Care for the Elderly in Slovenia: A Combination of Informal and Formal Care

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Most care provided to the elderly living at home comes from informal caregivers: family members, friends and neighbours. With the development of community services such as community healthcare, personal lifeline systems for the elderly or the panic button, home care and similar, informal care is enhanced by formal community forms of care. The data from the SHARE (Survey of Health, Ageing and Retirement in Europe) survey was used to estimate the number of people (over 65 years old) who receive an individual type of care (no care, only informal care, only formal care, a combination of the two), as well as the number of people who need care, but fail to receive it. The multinomial logistic regression method was also used to evaluate the factors that influence the type of care. Similar to other European countries, the need and the availability of informal caregivers have the strongest influence on the type of care, whereas the distribution of types of care mostly resembles Mediterranean countries.

Key words: elderly, care models, informal care, formal care, mixed care, SHARE, Andersen's behavioural model.

INTRODUCTION

The aging population, the changes in the sizes and forms of families (Rener et al., 2006) and the fact that most dependent older people are cared for by their closest family members (Allen et al., 1999; Hvalič Touzery, 2009), has introduced complex questions as regards the provision of care for the older people in the new social policies and research. Due to the increasing retirement age, the decline in the average

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number of children and the increase of single people and reorganised families, the pool of potential informal caregivers for dependent family members is becoming increasingly smaller. In addition to this, formal care and its financing is under question due to the expected increase in the number of people who will need care in the future. In America unpaid care of the dependent older people, which is most commonly carried out by family members, friends and neighbours, and the influence that the available formal care has on it, has been a subject of research already since the 1970s (e.g. Greene, 1983; Cantor, 1989; Litwak, 1985; Messeri et al., 1993), while in Europe this has been studied more intensively only over the last fifteen years (e.g. Litwin and Attias-Donfut, 2009; Suanet et al., 2012). Numerous researches have indicated that it is unlikely for formal care - whether institutional or community - to push out or substitute the informal care of dependent older people (Greene, 1983; Tennstedt et al., 1993; Pezzin et al., 1996; Liu et al., 2000; Bookwala et al., 2004; Armi et al., 2008; Hlebec et al., 2014; Hlebec 2014). Regardless of the previously mentioned changes in family structures, it seems that informal care is a sustainable source of care for the older people. This is partially due to the fact that the actual care is performed by a small number of informal caregivers, most commonly the partner and the female child (Stoller and Earl, 1983; Wenger, 1994; Allen et al., 1999; Blomgren et al., 2008; Hvalič Touzery, 2009). Until now we did not have representative survey data that would enable us to estimate the number of people who need and receive various forms of care in Slovenia. The SHARE survey which was carried out on the 50+ population enables us to ascertain their needs and the forms of informal and formal care they receive. We plan to use the data from the SHARE survey to estimate the number of people in need of care, the number of people receiving some sort of care (only informal, only formal or both), and the number of people who need care but do not receive it. These estimates are important for the future development and planning of the care for the older people. We also intend to establish which factors influence whether an individual receives certain forms of care and who is in need of care but does not receive it.

The goals of studies focused on relations between informal and formal care are to understand how the older people and their family members organise their lives and care once the older people can no longer live on their own, what sort of consequences does the introduction of formal services have on informal care and which factors influence how the care is organised (e.g. values, characteristics of older people and their families, characteristics of the community and the welfare system in which they live). There are five main theoretical models of care for the older people: *hierarchical compensatory model*, (e.g. Cantor, 1989), *substitution model*, (e.g. Green, 1983), *task specific model*, (e.g. Litwak, 1985), *supplementation model* and *complementarity model*. According to the hierarchical compensatory model (Cantor, 1989) the older people wish to receive care from their family members as a first preference. The model assumes a permanent sequence of caregivers, starting with the partner, who is substituted by the child when the partner can no longer assume the role of the caregiver or when the partner is non-existent. If there are no children the desired caregivers are friends followed by neighbours and, only if the older people do not have an informal network to speak of, do they wish to receive care from formal caregivers. Formal care thus compensates

for the non-existence of an informal care network.

The substitution model (Greene, 1983) postulates that the informal caregivers will stop providing care if formal care is made available. The longitudinal research design has shown that formal care cannot and does not substitute informal care. A radical reduction or complete termination of informal care appears only in a very small percentage of the population (Tennstedt et al., 1993; Pezzin et al., 1996; Liu et al., 2000; Penning, 2002; Li, 2005; Bookwala et al., 2004, Armi et al., 2008). The task specific model (Litwak, 1985; Messeri et al., 1993) assumes that an individual task will be performed by a person who is specialised or trained for this task. The expectations and the actual division of tasks within the informal network have been researched, however less is known about the rigorous division of tasks between informal and formal caregivers. Formal care is often performed for (at least some) activities that are also performed by informal caregivers (Chappell and Blanford, 1991; Denton, 1997; Noelker and Bass, 1989; Jacobs et al., 2014), which holds especially true for social home care (Hlebec et. al., 2014; Hlebec 2014).

The supplementation model assumes that dependent older people who live at home wish to receive informal care, i.e. that informal care is preferential. In this model formal care supplements informal care, especially when the need for care is so great that it surpasses the capabilities of informal caregivers. Edelman and Huges (1990) used longitudinal research to verify the course of events that occur with informal care once care at home and the delivery of a warm meal are introduced. Their main ascertainment was that formal care supplements informal care and that informal care remains stable through time. Stoler and Pugliesi (1991) in similar design discovered that the size of the network remained the same, however the scope and complexity of the care activities changed with the increased demands for care. The complementarity model (Chappel and Blanford, 1991; Denton, 1997) combines the hierarchical compensatory model and the supplementation model. The basic hypothesis is that dependent older people want informal care, first from their partner and if he or she is not there, then from their children. Formal care is activated in two cases (1) if key components are missing from the informal network (no partner and/or no children) and (2) if the informal care network exists, but the need for care exceeds the capabilities of the informal care network. Motel-Klingebiel et al. (2005) compared the types of care (only informal – within or from outside the household, only formal care and combined care – both forms of cares simultaneously) in five countries. The main conclusion was that family care does not depend on the welfare system (thus a more generous welfare system does not exclude the family from providing care). The second important conclusion was that the share of people who receive care (any type of care) is high in all countries, but is highest in countries with a generous welfare system (Norway and Israel), and lowest in the country with the strongest family orientation. They concluded that public formal services 'encourage' family care. Their third important conclusion was that formal care, on its own or in combination with informal family care, was the most strongly present in generous welfare systems such as Norway and Israel and to a smaller extent also in the UK. They concluded that care for the older people is a joint responsibility of the individual, his or her family and the state.

In a similar way Litwin and Attias-Donfut (2009) compared the typology of care in France and Israel. Similar factors predicted

the division of respondents into different care types in both countries. The authors concluded that complementarity is the most common connection between informal and formal care, i.e. informal care is preferential and formal care is included either when there are no informal caregivers, or when the needs for care surpass the capabilities of the informal caregivers. Combined care is linked to the great need for care which is indicated by the supplementary role of formal care in the complementary model. They also ascertained that partners who looked after dependent partners received less additional formal care than other caregivers.

In the extensive comparative research that used data from the SHARE survey (second wave 2006-2007) Suanet et al. (2012) tried to establish the influence various factors have on the different care types (no care, informal care within and outside the household, formal home care, combined care). Their main conclusion was that it is not only personal characteristics but also social factors that have an important explanatory power, for they have a stronger influence on receiving formal care (whether only formal care or combined care) than they have on receiving informal care. Authors explain the more common use of exclusive informal care in Mediterranean countries, the Czech Republic and Germany with the cultural family orientated context (legal obligation of children) and the poor availability and limited access to public formal home care. In the Netherlands and Denmark, the availability of public formal services is very good and the cultural context is in favour of using formal services, which is why there is a higher share of older people who use formal care exclusively. The lower share of exclusive use of formal care in Sweden was ascribed to the general good health of the older people.

Compared to Western European countries little is known about the care for the older people and the relation between formal and informal care in Central and Eastern European countries (Suanet et al., 2012). To a certain degree this is a consequence of the later introduction of formal care in Central and Eastern Europe, however, partially this is also due to the lack of comparable studies. Our case study on Slovenia brings insights into relation between formal and informal care in a typical Central Eastern European country. Slovenia is a small, 20,000 square kilometers with roughly 2 million inhabitants. As in other European countries, population ageing is the most prominent feature of its demographic development. Demographic development has been linked to transformation of Slovenian welfare system, which has been thoroughly changed in the last 20 years. New forms of care for older people living in own homes such as home care services were introduced and promoted. The most developed of all formal forms of care in Slovenia is institutional care of the older people with its long tradition. After 1991 institutional care was supplemented by a series of new services, which focused predominantly on the development of services in the home of the person in need of care (e.g. Smolej et al. 2008). In addition to community health care, which is, similarly to institutional care, traditionally present in Slovenia, social home care is also available within the community. There is also an array of possibilities for the relatives – family caregivers of dependent older people, e.g. they can take sick-leave for their period of care, or become a family aid or a personal assistant. Apart from the aforementioned services for the older people and their family members Slovenia also has a long tradition in personal lifeline systems or panic buttons for the older people, which

is a service that offers care from a distance. Together with marital partners, children are also legally obliged to provide economic support for their financially dependent parents. According to the estimate found in Nagode et al. (2014), 16,199 people over the age of 65 received different forms of formal community care in their homes in 2011, which is 4.7% of the entire over 65 population. In 2011 institutional care was provided for 5% of this population over the age of 65 (21,093 people). Financial aid was given to 18,334 people of the over 65s. This information indicates a slow growth of formal home care forms, but fails to reveal anything as regards informal care or the combination of informal and formal care. Regardless of these developments, Slovenia still lacks long term care legislation and the main characteristic of care provision is fragmentation of services and providers which limits the access to formal care.

According to EQLS (European Quality of Life Survey, 2007 in Šadl and Hlebec, 2011), 10% of all adults in Slovenia provided care for a dependent older people person every day or several times a week (Šadl and Hlebec, 2011), while an additional 10% provided care on a less regular basis. The study of individuals who use social home care and various combinations of formal and informal care (Hlebec et al., 2014; Hlebec, 2014) showed that exclusive formal care in the form of social home care is rare, and usually appears when there is no existing informal care network, while most common are the various combined forms of care – simultaneous care by family members and formal caregivers.

Taking into account the previously mentioned studies, the history of the development of formal home care services, and the specific welfare context in Slovenia we expect and predict that exclusive formal care and combined care will be drastically less frequent than exclusive informal care and that the forms of care will be most influenced by the need and availability of informal caregivers.

METHODOLOGY

The data was taken from the fifth wave of the SHARE survey (in which Slovenia has participated since the fourth wave in 2011[1]). The SHARE (Survey of Health, Ageing and Retirement in Europe) survey is an interdisciplinary and international panel base of micro-data on health, socio-economic position, family and social networks of over 86,000 inhabitants of 19 European countries and Israel. The respondents were individuals over 50 years old. In the fourth wave in Slovenia (undertaken in year 2011) 200 sample units, with 21 respondents in each, were selected using the SURS methodology. In the random sample for the fifth wave in Slovenia (undertaken in 2013), 5,700 responses were selected, out of which 2,829 responses were included in the research results (total response rate of 49.63%). The sampling data for every wave is used to calculate the sample and calibrated weights, which means that the data for the missing answers and other sampling biases can also be used. The weighting procedures are intended to correct for the missing answers and other sampling biases (non-response, self-selection). If such problems occur, no reliable conclusions can be drawn from the observed survey data, unless something has been done to correct for the lack of representativity. In this manner we use calibrated weights, which are calcula-

[1] Two authors of the article, Srakar and Majcen, are part of the Slovenian SHARE team. Authors have access to micro data as other useres of SHARE data.

ted following the methodology of Deville and Särndal (1992), to estimate the final, weighted number of people in the population receiving particular type of care.

In the formation of dependent (form of care) and independent variables (determinants in the forms of care) our work was based on the international studies of care models (Noelker and Bass, 1989; Chappell and Blanford, 1991; Denton, 1997; Tennstedt et al., 1993; Pezzin et al., 1996; Liu et al., 2000; Penning, 2002; Bookwala et al., 2004; Armi et al., 2008; Suanet et al. , 2012; Jacobs et al., 2014) and Andersen's behavioural model (Aday and Andersen, 1974; Andersen et al., 1983; Andersen, 1995; Andersen and Newman, 2005). The Andersen model is frequently used in studies on care models (e.g. Bookwala et al., 2004; Suanet et al., 2012). The variables that we will use in our paper are[2]:

***Predisposing factors**:*

age – age group of respondents, calculated on the basis of the age variable (the difference between the month and year of the interview and the month and year of birth). The following four age groups will be used in the article: a) between 65 and 69 years old; b) between 70 and 74 years old; c) between 75 and 79 years old; and d) 80 years old or older;

gender – gender of the respondent (0 – man, 1 – woman);

education – the highest level of the respondent's education (primary or less; secondary; tertiary or higher);

***Enabling variables**:*

livingalone – a variable that measures the size of the household (between 1 and 10 members). Respondents who live alone in a household were given the value 1, while all the rest who had replied to this question were given the value 0;

haschild – this variable was given value 1 if the respondent has at least one child, which he/she indicated in his/her answers in the section »children«, and value 0 otherwise;

childdistance – this variable was given value 1 if the respondent's closest living child lives outside of the building or the respondent does not have any children, and value 0 if the closest living child of the respondent lives in the same household or building;

logincome – in accordance to the U.S. Census Bureau and the Bureau of Labor Statistics methodology (see Pew Social and Demographic Trends, 2012) the income was calculated on the basis of the income for the entire household and weighted with the square root of the number of members in the household, finally taking the logarithm of the value of income raised by 1 (to avoid the missing values due to zero income);

settlement – this variable defines whether the respondent lives in an urban (answers: capital; a suburb of a large town; a large town; a small town) or rural (answers: farming area or village) environment;

***Need**:*

ADL (Katz et al., 1963) – number of limitations in performing activities of daily living: 1. Dressing, including putting on shoes and socks; 2. Walking around the room; 3. Bathing or showering; 4. Eating, cutting food; 5. Getting in and out of bed; 6. Using the toilet, including standing up and sitting down. The analysis employs two types of this variable: a) *ADLlimitations*, which has the value 0 when the respondent has no ADL limitations, value 1 when the

[2] All basic statistics for the variables are presented in the following section.

respondent has one ADL limitation, and value 2 when the respondent has 2 or more ADL limitations; b) the dichotomous variant of the variable *ADLdihot* which carries the value 0 when the respondent has none or one ADL limitation and value 1 when the respondent has two or more ADL limitations;

IADL (Lawton et al., 1969) – number of limitations in performing instrumental activities of daily living, in which the following limitations are included: 8. Preparing a warm meal; 9. Buying groceries; 10. Making telephone calls; 11. Taking medicines; 12. Working in the home or in the garden; 13. Dealing with financial matters such as paying bills or keeping track of expenditures. The analysis employs two types of this variable: a) *IADLlimitations*, which has the value 0 when the respondent has no IADL limitations, value 1 when the respondent has one IADL limitation, and value 2 when the respondent has 2 or more IADL limitations; b) the dichotomous variant of the variable *IADLdihot*, which carries the value 0 when the respondent has none or one IADL limitation and value 1 when the respondent has two or more IADL limitations;

illnesses – number of illnesses that the respondent has or had in the past. The variable encompasses the following illnesses: A heart attack including myocardial infarction or coronary thrombosis or any other heart problem including congestive heart failure; High blood pressure or hypertension; High blood cholesterol; A stroke or cerebral vascular disease; Diabetes or high blood sugar; Chronic lung disease such as chronic bronchitis or emphysema; Cancer or malignant tumour, including leukaemia or lymphoma, but excluding minor skin cancers; Stomach or duodenal ulcer, peptic ulcer; Parkinson disease; Cataracts; Hip fracture; Other fractures; Alzheimer's disease, dementia, organic brain syndrome, senility or any other serious memory impairment; Other affective or emotional disorders, including anxiety, nervous or psychiatric problems; Rheumatoid Arthritis; Osteoarthritis, or other rheumatism; Other conditions, not yet mentioned.

functlimit – number of functional limitations that the respondent experiences. These include the following limitations: 1. Walking 100 meters; 2. Sitting for approximately two hours; 3. Standing up from a chair after sitting down for a longer period; 4. Climbing the stairs, multiple floors, without resting; 5. Climbing the stairs, one floor, without resting; 6. Bending, kneeling or squatting; 7. Lifting or stretching arms above the shoulders; 8. Moving large objects, such as the armchair in the living room; 9. Lifting or carrying objects heavier than 5 kilograms, such as a heavy bag of groceries; 10. Picking up a small coin from the table;

memory – number of words that the respondent can remember after he has read ten unrelated words;

need – this variable measures the need for care and has a value of 1 when the respondent has at least one of the ADL or IADL limitations higher or equal to 2, otherwise it is given the value 0;

uneed – this variable measures the unmet needs for care and is given the value 1 when the respondent's value for the variable need is 1 and he or she does not receive any informal care within or outside the household nor any form of formal care;

***Types of care**:*

formcarecomplete – is a shared category variable, which denotes the various types of care that the respondent is receiving. We measure formal care as responses given from respondents to the question from SHARE questionnaire: We already talked

about the difficulties you may have with various activities because of a health problem. Please look at Card {SHOWCARD_ID}. During the last twelve months, did you receive in your own home any professional or paid services listed on this card due to a physical, mental, emotional or memory problem? help with personal care (e.g. getting in and out of bed, dressing, bathing and showering); help with domestic tasks (e.g. cleaning, ironing, cooking); meals-on-wheels (i.e. ready-made meals provided by a municipality or a private provider); help with other activities (e.g. filling a drug dispenser). We measure informal care outside household as answers to the question from SHARE questionnaire, asking the following: "Thinking about the last twelve months has any family member from outside the household, any friend or neighbour given you [or/or/or/or] [your/your/your/your] [husband/wife/partner/partner] personal care or practical household help?". In the similar manner, me measure informal care within household as answers to the question from SHARE questionnaire, asking the following: "And is there someone living in this household who has helped you regularly during the last twelve months with personal care, such as washing, getting out of bed, or dressing?" Value 0 of the variable *formcarecomplete*, therefore, indicates that the respondent does not receive any form of care, value 1 that he/she is receiving only informal care from within the household, value 2 that he/she is receiving only informal care from outside of the household, value 3 that he/she is receiving two forms of informal care, but no formal care, value 4 that he/she is receiving only formal care, value 5, that he/she is receiving formal care and informal care from within the household, value 6 that he/she is receiving formal care and informal care from outside of the household, and value 7 that he/she is receiving all of the mentioned types of care at the same time;

Typeofcare – is a shared category variable derived from the previous variable that denotes the various types of care that the respondent is receiving. Value 0 indicates that the respondent does not receive informal (within or outside the household) nor formal care, value 1 indicates that the respondent is receiving informal care (within or outside the household) but no formal care, value 2 denotes that the respondent is receiving formal care but no informal care, while value 3 denotes that the respondent is receiving both types of care; this is a dependent variable in regression model.

Method of analysis:

The factors that influence the type of care were determined with the use of the multinomial logistic regression analysis. Multinomial logistic regression is used to model nominal outcome variables, in which the probabilities of the outcomes (separated in categories and compared to the predetermined reference category) are modelled as a linear combination of the predictor variables (see e.g. Menard, 2002; Greene, 2012). The following equation was used:

$$\log \frac{Pr(typeofcare = j)}{Pr(typeofcare = 0)} = \alpha_j + \beta_{1,j} age_{1,i} + \beta_{2,j} age_{2,i} + \beta_{3,j} age_{3,i} + \beta_{4,j} gender_i + \beta_{5,j} educ_{1,i} + \beta_{6,j} educ_{2,i} + \beta_{7,j} livealone_i + \beta_{8,j} childdistance_i + \beta_{9,j} logincome_i + \beta_{10,j} settlement_i + \beta_{11,j} ADLlimitations_{1,i} + \beta_{12,j} ADLlimitations_{2,i} + \beta_{13,j} IADLlimitations_{1,i} + \beta_{14,j} IADLlimitations_{2,i} + \beta_{15,j} illnesses_i + \beta_{16,j} functlimit_i + \beta_{17,j} memory_i + \varepsilon_{i,j} \quad (1)$$

$$j = 1,2,3$$

where dependent and independent variables have already been explained, while i denotes the index of the individual observation unit, α denotes the constant, and ε the random error. The referential category for care type is 0 or »no care«, for age the 65 to 69 age group and for ADL and IADL limitations the categories with no ADL or IADL limitations.

DESCRIPTION OF THE SAMPLE AND THE CHARACTERISTICS OF THE USED VARIABLES

The first table presents the basic descriptive data of our variables. All variables were applied to respondents aged 65 years or older, divided into four age groups: respondents between 65 and 69 years of age, respondents between 70 and 74 years of age, respondents between 75 and 79 years of age, and respondents 80 years old or older. For numerous variables the total number of included respondents is lower than the sample size (which in the event of those aged 65 years or more amounts to 1,458[3]), as the missing responses were also taken into account, for it was obvious that some respondents did not wish to answer certain questions. The missing responses were thus not taken into account in the analysis or they were removed from the analysis during the regression analysis.

The most populated age group within our sample consisting of 1,458 respondents aged 65 years or more, is the age group between 65 and 69, which consists of 421 individuals or almost 30% of all respondents. Slightly lesser populated is the fourth age group, i.e. 80 years or more, which includes 365 respondents or slightly over 25%. 363 or 24.90% of all respondents can be found in the age group between 70 and 74, while the least respondents can be found in the age group covering the 75 to 79 year olds, for this group consists of a mere 309 individuals or 21.19% of all respondents.

The sample consists of 846 women (58.02%), and 612 men (41.98%). The income variable was divided into terciles, which is why there is approximately the same number of respondents in each category. Fully Conditional Specification method (see e.g. van Buuren, 2007) was used to impute missing values.

Significantly more respondents live with somebody else in the household than alone. 1,102 (75.63%) live in a household with other members, while a mere 355 (24.37%) live alone. 1,359 (93.40%) respondents have one child or more, while 96 (6.60%) do not have children.

The sample included 739 (52.90%) respondents with the closest child living outside the building or being without children, while 658 (47.10%) respondents have the closest child within the same household or in the same building.

Most respondents (1,265 or 86.76%) did not have any ADL limitations. 81 respondents (5.56%) had one ADL limitation, while 112 (7.68%) respondents had two or more ADL limitations. The data on IADL limitations was similar, for most respondents (1,202 or 82.44%) did not have any IADL limitations. 96 (6.58%) had one IADL limitation, while 160 (10.97%) respondents had two or more IADL limitations.

[3] We eliminated 6 responses from respondents who stated that their child provides care within the household while also stating that their closest child lives outside of the household. We have thus concluded that these responses were wrong and they were excluded from further analysis. The analysis descriptive indicators have not shown any statistically significant differences between the sample before and after these responses were excluded.

A small share of all respondents were not ill at all (191 or 13.13%). 435 (29.90%) suffer or have suffered from one illness, while 829 (56.98%) have suffered or suffer from two or more illnesses. As regards functional limitations most respondents have no limitations (522 or 35.90%), 174 (11.97%) have one such limitation, while 758 (52.13%) have two or more such limitations. As regards memory 723 (51.02%) respondents could recollect less than five words, while 694 (48.98%) recollected more than five words.

As regards education the highest share of the respondents in our sample have primary or lower education (613 or 42.22%), while slightly less have secondary education (553 or 38.09%), and, as expected, the least have tertiary or higher education (286 or 19.70%). As regards the settlement in which the respondents live, most live in rural areas (724 or 52.01%), while somewhat fewer live in urban environments (668 or 47.99%).

Table 1
*Descriptive characteristics of some used variables**

Variables		Obs.	%	95% Confidence Interval
age				
	65-69	421	28.88%	0.27-0.31
	70-74	363	24.90%	0.23-0.27
	75-79	309	21.19%	0.19-0.23
	80+	365	25.03%	0.23-0.27
gender				
	men	612	41.98%	0.39-0.45
	women	846	58.02%	0.55-0.61
education				
	primary or lower	613	42.22%	0.40-0.45
	secondary	553	38.09%	0.36-0.41
	tertiary	286	19.70%	0.18-0.22
livingalone				
	No	1102	75.63%	0.73-0.78
	Yes	355	24.37%	0.22-0.27
haschild				
	No	96	6.60%	0.05-0.08
	Yes	1359	93.40%	0.92-0.95
childdistance				
	No	658	47.10%	0.44-0.50
	Yes	739	52.90%	0.50-0.56
income				
	lower	496	34.02%	0.32-0.36
	middle	511	35.05%	0.33-0.37
	upper	451	30.93%	0.29-0.33

settlement				
	rural	724	52.01%	0.49-0.55
	urban	668	47.99%	0.45-0.51
ADL				
	Zero	1265	86.76%	0.85-0.89
	One	81	5.56%	0.04-0.07
	Two or more	112	7.68%	0.06-0.09
IADL				
	Zero	1202	82.44%	0.80-0.84
	One	96	6.58%	0.05-0.08
	Two or more	160	10.97%	0.09-0.13
illnesses				
	Zero	191	13.13%	0.11-0.15
	One	435	29.90%	0.28-0.32
	Two or more	829	56.98%	0.54-0.60
functlimit				
	Zero	522	35.90%	0.33-0.38
	One	174	11.97%	0.10-0.14
	Two or more	758	52.13%	0.50-0.55
memory				
	Less than five	723	51.02%	0.48-0.54
	Five or more	694	48.98%	0.46-0.52
Observations		1458		

* We don't report on the missing values, so some variable totals do not add up to the size of the final sample.

NEED FOR CARE, TYPE OF CARE AND UNMET NEEDS

According to our calculations there are an estimated 694,381 (87.67%) Slovenians over 50 years old who do not receive any type of care. Of course, this estimate also includes all of those who do not need care and can live without care as well as those who need care but do not receive it. 56,842 (7.18%) individuals in Slovenia need care (variable *care*). In Slovenia 18,433 (2.33%) individuals need care but do not receive it (variable *uneed*) out of which 15,645 (4.60%) can be found in the age group over 65 and 12,139 (7.71%) in the age group over 75. We have ascertained that there are 18,433 potential service users who have a relatively expressed need for care but fail to receive it. Regardless of the development of the numerous new services for the older people over the last twenty years, these services fail to reach all potential users. This could be the result of one or more issues: it is possible that the services are not the right ones and that more suitable services need to be developed, it is also possible that the knowledge on the existing services is not widespread enough or that the services do not have the capacities to provide care for all who need it.

Table 2
Weighted estimates of the studied conditions on the population

Estimated number of Slovenians over 50 years of age	Total	Share in total population 50+	95% CI	age 65 or more	Share in total population 65+	95% CI	age 75 or more	Share in total population 75+	95% CI
Number of people not receiving any care	694,381	87.67%	693,805-694,956	273,370	80.31%	272,912-273,827	114,821	72.92%	114,474-115,167
Number of people, receiving only informal care within household	17,266	2.18%	17,010-17,522	10,322	3.03%	10,125-10,520	4,887	3.10%	4,752-5,022
Number of people, receiving only informal care outside household	56,834	7.18%	56,382-57,286	37,539	11.03%	37,178-37,899	24,300	15.43%	24,019-24,582
Number of people, receiving informal care within and outside household, but not also formal care	4,082	0.52%	3,957-4,208	2,756	0.81%	2,653-2,859	1,998	1.27%	1,911-2,085
Number of people not receiving any type of informal care, yet receiving formal care	6,519	0.82%	6,361-6,677	4,466	1.31%	4,335-4,597	2,768	1.76%	2,666-2,871
Number of people receiving informal care within (but not also outside) household and formal care	2,829	0.36%	2,725-2,934	2,647	0.78%	2,546-2,748	1,261	0.80%	1,192-1,331
Number of people receiving informal care outside (but not also within) household and formal care	9,026	1.14%	8,840-9,212	8,316	2.44%	8,138-8,493	6,853	4.35%	6,694-7,012

Number of people, receiving informal care within and outside household and formal care	1,087	0.14%	1,022-1,152	959	0.28%	898-1,020	565	0.36%	518-612
Total number of people receiving any type of informal care	78,182	9.87%	77,660-78,704	50,617	14.87%	50,207-51,026	31,185	19.81%	30,874-31,496
Total number of people receiving any type of formal care	6,519	0.82%	6,361-6,677	4,466	1.31%	4,334-4,597	2,768	1.76%	2,666-2,871
Total number of people receiving informal and formal care	12,942	1.63%	12,720-13,164	11,922	3.50%	11,710-12,133	8,679	5.51%	8,501-8,857

* The final table shows the results obtained with the aid of weighting using the calibrated weights method. The calibration was made using various weights from the zero version of the SHARE survey, at which the methods explained in the contribution by Deville and Särndal (1992) with two calibration variables (gender and age) were used in the calculations. The calibrated SHARE weights were used to calculate the aggregated individual variables for Slovenia. The table also shows the results of the confidence intervals for the estimated quantities. The results for three groups are shown: the entire population, individuals aged 65 or more, and those aged 75 years or more.

The number of those who receive merely informal care from another household member (and do not receive any form of formal care) is estimated at 17,266 (2.18%). Informal care within the household is most probably also provided by partners and/or children living in multigenerational households. With the increasing age we believe that the need for care is most likely on the rise, while at the same time the pool of potential caregivers is declining due to their aging or death. We estimated that 56,834 (7.18%) individuals receive only informal care from people outside the household (and do not receive formal care). With age comes a higher share of those who need care. We have estimated that 4,082 (0.52%) individuals receive informal care from a member of the household as well as from somebody outside the household. The share of the older people who receive care from informal caregivers within and outside the household confirms the hypothesis that the number of informal caregivers who provide care to the older people in need of care is considerable high and that the decline in the size of households, number of children and other demographic changes do not essentially endanger the informal care of the older people (Stoller and Earl, 1983; Wenger, 1994; Allen et al., 1999; Blomgren et al., 2008). We have estimated that 78,182 (9.87%) individuals receive some type of informal care but do not receive any type of formal care. The results of the SHARE survey thus confirm the hypothesis that most care for the older people who live at home is performed by informal caregivers. This is in accordance to other research carried out in Slovenia, e.g. the research on the charac-

teristics of the social networks of the older people and the expected care in the event of illness, which most commonly mentions family members (Pahor et al., 2011). Taking into account the relation between informal care within and outside the household we will most likely reach similar conclusions as regards informal caregivers as Hvalič Touzery (2009).

We have estimated that 6,519 (0.82%) individuals receive only formal care and no informal care. Relatively speaking the number of older people who receive only formal care should not be neglected, however compared to the number of those who receive exclusively informal care this number is very low. This shows just how important informal care is in Slovenia. We have estimated that 2,829 (0.36%) individuals receive informal care from a member within the household in combination with formal care. 9,026 (1.14%) individuals receive informal care outside the household in combination with formal care. 12,942 (1.63%) receive either type of informal care alongside formal care. This data indicates that formal care is more often received by individuals who live alone, which can mean that they have no major caregivers within their informal network (partner and/or child living in the household) or that the informal caregivers live outside of the household. In most cases these are children or the children's partners. These descriptive results indicate the supplementary role of formal care when there is an insufficient informal care network in the complementarity care model (Edelman and Huges, 1990; Stoler and Pugliesi, 1991; Chappel and Blanford, 1991; Denton, 1997). Finally, 1,087 receive all three types of care at the same time (formal and informal within and outside the household).

DETERMINANTS OF CARE TYPE

The table below shows the results of the multivariate analysis of the basic statistical relations between independent variables (age, gender, education, income, settlement, livingalone, childdistance, ADL and IADL, illnesses, functional limitations, memory) and our first performed dependent variable defining the type of care.

OR denotes the odds ratio and CI denotes the 95% confidence interval. The referential category for the dependent variable type of care is the category »without care«. The odds ratio is thus applicable to a certain type of care in relation to the category »without care«.

Compared to the category »without care« exclusive informal care is influenced by the composition of the household and the distance of the children. Individuals who live on their own and whose children do not live in the same household are more likely to receive informal care, however, they are also more likely to receive combined care. Both indicate that a shared household is not a precondition for taking care of an older person and that the caregivers can also be children and not only partners. The second possible explanation is that the respondents might be more perceptive to recognising help if this is provided by a child living outside of the household rather than a partner or child living within the same household, as the latter is more likely to be taken for granted. In accordance to theoretic expectations and other studies exclusive informal care is influenced by the need: number of ADL and IADL limitations and functional limitations; a higher number of such limitations increases the likelihood of receiving informal care when compared to the category »without care«.

Table 3
Results for the multinomial logit model, dependant variable type of care

		Type of care					
		Only informal		Only formal		Combined	
Variables		OR	95% CI	OR	95% CI	OR	95% CI
Age group (ref. cat.: 65-69)							
	70-74	1.06	0.64-1.74	0.23	0.02-2.27	1.32	0.28-6.28
	75-79	1.14	0.68-1.91	0.35	0.05-2.23	2.11	0.44-9.97
	80+	1.13	0.67-1.89	0.81	0.17-3.83	3.06	0.69-13.59
Gender (ref. cat.: men)							
	Women	1.03	0.70-1.50	1.33	0.38-4.65	0.85	0.33-2.18
Education (ref. cat.: primary or lower)							
	Secondary	0.78	0.51-1.18	0.63	0.13-3.02	1.02	0.36-2.89
	Tertiary	0.49**	0.27-0.90	1.54	0.35-6.83	1.47	0.43-5.10
Living alone (ref. cat.: doesn't live alone)							
	Lives alone	1.51**	1.02-2.24	1.30	0.37-4.61	2.90**	1.14-7.38
Child distance (ref. cat.: zero - closest child in the same household or building)							
	One	2.02***	1.40-2.91	2.62	0.72-9.50	3.20**	1.19-8.57
Income (logarithm)							
		1.06	0.87-1.30	1.24	0.64-2.40	1.73**	1.13-2.67
Settlement (ref. cat.: rural)							
	Urban	0.94	0.65-1.37	3.71*	0.98-14.01	1.44	0.56-3.66
ADL (ref. cat.: zero)							
	One	1.80*	0.99-3.27	0.00	/	1.52	0.39-5.85
	Two or more	2.59***	1.34-5.01	1.90	0.38-9.52	10.84***	3.51-33.51
IADL (ref. cat.: zero)							
	One	2.51***	1.41-4.48	8.47**	1.17-61.17	3.64**	1.12-11.88
	Two or more	3.83***	2.12-6.93	26.89***	4.19-172.69	3.99**	1.17-13.60
Illnesses							
		1.09	0.97-1.21	0.79	0.53-1.17	1.34**	1.07-1.68
Functional limitations							
		1.12***	1.03-1.21	1.06	0.82-1.37	1.25**	1.03-1.50
Memory (words recall)							
		0.97	0.89-1.07	0.74	0.51-1.08	1.08	0.88-1.34
Observations		1285					
Log Likelihood		-611.9570					
Pseudo R square (McFadden)		0.2200					

Exclusive formal care is significantly more likely in urban environments and with individuals who have limitations in their instrumental activities of daily living (IADL). Neither comes as a surprise, for in urban environments there are more formal services on offer in the public as well as in the private sector, and older people living in an urban environment are more likely to accept formal care.

The results in the fourth category (formal and any form of informal care) offer slightly greater freedom of interpretation. Dispositional factors do not influence combined care, however, the mediating factors have a significant influence. Combined care is most often received by those who live alone and those whose closest child lives far away. The older people with a small informal care network (living on their own – no partner) or with a less available care network (children do not live in the same household) are more likely to include various types of formal care into their care network. Income also has a significant impact, as the correlation shows that the wealthier are more likely to receive combined care, which could indicate that the poorer inhabitants are excluded. Of course, the need also influences the combination of informal and formal care. A higher number of ADL and IADL limitations also results in a greater likelihood of combined care. This time the following factors are statistically significant: level of illness and level of functional limitations, at which a higher level expectedly results in a greater probability of receiving such care.

Predisposing factors such as age, gender and education do not influence the various forms of care. The sole exception is the category education, in which higher education correlates with less received informal care. The Enabling factors, the availability of the informal care network (living alone, distance of children), income and type of living environment significantly influence the form of care. A weak informal care network (no partner) and greater distance of the children increase the likelihood for informal care (assumed to come from outside of the household) as well as combined care. Higher income increases the likelihood for combined care, while exclusive formal care is significantly higher in urban environments. Need is the best predictor of care. All types of care are more likely when the needs increase. An increased need for help with personal activities of daily living increases the likelihood for informal and combined care (as do functional limitations), while an increased need for help with instrumental activities of daily living increases the likelihood for all types of care; a higher number of illnesses increases the likelihood for combined care.

CONCLUSIONS AND DISCUSSION

Our findings confirm the hypothesis that we can - taking into account the specific welfare context in Slovenia and the history of the development of the formal home care services - expect less exclusively formal care and combined care and more exclusively informal care. Even if we take into account institutional care for the older people (17,386 users in 2011, Nagode et al., 2014), informal care is the most widespread form of care for the older people in Slovenia. Formal care, with no cooperation from informal caregivers whatsoever, is received by very few people. The only two factors that significantly influenced the likelihood of exclusive formal care were *need* (as represented by the IADL limitations) and *living in an urban environment*. The development of formal services in Slovenia has had a greater positive impact on the quality of life of the older people in

urban environments, which comes as no surprise as the networks of the older people in urban environments differ significantly (less family oriented) from those in rural environments (Hlebec, 2014). Moreover, the offer of services is more diverse in urban environments (compared to rural ones). With the increased availability of formal care (for instance social care throughout the day, every day in the week) it becomes possible to provide formal care for the activities of daily living that need to be performed at certain times of the day or several times a day. Regardless of the fact that in our study exclusive formal care was not significantly correlated to the poorer availability of an informal care network, we still state that exclusive formal care has a compensatory role for the older people without an informal care network. This statement is supported by foreign studies (Chappel and Blanford, 1991; Denton, 1997) as well as studies on home care users in Slovenia (Hlebec et al. 2014; Hlebec 2014).

The availability of informal caregivers (outside of the household) predicts a greater likelihood of informal care (that is performed by informal caregivers, who do not live in the same household as the one in care) or combined care, but does not necessarily lead to exclusive formal care, which is in Slovenia significantly linked merely to the living environment (urban). The fact that it is not necessary to live in the same household to be a caregiver and that the share of informal caregivers within a household represents merely 15-20% of all informal caregivers, indicates that it would make sense to change the existing legislation, which enables up to a 14-day sick leave for a caregiver, but only if he or she lives in the same household as the one he or she is looking after. This right should be extended to all caregivers regardless of whether they live in the same household or not. Income is linked to combined care, which might indicate that the wealthier have more mechanisms for ensuring care (van Groenou et al., 2006), regardless of the fact that the poor have the right to services at a cost adjusted to their financial capabilities (for instance home health care is free for the user while home social care is not, but one can ask be excused from payment).

Higher education reduces the likelihood for exclusive informal care, which holds true for care from within as well as from the outside of the household. We assume that with age the number of people in the household is on decline (for instance in the event of widowhood), which leads to the substitution of informal care from within the household by informal care from outside of the household. Gender significantly influences only the receiving of informal care from within the household as women are significantly less likely to receive such care. Of course, this comes as no surprise when we take into account that most caregivers are women and that it is more likely for women to remain on their own within a household. These findings were confirmed by other foreign and Slovenian studies (e.g. Stoller and Earl, 1983; Wenger, 1994: Allen et al., 1999; Blomgren et al., 2008; Hvalič Touzery, 2009).

The SHARE survey makes it possible to perform a high quality study of the care for the older people in Slovenia as their data for the entire older people population is representative and enables us to draw parallels with other European countries as well as USA and Canada. The type of care in Slovenia (only informal, only formal, combined) is determined by similar factors as elsewhere (Chappel and Blanford, 1991; Denton, 1997; Motel-Klingebiel et al., 2005; Van Groenou et al., 2006; Litwin and Attias-Donfut, 2009; Suanet et al., 2012) indicating that the conceptual model devel-

oped by Andersen (e.g. Andersen and Newman, 2005) can be generalized to very specific welfare settings. Higher need (more illnesses, functional limitations, more ADL and IADL limitations) predicts care when compared to the category »without care«. Amongst the Enabling factors type of care is systematically linked to the availability of informal caregivers, which indicates a compensatory role of formal care (Chappel and Blanford, 1991; Denton, 1997; Motel-Klingebiel et al., 2005; Suanet et al., 2012). If we compare Slovenia to other European countries, we discover that most similarities can be drawn with the Italians, with which we differ only in the higher share of combined care (Motel-Klingebiel et al., 2005; Van Groenou et al., 2006; Litwin and Attias-Donfut, 2009; Suanet et al., 2012).

Even though we have provided plenty of new realisations based on representative data, numerous topics remained untouched. Who are the informal caregivers, what sort of care do they provide, how to they divide the tasks amongst themselves and the formal caregivers? How do the employed informal caregivers cope, how do they manage to combine their work and the possible competitive care roles? All of these issues along with many others should be studied to understand the everyday life of informal caregivers and their various experiences in specific welfare settings.

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Sažetak

SKRB ZA STARIJE OSOBE U SLOVENIJI: KOMBINACIJA FORMALNE I NEFORMALNE SKRBI

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Najveći udio skrbi za starije osobe koje žive u vlastitim domovima dolazi od neformalnih pružatelja: članova obitelji, prijatelja i susjeda. Uz razvoj usluga u zajednici kao što su zdravstvena skrb u zajednici, osobni sustav osiguranja za starije osobe ili gumb za paniku, kućnu njegu i slične usluge, neformalnu skrb podupiru formalni oblici skrbi u zajednici. Koristili smo podatke iz istraživanja SHARE (Survey of Health, Ageing and Retirement in Europe - Istraživanje o zdravlju, starenju i umirovljenju u Europi) kako bismo procijenili broj osoba (starijih od 65 godina) koji primaju individualnu vrstu skrbi (nikakvu skrb, samo neformalnu skrb, samo formalnu skrb, kombinaciju oba tipa skrbi), kao i broj osoba koje trebaju skrb, ali je ne dobivaju. Isto tako, koristili smo metodu multinomijalne logističke regresije za evaluaciju čimbenika koji utječu na tip skrbi. Kao i u drugim europskim zemljama, potreba i dostupnost neformalnih pružatelja skrbi najviše utječu na ovaj tip skrbi, dok distribucija tipova skrbi najviše sliči onoj u mediteranskim zemljama.

Ključne riječi: starije osobe, modeli skrbi, neformalna skrb, formalna skrb, SHARE, Andersenov bihevioralni model.