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Socioeconomic Predictors of the Employment of Migrant Care Workers by Italian Families Assisting Older Alzheimer's Disease Patients: Evidence From the Up-Tech Study

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Abstract

Background: The availability of family caregivers of older people is decreasing in Italy as the number of migrant care workers (MCWs) hired by families increases. There is little evidence on the influence of socioeconomic factors in the employment of MCWs.
Method: We analyzed baseline data from 438 older people with moderate Alzheimer's disease (AD), and their family caregivers enrolled in the Up-Tech trial. We used bivariate analysis and multilevel regressions to investigate the association between independent variables—education, social class, and the availability of a care allowance—and three outcomes—employment of a MCW, hours of care provided by the primary family caregiver, and by the family network (primary and other family caregivers).
Results: The availability of a care allowance and the educational level were independently associated with employing MCWs. A significant interaction between education and care allowance was found, suggesting that more educated families are more likely to spend the care allowance to hire a MCW.
Discussion: Socioeconomic inequalities negatively influenced access both to private care and to care allowance, leading disadvantaged families to directly provide more assistance to AD patients. Care allowance entitlement needs to be reformed in Italy and in countries with similar long-term care and migration systems.

Key Words: Alzheimer's disease—Care allowance—Family caregiver—Migrant care worker—Socioeconomic factors—Up-Tech

Migrant Care Workers in the European Context

With increasing demand for eldercare worldwide, the long-term care (LTC) systems of many countries rely on migrant care workers (MCWs) privately employed by patients and families as an alternative to formal care services (Colombo, Llena-Nozal, Mercier, & Tjadens, 2011; Redfoot & Houser, 2005). In most European countries, a dramatic increase in the number of MCWs has been observed in the last few decades (Lamura, Chiatti, Barbabella, & Di Rosa, 2013) and many studies have investigated the issue of the so-called "global care chains," referring to the mechanisms of transnational movements and recruitment of domestic and care workers (Hochschild, 2000; Williams, 2010). Estimates suggest that migrant domestic and care workers increased all over Europe in the period 1999–2009. In many countries (e.g., Belgium, Denmark, Greece, Ireland,

Portugal, Sweden, and the U.K.), their number has more than doubled, whereas in Italy and Spain, it has increased by over 4 times (Cangiano, 2014). MCWs usually move from low- and middle-income countries to those with higher income, looking for better jobs, higher wages and economic opportunities in temporary or permanent positions. Such flows of MCWs occur especially in destination countries where there is a shortage of domestic health care professionals and a lack of formal services (Colombo et al., 2011; Lamura et al., 2013). In most countries, MCWs are usually low-paid, middle-aged women, who often work part-time. In some case, while filling important gaps in public eldercare services, the employment of this workforce has led to other issues, such as the increase of unregulated labor (parallel markets of private care), unmonitored care quality (including possible abuse of care recipients), and care drain in the home countries (Redfoot & Houser, 2005; Williams, 2010).

In Europe, MCWs have complemented the public offer of LTC and have gained a fundamental role in many countries. This is due not only to the shortage of health care professionals and the lack of formal services but also to the progressive decline of the availability of family-based eldercare in almost all European countries, which is seriously challenged by three factors (Cangiano, 2014; Rodrigues, Huber, & Lamura, 2012): (a) the low total fertility rate, which leads to fewer children available to take care of their older parents; (b) the increased participation of women in the labor market and the consequent need to reconcile work and care; and (c) a change in family structure, with less households composed of two or more generations living together, who are able to support their older family members. Intergenerational care provision will inevitably decrease everywhere, even in countries that experienced a slight increase in the period between 1990 and 2010 (e.g., Ireland and Sweden), with most European countries having the ratio between the adult population (45–64 years old) and the older people (aged 75 and older) more than halved and predicted to range from 1.3 to 1.7 by 2050 (Cangiano, 2014). At the same time, the expected increased life expectancy of older spouses will not be able to cover all the care required by frail older people in the future. Keeping the current ratio of family caregivers to care recipients, the number of family caregivers should increase generally by 20%–30, and in some cases even more (40% in Germany and the Netherlands; 50% in Italy; Colombo et al., 2011), which seems very unlikely. As a consequence, the recent response of households has been to move toward a commodification and marketization of care (Williams, 2010) in order to obtain tailored assistance by MCWs.

However, the phenomenon of MCWs has not reached the same level in all European countries. A conceptualization of models of eldercare in Europe, based on recent studies (Nies, Leichsenring, & Mak, 2013; Pavolini & Ranci, 2008; Simonazzi, 2009), can lead to a categorization of LTC systems into four main groups: (a) a public-based model (e.g., Denmark, the Netherlands, and Sweden), driven by a public welfare system with high coverage and high intensity of in-kind services (i.e., home- and community-based services, institutional care); (b) a mixed-services model (e.g., France, Germany, and the U.K.), allowing or moving progressively toward an integration of in-kind services, cash allowances, informal care, and a private market; (c) a family-based model (e.g., Greece, Italy, and Spain), relying mainly on the contribution of families and care assistants in order to overcome systemic deficiencies in formal LTC provision; and (d) a transition model (e.g., the Czech Republic, Hungary, and Romania), comprising countries with a post-communist welfare system facing inadequate provision of public services and recent reforms to decentralize and marketize LTC. In this respect, the flow of MCWs, privately employed by households, has been a systematic resource for decades mainly in family-based systems, whereas mixed-service countries, and to some extent, those with a transition model, have experienced a significant increase of this workforce only in the past 10–15 years. The public-based model was affected to a lesser extent, because most MCWs in those countries have been employed in the formal care sector.

The Exceptional Italian Case

Italy usually has been categorized into a family-based model of LTC, according to a long-standing familistic cultural paradigm, which is reflected in family caregivers' positive attitude and preference toward home care. The overwhelming majority thinks, in fact, that frail older people should be kept at home and cared for by relatives (Da Roit, 2007; European Commission, 2007). However, several authors have suggested that the Italian LTC system has clearly shifted from a familistic model to a migrant-in-the-family model (Bettio, Simonazzi, & Villa, 2006; van Hooren, 2012), in which the presence of MCWs altered the division of tasks between care assistants and family caregivers, who experience significantly reduced burden (Chiatti, Rimland, et al., 2015). MCWs usually perform all tasks related to housework, preparation of meals, personal hygiene, administration, and companionship, whereas the family's role seems to focus more on organizational aspects of care rather than direct personal assistance (Di Rosa, Melchiorre, Lucchetti, & Lamura, 2012).

This change came about by the progressive reduction of the caregiving potential of Italian families in the absence of appropriate policies. Despite Italy having a significant and growing portion of older people who need continuous support in activities of daily living (ADLs), and eventually instrumental activities of daily living (IADLs; approximately 20% of the population older than 65 years; ISTAT, 2014), it is one of the few developed countries that has not undertaken any national reform of LTC over the past three decades (Nies et al., 2013; Pavolini & Ranci, 2008).

Formal home care is delivered to 5.6% of people older than 65 years, with a very low yearly intensity of 20 hr per user, whereas just 1.8% of the older population has access to institutional care (Barbabella, Chiatti, Di Rosa, & Gori, 2013). In response to the needs of the aging population, the most important measure offered by the state is the 'Indennità di Accompagnamento' (IA), a cash benefit provided to 12.5% of the older population. The IA is a universal care allowance offered after a needs assessment to all fully dependent people, that is, those who cannot walk without a helper and/or need continuous supervision and support for ADLs and IADLs. All users benefiting from the IA receive around 500 euros per month, which is not means tested and can be spent without any constraint.

The familistic paradigm, together with the general lack of formal services and the dominant cash-for-care scheme, has created a fragile system, which gradually led to a new solution where families, partially or totally, delegated the assistance of older people at home to a private care worker (Da Roit, 2007; Shutes & Chiatti, 2012). The majority of these home care assistants (up to 80%–90%) are composed of MCWs, who are mostly women (80%) of all ages (there is an equal distribution of all age groups younger than 60 years), who come especially from Eastern Europe (Romania, Ukraine, Moldova), South America (Peru), and Asia (Philippines), are attracted by higher wages and the ease of employment (Fondazione Leone Moressa, 2011; Pasquinelli, 2013). Considering both official statistics, which counts those people who have a regular, registered contract, and estimates of the parallel market, which are made through large-scale surveys, the total number of privately hired care assistants in Italy is estimated to be approximately 830,000 (Pasquinelli, 2013), of whom around three quarters live with the care recipient. As for the reasons why families employ a MCW (Fondazione Leone Moressa, 2011), in half of the cases it is the older person himself/herself who asks for the support of a care worker. Other important reasons are the difficulty that relatives have taking care of the older person, the high costs of nursing homes, and the lack of availability of beds in residential care settings. The recruitment occurs mainly through informal channels, as more than 55% of families found care assistants through "word-of-mouth."

The available figures suggest that in Italy, the intensity, speed, and recruitment patterns characterizing the development of the MCW phenomenon have been quite exceptional compared with that in other countries. Between 1991 and 2011, the number of foreign-born workers has been estimated to have grown from 16% to more than 80% of all privately employed care workers, whose total amount has increased more than 4 times, from less than 200,000 to more than 800,000 (Lamura et al., 2013; Pasquinelli, 2013). This has been due to a combination of both "push" and "pull" factors acting at different levels, particularly affecting the labor market, the LTC sector, and migration policies. In the 1990s, a major driver was migration

flows from Eastern European countries after the collapse of the former Soviet Union. In many cases, migrants took advantage of then weak Italian border controls, using them as a favorable entry point into Western Europe. In 2004, many Eastern European countries became members of the European Union (EU), thus, for the first time, their citizens enjoyed the freedom to travel and work within any other EU member state and, given the consolidated experience and chains established in the previous decade, many of them came to work as MCWs in Italy. In parallel, transnational migration from other continents (South America, Asia) was fostered by global chains developed over the last 40 years, consisting mainly of a workforce employed by households of higher social class in domestic work, then progressively extended or even converted to proper eldercare tasks. Another reason for considering Italy an interesting case study is that, differently from what has happened in countries such as Austria and Germany (Lamura et al., 2013; Schmidt, Winkelmann, Rodrigues, & Leichsenring, 2015), no comprehensive attempts have been made to regulate the sector, apart from ex-post regularization of the MCWs already inside Italian borders. To a very large extent, the issue has been left to the control and management of each single family, which may have the IA, other local cash allowances, and disability pensions to count on to tailor private care.

Predictors of Employing a MCW

In Italy, in fact, the employment of a MCW relies on a choice made by patient and family as one option together with the (total or partial) reliance on informal care and access to in-kind public services. Our investigation of access to the private market of care assistants draws upon the Behavioral Model of Health Services Use by Andersen (1995), which provides a detailed framework of how population characteristics mediate access to a care service. According to this model, we can assume that the utilization of MCWs is influenced by population characteristics, which can be grouped into three main types of factors: (a) predisposing characteristics, which predispose older people and primary family caregivers to use or not to use MCWs, and include demographic (e.g., the older person's and the family caregiver's age and gender) and social factors (e.g., the family caregiver's educational level and occupational status); (b) enabling characteristics, which facilitate or impede the use and include financing (e.g., income, cost of services, and availability of a care allowance) and organization (e.g., availability of a regular source of care and travel and waiting time for care); and (c) needs that lead users or care providers to recognize the necessity of care, in terms of perceived and evaluated needs (e.g., self-perception of functional limitations, cognitive impairment, and behavioral problems).

The role of the aforementioned predisposing, enabling, and need factors, in relation to the access of older people

in need, to MCWs (intended as a type of care service), has not been investigated enough in current research neither in Italy nor in other countries. Some preliminary research was carried out in Italy on MCWs and found different factors positively associated with the probability of employing a care assistant. These included predisposing factors such as family caregiver's closeness to the patient (in terms of living condition) and the family caregiver's working status (Di Rosa et al., 2012), as well as enabling characteristics in terms of contemporaneous use of other formal services (e.g., home help, home nurse visits, and out-patient care; Di Rosa, Barbabella, Chiatti, Melchiorre, & Lamura, 2013) and need factors (i.e., the level of disability of the older person; Di Rosa et al., 2012). Other attempts to understand the role of psychological and social factors on the decision to employ a MCW, or to directly provide the care needed by the patient, relied mainly on qualitative approaches involving family caregivers and MCWs (e.g., Da Roit, 2007; Näre, 2013).

Even in countries where MCWs constitute a relevant (or the main) option for eldercare, up to now little evidence exists on how socioeconomic characteristics (e.g., educational attainment and occupation) influence the choice to hire a MCW, although these have been extensively investigated with respect to formal home- and community-based services. Although some studies suggested that a low socioeconomic status (SES) creates barriers to access formal care (Otero, de Yébenes, Rodríguez-Laso, & Zunzunegui, 2003; Paraponaris, Davin, & Verger, 2012; Stoddart, Whitley, Harvey, & Sharp, 2002), other investigations found opposite evidence (Goodridge, Hawranik, Duncan, & Turner, 2012). Moreover, a higher level of educational achievement was associated with increased amounts of paid support (Rogero-García & Rosenberg, 2011). Nevertheless, these conclusions cannot be generalized easily to the case of MCWs. Without doubt, the role of socioeconomic predictors (predisposing and enabling factors) on the employment of MCWs has never been demonstrated through large-scale studies, although some evidence exists on the impact of social inequality and care needs on families' financial resources (Saraceno, 2010). Education and occupation, two important measures of SES and, thus, of equity in access to care, have not been sufficiently examined in their relation to the access to private home care, which constitutes the main non-formal LTC service Italian families rely on.

In addition, the hypothesis that cash-for-care measures are associated with increased employment of MCWs by households, has often been asserted in the public debate (e.g., Da Roit & Le Bihan, 2010), without rigorous confirmation from scientific studies. This information would instead be highly beneficial to inform the current debate around the reform of the cash-for-care measures in Italy and elsewhere. For instance, the issue of equity has been raised by suggesting that families with lower income in Italy use the cash provided by the IA in a different manner, which is facilitated by policies which tended, in some local areas, to provide it as a measure to support family income, rather than as a support for caregiving (Gori, 2012).

This article addresses the previously mentioned research gaps regarding the role of socioeconomic factors, such as the level of education and occupation (predisposing factors) and receipt of a care allowance (enabling factor), on the access to private care services, by investigating, for the first time, predictors of employing a MCW by Italian families assisting patients with Alzheimer's disease (AD). AD patients are an interesting population to investigate the aforementioned issue, as they require a large amount of assistance from family caregivers, who often resort to hiring MCWs. Estimates suggested that more than 520,000 people have been diagnosed with AD in Italy. Around 41% of them relied on the support of a MCW (CENSIS, 2007), whereas MCW employment among dependent older people is only around 13% (Lamura, Melchiorre, Principi, & Lucchetti, 2008). This study in fact aims to verify the hypothesis of an association between the SES of family caregivers and hiring a paid home care assistant, assuming that a lower SES decreases the probability of employing a care assistant and sustains socioeconomic disparities among users and their families.

Method

Data

We used baseline data of the Up-Tech study in Italy. Up-Tech is a randomized controlled trial designed to test the impact of innovative care services for community-dwelling patients with moderate AD and their family caregivers. Details of the trial methodology are described elsewhere (Chiatti et al., 2013). The study addressed patients with moderate AD, who had a Mini-Mental State Examination (MMSE; Folstein, Folstein, & McHugh, 1975) score between 10 and 20, living in the community and assisted by at least one family caregiver. Family caregivers in the dyads were those kin who directly supported the AD patient with ADLs and/or IADLs for at least 1 hr per day within the last 6 months. If more than one family caregiver assisted the same patient, the primary family caregiver was identified as the person providing the highest number of hours of care per week. Lists of patients, 65 years or older, were obtained from Alzheimer Evaluation Units in five health districts of the Marche Region (Pesaro, Ancona, Macerata, Fermo, and San Benedetto del Tronto). The overall list of patients was created in order to randomly select subjects to be enrolled and apply inclusion criteria. An invitation letter was sent to 640 people asking them to participate in the research study. At the end of the recruitment, 438 patient-primary family caregiver dyads were enrolled in the project (response rate 68%; Chiatti, Rimland, et al., 2015).

Measures

A questionnaire derived from the interResident Assessment Instrument Contact Assessment (interRAI CA; Hirdes

et al., 2010) was administered at baseline by trained research nurses to patients and family caregivers. When the patient could not answer directly, family caregivers acted as proxies.

We assessed if the patient was cared for by a MCW (either live-in or non cohabitating), without regard to the formal status (regular or irregular) of his/her contract. In addition, thanks to the questionnaire, we collected objective data in the three domains of Andersen's model.

Concerning need factors, patients' functional status was measured by assessing ADL and IADL capacity. ADL dependency was then summarized using the ADL Hierarchy Scale, which ranges from 0 (*no impairment*) to 6 (*total dependence*) (Morris, Fries, & Morris, 1999). We also computed the IADL Involvement Scale, which is based on seven IADL-related items, summed to produce a scale that ranges from 0 to 48, with higher scores indicating greater dependency (McDowell, 2006). The MMSE was used to assess the level of cognitive impairment, whereas a specific question asked the primary family caregiver if the patient suffered from behavioral disturbances.

Predisposing characteristics were assessed through different items. Demographic data were retrieved regarding age and gender of both patient and primary family caregiver, together with their family relationship. Social factors concerning the primary family caregiver were retrieved through ad hoc items that asked his/her formal educational level and current or last occupation. Educational level was categorized as follows: no title/low (primary school or up to 5 years of formal education completed); intermediate (6–8 years); high (9–14 years); and very high (university degree or higher, >15 years). Using present occupation, or the last job before retirement, as proxies of social status, primary family caregivers were also grouped into five social classes (lower, middle, middle-upper, upper, and a residual "not attributable") with different levels of social desirability according to a previously validated Italian stratification scale (Cardano, Costa, & Demaria, 2004; De Lillo & Schizzerotto, 1985).

Additionally, we retrieved the following information regarding the enabling characteristics of the dyads of the sample: (a) if the patient received a care allowance from the State (i.e., the IA) and (b) the average number of hours spent each week on informal care by both the primary family caregiver and other family caregivers. The hours of caregiving provided by family members could include those spent providing assistance for ADLs and/or IADLs to the AD patient, in addition to those required for their supervision.

Data Analysis

The primary outcome of the study was the employment of a MCW. In addition, we performed separate analyses to assess the impact of MCW employment on the hours of care provided by the primary family caregiver and the hours of care provided by all family caregivers. In order to be consistent with the overall study design, we extended

and adapted Andersen's model to the analysis of family caregiving, thus considering MCW employment as an enabling factor in this second analysis.

A descriptive analysis of the sample was conducted using univariate and bivariate statistical analyses. Significant differences in exposure variables were compared between families employing a MCW and those not employing a MCW. For comparisons, we used the chi-square test, in the case of categorical variables, and the *t*-test, or the analysis of variance (ANOVA), in the case of continuous variables.

For multivariate analysis, we used multilevel logistic regression to estimate predictors of MCW employment and multilevel linear regression to estimate the number of informal care hours provided by primary and all family caregivers. We assessed the interaction between educational status and the receipt of a care allowance on the likelihood of hiring a MCW, as we hypothesized that the influence of extra-cash availability could differ among socioeconomic groups. For this purpose, the variable "education" was dichotomized: The first category "medium-low" included both "no title/low" and "intermediate" levels and the second category "medium-high" included both "high" and "very high." We tested for omitted-variable bias using the STATA *ovtest* command. The rationale for using multilevel regression was that of adjusting the model estimates for the correlation of the three outcomes with the context variables. Therefore, we included as a random-effect parameter (rather than as a fixed one) the five health districts where patients were enrolled, which represent rather diverse geographical areas, for example, in terms of availability of services, rural and urban culture, likely to affect the patterns of service use. This choice also gave us the opportunity to calculate the intraclass correlation (ICC) among the subgroups of dyads recruited in each of the five health districts, that is, the percentage of variability of the three dependent variables explained by the geographical contexts rather than by the individual characteristics. In addition, variance inflation factors were computed to avoid potential multicollinearity between variables. A two-tailed *p* value of .05 was considered significant for all analyses, which were performed using STATA, version 11.1 (Stata Corp., College Station, TX).

Ethics

The study was submitted to the competent Regional Ethical Committee (Comitato Etico Regionale) of Marche, which consented to the study being carried out (decision no. NCT01700556).

Results

Descriptive Statistics

The sample included a majority of female patients (72%), with a mean age of approximately 82 years and a moderate level of cognitive impairment (MMSE 16.0 ± 3.0; Table 1). The majority of family caregivers were women (66%) with a

Table 1. Characteristics of the Sampled Dyads With and Without the Support Provided by a Migrant Care Worker (MCW; *n* = 438 Dyads)

	Total sample[a] (N = 438)	Families with MCW[a,c] (N = 134)	Families without MCW[a,c] (N = 304)	*p* Value[b]
Predisposing characteristics				
AD patient demographic factors				
Gender: women	72%	78%	68%	.03
Age	81.5 (5.7)	80.7 (5.7)	83.1 (5.3)	<.001
Family caregiver demographic and social factors				
Gender: women	66%	69%	65%	.35
Age	61.4 (13.0)	59.1 (12.2)	62.4 (13.4)	.02
Relation to the patient				<.001
Spouse/partner	31%	16%	38%	
Son/daughter	56%	72%	49%	
Other relative	14%	13%	14%	
Education				<.001
No title/low	30%	16%	36%	
Intermediate	25%	17%	28%	
High	37%	50%	31%	
Very high	8%	16%	5%	
Social class				<.001
Lower	27%	25%	30%	
Middle	18%	7%	23%	
Middle-upper	33%	47%	27%	
Upper	12%	19%	10%	
Not attributable	8%	2%	10%	
Enabling characteristics				
Care allowance: yes	39%	60%	30%	<.001
Hours of care provided by primary family caregiver	50.2 (50.3)	34.1 (37.1)	57.3 (53.6)	<.001
Hours of care provided by primary and other family caregivers	69.7 (59.8)	55.0 (50.8)	76.2 (62.3)	<.001
Needs characteristics of the AD patient				
MMSE	16.0 (3.0)	16.1 (3.3)	16.2 (3.3)	.70
IADL	35.1 (13.4)	40.6 (8.4)	32.7 (14.4)	<.001
ADL	1.5 (1.6)	2.1 (1.8)	1.2 (1.4)	<.001
Behavioral disturbances: yes	27%	25%	27%	.73

Notes. AD = Alzheimer's disease; ADL = activities of daily living; ANOVA = analysis of variance; IADL = instrumental activities of daily living; MMSE = Mini-Mental State Examination.

[a]Percentage or mean (*SD*) as appropriate.

[b]Results of the chi-square and ANOVA tests for categorical and continuous variables, respectively.

[c]It includes the hours of care provided by primary and other family caregivers.

high mean age (61.4 ± 13 years), possibly due to the fact that almost all patients were older than 80 years. Spouses and children constituted more than 86% of the family caregivers.

Overall, 134 out of the 438 families in the sample employed a MCW (31%). Concerning the role of predisposing factors, the vast majority of older people with AD, assisted by a MCW, were women, whereas more primary family caregivers were children. Furthermore, around two thirds of family caregivers employing a MCW had a higher educational level (high and very high) and social class (middle-upper and upper), whereas these conditions occurred in only one third of families without a paid care worker. Concerning need factors, those patients assisted by a MCW, compared to those without a paid assistant, had greater functional impairment in both ADLs (average scores: 2.1

vs 1.2) and IADLs (40.6 vs 32.7). Enabling factors such as the amount of informal care provided to AD patients by the primary family caregiver differed significantly between those who employed a MCW (34.1 hr per week on average) and those who did not (57.3 hr). A similar difference was found in family networks (i.e., primary and other family caregivers) between those who hired, and those who did not hire, a care assistant (55 vs 76.2 hr), revealing a strong association between these variables (Table 2).

Predisposing, Enabling, and Need Factors Associated With MCW Employment

Table 2 shows the results of a multilevel logistic regression of factors associated with employing a MCW and the

Table 2. Multilevel Logistic Regression for Estimate of Factors Associated With the Employment of a Migrant Care Worker (*n* = 438 Dyads)

	OR	95% CI		*p* Value
Predisposing characteristics				
AD Patient demographic factors				
Gender (female vs male)	1.18	0.58	2.40	.65
Age (1-year increase)	1.01	0.95	1.08	.64
Family caregiver demographic and social factors				
Gender (female vs male)	1.71	0.95	3.09	.08
Age (1-year increase)	1.03	0.99	1.07	.15
Relation to the patient (ref: spouse/partner)				
Son/daughter	2.13	0.53	8.57	.29
Other relative	2.15	0.56	8.26	.27
Social class (ref: high)				
Middle-upper	0.52	0.23	1.19	.12
Middle-lower	0.36	0.12	1.11	.08
Lower	0.80	0.31	2.06	.65
Not attributable	0.18	0.04	0.87	.03
Enabling characteristics				
Hours of informal care provided by primary family caregiver per week (1-hr increase)	0.98	0.97	0.99	<.001
Predisposing and enabling characteristics (social and financial dimensions)				
Interaction between education and availability of care allowance (ref: low/medium-low education #no care allowance)				
High/medium-high education # no care allowance	2.52	1.09	5.84	.03
Low/medium-low education # care allowance available	2.77	1.22	6.28	.01
High/medium-high education # care allowance available	6.20	2.56	14.98	<.001
Needs characteristics of the AD patient				
MMSE (1-point increase)	1.06	0.97	1.17	.21
IADL (1-point increase)	1.10	0.90	1.34	.37
ADL (1-point increase)	1.06	1.03	1.10	<.001
Behavioral disturbances (yes vs no)	1.03	0.55	1.93	.94
ICC	0.185			

Note. AD = Alzheimer's disease; ADL = activities of daily living; CI = confidence interval; IADL = instrumental activities of daily living; ICC = intraclass correlation; MMSE = Mini-Mental State Examination; OR = odds ratio.

interaction between education and the availability of a care allowance. In terms of AD patients' needs, the analysis confirmed that higher ADL dependency was associated with a slight increased probability of hiring a MCW. Other patient characteristics such as cognitive and IADL impairment, as well as the presence of behavioral disturbances, were not associated.

Regarding predisposing characteristics, many factors were found not to have an altered probability associated with hiring a MCW. This applied to both the patient's and primary family caregiver's gender and age, as well as to their relationship and family caregiver's social class. Among enabling factors, hours of informal care provided by the primary family caregiver had a marginal lower likelihood (odds ratio [OR] = 0.98; 95% confidence interval [CI] 0.97–0.99; *p* value < .001).

Furthermore, an interaction analysis between educational status and the receipt of a care allowance, on the likelihood of hiring a MCW, showed that primary family caregivers with higher educational achievement and no care allowance had a similar probability (OR = 2.52; 95% CI 1.09–5.84; *p* value = .03) of employing a MCW as primary family caregivers with lower educational attainment who had a care allowance (OR = 2.77; 95% CI 1.22–6.28; *p* value = .01). The likelihood of hiring a private care worker dramatically increased when the primary family caregiver had both a higher level of formal education and his/her older relative benefited from a care allowance (OR = 6.20; 95% CI 2.56–14.98; *p* value < .001).

The calculation of the ICC index (.185) revealed a relatively important influence of the context of residence (i.e., the five health districts where dyads were enrolled) on the outcomes.

Predisposing, Enabling, and Need Factors Associated With Informal Care Provided

A multilevel regression analysis of factors associated with the amount of informal care provided by both primary family caregivers and all family caregivers is shown in

Table 3. Predisposing characteristics found to be associated with the likelihood of the primary family caregiver to spend more hours on informal care include the patient's gender (older women received more care) and age. Fewer hours were delivered if the primary family caregiver was a child or another relative. Female primary family caregivers dedicated the highest amount of assistance. Among socioeconomic factors, neither the educational level nor the social class of family caregivers was associated with the amount of care delivered.

Concerning AD patients' needs, considering both primary and all family caregivers, increased functional impairment (ADL score) was associated with more care, whereas lower cognitive impairment (MMSE score) was associated with fewer hours of care. The amount of assistance and behavioral disturbances were not associated.

In the domain of enabling characteristics, the availability of a care allowance, as a predictor of informal care provided by family caregivers, could not be ascertained. Instead, employing a MCW substantially influenced the level of assistance provided by the family, decreasing the amount of care provided both by primary family caregivers (−27.3 hr per week on average) and by all family caregivers (−47.2 hr).

The ICC value (.087) showed a significant effect of contextual factors on the associations in both cases of primary and all family caregivers, although smaller than that influencing the probability of hiring a MCW.

Discussion

In support of our preliminary research hypothesis, the results clearly demonstrated that, in addition to the functional profile of the older person with AD (need factor), the level of educational attainment (predisposing factor), the availability of a care allowance (enabling factor), and

Table 3. Multilevel Regression for Estimate of Factors Associated With the Amount of Informal Care Provided by Primary and Other Family Caregivers (*n* = 438 Dyads)

	Hours of care provided weekly by primary family caregiver			All hours of care provided weekly by primary and other family caregivers		
	Coeff	95% CI		*p* Value	Coeff	95% CI		*p* Value
Predisposing characteristics								
AD patient demographic factors								
Gender (female vs male)	15.6	5.6	25.5	<.001	12.0	−0.4	24.4	.06
Age (1-year increase)	1.5	0.6	2.3	<.001	1.4	0.3	2.5	.01
Family caregiver demographic and social factors								
Gender (female vs male)	9.1	0.6	17.6	.04	4.9	−5.7	15.6	.36
Age (1-year increase)	0.1	−0.5	0.7	.79	−0.3	−1.0	0.4	.41
Relation to the patient (ref: spouse/partner)								
Son/daughter	−36.2	−54.5	−17.9	<0.001	−28.0	−50.9	−5.1	.02
Other relative	−36.9	−54.8	−19.0	<0.001	−31.6	−54.0	−9.1	.01
Education level (ref: no title/low)								
Intermediate	−3.3	−15.8	9.2	.61	−11.8	−27.5	3.8	.14
High	−10.4	−23.7	3.0	.13	−16.1	−32.8	0.6	.06
Very high	−5.0	−23.4	13.3	.59	−17.4	−40.4	5.6	.14
Social class (ref: high)								
Middle-upper	−9.6	−21.9	2.7	.13	−9.5	−24.8	5.9	.23
Middle-lower	3.5	−11.6	18.5	.65	7.2	−11.6	26.1	.45
Lower	0.7	−13.3	14.7	.92	1.1	−16.4	18.7	.90
Not attributable	1.1	−17.4	19.5	.91	−7.2	−30.3	15.9	.54
Enabling characteristics								
Care allowance (yes vs no)	5.7	−3.2	14.5	0.21	6.4	−4.6	17.4	.26
Migrant care worker (yes vs no)	−27.3	−36.5	−18.0	<0.001	−31.7	−43.2	−20.1	<.001
Needs characteristics of the AD patient								
MMSE (1-point increase)	−2.2	−3.5	−0.9	<0.001	−2.5	−4.1	−0.9	<.001
IADL (1-point increase)	−1.1	−4.0	1.8	0.45	−0.3	−4.0	3.3	.86
ADL (1-point increase)	0.8	0.4	1.2	<0.001	1.1	0.6	1.6	<.001
Behavioral disturbances (yes vs no)	2.0	−6.8	10.7	0.66	6.3	−4.7	17.4	.26
Constant	−68.5	−141.5	4.5	0.07	−15.6	−107.2	76.0	.74
ICC	0.087				0.10			

Note. AD = Alzheimer's disease; ADL = activities of daily living; CI = confidence interval; IADL = instrumental activities of daily living; ICC = intraclass correlation; MMSE = Mini-Mental State Examination.

their interaction were strong socioeconomic predictors of hiring a paid care assistant. Furthermore, we found a second substantial association, which is inversely proportional, between employing a MCW and the number of hours provided by family networks, considering both primary and all family caregivers. These results have specific explanations. On the one hand, it appeared that families delegated the responsibility of care to MCWs as a result of having a higher educational level—that is, more awareness to understand the care needs of their older relative and find an appropriate solution—and the additional financial resources to organize care, also thanks to the availability of the IA. On the other hand, those families without the benefit of the care allowance and lower educational attainment often did not hire a paid care assistant, probably due to the increased, nonaffordable expense, and had to provide the required care by themselves, with increased time dedicated to assistance and related burden. In this respect, it has to be considered also that a lower educational attainment may have been a barrier to request and obtain the IA, considering the complex bureaucratic process that family caregivers have to initiate to allow the patient to receive the benefit.

These issues have several implications for the Italian LTC system. In fact, the latter seems to be seriously affected by two types of socioeconomic inequalities. The first type concerns access to the private care market and to the employment of MCWs. Family caregivers with lower SES are not likely to hire a care assistant, which can be considered as the main, preferred LTC service available in Italy, given the widespread lack of both home- and community-based services and institutional care. Assuming that people with a higher educational level also have a higher SES and a higher income, this fact clearly leads to increased socioeconomic inequalities in acquiring care services, including LTC (Adler & Newman, 2002; Valtorta & Hanratty, 2013), with effects on the well-being of older people (Pinquart & Sörensen, 2000) and their family caregivers (Chiatti, Rimland, et al., 2015). Given the current retrenching of the public welfare system, due to the ongoing economic crisis, and the parallel increase of the private market (Shutes & Chiatti, 2012), it seems evident that families with a low SES face increasing caregiving burden, because they have less resources to purchase private support. The second inequality regards the possibility of family caregivers with lower SES to obtain the IA for their older relatives in need. Although it is a universal measure guaranteed to all care recipients who are fully dependent, family caregivers in poorer conditions (especially older spouses) might be less likely to undertake the process of requesting this care allowance, with negative consequences (e.g., psychological and financial burden) for their personal commitment to caregiving activities.

Previous research was carried out in Italy on family caregivers and MCWs regarding the personal sphere, care organization, and migration patterns (Da Roit, 2007; Näre, 2013), but scant evidence was available on the role of family socioeconomic factors (Saraceno, 2010). Our study adds

clear evidence for the existence of socioeconomic inequalities in accessing the private care market by older people and undoubtedly constitutes a crucial problem of the Italian LTC system, with potentially negative consequences for the quality of care provided. Thus, policy makers should reflect on how best to address these issues.

The role of care allowances should be carefully reconsidered, especially in terms of how they are assigned and are spent. It should be considered that two thirds of MCWs are estimated to be hired without a regular contract (Pasquinelli, 2013), and their employment is partly dependent on the availability of the IA. A better regulation of the care allowance system should be instituted in order to identify which families are most in need, helping to offset socioeconomic inequality, and to regulate the private care market. In addition, a recent paper showed empirically that, when MCWs are not hired, the amount of private expenditure to care for the older person is less than the value of the IA, suggesting that families use the IA to complement household income (Chiatti, Furneri, et al., 2015). One option is to restrict the use of the IA only to buy care services, including hiring care assistants at home. This solution would increase the focus of public financing of LTC and reduce the contractual irregularity of MCWs. This has already been implemented in some countries (France, Germany, the Netherlands, and Sweden) where contracts of private assistants are covered by strict administrative oversight of payment, accompanied by fiscal and social security enticements (Pavolini & Ranci, 2008). In parallel, there should be promotion and support by local offices of the National Institute for Social Protection (INPS)—the Italian agency in charge of the administrative process of granting the care allowance—as well as by general practitioners, in order to facilitate the initiation and completion of the process to request the IA by older people and their families. A continuous promotional campaign would also disseminate awareness and use of the IA among people with lower education, who are less familiar with accessing public benefits.

The impact of the present work is relevant not only for Italy but also for other countries that are currently confronting the regulation of an increasing number of MCWs and that are trying, or planning, to limit the provision of formal services by offering cash benefits to users, increasing the flexibility of the care offer, and struggling with issues of socioeconomic inequalities of access to LTC services (Da Roit & Le Bihan, 2010; Kvist, 2012). This paper showed that the availability of a care allowance was independently associated with an increased use of privately purchased care from MCWs in the context of a highly unregulated migration system and inadequate availability of public care services. In such contexts, cash-for-care measures can be indeed considered as the main driver for the development of the parallel market of LTC services, with consequent limitation of guarantees for the quality of care provided and the rights of users and MCWs. The revision of eligibility criteria and the introduction of a gradation of the

care allowance, based on LTC needs, through needs assessment and an evaluation of the requester's personal finances, might be an appropriate solution in order to guarantee wider coverage of the benefit (not restricted anymore only to fully dependent people) to those with lower functional limitations and in a weaker financial position. This is actually how the care allowance ("Allocation personnalisée à l'autonomie," [APA]) works in France. This sort of "selective universalism" could be an example for countries debating their own cash measures to support dependent people, where currently they do not use means testing, in addition to addressing the issue of privately employed MCWs, which is an important phenomenon. Austria and Germany, for instance, share with Italy a limited ability to cover high care needs, an explicit reliance on the contribution of family caregivers and an implicit reliance on an unregulated and low-quality care market (Da Roit & Le Bihan, 2010). Other countries with similar unmanaged migration systems and LTC sectors, based mainly on informal care, are present principally in Southern and Eastern European countries, such as Spain and Poland (Rodrigues, Huber, & Lamura, 2012). In all these cases, the policy goal should be to resolve the issue of socioeconomic inequalities in order to obtain care allowances and LTC services, by carrying out adequate reforms based on their LTC and migration models.

This study has some limitations, which must be considered. First, because this is a cross-sectional survey, we can only assess associations between variables, rather than causality, which had to be inferred. Second, even if we had included what were thought to be the most important variables in the models, residual external variables may have still influenced the results. Third, the measures we selected did not allow us to properly evaluate family income, which could have been another significant variable in the model. In fact, previous experiences in the study area prevented us from using face-to-face questionnaires in order to assess personal income. There are several factors that affect the reliability of such data, for example, hindrances, mistrust, and even lack of clarity about the financial condition of the AD patients themselves. Finally, social class categorization was performed according to a standardized stratification scale validated in Italy (De Lillo & Schizzerotto, 1985), which was found not to be useful to account for the employment of MCWs. This can be explained by the fact that the social class variable refers only to the primary family caregiver, while we could not use the so-called "family social class"—for instance by applying Erikson's dominance criteria, that is, selecting the highest individual social class between two spouses/partners (Erikson, 1984). This may reduce the explanatory effect of this variable, as many primary family caregivers in Italy are housewives who are classified in the same social class, even if their husbands/partners have heterogeneous occupations.

However, a major strength of this work is the large sample size and the representativeness of the investigated population, that is, patients with moderate AD, and their family caregivers, in the Marche Region (Chiatti, Rimland, et al., 2015), which is among the regions in Italy with the highest percentage of people 65 years and older. In addition, the questionnaire used in the Up-Tech study was based on several validated instruments and the research nurses, who acted as assessors, received extensive training, and were constantly monitored by an expert research nurse coordinator, which helped to ensure the reliability of the data collected.

and provided literature for background and discussion. F. Lattanzio was in charge of main supervision of data collection and provided critical comments on the manuscript.

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