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## **CARE ARRANGEMENTS AMONG SOCIAL HOME CARE USERS IN SLOVENIA**

With transition process in Slovenia, starting in 1991, also care for older people was considerably transformed. Policy measures and new services for older people living at home and their informal, mostly family, carers were the most essential contribution in this area. Social home care, as one of these services, is the focus of the paper. The first Slovenian representative survey of social home care users (2013) was used to assess the care arrangements among users of social home care. Multiple cluster analysis for symbolic data (no care, formal care only, informal care only, mixed care) carried out on 22 activities of daily living, discovered five groups of social home care users. Clusters were empirically aligned with availability of informal care network and need for care. Care arrangements empirically show compensatory and supplementary function of formal care in complementary model. Social home care was the most frequently selected additional source of care in assessment of future need for care across all clusters, with informal network being the second most frequently selected source.

Key words: older people; social home care; formal care.

Population ageing and changes in family structures bring about many issues among which care for older people is among the most complex ones. Who provides care to frail old people and for what costs are key questions to which policy makers and individuals, old people and their families, are trying to answer. Unpaid care for older people provided by family members, friends and neighbors and the impact of formal care on provision of informal care has been questioned since 1970 in North America and more recently in Europe. So far, we have seen evidence, that introduction of formal care, either institutional care or formal service provided at home, will not replace and diminish informal care (Greene 1983; Tenmstedt et al. 1993; Pezzin et al. 1996; Liu et al. 2000; Penning 2002; Bookwala et al. 2004; Armi et al. 2008). It seems that regardless the changes in family structure such as, smaller number of children, smaller and more often reorganized families, informal care is still and will be in the future provided by family members, owing to the fact that care is most often provided by a small number of very close family members, such as spouse and child (Stoller and

Earl 1983; Wenger 1994; Allen et al. 1999; Blomgren et al. 2008). Across Europe, more is known about Western European countries than about Central and East European countries (e.g. Suanet et al. 2012) partially owing to the fact that there is lack of comparative data and partially owing to the fact that formal care for older people is a relative new phenomenon in several CEE countries. As more CEE countries are participating in SHARE survey, we can expect a comparative view on care arrangements across all Europe in near future. There is, however, a concern, that detailed statistical analyses will not be possible in countries where the proportion of population, utilizing formal care, is very small. In such cases, to better understand which factors affect usage of informal and formal care, more detailed data are needed on specific populations, which is using formal care, or combining informal and formal care. In order to generalize findings about factors that underlie care arrangements from Western European to CEE situations, a detailed study in one of such countries is enough to substantiate the main findings. Slovenia is one of such CEE countries, where formal care in home of care recipient is a new phenomenon, available only to a small – 3% fraction of population over 65 and there is detailed information available on users of formal care. The purpose of this paper is to explore how two most important determinants of care arrangements, namely need and availability of informal care network, are interwoven with models of informal and formal care for frail old people in specific welfare setting of a CEE country. We will endorse that key individual determinants of care arrangements are independent of welfare setting. The paper adds to the current discussions in sociology of ageing regarding the family caregiving in the context of demographic transitions and changes to family structures (Chappell and Penning 2005) and, formal and informal community care arrangements (Patsios and Davey 2005) in Eastern European context. We will briefly describe the CEE ageing context in the case of Slovenia, followed by review of theoretical and empirical evidence on formal and informal care links.

Slovenia is a small, 20,000 square kilometers, Central Eastern European country with roughly 2million inhabitants (at the beginning of October 2013<sup>1</sup> 2.060.663), mostly of Slovenian ethnic affiliation (in more detail see Hlebec and Šircelj 2011). About twenty five percent of population lives in sixteen cities (more than 10,000 inhabitants), while the rest lives in nearly 6,000 small settlements. Such dispersion is a result of polycentric development strategy introduced in the late 1960, geographic characteristics and historic development (ibid). It also illustrates that majority of population lives in rural areas and explains high proportion of older people living in multigenerational households (14% according to SHARE data – as much as Hungary). As in other European

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<sup>1</sup> When not stated otherwise, data come from Statistical Office of Republic of Slovenia (SORS).

countries, population ageing is the most prominent feature of its demographic development. The main causes of population ageing are low fertility and mortality in the long run. The total fertility rate was among the lowest in EU around 2003 (1.20), since then it has increased to 1.58 in 2012 and can be attributed to postponing of childbearing to later years (the average age of mother at the time of the birth of the first child was 28.9). The number of births will probably start to decline owing to the declining number of women at reproductive age. Mortality has been decreasing since the second half of the 19<sup>th</sup> century (Šircelj, 1997) when the life expectancy at birth was estimated to 40 years. In 2011 the life expectancy at birth was 76.6 for men and 82.9 for women, slightly below EU–27. Slovenia was traditionally a country of emigration, indicated by empirical data available since the middle of 19<sup>th</sup> century. Since the second half of the 1960 net migration has mainly been positive, with exception of 1991 and 1992 (time of disintegration of former Yugoslavia). In 2000, the number of women in reproductive age started to decline; in 2003 the number of people over 65 exceeded the number of young people. In 2004 the share of the working age population (aged 15–64) stopped rising and has already started to decline. The total age dependency ratio has risen from 42.9 in 2008 to 45.2 in 2012.

Demographic development has been linked to transformation of Slovenian welfare system, which has been thoroughly changed in the last 20 years. Care for older people before the transition period was based on the public provision of institutional care and on informal care provided mostly by family members (see Kolarič et al. 2009; Nagode et al. 2004). After 1992 new forms of care for older people such as home care services were introduced and promoted with policy documents such as The programme of the development of care for older people in social protection in Slovenia (Program razvoja varstva starejših oseb na področju socialnega varstva v Sloveniji do leta 2005, MDDSZ 1997) and The strategy of care for the elderly till 2010 (MDDSZ, 2006b) which prescribed the enlargement of capacities for care at old people's homes; the granting of concessions and encouragement of public-private partnerships; upgrading of the capacity network for day care; the distribution of home help services, sheltered housing and remote help system providers. Support for family members who take care of old family members was also encouraged with possibilities to take leave of absence<sup>2</sup> for employed family member (carer), or to become a family attendant with the right to partial payment<sup>3</sup> for lost income. Family care is

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<sup>2</sup> There is wage compensation (80%) for 7 days, exceptionally for 14 days, but only for people who are living in the same household.

<sup>3</sup> The compensation is at the minimum wage level (521 EUR in 2006; 1,349 cases, 981 family attendants were family members) or to a proportional part of payment for lost income in the case of part-time work and full pension and disability insurance contributions covered.

traditionally supported also by legal obligation of family members (partner and children) to financially provide for dependent partner or parent. However, the complete Long term care legislation is still missing thus preventing integration of care for older people and leaving older people and their families to navigate between numerous services provided by health and social care sectors.

Regardless of numerous new services, the introduction of social home care is the most important change in this area. Social home care is a social assistance service which was implemented on the state level with the adoption of Social Security act (1992). Nevertheless, fragments of such service existed before that on local levels in various organizational forms. The main objective of the service is to improve the quality of life of people living at home who are unable to care for themselves due to old age or illness and whose family cannot provide them with sufficient care. An individual is eligible for up to 4 hours of care per day or a maximum of 20 hours per week. The financial burden of the service is shared between the municipality, which by law is obliged to cover at least 50% of the cost of the service, and users. Until 2011 the state reduced the price of the service by contributing to the labor costs of the service provider. The implementation of the service was evaluated several times, mostly estimating the number of users across municipalities and organizational characteristics of service implementation. The number of users steadily increased from 3.909 in 1998, 4.590, 5.595 in the first half of 2007 to 6.624 at the end of 2011 (Nagode 2012). There were and still are large differences across municipalities as regards the price for hour of service paid by users ) and about 13% of variability in relative number of users can be explained with contextual variables already on the aggregated level of municipality (Hlebec 2012). Very little is known about users of social home care and the ways they incorporate formal service with informal care network. The representative survey of users of social home care enables to take closer look at their care arrangements.

### **Links between formal and informal sources of care**

The initiatives to explain links between formal and informal care originates in 1970s. Main concerns were, and still are, to understand the cultural and societal origins of care preferences (informal vs. formal), consequences of introduction of formal care services on informal care (compensation, supplementation or substitution) and to evaluate determinants of interplay between informal and formal care arrangements (e.g. enabling, predisposing and needs factors).

The **hierarchical compensatory model** (Cantor 1979, 1989) suggests that there exists a specific preferential ordering of care provision, which is normatively defined. Majority of older people would like to receive assistance from

their spouses, followed by a child if a spouse is not available. Further on, they would turn to other family members next, then friends, neighbors and lastly to formal providers of care. The role of formal care is to compensate for informal care only in absence of complete informal network. While is well documented that for married people, spouses are majority of caregivers (Allen et al. 1999; Hvalič 2009), there is also evidence that participation in caregiver role is influenced by gender role norms that assign caring responsibilities to women (ibidem; Stoller and Earl 1983; Hanaoka and Norton 2008; Blomgren et al. 2008). Furthermore, children may act differently in caregiving role (less intense care, acting as advocates for formal services; Geerlings et al. 2005; Blomgren et al. 2008) and maybe extended family, friends and neighbours will assume strong caregiving roles more as exception than a rule (Wenger 1994). Perhaps, formal care will compensate for lack of spouse and children only (e.g. Penning 2002).

The **substitution model** (Greene 1983) suggests that informal caregivers will withdraw their support to older family members because of adoption of formal services and that formal care will substitute for informal care. The longitudinal studies, designed to test this model, give little support to the notion of substitution. The reduction in informal care is modest and has short time span; moreover, the increase in formal care is usually related to increased needs of older people and their informal carers and is accompanied with increase in informal care as well. The substitution occurs only for a small fraction of 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). Even after institutionalization, which can be seen as ultimate substitution, informal network will continue to provide support (Hopp 1999).

The **task specific model** (Litwak 1985; Messeri et al. 1993) assumes that care tasks will be carried out by provider (spouse, kin, friends, neighbours, formal organization), that is best suited for specific task. Informal caregivers would do non-technical and diffuse task such as activities of daily living. Formal organizations, on the other hand, would specialize for tasks that call for higher level of technical knowledge or require lots of time and effort. Division of labor within informal networks which is well documented (Wenger 1994; Pahor and Hlebec 2006; Pahor et al. 2011), however there is little evidence about task specific division of labor between informal and formal care. Formal care is often performed in (at least) some of the same task areas where informal care is performed (Chappell and Blanford 1991; Denton 1997; Noelker and Bass 1989; Jacobs et al. 2014), nevertheless we can still expect, that for some tasks of activities of daily living, informal care is predominant, while for other tasks, formal care is the most frequent.

The **supplementary model** of care proposes that informal care is the major source of care for frail older people living in community by preference. The role

of formal care is to add to care provided by informal carers, especially when the needs of older person exceed the resources of the informal network (Edelman and Huges 1990; Stoler and Pugliesi 1991; Chappel and Blanford 1991; Denton 1997); often hand in hand with increased efforts of informal care as well.

Elements of compensatory and supplementary model are combined in **complementary model** (Chappel and Blanford 1991; Denton 1997). The model proposes that formal care is activated at two instances, related to absence of key elements of informal care network and to great need. Formal care will increase the likelihood of independent living in community for people with limited informal network (Pezzin et al. 1996) and to people with responsive and caring informal network with high care need.

There is a number of empirical studies (some of them already mentioned) that have aimed at explaining of the care arrangements and testing the models of care arrangements. Very few studies are conclusive and they differ in large extent to the population of study (general population of older people living in community with some functional impairment or disability, users of social home care services, users of health care services, users of privately paid and publicly paid formal services), to the indicators of care arrangements (presence or absence of informal and formal care across tasks of daily living, scope of informal and formal care, amount of hours of informal and formal care and frequency of informal and formal care) and listings of activities of daily living (including shorter or longer lists of daily activity of living tasks). Most often, users of formal help are classified into dichotomous groups of care arrangements based on presence of formal care across various numbers of activities of daily living. As in the present study we have assessed providers of care across 22 activities of daily living (advanced, instrumental and personal activities of daily living; Katz et al. 1963; Lawton and Brody 1969) we decided to take into account all individual activities at the same time in order to encompass complete variability and in-depth richness of the phenomenon. The goal of such analysis is to obtain empirical, bottom-up, classification of care arrangements simultaneously taking into account all activities of daily living and not collapsing them in advance into a set of dichotomous categories. Similarly to other studies, we will evaluate main predictors of care arrangements.

## Methodology

Data for this study were drawn from the first Slovenian national survey of social home care users in 2013. There were 6624 users of social home care in 201 municipalities at the beginning of the field work. We used a stratified random sampling to obtain a representative sample of social home care users,

municipalities and organizations that provide social home care: 4917 users from 154 municipalities were invited to participate via providers of social home care. Social carers distributed the paper and pencil questionnaire to users. One third of the users was able to fill in the questionnaire by themselves, about half (46%) was helped by a family care, 14% was helped by a social home care. The average response rate across municipality was 37% (8%–92%). Variability in response rate is due to the level of willingness of social home care providers to engage in survey. The realized sample size was 1768 (a number of questionnaires was not completed thoroughly). The number of units was further reduced (to 1572) in process of coding<sup>4</sup> of care arrangements.

Informal, formal and mixed care arrangements were each assessed in relation the same set of basic, instrumental and advanced activities of daily living. Respondents were presented with a series of 22 questions concerning their ability to engage in various activities of daily living (see also Katz et al. 1963; Lawton and Brody 1969). AADL1 (Advanced Activities of Daily Living – managing travel) – including visiting social activities, meetings and hobbies; visiting friends and family, accompanying with errands (bank, library), organizing travel (such as visiting doctor) and transportation in general; AADL2 (Advanced Activities of Daily Living) – including finding information about things, managing money (such as paying bills), offering financial aid, yard work or house repairs, taking medications and shopping for medications and medical aids, maintaining orthopedic aids; IADL (Instrumental activities of Daily Living – household management tasks, Lawton and Brody 1969) – including shopping for groceries and other shopping, preparing a hot meal (or meals on wheels), doing dishes, light housework (cleaning and managing garbage), making bed and cleaning the bedroom, doing laundry; PADL (Personal Activities of Daily Living – personal care activities or basic activities, Katz et al. 1963) – getting in and out of bed, dressing, bathing, using the toilet, feeding oneself. For each task, they were also asked who, if anyone is assisting them with the task. There were multiple possible answer categories – does not need help, family member, neighbor, social home care, community nurse, someone else. To measure care arrangements variables were constructed across each task of daily living with four response categories:

- To measure **informal care arrangement**, category was constructed for each task, indicating that respondents received **informal help only** (taking into account answer categories family member and neighbor).
- To measure **formal care arrangement**, category was constructed for each task, indicating that respondents received **formal help only**

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<sup>4</sup> Category »someone else« as provider of care could only be used in association with »mixed care« category.

(taking into account answer categories social home carer and community nurse).

- To measure **mixed care arrangement**, category was constructed for each task, indicating that respondents received **both informal and formal help at the same time** for the same task (taking into account answer categories of all previously mentioned answer categories and the category “someone else”).
- **Functional impairment** was assessed on the basis of respondents’ reports concerning the level of difficulty they experienced with various ADLs.

Respondents were also asked to report existence of long-term psychical or psychological impairment, illness or disability that limits them in daily life activities and to indicate possible problems with memory (not at all, some, considerable) as well to subjectively evaluate<sup>5</sup> of their health.

**Availability of informal care** and informal support was assessed via proxy (similar as Habib et al. 1993), using a combination of two indicators, namely household composition and the number of children. Recoded answer categories were 1 – living alone and has no children, 2 – living alone and has children outside the household, 3 – living with a spouse and have no children, 4 – living in two or multi-generational household.

Demographic characteristics of the sample are presented in Table 1.

In order to obtain empirical, bottom-up, classification of care arrangements simultaneously taking into account all activities of daily living (AADL1, AADL2, IADL, PADL as described above), cluster analysis was selected.

Program Leaders (Korenjak-Černe, Batagelj and Japelj Pavešić 2011)<sup>6</sup>, was selected for clustering symbolic data described with discrete distributions. Each of 22 activities of daily living (AADL1, AADL2, IADL, PADL) is represented as distribution of four nominal values (no care, informal care only, formal care only, mixed care). We used k-means clustering, which in its form in Leaders program is a generalization of classical k-means clustering adapted for representation with discrete distributions. Quadratic distance Square dissimilarity was used for clustering, where the optimal leaders are defined with the average distributions of relative frequencies. Optimization was done manually with several iterative steps, where the maximal distance permitted dissimilarity between the leader and the unit was reduced from 1 to 0.70. Based on stability of group membership, number of iterations required for clustering and minimal value of criterion function, clustering into 5 clusters was selected. All other analysis was performed with IBM SPSS Statistics 19 program.

<sup>5</sup> Five point category scale was collapsed into three: good, satisfactory and bad.

<sup>6</sup> Available on <http://www.educa.fmf.uni-lj.si/datana/default.htm> (21. 02. 2014).

**Table 1.** Demographic characteristics of the sample

Age	78.30
<b>Gender</b>	
Female	68.9%
Male	31.1%
Household size	1.8
<b>Household composition</b>	
Living alone – without children	15.2%
Living alone – has children outside the household	41.5%
Couples without children	18.2%
Two or multi-generational household	25.1%
Number of children	1.7
<b>Marital status</b>	
Married or living as married	26.2%
Single	15.9%
Widowed	54.2%
Divorced	3.8%
<b>Type of residential area</b>	
Large or small city	36.1%
Suburban	14.1%
Rural area	49.8%
<b>FIM index<sup>a</sup></b>	12.74
<b>Subjective evaluation of health</b>	
Very good/Good	9.4%
Satisfactory	46.2%
Bad/Very bad	44.4%
<b>Health problems that hinder everyday life</b>	
None	10.8%
One	30.3%
Two and more	59.0%
<b>Memory problems</b>	
Not at all	25.3%
Some	47.7%
Considerable	27.0%

<sup>a</sup> Number of activities of daily living where respondents receive assistance.

### Clusters of care arrangements among social home users

As already mentioned, the respondents in this study are, on average, older than respondents in most studies on linkages between formal and informal care, where the targeted population is older than 60 (with some functional impairment or disability). Even more, all of them are users of formal care. We can, therefore, expect a higher level of functional impairment and higher levels of care, regardless of type of care, compared to studies of general population. Main characteristics of clusters of care arrangements are presented in the following paragraphs, and Tables. Firstly, we will identify types of care models within each cluster based on average number of informal only, formal only and mixed care cases across types of daily activities as presented in Table 2.

It seems that in Cluster 1 (21% of sample) users of social home care can very well manage most activities of daily living by themselves. Instrumental activities are only exception, where formal care only arrangement is responsible for 1<sup>7</sup> task on average. We can assume that in this cluster, there are respondents with low need and perhaps, as formal care only is the only identified care arrangement apart from “no care needed”, these respondents lack informal care network. Perhaps, the role of formal care in this cluster is to compensate for lack of informal network at low level of need.

In Cluster 2 (15% of the sample) there are mixed occasions of care arrangements. Respondents need assistance with one task of AADL1, three tasks AADL2, 4 tasks of IADL and 1 task of PADL on average. Most often, across all types of activities of daily living, formal care only is responsible for care. Only exception is in advanced activities of daily living where also informal care only is noticeable. We can expect that in this cluster, there are respondents with moderate need and some of them with existing core parts of informal care network, but perhaps not available in close geographical proximity or, maybe the parts of the informal network that is available, is not the one most responsible for care (partner and children). It is possible that there are friends and neighbors, but no extended or close family. Again, compensatory role of formal care seems more pronounced than supplementary role.

In Cluster 3 (25% of the sample), informal care arrangement is most frequent. Respondents need assistance with four tasks of AADL1, four tasks of AADL2 and four tasks of IADL. Personal activities of daily living are manageable independently. As regards instrumental activities formal care only shows as the second most important care arrangement. We can expect moderate need, which can be meeting by informal care that might not be in close geographical proximity, but

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<sup>7</sup> Values larger than 1 indicate that respondents need help with at least 1 task on average. Such values are bolded and are used to identify care models.

are part of close informal network, perhaps children outside household. It seems most likely that the role of formal care is mostly supplementary.

**Table 2.** Care models across clusters

Clusters	1	2	3	4	5	Total
N(%)	338(21)	229(15)	400(25)	315(20)	298(19)	1580
AADL1 – informal only	0.72	0.99	<b>3.95</b>	<b>4.33</b>	<b>1.42</b>	<b>2.43</b>
AADL1 – formal only	0.20	<b>1.29</b>	0.05	0.02	0.06	0.26
AADL1 – mixed care	0.12	0.27	0.10	0.23	0.10	0.16
AADL2 – informal only	0.65	<b>1.28</b>	<b>3.81</b>	<b>4.91</b>	<b>3.62</b>	<b>2.95</b>
AADL2 – formal only	0.21	<b>1.70</b>	0.09	0.09	0.14	0.36
AADL2 – mixed care	0.05	0.29	0.15	0.47	0.22	0.23
IADL – informal only	0.59	0.41	<b>2.80</b>	<b>4.13</b>	<b>4.71</b>	<b>2.61</b>
IADL – formal only	<b>1.09</b>	<b>3.71</b>	<b>0.97</b>	0.27	0.26	<b>1.12</b>
IADL – mixed care	0.13	0.48	0.70	<b>1.37</b>	0.66	0.67
PADL – informal only	0.07	0.09	0.31	<b>1.68</b>	<b>1.58</b>	0.74
PADL – formal only	0.21	<b>1.27</b>	0.31	0.57	0.74	0.56
PADL – mixed care	0.03	0.08	0.07	<b>2.00</b>	<b>1.23</b>	0.67
CARE MODEL	No/F	No/F/I	I/F	I/Mix	I/Mix	
<b>Complementary</b>	Compensatory	Compensatory/ Supplementary	Supplementary	Supplementary	Supplementary	

In Cluster 4 (20% of the sample) intense informal care in all types of activities of daily life is complemented with formal care in mixed care arrangement. Formal care only is the least frequent care arrangement. Assistance is needed with almost all activities of daily living. It seems that intense need is coupled with strong involvement of informal care network and joint care (informal and formal care for the same activity of daily living) of both care networks. Such level of need in instrumental and personal activities of daily living is probably manageable only when the core informal care network (partner and children) is available in close geographical proximity. The role of formal care is supplementary and both types of providers of care work hand in hand to ensure needed care.

Cluster 5 (19% of the sample) is similar to Cluster 4, as regards involvement of informal network (except in AADL1 where is informal care the most frequent, but smaller than in other types of activities of daily living). Respondents

need assistance with almost all activities of daily living, except AADL1. For personal activities of daily living informal care is complemented with formal care in mixed care arrangement. It seems that there is strong need, but it varies across activities of daily living. One wonders if lack of care in AADL1 – managing travel, is owing to lack of need, or is it an adjustment to reduced ability to travel. We assume that core parts of informal care network are available in close geographical distance and that the role of formal network is supplementary in joint care for older people.

We examined closely also other characteristics of older people that were classified into five care arrangements clusters, starting with availability of their informal care network evaluated via proxy – combining information on household composition and children outside the household, age, gender, marital status and type of residential area. We also examined distributions of indicators of need (evaluations of health and unmet need) and preferred additional care across five clusters. Tables with frequency distributions or average values are in Appendix, together with chi-square and anova tests, which were used to evaluate variability of several variables across clusters. Key information about clusters is presented in Table 3.

Care model (compensatory, supplementary) was tentatively assumed on the basis of care arrangement frequency across activities of daily living (Table 1). We will now take into account all information that is available about other characteristics of social home care and substantiate the presumed models. In the first cluster we assumed low need, independent living of user, and lack of informal network in close geographical proximity. Indeed, most activities of daily living are managed independently, assistance is needed with only 4 activities on average, nearly 70% evaluate their health as good or satisfactory, 44% has more than one long-term psychical or psychological impairment, illness or disability that limits them in daily life activities and about 90% have no or some problem with memory. Furthermore, about 80% of the users in this cluster live alone (50% have at least one child outside the household, 30% without children); they are younger on average (aged 75). Although 50% of users are widowed, there is significantly larger share of single or divorced respondents in this cluster. Nearly 50% of the users in this cluster, live in urban areas, which is 10% above the average. Majority is content with amount of care. Social home care is the most frequent potential care in case of future need, followed by child. Institutional care is an option, which is significantly more frequent in this cluster than in the total sample. As suggested, the role of formal care in this cluster is to compensate for lack of informal care (in close geographical proximity) at low level of need. Presumably, for users that lack informal care network, in case of intensified need, more formal care within own home or within institution are two options. For users that have children outside the household we expect larger amounts of care from both types of care networks in the future.

In the second cluster formal care only is the most frequent care model, coupled with informal care only for AADL2. We assumed compensatory role of formal care in situation of moderate need and lack of informal care network in close geographical proximity or lack of core care informal network. Actually, about half activities of daily living are managed independently, nearly 60% evaluate their health as good or satisfactory, 61% has more than one long-term psychical or psychological impairment, illness or disability that limits them in daily life activities and about 85% have no or some problem with memory. As regards health status, smaller proportion of users in this cluster is completely independent. Similarly to the first cluster, about 80% of the users in this cluster live alone; they are of similar age on average (aged 76). Contrary to the first cluster, nearly 70% users are widowed, which is about 10% above total sample. The percentage of widowed is the highest in this cluster. This indicates that majority of social home care users in this cluster lack key component of informal care network and that assumed compensatory role is well corroborated. Again, more users (than in the total sample) live in urban areas (43%). Majority is content with amount of care, however, 22% claim that they would need more assistance, which is significantly higher than in total sample. Nearly for all respondents in this cluster, social home care is the only potential care in case of future need. Some respondents also indicated that more assistance is expected from informal network, but all frequencies are well below average. As suggested, the role of formal care in this cluster is to compensate for lack of informal care at moderate level of need. Most likely, users of social home care in this cluster, in case of intensified need, would require more formal care within own home or within institution.

In Cluster 3 we assumed supplementary role of formal care at moderate level of need and available key components of informal care network responsible for care, although maybe not in close geographical proximity because formal care is evident for instrumental activities of daily living. As it happens, 13 activities of daily living are assisted by informal care mostly. Personal activities of daily living are manageable by users themselves. More than 60% evaluate their health as good or satisfactory, 50% has more than one long-term psychical or psychological impairment, illness or disability that limits them in daily life activities and about 80% have no or some problem with memory. Users in cluster 3 are considerably older than users in the first two clusters (aged 81 on average), 70% live alone and 60% has children outside the household. Significantly higher percentage is single or divorced than in total sample. Less than half would prefer care from social home care in case of increased need, about 40% would appreciate additional care from child (both female and male child). Taken altogether, these users of social home care are independent for personal activities of daily living; mostly they depend on care from informal network, which is outside the household for majority of them. Care from children is supplemented with formal

care for instrumental activities of daily living. Perhaps, there is also division of labour between informal and formal care providers, which cannot be empirically distinguished. Most probably, with increased need, the care would intensify from informal care and became more extensive from formal care. It is likely that mixed care arrangement would become more frequent.

**Table 3.** Care models across clusters

Care model	Clusters		
	Compensatory	Compensatory/ Supplementary	Supplementary
Level of Need	Low <sup>a</sup>	Moderate	High
Availability of Informal Care Network (ICN)	Core ICN not available or not in geograph. proximity	Core ICN not available or not in geograph. proximity	Core ICN available and close
Household composition <sup>b/</sup>  Age <sup>c/</sup> Gender <sup>d/</sup> Marital status <sup>e/</sup> TRA <sup>f</sup>  Additional care – SHC <sup>g</sup>	C1  Living alone/ has children outside household or does not have children  75, men, single or divorced, urban  Child	C2  Living alone/ has children outside household or does not have children  76, widowed, urban  No additional	C4  Two or multi g. household/ Couples without children  77, married, rural  Child and Partner
Household composition/  Age/ Gender/ Marital status/ TRA  Additional care – SHC		C3  Living alone/ has children outside household  81, women, single or divorced  Child	C5  Two or multi g. household/ Couples without children  81, married, rural  Child

<sup>a</sup> Level of need was assessed using the average number of activities of daily living that respondents needed assistance with. Respondents were also asked to report existence of long-term physical or psychological impairment, illness or disability that limits them in daily life activities and to indicate possible problems with memory (not at all, some, considerable) as well to subjectively evaluate of their health. All tables are in Appendix.

<sup>b</sup> Two most frequent categories are presented if both categories represent more than 20% of the cluster.

<sup>c</sup> Average age is presented.

<sup>d</sup> Only cells that have significantly higher percentage than in total sample are indicated.

<sup>e</sup> Only cells that have significantly higher percentage than in the total sample are indicated.

<sup>f</sup> TRA – type of residential area. Among users of social home care there are 36% living in urban areas, 14% in suburban and 50% in rural areas. Only cells that have significantly higher percentage are indicated.

<sup>g</sup> Vast majority of users indicated social home carer as preferred carer in case of intensified need across all clusters. Only most often chosen other providers are presented as this was multiple choice variable.

Clusters four and five are similar in most characteristics, but they also differ in some aspects of need and care. For both clusters it is evident, that formal care supplements intense informal care in mixed care arrangements. Care providers share overall burden of care especially for instrumental and personal activities of daily living. Need for care is high, more than half evaluate their health as bad, about 70% has more than one long-term psychical or psychological impairment, illness or disability that limits them in daily life activities and about 80% have no or some problem with memory. It seems that subjective evaluation of health is more frequently evaluated as bad in the fifth cluster (10% more), while the number of activities of daily living which require care, is considerably higher in fourth cluster (20 and 15 respectively). Perhaps this can be explained with considerably higher percentage of respondents having severe memory problems in cluster five (46% and 37% respectively). Respondents in cluster 5 do not need assistance with AADL1 – managing travel and we might assume that this is adjustment to deteriorated health rather than sign of better health status and independence. Furthermore, respondents in cluster five are considerably older than respondents in cluster 4 (81 and 77 respectively). About 70% of respondents in both clusters live in two or a multigenerational household, meaning that the informal care network is available and close. Higher percentage (the highest as compared across all clusters) is still married (about 40%) and more likely they reside in rural area (nearly 60%). More than half would prefer care from social home care in case of increased need, but they would also like additional care to originate from informal care network (child of both sexes and partner). As regards the total frequency of preferred source of care, choices of informal source outnumber the choices of formal source. Taken altogether, care from children or partner is supplemented with formal care for personal activities of daily living and instrumental activities of daily living. One wonders if respondents of cluster 4 would in time become, as regards need and care arrangements, similar to respondents in cluster 5. It is questionable if, with increased need, the care from informal care can be intensified. More likely, more care would be expected from formal sources, perhaps tasks specialization or substitution of informal care within task areas is expected.

## Conclusions

Users of social home care and their care arrangements have not been studied yet in a representative research design in Slovenia – a typical Central Eastern European country with poorly developed but emerging formal care services in community setting. This study gives the first in-depth information about how older people, that live in own home, and their families, combine informal care

with formally provided social home care. An extensive variety of activities of daily living, ranging from advanced activities to instrumental and personal activities, was used simultaneously to cluster respondents into groups of users of social home care that combine informal and formal care in similar way. Five distinct clusters of users of social home care were obtained, each cluster comprising roughly about one fifth of the sample (15% – 25%). Empirically derived information about care model (compensatory, supplementary) within each cluster was merged with other characteristics of social home care users and their social environment, ranging from availability of informal care network, indicators of health and need as well as their demographic characteristics. Clusters have been effectively aligned along two dimensions that have been indicative for predicting the models of care arrangements in other studies, namely need and availability of informal care network.

Low need was observed for users of social home care that have no core informal network in close geographical proximity. Especially for frail older people living alone and not having children, formal care is important for prolonging their independence and postponing institutionalization (Pezzin et al. 1996) and has compensatory role in absence of key elements of informal care network (Allen et al. 1999). It is not surprising that institutionalization is also an option for care (along with additional care from social home care) in the future.

Frail older people living alone and not having children would compensate for lack of informal care at moderate levels of need (Cluster 2), while frail older people living alone and having children outside the household (Cluster 2 and 3) would complement informal care with formal care for instrumental activities of daily living (Chappel and Blanford 1991; Denton 1997). Compensatory role of formal care in case of lack of informal care network is especially pronounced in Cluster 2 where additional care from social home care is perceived as addition to care from 90% of the respondents in this cluster.

High levels of need were observed only for users of social home care that have close and abundant informal care network (partner and/or children in the same household). To sustain high levels of need for frail old people living at home, formal care must supplement intense care from spouse and/or child (Allen et al. 1999; Hvalič 2009). The informal network plays crucial role in fulfilling the needs and preventing institutionalization (Stoller and Pugliesi 1991), however, both types of care share the overall burden of care (Chappel and Blanford 1991; Denton 1997). It seems that two and multi generational households are more frequent in rural communities and that intense care from informal networks may compensate for lack of facilities for institutional care that were traditionally the only type of formal care before the transition in Slovenia. This paper brings insights about collaboration between informal and formal care providers in a society where formal care provided at home is relative novelty

and has not been widespread in population – social home care is received by 1.7% of population older than 65. Nevertheless, it seems that for older people that accept formal care within own household, formal care has similar function as observed in societies with longer tradition of such services (Denton 1997; Chappel and Blanford 1991; Suanet et al. 2012; Iecovich 2014). Application of theoretical and empirical models of informal and formal care arrangements to new context of Central Eastern European country indicates the independence of key components of the models of specific welfare context, country policy framework and historical development of formal community services. Exploratory clustering of care arrangements gives in-depth view of complexity and heterogeneity of life situations of ageing adults. Limitations of this study are certainly lack of detailed information about informal care network, its care provision and competing care and work demands they encounter and manage (Stypińska and Perek-Białas, 2014), the role of new technologies in providing higher quality of care for older people residing in community (Szeman 2014) and its exploratory concept. Further analysis, encompassing all determinants of usage of formal care should give more detail about interplay between formal and informal care.

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### **Organizacja opieki pomiędzy osobami świadczącymi usługi społeczne w zakresie opieki domowej w Słowenii**

#### Streszczenie

W 1991 roku w Słowenii rozpoczął się proces transformacji, któremu towarzyszyła spora zmiana modelu opieki nad starszymi osobami: nowe usługi dla osób starszych mieszkających w domu i ich nieformalnych, w wielu przypadkach spokrewnionych, opiekunów. Tematem artykułu jest opieka domowa oparta na zasadach pomocy społecznej, stanowiąca jedną z tych nowych usług. Pierwsze reprezentatywne badanie dotyczące użytkowników tej formy opieki domowej dla Słowenii (2013) zostało wykorzystane do przeprowadzenia oceny obejmującej osoby powiązane z opieką domową. Analiza wielu podzbiorów (Multiple cluster analysis) danych symbolicznych (brak opieki, wyłącznie formalna opieka, wyłącznie nieformalna opieka, opieka mieszana) przeprowadzona dla 22 codziennych czynności wykazała, że istnieje pięć grup osób działających w ramach usług społecznych opieki domowej. Podzbiory empirycznie przyporządkowano do dostępności sieci opieki nieformalnej i zapotrzebowania na opiekę. Ustalenia w zakresie opieki empirycznie wykazują funkcję kompensacyjną i uzupełniającą opieki formalnej w komplementarnym modelu. Opiekun domowy świadczący usługi społeczne był najczęściej wybieranym dodatkowym źródłem opieki w ramach oceny przyszłego zapotrzebowania na opiekę wśród wszystkich podzbiorów, natomiast sieć nieformalna stanowiła drugie najczęściej wybierane źródło.

Główne pojęcia: opieka; opieka domowa; Słowenia; ludzie starzy.

## Appendix

### Characteristics of clusters

<b>CL5</b>	<b>1</b>	<b>3</b>	<b>2</b>	<b>4</b>	<b>5</b>	<b>Total</b>
<b>N</b>	338	229	400	315	298	1580

<b>Household composition</b>	<b>1</b>	<b>3</b>	<b>2</b>	<b>4</b>	<b>5</b>	<b>Total</b>
Living alone – without children	28.0%	33.3%	10.4%	3.4%	4.7%	15.2%
Living alone – has children outside the household	50.0%	45.4%	59.3%	22.0%	22.6%	41.5%
Couples without children	11.7%	11.6%	11.2%	26.5%	33.1%	18.2%
Two or multi-generational household	10.3%	9.7%	19.1%	48.1%	39.7%	25.1%
			$X^2 = 403.594$		$Sig. = 0.000$	

<b>Marital status</b>	<b>1</b>	<b>3</b>	<b>2</b>	<b>4</b>	<b>5</b>	<b>Total</b>
Married or living as married	16.8%	17.1%	17.6%	36.6%	44.9%	26.2%
Single	25.7%	11.1%	28.2%	8.7%	9.2%	15.9%
Widowed	51.8%	68.3%	48.0%	52.4%	44.2%	54.2%
Divorced	5.7%	3.5%	6.2%	2.3%	1.7%	3.8%
			$X^2 = 182.739$		$Sig. = 0.000$	
<b>Age</b>	75.29	76.20	80.90	77.13	80.99	78.30
			$F = 15.554$		$Sig. = 0.000$	

<b>Gender</b>	<b>1</b>	<b>3</b>	<b>2</b>	<b>4</b>	<b>5</b>	<b>Total</b>
Female	63.7%	66.2%	74.0%	72.8%	65.9%	68.9%
Male	36.3%	33.8%	26.0%	27.2%	34.1%	31.1%
			$X^2 = 13.296$		$Sig. = 0.010$	

<b>Type of residential area</b>	<b>1</b>	<b>3</b>	<b>2</b>	<b>4</b>	<b>5</b>	<b>Total</b>
Large or small city	46.7%	43.2%	33.1%	29.8%	29.4%	36.1%
Suburban	13.6%	12.8%	15.0%	12.5%	16.0%	14.1%
Rural area	39.7%	44.1%	51.9%	57.7%	54.6%	49.8%
			$X^2 = 37.293$		$Sig. = 0.000$	

<b>FIM index<sup>a</sup></b>	<b>1</b>	<b>3</b>	<b>2</b>	<b>4</b>	<b>5</b>	<b>Total</b>
	4.06	11.88	13.31	20.08	14.75	12.74
			$F = 1633.329$		$Sig. = 0.000$	

**Subjective evaluation of health**

Very good/Good	15.9%	8.6%	10.4%	6.5%	4.2%	9.4%
Satisfactory	51.0%	49.5%	53.1%	41.2%	34.5%	46.2%
Bad/Very bad	33.1%	41.8%	36.5%	52.3%	61.3%	44.4%
			$X^2=$	79.035	$Sig.=$	0.000

**Health problems that hinder everyday life**

None	17.0%	9.1%	14.3%	6.1%	5.6%	10.8%
One	38.6%	30.0%	35.9%	21.9%	23.1%	30.3%
Two and more	44.4%	60.9%	49.7%	71.9%	71.3%	59.0%
			$X^2=$	85.341	$Sig.=$	0.000

**Memory problems**

Not at all	36.2%	33.2%	24.9%	17.5%	16.4%	25.3%
Some	50.3%	51.8%	52.8%	45.6%	37.2%	47.7%
Considerable	13.5%	15.0%	22.3%	36.9%	46.4%	27.0%
			$X^2=$	135.377	$Sig.=$	0.000

**Do you receive enough help?**

	1	3	2	4	5	Total
I do not need help.	13.9%	0.5%	3.4%	0.6%	0.4%	4.0%
I receive enough help.	71.2%	77.9%	84.5%	87.4%	85.4%	81.6%
I do not receive enough help. I would need more help.	14.9%	21.7%	12.1%	12.0%	14.3%	14.4%
			$X^2=$	117.323	$Sig.=$	0.000

**From whom would you like to receive help? (multiple choice)**

Partner	7.8%	2.7%	6.0%	22.9%	29.9%	13.7%
Son	20.9%	15.9%	39.0%	38.6%	29.1%	29.8%
Daughter	23.1%	11.5%	39.2%	36.6%	37.1%	30.7%
Other relative	13.1%	9.3%	15.3%	10.5%	12.9%	12.5%
Friend	5.0%	0.4%	1.3%	1.0%	0.7%	1.8%
Neighbor	5.6%	4.4%	6.2%	0.7%	2.5%	4.0%
Social home carer	59.5%	89.4%	45.7%	55.9%	57.9%	59.4%
Institution – home for the elderly	16.5%	7.5%	11.7%	4.9%	9.4%	10.3%

<sup>a</sup> Number of activities of daily living where respondents receive assistance.