Low function, score < 6 , and High function if score ≥ 6 ; (iv) basic functional ability: Low function, score < 60 , and High function if score ≥ 60 ; and (v) cognitive status: Low function, score > 5 , and High function if score ≤ 5 .

The categorisation of social support and housing characteristics, as well as the dichotomisation of functional ability and cognitive status were carried out through expert consultation. Disagreements were resolved by consensus.

Thus, two classifications were obtained: the actual placement of the subjects in our sample (*actual assignment*), and the placement - based on objective criteria - generated by DMM (*theoretical reassignment*).

Firstly, the Cohen Kappa Index test was used to evaluate the degree of fit between the *actual* and the *theoretical* reassignments, and the discrepancies between these were analysed. In the following phase, a multinomial logistic regression was carried out in order to assess the capacity of the *actual assignment* to match the user's needs with the characteristics of the service, using this as dependent variable. The data analysis was carried out using the IBM SPSS Statistics program, version 20.

PLEASE, PLACE FIGURE 1 ABOUT HERE

Results

The results indicate that there are considerable differences between the *actual* location of the subjects and the *theoretical reassignment* proposed by the DMM. The *actual assignment* shows a poor fit between the needs of the elderly and the benefits and access prerequisites of the Services.

Profile of participants

The sociodemographic characteristics of the sample by services are shown in Table 1.

PLEASE, PLACE TABLE 1 ABOUT HERE

The majority of the participants were women (71%). The average age was 80.68 years (SD = 8.54) with a range that oscillated between 60 and 101 years. Almost half (45.7%) were widowed. 68% of the participants had no formal education although they knew how to read and write. Their socioeconomic level was low, as 84.2% of the sample had an income which was equal to or lower than the National Minimum Wage. Regarding cohabitation, almost half of the users of Home Care Service (49.0%) lived alone. The main pattern of cohabitation among the Day Care Centres users was with their children (39.7%).

Comparison between the actual assignment and the one theoretically generated by the DMM

The new assignments of users to Services which were generated by the DMM (*theoretical reassignment*) proved to be considerably different to those actually in place. The Cohen Kappa index revealed a poor fit between both assignments ($\text{kappa}=0.257$; $p<0.001$).

As can be seen in Table 2, there was a reduction in the number of users assigned by the *theoretical reassignment* (with respect to the *actual assignment*) to Home Care Service (254 vs. 355), Supervised Apartments/Community Housing (12 vs. 49) and Nursing Homes (116 vs. 150), while there was an increase in those assigned to Day Care Centres (134 vs. 78). Moreover, 18.4% (116) of the users did not meet the criteria to be theoretically reassigned to any of the services and thus were assigned to the category “Out of the system/Other services”. The main coincidence between both assignments was for Nursing Homes, given that the *theoretical reassignment* kept 54.7% of actual users in this service, and the biggest discrepancy was for Supervised Apartments/Community Housing, given that only 16.3% of actual users would remain in this service after applying the *theoretical reassignment*.

PLEASE, PLACE TABLE 2 ABOUT HERE

Figure 2 (built upon the data from Table 2) reflects the discrepancies and new assignments generated by the application of the DMM. The allocation proposed by the DMM placed 14.9% of Home Care Service users in Day Care Centres, almost half (49.0%) of Supervised Apartments/Community Housing users and 35.9% of Day Care Centres users in Home Care Service and 27.3% of Nursing Homes users in Day Care Centres. Finally, it should be highlighted that of the 116 participants in the study who were sent to “Out of the system/Other services” by the DMM, 103 (88.8%) were Home Care Service users and none were Nursing Homes users.

PLEASE, PLACE FIGURE 2 ABOUT HERE

Table 3 describes the profiles of those subjects who showed the greatest discrepancies between their *actual assignment* and the *theoretical reassignment*, in relation to the predictor variables (social support, housing, functional ability and cognitive status) for each of the services. The results indicate that, for the *actual assignment* we have:

- In Nursing Homes: a) 26 subjects with good cognitive status, good capacity at a basic level, and good housing conditions, but lacking adequate social support in all cases. They are assigned to Home Care Service by the DMM. b) 41 people with cognitive impairment, dependency at an instrumental level, and at a basic level in general, but with good housing and partial or good social support. The DMM considers these users to be suitable candidates for Day Care Centres. c) 1 subject who is completely independent at cognitive and functional levels, but without social support and with inadequate housing. The DMM assigns Supervised Apartments/ Community Housing for this user.

- In Supervised Apartments/ Community Housing: a) 24 people without cognitive impairment or good basic ability and, in general, instrumental independency. They lack social support, but they have good housing conditions. The DMM assigns these subjects to Home Care Service. b) 4 subjects with cognitive impairment, dependency at instrumental level but, in general, good basic ability, adequate housing conditions, and social support. The DMM assigns these subjects to Day Care Centres. c) 9 subjects with dependency at instrumental level, with no social support and with cognitive impairment for most of them. The DMM assigns these subjects to Nursing Homes.

It is worth drawing attention to the 103 subjects who are sent to the “Out of the system/Other services” category by the DMM. As has already been pointed out, these are people who are currently in Home Care Service, but who are independent at functional and cognitive levels, have good social support and, for the most part, have adequate housing conditions.

PLEASE, PLACE TABLE 3 ABOUT HERE

Performance of *actual assignment* in matching user needs to service benefits

In order to check the proficiency of the *actual assignment* in matching user needs to prerequisites of services and access criteria, a discriminant analysis was carried out. The results showed a match in 67.2% of the cases. However, bearing in mind that Box's test on the equality of covariance matrices was significant ($p < .001$), indicating absence of normality, an alternative multinomial logistic regression was carried out, given that logistic regression models make no assumptions about the distribution of the data.

The regression model showed a good fit of the data in terms of goodness of fit (Pearson's Chi-square= 1656.545; d.f.= 1584; *n.s.*; and Chi-square of deviation= 841.205; d.f.= 1584; *n.s.*), but not of explained variance (Cox and Snell $R^2 = 0.530$; Nagelkerke $R^2 = 0.593$; McFadden $R^2 = 0.336$). In addition, only 70.4% of the subjects were correctly assigned to the different services, which indicates a poor classification capacity (see Table 4). For comparison purposes, the same analysis applied to the DMM yielded, as expected, much better results, both in terms of explained variance, and classification capacity (Cox and Snell $R^2 = 0.908$; Nagelkerke $R^2 = 0.967$; McFadden $R^2 = 0.855$; 91% correct assignments).

PLEASE, PLACE TABLE 4 ABOUT HERE

Discussion

The results indicate that the *actual* and *theoretical* assignments differ substantially from each other, with the latter being better suited for adapting the provision of services to the needs of subjects. This suggests that the DMM variables, that is to say, both the factors which were identified by the literature as predictors of use of social services by the elderly and the access criteria for social services, should be considered "first level" variables in a decision-making process. The discrepancy observed between the two assignments could be explained by the fact that, in the *actual assignment*, variables related to the health and/or

social needs of users (incorporated into the DMM) are not being taken into account and instead other external factors, which could be considered 'second level', are being used. These factors would, furthermore, have a greater effect in services where larger discrepancies have been found between the two allocations.

The service with the greatest discrepancy between *current* and *theoretical* allocations is that of Supervised Apartments/Community Housing. On evaluating this service we found that, in the *actual assignment*, people are sent here who do not fulfil the access profile – either because they have some form of dependency, or because they are independent and already have adequate housing in which to stay. The DMM, by taking into account the subjects' profiles and the criteria for access to the different services as defined by the legislation, moves subjects from Supervised Apartments/Community Housing to: (i) Home Care Service (Lee, Kouner, Meze, & Ko, 2001; Prados, 2001, Serrano & de Tena Dávila, 2004), when they are independent people with good housing conditions, (ii) Day Care Centres (Gaugler, Kane, Kane & Newcomer, 2005) for those who have instrumental dependency and cognitive impairment, but with social support, or (iii) Nursing Homes (Almomani, et al., 2014; Helvik et al., 2014), when, together with cognitive and instrumental impairment, they show lack of social support.

The smallest discrepancy between both classifications occurs in Nursing Homes, this could be due to the fact that the access criteria are well defined and applied in Spain. Nevertheless, as in the previous case, we can perceive that the "first level" variables are not being systematically considered in the decision-making process. This is evident when analysing the characteristics of actual users, given that a large number of them have good cognitive and functional capacity, together with good housing conditions - their main disadvantage being a lack of social support. Consequently, their needs could be met through Home Care Service. Likewise, other subjects who show cognitive impairment and

dependency at instrumental level but have good housing conditions and social support, could receive adequate therapeutic healthcare through Day Care Centres. Lastly, Supervised Apartments/Community Housing would constitute a more appropriate alternative for those subjects lacking social support and adequate housing conditions, but who are totally independent at functional and cognitive levels. The reassignments posed by the DMM are positive for both users and for professionals. They are positive for users, because Nursing Homes can limit the autonomy of the subject and increase his/her dependency, in addition to contributing to dislocation from his/her everyday environment. They are also positive for professionals, because users are currently receiving a service that is more intensive than necessary, thus increasing both costs and waiting lists, and possibly delaying, or even preventing, the access of other petitioners to the service that meets their needs most appropriately.

For the DMM, Nursing Homes only receive people with dependence at an instrumental level, cognitive deterioration and/or functional dependence at a basic level, housing problems and without social support, thus observing the prototypical profile of the user for this service (Almomani et al., 2014; Bharucha et al., 2004; Cohen-Mansfield & Wirtz, 2011; IMSERSO, 2014). Taking 'little social support' into consideration for referral to Nursing Homes is motivated by two reasons: (i) the DMM gives priority to community over residential services, in order to meet the WHO goal of "ageing at home" (Rodríguez, Iglesias, Castro, Taboada & Puñal, 2006), and (ii) this approach helps to optimize resources by reserving scarce residential places for people who cannot otherwise have their needs met. Likewise, it would not assign people with "partial social support" to Nursing Homes, given that their needs could be covered by Home Care Service, if they have a good functional ability or Day Care Centres if they suffer from cognitive impairment, thus delaying or preventing their institutionalisation.

The variables included in the DMM, and highlighted in the literature as predictive of social service use, such as: functional ability, cognitive status, social support and environmental characteristics (Almonani, et al., 2014; Bharucha et al., 2004; Bernal & Barbero, 2006; Cohen-Mansfield & Wirtz, 2011; Dizey, 2008; Fernández del Valle & García, 1994; Freedman et al., 1994; Gaugler et al., 2000; Gaugler, Kane, Kane, Clay & Newcomer, 2003; Gaugler et al., 2005; Helvik et al., 2014; Laborda et al., 2002; Serrano & de Tena-Dávila, 2004), can be confirmed as good predictors of fit between the needs of the elderly and the characteristics of the services studied. Accordingly, these “first level” variables should be considered in the decision-making process, which currently they are not. In fact, if they are used as predictors for the *actual assignment*, they are only able to predict 70.4% of cases. Thus, it seems that professionals are considering other “second level” factors, which would condition the intensity and/or combinations of services, but not access to them. In order to mitigate this limitation, the DMM makes it easier to identify which would be the ideal service to meet the needs of the subject on the basis of "first level" variables, without jeopardizing the adjustments that professionals may make based on additional information. This would undoubtedly help to improve the fit between the needs of the elderly and the provision of services.

A good fit between the characteristics of the elderly and the provision of services favours the fulfilment of users' needs and helps to optimize resources. The latter is particularly important in Spain, given the imbalance between supply and demand for public services (IMSERSO, 2017), which results in considerable waiting lists. As seen above, the lack of objective criteria and the scarcity of resources mean that, at times, people who require a high level of care do not have access to services, while others who are less needy are included in the system. The "Out of the System/Other services" category should be

understood in this context, as being composed of people who have good functional and cognitive capacity, support from their social network and good housing conditions.

This does not mean that these users cannot benefit from other public services which are less focused on dependency care and more on the promotion of personal autonomy, such as Telecare, Home-catering, Mobility Support and many of the active aging programmes which are carried out in community centres or in some retired people's homes and associations, which could be appropriate for these subjects.

An interesting and potentially useful finding is the role that basic functional ability plays in the allocation of services. It must be borne in mind that the majority of scales used up until now for access to the different social services have placed great importance on functional ability for carrying out BADL. This is also the case in the Evaluation of Dependence Scale (used to determine the degree of dependence in beneficiaries of the Law of Autonomy) where basic activities are over-represented in comparison with instrumental activities and cognitive profile. The good fit of the DMM allows the weighting of this variable to be determined, an aspect which is especially relevant in cases where there is little social support. When a person has partial or good support, the functional ability for BADL would be subordinated, depending on the case, to instrumental or cognitive states, which play a key role in the DMM.

The Law of Autonomy in Spain constituted an effort to improve the care given to people in situations of dependency by guaranteeing universal access to services. Nevertheless, the data indicate that the criteria used to guide allocation to services should be redesigned so as to include the level of social support which a person has at the start of the decision-making process, and, in conjunction with this, evaluate each individual's situation of functional and cognitive dependency. This would allow people in situations of severe dependency, but with good social support, to have their needs attended to by way of

economic benefits and/or community resources. Likewise, elderly people who are less dependent, but lack social support, are given access to residential homes, as otherwise their needs cannot be met.

Limitations

The DMM did not take into account services such as Telecare, Residential Homes or Senior Citizens' Centres and Clubs, which provide assistance to a considerable number of elderly people. These should be considered in future research in pursuit of a greater generalization of the Model.

The functional and cognitive capabilities were classified into only two levels (High or Low) in order to facilitate the decision-making process, entailing a loss of information by not considering the intermediate dimensions offered by the scales. Although this could reduce the sensitivity of the model, it is preferable for the sake of workability. At the same time, social support was determined by means of a Questionnaire which was specifically designed for evaluating the elderly and which enjoys certain recognition in Spain. Nevertheless, the possibility of using and/or designing other tools which allow more precise levels to be established for this variable should be considered. Likewise, the assessment of social support could also incorporate information about the carer, as it may prove relevant in certain cases to detect situations of overburden.

Even though the present study employed a representative sample of users in the Autonomous Community of Galicia, a wider implementation of the DMM is necessary. Data gathering was carried out, for most cases, through the direct application of the instruments to the users. Nevertheless, with regard to the subjects with high dependence levels, the possibility of bias must be considered given that, in this case, the information was obtained via the administrative records which were drawn up by the specialists taking care of these subjects.

Conclusions

Discrepancy exists between the assignment conducted by professionals and that which is derived by applying the DMM. In the first instance, we show that the application of the Model provides a good fit in matching the needs of the elderly with the access criteria to the services available to them. It verifies that psychosocial variables, widely studied in the field of gerontology, constitute strong predictors in the decision-making process for satisfying the needs of elderly people from an integrated/comprehensive and biopsychosocial perspective, and that these must be considered “first level” criteria. This would prevent services being occupied by people who do not meet these criteria, which has the additional unwanted effect of displacing others who do meet them to waiting lists.

The Model presented could provide the administrators of social policies aimed at the elderly with an objective, systematic and parsimonious tool for assigning services. The main implication of implementing the DMM as far as social policies are concerned is that, by making the process more objective, allocation to services would be improved, which in turn would lead to a reduction in differences across Spain and an increase in the uniformity of care provided.

Additionally, since the DMM prioritizes allocation to community services, which are cheaper than residential ones and respect the wishes of the elderly to grow old at home, future studies should research whether its implementation would serve to reduce long term service costs.

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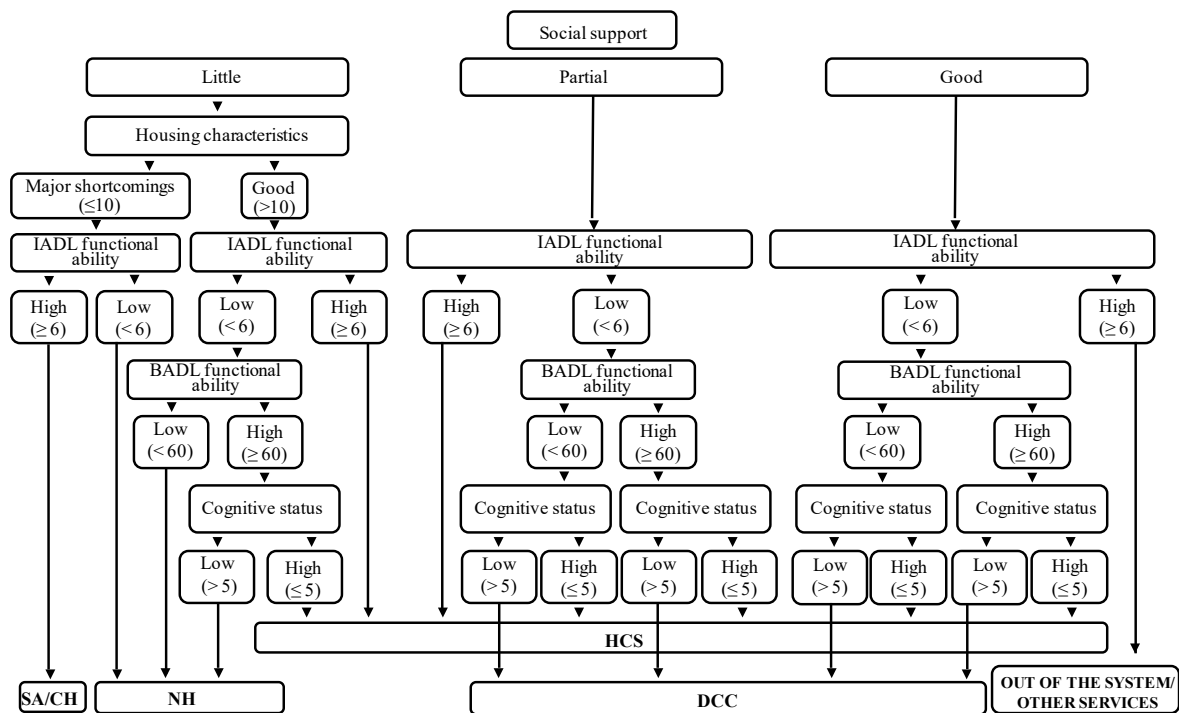


Figure 1. Decision-making model for the assignment of social services to elderly people. IADL= Instrumental Activities of Daily Living; BADL= Basic Activities of Daily Living. HCS= Home Care Service; DCC= Day Care Centre; SA/CH= Supervised Apartments/Community Housing; NH= Nursing Home.

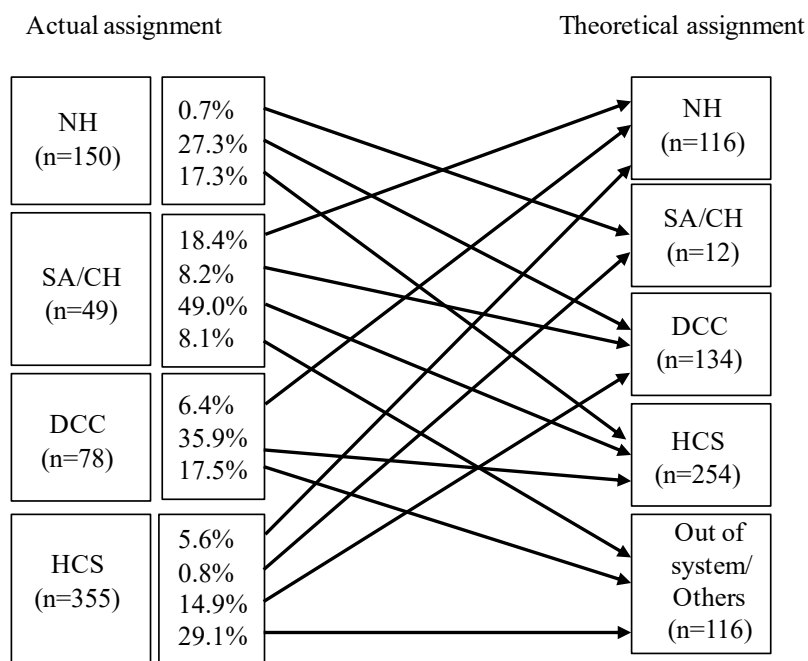


Figure 2. Reassignment of participants in the study according to the criteria proposed by the DMM. HCS= Home Care Service; DCC= Day Care Centre; SA/CH= Supervised Apartments/Community Housing; NH= Nursing Home.

Table 1.

Sociodemographic characteristics of the participants.

		HCS		DCC		SA		CH		NH		TOTAL	
		n	%	n	%	n	%	n	%	n	%	n	%
Sex	Male	103	29.0	24	30.8	7	46.7	16	47.1	32	21.3	182	28.8
	Female	252	71.0	54	69.2	8	53.3	18	52.9	118	78.7	450	71.2
Marital status	Single	68	19.2	15	19.2	4	26.7	14	41.2	46	30.7	147	23.3
	Married	114	32.1	23	29.5			3	8.8	29	19.3	169	26.7
	Widowed	157	44.2	37	47.7	8	53.3	16	47.1	71	47.3	289	45.7
	Divorced	16	4.5	3	3.8	3	20.0	1	2.9	4	2.7	27	4.3
Educational level	No education	240	67.6	42	53.8	10	66.7	24	70.6	114	76.0	430	68.0
	Primary	106	29.9	35	44.9	3	20.0	9	26.5	33	22.0	186	29.5
	Superior	9	2.5	1	1.3	2	13.3	1	2.9	3	2.0	16	2.5
SES	≤ minimum wage	316	89.0	64	82.1	12	80.0	26	76.5	114	76.0	532	84.2
	> minimum wage	39	11.0	14	17.9	3	20.0	8	23.5	36	24.0	100	15.8
Cohabitation	Alone	174	49.0	12	15.4							186	43.0
	Spouse	91	25.6	14	17.9							105	24.2
	Children	45	12.7	31	39.7							76	17.6
	Spouse+children	15	4.2	8	10.3							23	5.3
	Other relatives	23	6.5	10	12.8							33	7.6
	Non-relatives	7	2.0	3	3.9							10	2.3

Note: HCS= Home Care Service; DCC= Day Care Centre; SA/CH= Supervised Apartments/Community Housing; NH= Nursing Home.

Table 2.

Comparison between actual (columns) vs. theoretical (rows) assignments to services. The diagonal elements represent coincidences between both assignments. Off-diagonal elements represent discrepancies between both assignments.

		Actual assignment					
		HCS	SA/CH	DCC	NH	Total	
Theoretical reassignment	HCS	Count	176	24	28	26	254
		% row	69.3	9.4	11.0	10.2	100.0
		% col.	49.6	49.0	35.9	17.3	40.2
	SA/CH	Count	3	8	0	1	12
		% row	25.0	66.7	0.0	8.3	100.0
		% col.	0.8	16.3	0.0	0.7	1.9
	DCC	Count	53	4	36	41	134
		% row	39.6	3.0	26.9	30.6	100.0
		% col.	14,9	8,2	46.2	27.3	21,2
	NH	Count	20	9	5	82	116
		% fila	17.2	7.8	4.3	70.7	100.0
		% col.	5.6	18.4	6.4	54.7	18.4
	Out of System/	Count	103	4	9	0	116
		% row	88.8	3.4	7.8	0.0	100.0
	Others	% col.	29.0	8.2	11.5	0.0	18.4
	Total	Count	355	49	78	150	632
		% row	56.2	7.8	12.3	23.7	100.0
		% col.	100.0	100.0	100.0	100.0	100.0

Note: HCS= Home Care Service; DCC= Day Care Centre; SA/CH= Supervised Apartments/Community Housing; NH= Nursing Home.

Table 3.

Profile of subjects in whom discrepancies were found between the actual and theoretical assignments.

				Social support			Housing conditions		Instrumental ability		Basic ability		Cognitive status		Total
				Li	P	G	MS	G	L	H	L	H	L	H	
				<i>n</i>	<i>n</i>	<i>n</i>	≤ 10	>10	< 6	≥6	< 60	≥60	>5	≤ 5	
Theoretical	SA/CH	Actual	NH	1	0	0	1	0	0	1	0	1	0	1	1
	NH	Actual	SA/CH	9	0	0	4	5	9	0	2	7	7	2	9
	HCS	Actual	SA/CH	19	1	4	2	22	6	18	0	24	0	24	24
			NH	12	4	10	1	25	22	4	3	23	0	26	26
	DCC	Actual	SA/CH	0	1	3	1	3	4	0	1	3	4	0	4
			NH	0	10	31	1	40	41	0	35	6	41	0	41
Out of system/ Others	Actual	HCS	0	0	103	6	97	0	103	0	103	0	103	103	

Note: Li= Little, P=Partial, G=Good, MS= Major shortcomings, L= Low function, H= High function.

HCS= Home Care Service; DCC= Day Care Centre; SA/CH= Supervised Apartments/Community Housing; NH= Nursing Home.

Table 4.

Actual assignments (dependent variable) vs. predicted assignments estimated by the multinomial regression model.

Actual service	Predicted service					Correct percentage
	HCS	SA/CH	DCC	NH		
HCS	321	6	9	19		90.4%
SA/CH	35	8	0	6		16.3%
DCC	59	1	13	5		16.7%
NH	40	2	5	103		68.7%
Total percentage	72.0%	2.7%	4.3%	21.0%		70.4%

Note: HCS= Home Care Service; DCC= Day Care Centre; SA/CH= Supervised Apartments/Community Housing; NH= Nursing Home.

Appendix 1

Housing conditions scale*

A. Living/Habitability conditions	Yes/No
The dwelling has at least three rooms (one for living, dining and cooking, a bedroom and a bathroom).	
The rooms are independent.	
The dwelling has a bathroom with: bath or shower, washbasin and toilet.	
The dwelling has an electricity supply.	
The dwelling has plumbing and drainage facilities.	
The dwelling has running water that fulfills potability requirements.	
B. Architectural barriers	
Access to the dwelling includes a ramp or lift.	
A wheelchair can be handled easily through the doors and corridors of the dwelling.	
The dwelling has a shower or bath fitted with handles.	
C. Services	
Telephone	
Refrigerator	
Hot water	
Washing machine	
Television/Radio	
Heating	

*Translation from Spanish of the original scale. Adaptation or validation of the scale in the English-speaking population is not available.