

Non-kin informal care in Europe

Naïma van Huizen

6870597

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Utrecht University

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Thesis supervisor: Marcel Hoogenboom

Abstract

Non-kin carers are often neglected in research on long-term informal care. This paper researched the influence of individual characteristics and long-term care systems on the likelihood of being a non-kin carer and the frequency of non-kin care provision. The data from the sixth wave, collected in 2015, of the SHARE project was used. The data consisted of 64977 respondents living in sixteen different European countries. To answer the research question logistic and ordinal regression analyses were performed. The results show that men are more likely to provide non-kin care than women, but women provide non-kin care at a higher frequency. The likelihood of being a non-kin carer decreases as age and health issues of the potential non-kin carer increase. Those who have a partner are less likely to be non-kin carers than those who do not and also provide care at a lower frequency. Those who are not employed are more likely to provide informal care and also provide care at a higher frequency than those who are employed. The higher educated are more likely to provide non-kin informal care, but the lower educated provide care at a higher frequency. In countries with generous state supported long-term care systems, the likelihood that a person is a non-kin carer is higher than in countries with less generous long-term care systems. The frequency of non-kin care provision is also higher in countries with generous long-term care systems. This means that the generosity of a long-term care system has a crowding-in effect on non-kin care.

Keywords: informal care, non-kin carers, long-term care systems

Introduction

In many European welfare states an increasing importance is placed on informal carers in the provision of long-term care to the elderly. These carers are most often spouses or adult children, but can also be friends or neighbours (non-kin). The focus of this research will be these nonkin carers, since this group is often underrepresented in research into informal care yet the importance of non-kin carers is increasing (LaPierre & Keating, 2013). Several societal changes are taking place that cause a decrease in the informal caring capacities of families. Women often have payed employment nowadays, children live further apart from their parents, the size of families has decreased and the number of divorces has increased (Egging, De Boer, & Stevens, 2011).

Informal care in general has also become more important due to the aging of European populations. To contain the increasing costs of care that come with population aging, governments are implementing long-term care reforms and place increasing reliance on informal care to compensate for cutbacks in professional care (Broese van Groenou & De Boer, 2016).

So there is an increasing reliance for long-term care on informal care and the capacities of families to provide informal care are decreasing, yet there is a lack of research on non-kin informal carers. Most research on informal carers focusses on kin carers, however there is a small amount of research into non-kin carers (e.g. Egging, De Boer, & Stevens, 2011; Himes & Reidy, 2000; LaPierre & Keating, 2013; Nocon & Pearson, 2000). The goal of this research is to provide further insight into the group of non-kin informal carers. The main research question is: How do individual characteristics of non-kin carers and countries' long-term care systems influence whether non-kin care is provided and the frequency of non-kin care provision?

In what follows, the definition of long-term care will be discussed first. Then the literature on non-kin carers and long-term care systems will be discussed. To answer the research question, the data collected for the Survey of Health, Aging and Retirement in Europe (SHARE) will be used (Börsch-Supan, Axel et al., 2013). Logistic and ordinal regressions will be used to test how individual characteristics of non-kin carers and long-term care systems influence non-kin caring.

Theoretical framework

Long-term care

Long-term care is the care provided to people who have chronic physical, psychological or cognitive impairments (Verbeek-Oudijk, Woittiez, Eggink, & Putman, 2014). The care can be

divided into help with Activities of Daily Living (ADL) and Instrumental Activities of Daily Living (IADL). Activities of Daily Living are the most basic tasks that a person needs to be able to do, for example being able to get in and out of bed, washing and dressing oneself and toileting. The Instrumental Activities of Daily Living are tasks that are more complicated, like housekeeping, cooking meals, transportation and finances (Lawton & Brody, 1969).

Help with these daily functioning tasks can be organized in a few different ways. Firstly, there is the option of assisted living. In that case someone lives in an institution where there is around the clock availability of professionals able to assist with daily functioning. Secondly, there is also the possibility of the person living at home and formal carers (professionals) coming to the home to provide long-term care. Thirdly, long-term care can also be provided by an informal carer. This is someone from within the care recipients' social network, meaning a family member, friend or neighbour. The long-term care they provide is called informal care. This third type of long-term care will be the focus of this research.

The social network and informal care

When looking at what kind of informal care is provided and for how long, it is essential to take into account what the relationship type between the informal carer and the care recipient is. This type of relationship influences the obligation a person feels to provide informal care when they see that someone in their social network is in need of long-term care (LaPierre & Keating, 2013).

The strongest sense of obligation is usually felt by the spouse or partner of the person in need of care, since they are physically and emotionally closest to them (De Klerk, De Boer, Plaisier, Schyns, & Kooiker, 2014). In the case of the absence of a spouse or the inability of the spouse to take on care responsibilities, adult children are likely to take on the informal care (Jacobs, Broese van Groenou, Aartsen, & Deeg, 2016). This is also where the non-kin informal carers come in. Spouses are likely to be sole carers, whereas adult children are more likely to share the caring responsibilities with non-kin friends or neighbours (Jacobs et al., 2016). It is also possible that there is no direct family available to provide informal care, when someone has been widowed for example. In that case non-kin are likely to take on informal care responsibilities (Barker, 2002). So informal care provided by non-kin can either be supplementary to informal care provided by family or it can be compensatory in case there is no kin available to provide care.

The boundaries between neighbour and friend can get blurred in caring relationships; neighbours can become friends (LaPierre & Keating, 2013). There is however a significant

difference between a friend, a neighbour and a family member. Friendships are formed voluntarily on the basis of common interests and mutual attraction. Friends give each other emotional support and companionship, the relationship is based on reciprocity (Allan, 2008). Because the maintenance of reciprocity is important in friendships, these relationships are seen as less reliable and stable in the provision of care than kinship relations which have the normative obligation to provide care (Keating, Otfinowski, Wenger, Fast, & Derksen, 2003). Whereas a neighbour is simply someone living close by. Between neighbours giving each other privacy and maintaining some social distance is the norm, which is very different from friendship and kinship (Crow, Allan, & Summers, 2002).

These differences between kin-, friend- and neighbour relationships affect the kind of informal care that is provided by each group. Research on the differences between informal care provided by adult children, friends and neighbours shows that adult children provide more care than friends and neighbours. However, it also shows that the duration for which the care is given, is similar for adult children and friends and significantly longer than for neighbours (Egging et al., 2011). When it comes to the type of care provided, friends and neighbours are less likely than family members to provide personal care and mostly provide help with instrumental tasks (IADL) (Ibid.). However, one fifth of the non-kin carers interviewed by Barker (2002) also provided intensive help with personal care and over a third of the respondents had daily contact with the person they cared for. Research by Nocon and Pearson (2000) also shows that there are non-kin informal carers who take on the role of primary carer, providing intensive care and assisting with IADL as well as ADL.

Individual characteristics of the caregiver

As has been explained above, the type of relationship the care recipient and the caregiver have influences the type and intensity of informal care that the caregiver provides. Individual characteristics of the caregiver have also been proven to influence the amount of time a caregiver spends providing informal care. In the following section these characteristics and how they could influence the amount of time spent providing informal care will be described.

Firstly, **gender** influences the amount of informal care a person provides. Informal care has traditionally been provided by women and still the majority of informal carers are women also when it comes to non-kin informal carers. The percentage of non-kin carers being female ranges from 54 percent (LaPierre & Keating, 2013) to 79 percent (Barker, 2002), on average researchers have found that about 65 percent of non-kin informal carers is female (Broese van

Groenou, M., de Boer, & Iedema, 2013). No significant difference has been found in the gender of friends and neighbours as informal carers (LaPierre & Keating, 2013).

The second characteristic of that could influence caregiving is the **age** of the caregiver. Friend caregivers are on average older than neighbour caregivers (Egging et al., 2011). Both groups of caregivers are on average significantly younger than the care recipient and the care provided by non-kin decreases with increasing age (LaPierre & Keating, 2013).

A possible explanation for this age difference between caregivers and care recipients is that the ability to provide care strongly depends on the potential caregiver's **health**. With increasing age the chances of having health problems increase, making it difficult to care for someone else (De Klerk, M., De Boer, Plaisier, & Schyns, 2017).

Age and health influence the ability of a person to provide care in the way that they can make it physically very difficult to provide care for someone else. There are also several characteristics that influence how much time someone has to provide care (Himes & Reidy, 2000). The first of which is **marital status**. Taking care of kin is generally higher on the list of normative obligations than caring for non-kin (LaPierre & Keating, 2013). Having a partner means that there not only is a spouse that could require care, but also that there are more family members that could be in need of care (the in-laws). This means that those who have a partner could have less time to care for friends or neighbours, because they spend more time caring for family members. Secondly, **having young children** also means that a lot of time will be spend caring for these children. Which is why people with young children are less likely to be carers for especially friends. The effect of having young children on neighbours being informal carers is smaller, possibly because combining the caring tasks is easier for neighbours than for friends (Egging et al., 2011). A third factor that influences the time someone has to provide informal care is **employment**. Being employed means that potential caregivers have less time to provide care (De Klerk, M. et al., 2017).

Finally, there are also a few characteristics that have been shown to influence attitudes and general values about informal care. Through the influence these characteristics have on attitudes they also influence the amount of informal care provided to friends and neighbours. **Socioeconomic status** is one of these characteristics. It is expected that socioeconomic status influence informal care, because the norms of taking care of community members are stronger for those with a lower socioeconomic status (Broese van Groenou, M. et al., 2013). In research on the differences between social classes in friendships it has been suggested that in friendships in lower social classes exchanges of support are more common (Walker, 1995). LaPierre and Keating (2013) also found that non-kin carers with a lower household income provided more

informal care than those with a higher income. Secondly **religious affiliation** has also been shown to have a positive effect on the amount of care that is provided to non-kin (Barker, 2002).

Care policies

The amount of informal care someone receives or provides is not only influenced by individual characteristics of a person. Every informal carer exists within a welfare state, whose long-term care system influences the balance between formal and informal care in a country.

Long-term care policies can make it more or less attractive and more or less necessary for people to be an informal carer. If a long-term system is based around formal care and there is a large formal care system in place, the social network of someone in need of care does not have to provide informal care. Whereas if there is almost no formal care available, someone in need of care would have to look for help within the own social network. For those who have the means, privately funding formal care is also a possibility in the absence of welfare state funded formal care.

So a possible conclusion is that a generous formal long-term care system leads to the crowding-out of informal carers (Van Oorschot & Arts, 2005). Meaning there are fewer informal carers in countries with generous long-term care systems than in countries with less generous long-term care systems. Research has shown however this is only true to a limited extent. Generous formal long-term care systems do crowd-out intensive informal caregiving. On the other hand, the percentage of informal carers in general is higher in countries with generous formal long-term care systems. This is because if professionals take on the most intensive and time-consuming caring tasks, informal caring seems less daunting and informal carers have more time to provide lighter types of informal care. Which means that formal long-term care systems also have a crowding-in effect (Verbakel, Tamlagsrønning, Winstone, Fjær, & Eikemo, 2017).

In countries where there is (almost) no long-term care system in place, the responsibility for long-term care is implicitly placed on the family (Leitner, 2003). Because the responsibility for long-term care is placed on the family, non-kin carers are crowded out by the family (Conkova, Fokkema, & Dykstra, 2018). There is also less room for people to be non-kin carers because they are likely to have to take care of family members as well. So when there is only a minimal long-term care system in place, the provision of non-kin care is likely to be low.

Conceptual model

As has been described above, there are several factors that influence the likelihood and frequency of the provision of non-kin informal care. Informal care is more often provided by women. The age and health of the care provider influence the ability to provide care. Having young children, marital status and employment status influence the amount of time a person has to provide non-kin informal care. Socio-economic status and religious affiliation influence attitudes towards informal care, which in turn influences the provision of non-kin care. The generosity of a long-term care system has crowding-out and crowding-in effects on the provision of non-kin care (see Figure 1).

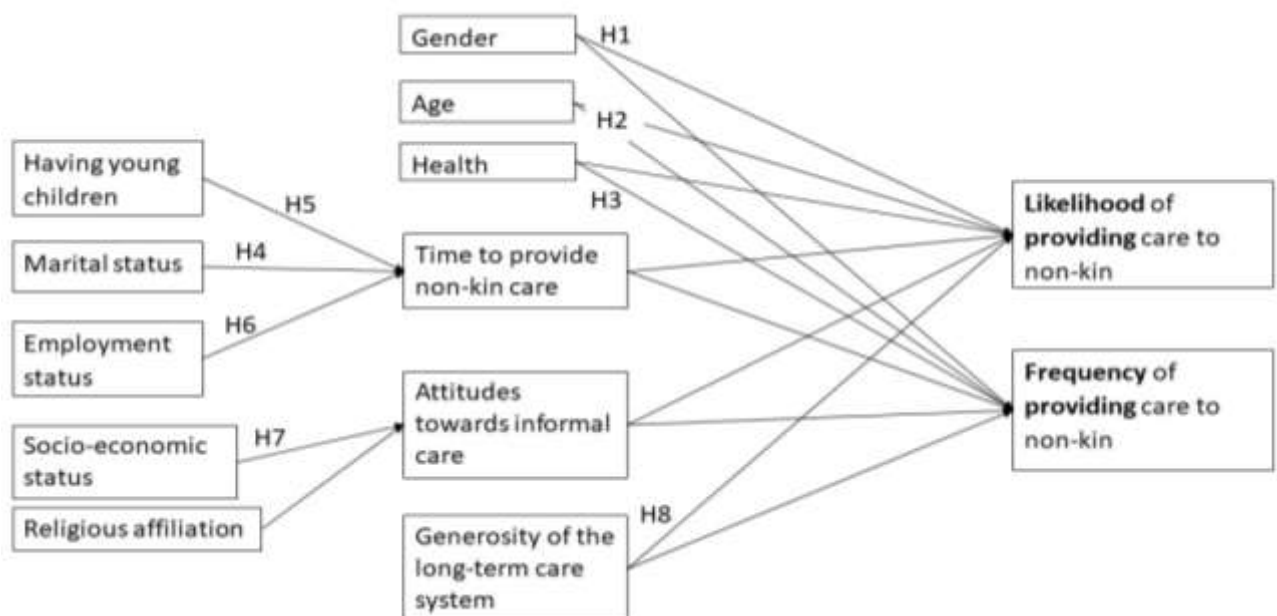


Figure 1. Conceptual model of individual characteristics and long-term care system influencing the provision of non-kin informal care

Hypotheses

To answer the question of how individual characteristics of non-kin carers and long-term care systems influence the likelihood and frequency of the provision of non-kin care, hypotheses have been formulated. The data did not allow for testing how religious affiliation influences non-kin care, so for this factor no hypothesis has been formulated. The following hypotheses will be tested:

- 1a. Women are more likely to provide non-kin care than men.
- 1b. Women provide more non-kin informal care than men.

- 2a. The older someone gets, the less likely they are to provide non-kin care.
- 2b. The older someone gets, the lower the amount of provide non-kin care is.
- 3a. The worse someone's health is, the less likely they are to be a non-kin informal carer.
- 3b. The worse someone's health is, the lower the amount of care provided will be.
- 4a. Those who have a partner are less likely to be non-kin informal carers.
- 4b. The amount of non-kin care provided by carers with a partner is lower than by carers without a partner.
- 5a. Those who have children below the age of 18 are less likely to be informal carers.
- 5b. Having young children negatively influences the amount of non-kin care provided.
- 5c. The negative effect of having young children on the amount of care provided is stronger for friend carers than for neighbours.
- 6a. Those who are employed are less likely to be non-kin informal carers.
- 6b. The amount of non-kin informal care provided by those who are employed is likely to be lower than the amount provided by those who are not employed.
- 7a. Lower educated people are more likely to be non- kin informal carers.
- 7b. The amount of non-kin informal care provided by the lower educated is higher than that of the higher educated.
- 8a. The more generous the welfare state the more likely it is that someone is an informal carer.
- 8b. The more generous the long-term care system the lower the frequency of caring will be.

Methodology

The Survey of Health, Ageing and Retirement in Europe

To answer the research question, the data from the sixth wave of the Survey of Health, Aging and Retirement in Europe (SHARE) was used (Börsch-Supan, A., 2020). The large number of respondents of SHARE makes it likely that the sampled population is representative for the entire population aged 50 and over of the participating countries. The diversity in countries makes it possible to research how countries' different long-term care systems influence nonkin care. The SHARE data was also chosen, because it provides detailed information on care giving (to whom, what kind of care, how often) and information on the characteristics of these caregivers.

The data for the first wave of the SHARE project was collected in 2004 in ten European countries and Israel. After that every two years a new wave of data collection took place. The respondents of the first wave were asked to participate in each of the following waves. To ensure

that the sample size didn't decrease due to non-response or death of respondents, there was a refreshment sample of respondents added during each new data collection wave.

The data of the sixth wave collected in 2015 was used for this paper. This is not the most recent data collection wave, however the data of the seventh wave has not been published yet for all participating countries. Eighteen European countries and Israel participated in the sixth wave. The data was collected through computer assisted face-to-face interviews in all countries except for the Netherlands. As an experiment to contain costs, the data for the sixth wave was collected through phone interviews and an online survey in the Netherlands (Börsch-Supan, A., 2019). The targeted population of SHARE were all residents of the participating countries aged 50 years and over.

For the analyses of this research paper, respondents from three of the nineteen participating countries were excluded. Respondents from Israel were excluded, since Israel is not a European country and the typology used to classify long-term care systems was developed for European countries. Respondents from Switzerland were excluded, because the long-term care system in Switzerland is organized within its cantons. The large differences between the long-term care policies of the cantons make the long-term care system of Switzerland as a whole is too fragmented to be able to fit it into a typology (Trein, 2018). Finally, the respondents from Luxembourg were also excluded, because Luxembourg was not discussed in literature on the classification of long-term care systems (Kraus et al., 2010).

Dependent variables

There are four different dependent variables. The first is the dichotomous variable of whether someone is a caregiver to a friend. The second is the dichotomous variable of whether someone is a caregiver to a neighbour. The third dependent variable is the frequency with which care is provided to friends. The fourth is the frequency with which care is provided to neighbours.

The respondents were given examples of ADL and iADL and asked if they had provided help with these types of tasks to someone outside of the household. Respondents could indicate up to three people to whom they had provided informal care. They were asked to indicate the type of relationship they had with these people. The possible answers included types of kin relationships, friends and neighbours. The respondents were then asked how often they helped each of the people they had named; *daily, weekly, monthly or less often*.

For the two dichotomous variables, the respondents were characterized as carers to friends or neighbours if they provided care to either of these groups at least monthly. For the

two ordinal variables the category of *less often* was also included (see Table 2 for the distribution).

Independent variables

Gender. The possible answers were male or female. The gender of the respondent was coded as a dummy variable with men as the reference category.

Age. The age of the respondent at the time of the interview was calculated by subtracting the respondent's year of birth from 2015 (the year of data collection). Respondents below the age of 50 were excluded.

Health. Health was measured by counting how many limitations respondents experienced with Activities of Daily Living (ADL) and instrumental Activities of Daily Living (iADL). The health variable was created by adding up the number of limitations respondents experienced with ADL and iADL.

Marital status. Marital status was coded as a dummy variable with respondents who did not have a partner (because they are either divorced, widowed or never married) as the reference category for those who do have a partner. This partner could either be a spouse or a registered partner.

Young children. Whether the respondent had young children was determined by if the respondent had at least one child under the age of eighteen. The respondent not having young children was made the reference category for this dummy variable.

Employment status. The employment status was made into a nominal variable. Those who are employed form the reference category for those who are not employed (because they are retired, unemployed or a homemaker) and those who are unable to work because of a long-term illness or disability.

Socio economic status. Socio economic status was operationalized by looking at educational level and the income of the respondent.

Educational level. Because the education systems in all European countries are different, the SHARE researchers used the International Standard Classification of Education (ISCED) 1997 to make the educational level comparable between countries (UNESCO United Nations Educational, Scientific and Cultural Organization, 2003). The ISCED 1997 consists of seven levels of education starting at level 0: pre-primary education and ending at level 6: second stage of tertiary education. Those who have achieved up to lower secondary education are classified as lower educated. Those who have achieved up to post-secondary but non tertiary education

are classified as medium educated. Those who have completed the first or the second stage of tertiary education are classified as highly educated.

Income. The respondents were asked what their monthly household income is. For Sweden, Denmark, the Czech Republic, Poland and Croatia the household income was converted to euros using the exchange rate at the time the data was collected (Börsch-Supan, A., 2019). Respondents whose household income was higher than 100.000 euros a month were seen as outliers and were excluded.

Long-term care system. To assess the generosity of the countries' long-term care systems, a classification developed for the Assessing Needs of Care in European Nations (ANCIEN) research project was used (Kraus et al., 2010). They developed a typology of long-term care systems for European countries based on the public spending on long-term care, the private financing, the use of formal care, the use of informal care and the support for informal carers. When comparing long-term care systems of European countries four clusters of countries can be distinguished.

The first cluster consists of Denmark, Sweden and the Netherlands. These countries have the most generous long-term care systems. The public spending on long-term care is high, the private financing is low. The use of formal care is also high and the use of informal care is low. However, if people chose to be informal carers, the support for informal carers is also high (Kraus et al., 2010).

The second and third clusters of countries have moderately generous long-term care systems. The second cluster consists of Belgium, Germany, Slovenia and the Czech Republic. In these countries the public spending on long-term care is rather low but the private financing is also low. This is because the use of informal care is high and the support for informal carers is also high. So informal care is encouraged and the use of formal care is low (Ibid.).

The third cluster consists of Austria, France, Portugal and Spain. In this group of countries, the public spending on long-term care is moderate and the private financing high. The use of formal care is low and the use of informal care is high. The support for informal carers is also high. The main difference between the second and third cluster is that the private financing of long-term care is low in the second cluster and high in the third cluster (Baptista & Perista, 2018; Kraus et al., 2010).

The fourth cluster consists of Italy, Greece, Croatia, Estonia and Poland. In these countries the public spending on long-term care is low and consequently the support for informal carers is also low. The private spending on informal care is high and the use of informal care is also high. The high use of informal care can be seen as a necessity and not a choice due

to the very low availability of formal care and the lack of support for informal carers (Kraus et al., 2010; Paat-Ahi & Masso, 2018; Sowa-Kofta, 2018; Stubbs & Zrinscak, 2018; Ziomas, Konstantinidou, Vezyrgianni, & Capella, 2018).

Analysis methods

To analyse how the likelihood of being a carer to a neighbour or friend is influenced by individual characteristics and a countries' long-term care system, two logistic regressions were done. The regressions were done separately for the likelihood of being a carer to a friend and to a neighbour. This makes it possible to see if the independent variables influence the likelihood of being a friend carer differently than being a carer to a neighbour. To carry out a logistic regression two assumptions have to be met. The first assumption is that there is a linear relationship between the continuous independent variables and the log of the dependent variable. The second assumption is that there is no multicollinearity between the independent variables (Field, 2018). Both these assumptions were met for both logistic regressions.

To analyse how the frequency of the provision of non-kin care is influenced by the individual characteristics and long-term care system, two ordinal regressions were done: one with the frequency of care provision to friends as the dependent variable and the other with the frequency of care provision to neighbours as the dependent variable. The most important assumption when doing an ordinal regression is the assumption of proportional odds. This means that the effect of the independent variables is the same across each of the categories of the ordinal dependent variable. If this assumption is not met, logistic regressions have to be done to obtain the results separately for each of the categories of the ordinal variable. This was the case for the long-term care systems as an independent variable in both ordinal regressions. Three logistic regression were done, with being a daily carer, being a weekly carer or more often and being a monthly carer or more often as the dependent variables. The results of these regressions show how the generosity of the long-term care system influences the provision of care differently at different levels of the ordinal variable (see results in Table 6). For the other independent variables, the assumption of proportional odds was met.

The household income turned out not be significant in any regression and contained many missing values so this variable was excluded from the final regression analyses.

Results

First the descriptive statistics will be discussed. Then the differences between friend-, neighbour- and kin-carers in the frequency of care provision and the types of care provided will be described. Finally, the results of the regression analyses will be discussed.

Descriptive statistics

The descriptive statistics of the data used for the different regression analyses can be found in Tables 1, 3 and 4. The logistic regressions with the likelihood of being a carer to a friend and a carer to a neighbour as the dependent variable were done on the whole population (Table 1). The ordinal regressions, testing what influences the frequency of care provision, were done only on the group of carers to friends (Table 3) and to neighbours (Table 4).

Representativeness of the data

Table 1 shows the descriptives of the entire sampled population of adults over 50 years of age living in 16 different European countries. Women (56%) are slightly overrepresented compared to men. This is to be expected. Because of the longer life-expectancy of women the gender division of populations becomes less equal in the higher age groups. The average age of the respondents is 67 years. About 70% of the sampled population has a partner, which is slightly higher than the European average of 64% (Eurostat, 2011). Only 3% of the population has children below the age of 18, which is to be expected considering the average age of the population. Around 42% of the sampled population is lower educated, this is somewhat higher than the European average of 34%. Whereas those who have attained a medium education level are underrepresented, making up 36% of the sample, compared to the European average of 45% (Eurostat, 2019). Apart from the minor deviations from the European average for marital status and educational attainment, overall the sampled population seems to be representative of the European population over 50 years of age.

Because the data seems to be representative for the overall European population over 50 years of age, the means in Table 1 can be seen as the European average. The means of the characteristics of carers to friends (Table 3) and neighbours (Table 4) can then be compared to this average to see if characteristics of these groups are different. With this comparison several differences become apparent.

The two groups of non-kin carers consist of more men than women, whereas on average there are more women than men, meaning that men are overrepresented in the group of non-kin carers. The age of non-kin carers is slightly below average. The age of friend carers being lower

than the average age of neighbour carers. The amount of health issues of non-kin carers is also lower, than the average of the entire sample. The percentage of friend carers who have a partner is about 10% lower than the average. Yet the percentage of neighbour carers who have a partner is average. The percentage of friend carers that is employed is higher than average and than neighbour carers. Non-kin carers have an above average education level, with friend carers being the highest educated. Finally, the percentage of friend carers living in a country with comparatively the most generous long-term care system (cluster 1) is far above average. Whereas the percentage of carers living in countries with less generous long-term care systems is below average. The percentage of neighbour carers living in a country with a generous long-term care system is also above average. For this group the percentage living in a country with a long-term care system focused on state supported informal care (cluster 2) is also above average.

Table 1. Descriptive statistics dependent and independent variables of logistic regressions.

	N	Minimum	Maximum	Mean	S.d.
Carer to friend	64977	0	1	0,02	
Carer to neighbour	64976	0	1	0,03	
Female (ref. male)	65367	0	1	0,56	
Age	65367	50	105	67,34	9,95
Health issues	65119	0	15	0,83	2,36
Partner (ref. no partner)	63232	0	1	0,72	
Young child (ref. no young child)	64991	0	1	0,03	
<i>Employment status</i>					
Not employed	65367	0	1	0,70	
Employed	65367	0	1	0,24	
Unable to work	65367	0	1	0,03	
<i>Educational attainment</i>					
Lower educated	65367	0	1	0,42	
Medium educated	65367	0	1	0,36	
High educated	65367	0	1	0,22	
<i>Long-term care systems</i>					
Formal ltc (cluster 1)	65367	0	1	0,18	
Informal ltc (cluster 2)	65367	0	1	0,29	
Private ltc (cluster 3)	65367	0	1	0,22	
Minimal ltc (cluster 4)	65367	0	1	0,30	

Source: SHARE datarelease 7.0.0.

Table 2. Frequency of providing informal care to friends and neighbours

		Daily	Weekly	Monthly	Less often	Total
Care provided by	Friend	112	583	814	1592	3101
		3,6%	18,8%	26,3%	51,3%	100%
	Neighbour	188	767	1039	1625	3619
		5,2%	21,2%	28,7%	44,9%	100%

Table 3. Descriptive statistics dependent and independent variables of ordinal regression for friend carers.

	N	Minimum	Maximum	Mean	S.d.
Frequency care provision friends	3101	1	4	1,75	0,88
Female (ref. male)	3101	0	1	0,48	
Age	3101	50	94	64,63	8,45
Health issues	3100	0	14	0,28	0,93
Partner (ref. no partner)	3050	0	1	0,62	
Young child (ref. no young child)	3091	0	1	0,05	
<i>Employment status</i>					
Not employed	3101	0	1	0,65	
Employed	3101	0	1	0,29	
Unable to work	3101	0	1	0,03	
<i>Educational attainment</i>					
Lower educated	3101	0	1	0,26	
Medium educated	3101	0	1	0,40	
High educated	3101	0	1	0,34	
<i>Long-term care systems</i>					
Formal ltc (cluster 1)	3101	0	1	0,32	
Informal ltc (cluster 2)	3101	0	1	0,30	
Private ltc (cluster 3)	3101	0	1	0,16	
Minimal ltc (cluster 4)	3101	0	1	0,22	

Source: SHARE datarelease 7.0.0.

Table 4. Descriptive statistics dependent and independent variables of ordinal regression for neighbour carers.

	N	Minimum	Maximum	Mean	S.d.
Frequency care provision neighbours	3619	1	4	1,87	0,92
Female (ref. male)	3619	0	1	0,47	
Age	3619	50	95	65,89	8,47
Health issues	3619	0	14	0,30	0,99
Partner (ref. no partner)	3522	0	1	0,71	

Young child (ref. no young child)	3611	0	1	0,03
<i>Employment status</i>				
Not employed	3619	0	1	0,72
Employed	3619	0	1	0,24
Unable to work	3619	0	1	0,02
<i>Educational attainment</i>				
Lower educated	3619	0	1	0,31
Medium educated	3619	0	1	0,43
High educated	3619	0	1	0,27
<i>Long-term care systems</i>				
Formal ltc (cluster 1)	3619	0	1	0,27
Informal ltc (cluster 2)	3619	0	1	0,37
Private ltc (cluster 3)	3619	0	1	0,16
Minimal ltc (cluster 4)	3619	0	1	0,20

Source: SHARE datarelease 7.0.0.

Results of the logistic and ordinal regressions

The results of the regression analyses can be found in Table 5. Hypothesis 1a stated that women are more likely to be non-kin carers. However, the results show that odds of women being non-kin carers are lower than the odds of men being non-kin carers. So hypothesis 1a is rejected for both friend and neighbour carers. Hypothesis 1b stated that women provide more care than men. The results show that the odds of women providing care at a higher frequency are higher than for men. So hypothesis 1b can be accepted for both friend and neighbour carers.

Hypothesis 2a stated that the likelihood of being a non-kin carer decreases as age increases. The results show that the odds of being a non-kin carer decrease as age increases, so hypothesis 2a can be accepted for both friend and neighbour carers. Hypothesis 2b stated that the frequency of care provision also decreases as age increases. The results show that for friend carers the frequency of care provision actually increases with increasing age. For neighbour carers there is no significant association between age and frequency of care provision. This means that hypothesis 2b has to be rejected.

Hypothesis 3a stated that the likelihood of being a non-kin carer decreases with increasing health issues. The results show that the odds of being a non-kin carer decrease for both friend and neighbour carers as the number of health issues someone has increase. So hypothesis 3a can be accepted. Hypothesis 3b stated that the frequency of care provision also decreases as health issues increase. The results however show no significant association

between the number of health issues and the frequency of care provision, so hypothesis 3b has to be rejected.

In hypothesis 4a it was stated that the likelihood of being a non-kin carer is lower for those who have a partner. The results show that the odds of being an informal carer are indeed lower for those with a partner than for those without a partner. This effect is much stronger for friends than neighbours. The odds of a person *without* a partner being a carer to a friend are more than two times greater (2,35) than the odds of a person *with* a partner of being a carer to a friend. The odds of a person without a partner being a carer for a neighbour are only 1,4 times greater than those of someone with a partner. This does mean however that hypothesis 4a can be accepted for both friend and neighbour carers. Hypothesis 4b stated that the frequency of care provision is also lower for those with a partner. The results show that the odds of someone with a partner providing non-kin care at a higher frequency are lower than the odds for someone without a partner. This means that hypothesis 4b can also be accepted.

In hypothesis 5a it was stated that those who have children below the age of eighteen are less likely to be non-kin carers than those who don't have young children. However, no association between having young children and being a non-kin carer was found. So hypothesis 5a has to be rejected. Hypothesis 5b stated that having young children influence the frequency of care provision negatively. The results show that the frequency of care provision for friend carers is actually higher for those with young children. For neighbour carers there is no association between having young children and the frequency of care provision. So hypothesis 5b has to be rejected. Hypothesis 5c stated that the negative effect of having young children on the frequency of care provision would be stronger for friend carers than for neighbour carers. The results show however that there is no negative effect of having young children on the frequency of non-kin care provision. This means that hypothesis 5c has to be rejected as well.

Hypothesis 6a stated that those who are employed are less likely to be non-kin carers than those who are not employed. The results show that the odds of those who are not employed being a non-kin carer are indeed greater than the odds of those who are employed. So hypothesis 6a can be accepted. Hypothesis 6b stated that those who are employed also provide care at a lower frequency than those who are not employed. The results show that for friend carers the frequency of care provision was higher for both the unemployed and those unable to work, compared to the employed. For neighbour carers the frequency of care provision is only higher than that of the employed for those who are unable to work. Meaning that hypothesis 6b is accepted for friend carers, but can only be partly accepted for carers for neighbours.

Hypothesis 7a stated that lower educated are more likely to be non-kin carers than the higher educated. The results show that the odds of being a carer are greater for those who with high educational attainment than for those with low educational attainment. For friend carers the odds of being a carer are also lower for those with a medium educational attainment. Hypothesis 7a is thus rejected. Hypothesis 7b stated that the frequency of care provision is higher for lower educated. The results show that the odds of providing care at a higher frequency are indeed greater for the lower educated than for the higher educated. These differences between higher and lower educated are slightly larger for friend carers than for neighbours. This means that hypothesis 7b can be accepted

Hypothesis 8a stated that the more generous a long-term care system is, the more likely it is that someone is an informal carer. The results show that the odds of being a non-kin carer are greater for both friends and neighbours in countries with the most and second most generous long-term care systems. So hypothesis 8a can be accepted. Hypothesis 8b stated that the frequency of care provision lower is, the more generous a long-term care system is. The results (Table 6) show that the odds of caring monthly or more often and of caring weekly or more often, are actually greater in countries with more generous long-term care systems. For friend carers there are no differences in the likelihood of providing care daily between friend carers living in countries with different long-term care systems. Neighbour carers living in countries with a long-term care system focused on state supported informal care, are more likely to provide daily care than neighbour carers living in countries with very limited long-term care systems. So hypothesis 8b has to be rejected.

The proportion of the variance of the dependent variables (Nagelkerke R^2) that can be explained by the independent variables is quite low for all four regression analyses. The highest proportion of explained variance is for the frequency of care provision by friends. 5,7% of the variance in the frequency of care provision by friends can be explained by the personal characteristics and long-term care system. The low proportions of explained variance mean that there are other factors that were not taken into account that have a much larger influence on the likelihood of being a non-kin carer and the frequency of non-kin care provision.

Overall, the hypothesis that women provide non-kin care at a higher frequency than men is accepted. The hypothesis that the likelihood of non-kin care provision decreases as age increases is accepted, as well as the hypothesis that the likelihood of care provision decreases as health issues increase. The hypotheses stating that the likelihood and frequency of non-kin care provision are lower for those with a partner are also accepted. The hypotheses of the

employed being less likely to provide non-kin care and do so less frequently are accepted as well. The hypothesis stating that the lower educated provide care more frequently than the higher educated can also be accepted. The final hypothesis that can be accepted is that those living in countries with generous long-term care systems are more likely to be non-kin carers is accepted. The other hypotheses had to be rejected.

Table 5. Logistic regression of providing care to neighbours (yes or no) and ordinal regression of amount of care provided to neighbours: odds ratios.

	Logistic regression <i>Friends</i>	Logistic regression <i>Neighbours</i>	Ordinal regression <i>Friends</i>	Ordinal regression <i>Neighbours</i>
	Odds ratio	Odds ratio	Odds ratio	Odds ratio
Female (ref. male)	0,83*	0,86*	1,57*	1,76*
Age	0,97*	0,98*	1,01*	1,00
Health issues	0,84*	0,83*	0,98	0,95
Partner (ref. single)	0,43*	0,74*	0,77*	0,86*
Young child (ref. no young child)	0,78	1,13	1,60*	0,91
<i>Employment status (ref. employed)</i>				
Unemployed	1,61*	1,73*	1,28*	1,17
Unable to work	1,68*	1,38*	1,63*	1,62*
<i>Educational level (ref. high educated)</i>				
Low educated	0,64*	0,81*	1,57*	1,24*
Medium educated	0,84*	1,11	1,16	1,09
<i>Long-term care system (ref. cluster 4)</i>				
Formal ltc (cluster 1)	1,99*	1,90*		
Informal ltc (cluster 2)	1,35*	1,68*		
Private ltc (cluster 3)	1,13	1,14		
Constant	0,28*	0,08*		
Nagelkerke R ²	4,3%	2,8%	5,7%	4,4%

* p < 0,05.

Table 6. Logistic regressions of the frequency of provision to friends and neighbours: odds ratios.¹

	Friend carer			Neighbour carer		
	Monthly or more	Weekly or more	Daily	Monthly or more	Weekly or more	Daily
<i>Long-term care systems (ref. cluster 4)</i>						
Formal ltc. (cluster 1)	1,98*	1,75*	0,61	1,90*	1,65*	1,12
Informal ltc (cluster 2)	1,35*	1,59*	1,24	1,68*	1,99*	1,84*
Private informal (cluster 3)	1,13	1,44*	1,53	1,14	1,37*	1,34

* p < 0,05

¹ Controlled for: gender, age, health issues, marital status, employment status and educational attainment.

Discussion

The goal of this research was to answer the following question: How do individual characteristics and long-term care systems influence whether non-kin care is provided and the frequency of non-kin care provision? This question was answered through carrying out logistic and ordinal regressions.

The results show that there are several individual characteristics that influence the likelihood someone is a non-kin carer. Previous research has shown that men mainly provide informal care to their spouses (Bracke, Christiaens, & Wauterickx, 2008), the results presented above however show that men are more likely than women to (also) provide care to non-kin. A possible explanation can be found in the type of care that is provided to non-kin. Non-kin carers often don't provide intensive personal care, but are more likely to take on lighter care responsibilities (LaPierre & Keating, 2013). When it comes to care for kin, women usually provide the intense personal care whereas men are more likely to take on less intense caring tasks (Schmid, Brandt, & Haberkern, 2012). So the fact that the expectations placed on the intensity and intimacy of the caring tasks are lower for non-kin carers than for kin-carers could make non-kin care more accessible to men. Another part of the explanation could be that since women more often provide care to kin, they have less time to care for non-kin. Men are less likely to be carers for kin, so they might have more time to care for non-kin.

Traditional gender roles are however observed when it comes to the frequency of non-kin care provision. Women are more likely to provide a higher frequency of care than men. So even though men are more likely to be non-kin carers, these men provide non-kin care at a lower frequency than the women who provide non-kin care.

Furthermore, it was found that with increasing age and health issues the likelihood of being a non-kin carer decreases. This is as was expected based on results from similar research (De Klerk, M. et al., 2017; Egging et al., 2011). It is likely that as health issues increase and age increases, the ability of someone to provide care decreases. The frequency care is provided by friend carers however also increases with increasing age. A possible explanation for this might be the fact that the age of friends is likely to be similar. So as the age of the carer increases, so does the age of the care recipient. As the age of the care recipient increases, they are likely to need more care and more likely not to have a spouse to provide care. This could make it necessary for friend carers to take on more caring responsibilities.

Having a partner decreases the likelihood someone is a non-kin carer and also the frequency non-kin care is provided if someone with a partner is a non-kin carer. This is likely due to the fact that those who have a partner, have more family to take care of and thus less

time to take care of non-kin. The fact that this effect is stronger for friend carers than for neighbour carers can possibly be explained by the fact that neighbours live in close proximity to the care recipient. This means that for them it might take less time to provide care, because there is no travel time. Not being employed also seems to increase the likelihood of being a non-kin carer and, for friends, increases the frequency of care provision. This again might be explained by the fact that those who are not employed have more time to provide care than those who are employed.

Having young children however does not influence the likelihood of being a non-kin carer. And non-kin carers to friends with young children are more likely to provide care at a higher frequency. These results however might not be trustworthy, because the number of respondents with children below the age of eighteen is very small due to the minimum age of respondents being 50. Further research including non-kin carers below the age of 50 will have to show if having young children influences non-kin care.

For educational level, we see that higher educated are more likely to be non-kin carers. A possible explanation is that since the lower educated (especially women) are more likely than the higher educated to provide care to kin, the lower educated have less time to provide care to non-kin (Tokunaga & Hashimoto, 2017). Whereas the higher educated provide care to kin less frequently, so they have more time to provide care to non-kin. However, if the lower educated do provide care to non-kin, they do so more frequently than the higher educated.

The long-term care system that is in place in a country also influences non-kin care provision. The likelihood of being a non-kin carer is higher in countries with a more generous long-term care system, this means that there is crowding-in of non-kin carers. The frequency of care provision is also more likely to be monthly or weekly in more generous long-term care systems. This means that for non-kin carers generous long-term care systems do not crowd out informal care, but actually only have a crowding-in effect. A possible explanation is that if the long-term care system is generous, meaning there is a wide availability of formal care, people have to spend less time caring for kin and can spend more time caring for non-kin. However there seems to be no previous research on how long-term care systems influence the balance between kin and non-kin caring to support this theory. Further research is necessary to elaborate on this finding.

So overall the most important factor influencing the provision of non-kin care seems to be how much time a person has available. The available time is influenced by how much time is spent caring for kin. The groups that are known to spend more time caring for kin (women, those with a partner, lower educated, those living in countries with minimal long-term care

systems), are less likely to be carers for non-kin. This is in line with the theory that the obligation to provide informal care to kin is stronger than the obligation that is felt to provide care to non-kin (LaPierre & Keating, 2013). This means that even though the need for non-kin care is increasing for an increasing number of people, because they don't have kin who can care for them, their friends and neighbours are much more likely to take on caring responsibilities if they don't have kin that requires care. Thus to promote non-kin care it is important to invest in professional care as well. That way kin carers have the option to outsource part of the care to professionals and thus have more time to also provide care to non-kin. The availability of professional care for the most intense personal care is also likely to lower the threshold for non-kin to take on caring responsibilities, because they know the care burden placed on them will be lower.

There are several limitations to this study. The first of which is that all respondents of this research were over the age of 50. This means that non-kin carers below that age were not taken into account, even though they might also form a significant part of the group of non-kin carers (LaPierre & Keating, 2013). A second limitation is that there are few non-kin carers in the data who provide care on a daily basis. This means that the sample of daily non-kin carers might not be representative for the actual population of non-kin carers providing care daily. A final limitation of the data is that there is no information provided on the care recipients. It would have given a more insight into non-kin carers if both sides of the caring relationship could have been analysed. If it would have been known for example what type of health issues the care recipient has and the severity of the health issues or if there are other carers as well and what the care recipient's relation to these other carers is.

Despite the limitations of the research, this research has filled part of the gap in research on non-kin informal care. It has shown that next to individual characteristics of the carer, long-term care systems also influence the provision of non-kin care. To promote non-kin care, non-kin carers need to be supported by the long-term care system.

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Appendix A: Syntax.

```
get file='C:\Users\Gebruiker\Documents\SPPH\Thesis\SPSS\5_Alle_var2.sav'.
```

```
set tvars both. set tnumbers both.
```

```
DATASET NAME wave6.
```

```
* Selecting respondents who completed the interview. select  
if interview=1.
```

```
* Selecting countries, not: Isreal, Switzerland and  
Luxembourg.
```

```
Select if not (country=20 or country=25 or country=31).
```

```
***** INDEPENDENT VARIABLES *****.
```

```
* Gender. recode gender (1=0) (2=1) into  
d_gender. value labels d_gender  
0"male" 1"female".
```

```
VARIABLE LABELS d_gender "male or female".
```

```
* Age. compute age=age_int.
```

```
if (age_int=-9) age=2015 - yrbirth.
```

```
* Selecting respondents over 49.
```

```
Select if age>49.
```

```
* Marital status.
```

```
*** Gegevens w1 invoegen.
```

```
if (firstwave=1) and (sysmis(dn014_)) dn014_=w1_dn014_.
```

```
*** Gegevens w2 invoegen.
```

```
if (firstwave=2) and (sysmis(dn014_)) dn014_=w2_dn014_.
```

```
*** Gegevens w4 invoegen.
```

```
if (firstwave=4) and (sysmis(dn014_)) dn014_=w4_dn014_.
```

```
*** Gegevens w5 invoegen.
```

```
if (firstwave=5) and (sysmis(dn014_)) dn014_=w5_dn014_.
```

```

** Variable marital status. recode dn014_ (1 2=1) (-2 -1=sysmis) (3=2) (4=3)
(5=4) (6=5) into mar_stat.
value labels mar_stat 1"partner/married" 2"Married, living seperate from spouse" 3"Never
married" 4"Divorced" 5"Widowed" 6"no partner in household". variable labels mar_stat
"marital status".

** Dummy marital status. recode mar_stat (1 2=1)
(3 4 5=0) into d_mar_stat.
value labels d_mar_stat 1"married" 0"single". variable
labels d_mar_stat "is the person married".

* Young child dummy.
** Age children, dummy child under 18. DO
REPEAT CH=ch_yrbirth_1 to ch_yrbirth_19. if
(CH>1997) d_ych=1. if (CH<1998) d_ych=0. end
repeat. if (d_child=1) d_ych=0. value labels
d_ych 0"no" 1"yes".
variable labels d_ych "do you have a child below age of 18".

* Employment status.
recode ep005_ (1 3 5=1) (2=2) (4=3) into emp_st.
value labels emp_st 1"not employed" 2"employed" 3"unable to work".
var labels emp_st "employment status".

recode emp_st (1=1) (else=0) into d_emp1.
recode emp_st (2=1) (else=0) into d_emp2.
recode emp_st (3=1) (else=0) into d_emp3.

* Educational level.
recode isced1997_r (-2 -1 97=sysmis) (else=copy) into r_isced97_r.
value labels r_isced97_r 0"no education" 1"primary school" 2"lower secondary education"
3"upper secondary education"
4"post secondary non tertiary education" 5"first stage tertiary education" 6"second stage
tertiary education" 95"still in school". variable labels r_isced97_r "respondent isced
1997 score".

```

* Recode into low, medium, high. recode r_isc97_r (0 1

2=1) (3 4=2) (5 6=3) into educ_lev.

value labels educ_lev 1"low education level" 2"secondary education level" 3"high education level". variable labels educ_lev "education level (ref. high educ lev)".

recode educ_lev (1=1) (else=0) into edlev1.

recode educ_lev (2=1) (else=0) into edlev2.

recode educ_lev (3=1) (else=0) into edlev3.

* Physical health. recode adl (-1 -2=sysmis) (else=copy) into

r_adl. recode iadl (-1 -2=sysmis) (else=copy) into r_iadl.

compute health=r_adl+r_iadl.

* Landen typologie.

If (country=13) or (country=14) or (country=18) ltc_sys=1.

If (country=12) or (country=23) or (country=28) or (country=34) ltc_sys=2.

If (country=11) or (country=15) or (country=17) or (country=33) ltc_sys=3.

If (country=16) or (country=19) or (country=29) or (country=35) or (country=47) ltc_sys=4.

value labels ltc_sys 1"generous" 2"informal care" 3"private informal care" 4"necessity".

variable labels ltc_sys "typology of countries ltc systems".

recode ltc_sys (1=1) (else=0) into ltc_for.

recode ltc_sys (2=1) (else=0) into ltc_in. recode

ltc_sys (3=1) (else=0) into ltc_priv. recode

ltc_sys (4=1) (else=0) into ltc_no.

* Recoding so correct ref. recode d_gender (0=1) (1=0) into

or_gen. value labels or_gen 0"female" 1"male". variable

labels or_gen "gender".

```
recode d_mar_stat (0=1) (1=0) into or_marstat. value
labels or_marstat 0"married" 1"single". variable labels
or_marstat "marital status (ref. single)".
```

```
recode d_child d_ych (0=1) (1=0) into or_child or_ych.
value labels or_child 0"childless" 1"has child". value labels
or_ych 0"young child" 1"no young child". variable labels
or_child "do you have children (ref. yes)". variable labels
or_ych "do you have young children (ref. no)".
```

```
recode emp_st (1=1) (2=3) (3=2) into or_empst. value labels or_empst
1"unemployed" 2"unable to work" 3"employed".
variable labels or_empst "employment status (ref. working)".
```

**** DEPENDENT VARIABLES ****.

* Variable:
frequency of
care provision.

* Friends. do if
(sp008_=1).

```
recode sp009_1 sp009_2 sp009_3 (sysmis=-99). end
if.
```

```
if (sp008_=1) and ((sp009_1=29 and sp011_1=1) or (sp009_2=29 and sp011_2=1) or
(sp009_3=29 and sp011_3=1)) g_nk_f=1.
```

```
if (sp008_=1) and ((sp009_1=29 and sp011_1=2) or (sp009_2=29 and sp011_2=2) or
(sp009_3= 29 and sp011_3=2)) g_nk_f=2.
```

```
if (sp008_=1) and ((sp009_1=29 and sp011_1=3) or (sp009_2=29 and sp011_2=3) or
(sp009_3=29 and sp011_3=3)) g_nk_f=3.
```

```
if (sp008_=1) and ((sp009_1=29 and sp011_1=4) or (sp009_2=29 and sp011_2=4) or
(sp009_3= 29 and sp011_3=4)) g_nk_f=4. if (sp008_=1) and (sp009_1 NE 29) and
(sp009_2 NE 29) and (sp009_3 NE 29) g_nk_f=5. if (sp008_=5) g_nk_f=6. var labels
g_nk_f "how often do friends give non-kin care".
```

value labels g_nk_f 1"daily" 2"weekly" 3"monthly" 4"less often" 5"caregiver but not to friends"
6"not a caregiver".

* Neighbours.

if (sp008_=1) and ((sp009_1=31 and sp011_1=1) or (sp009_2=31 and sp011_2=1) or
(sp009_3=31 and sp011_3=1)) g_nk_n=1.

if (sp008_=1) and ((sp009_1=31 and sp011_1=2) or (sp009_2=31 and sp011_2=2) or
(sp009_3=31 and sp011_3=2)) g_nk_n=2.

if (sp008_=1) and ((sp009_1=31 and sp011_1=3) or (sp009_2=31 and sp011_2=3) or
(sp009_3=31 and sp011_3=3)) g_nk_n=3.

if (sp008_=1) and ((sp009_1=31 and sp011_1=4) or (sp009_2=31 and sp011_2=4) or
(sp009_3=31 and sp011_3=4)) g_nk_n=4. if (sp008_=1) and (sp009_1 NE 31) and

(sp009_2 NE 31) and (sp009_3 NE 31) g_nk_n=5. if (sp008_=5) g_nk_n=6. var labels
g_nk_n "how often do neighbours give non-kin care".

value labels g_nk_n 1"daily" 2"weekly" 3"monthly" 4"less often" 5"caregiver but not to
neighbour" 6"not a caregiver".

* Logistic regression friend carer.

recode g_nk_f (1 2 3 =1) (4 5 6=0) into log_g_f. value labels

log_g_f 1"yes" 0"no". variable labels log_g_f "provides at least
monthly care to friend".

* Logistic regression neighbour carer.

recode g_nk_n (1 2 3 =1) (4 5 6=0) into log_g_n.

value labels log_g_n 1"yes" 0"no". variable labels log_g_n "provides
at least monthly care to neighbour". * Ordinal regression friend carer.

recode g_nk_f (1=4) (2=3) (3=2) (4=1) into dep_g_f. value labels

dep_g_f 1"less often" 2"monthly" 3"weekly" 4"daily". variable labels
dep_g_f "how often do friends provide informal care".

* Ordinal regression neighbour carer. recode g_nk_n (1=4) (2=3) (3=2) (4=1) into dep_g_n.

value labels dep_g_n 1"less often" 2"monthly" 3"weekly" 4"daily". variable labels dep_g_n
"how often do neighbours provide informal care".

**** DESCRIPTIVES ****.

* Descriptives log regressions.

```
des log_g_f log_g_n d_gender age health d_mar_stat d_ych d_emp1 d_emp2 d_emp3 edlev1
edlev2 edlev3 ltc_for ltc_in ltc_priv ltc_no.
```

* Descriptives ordinal regression friends.

```
TEMPORARY. select if not
```

```
(sysmis(dep_g_f)).
```

```
DESCRIPTIVES dep_g_f
```

```
d_gender age health d_mar_stat d_ych d_emp1 d_emp2 d_emp3 edlev1 edlev2 edlev3 ltc_for
ltc_in ltc_priv ltc_no.
```

* Descriptives ordinal regression neighbours.

```
TEMPORARY. select if not
```

```
(sysmis(dep_g_n)).
```

```
DESCRIPTIVES dep_g_n d_gender age health d_mar_stat d_ych d_emp1 d_emp2 d_emp3
edlev1 edlev2 edlev3 ltc_for ltc_in ltc_priv ltc_no.
```

**** REGRESSIONS ****.

* Logistic regression friend carer.

```
LOGISTIC REGRESSION VARIABLES log_g_f
```

```
/METHOD=ENTER d_gender age health
```

```
/METHOD=ENTER d_mar_stat d_ych or_empst
```

```
/METHOD=ENTER educ_lev
```

```
/METHOD=ENTER ltc_sys
```

```
/CONTRAST (d_gender)=Indicator(1)
```

```
/CONTRAST (d_mar_stat)=Indicator(1)
```

```
/CONTRAST (d_ych)=Indicator
```

```
/CONTRAST (or_empst)=Indicator
```

```
/CONTRAST (educ_lev)=Indicator
```

```
/CONTRAST (ltc_sys)=Indicator
```

```
/CRITERIA=PIN(.05) POUT(.10) ITERATE(20) CUT(.5).
```

* Logistic regression neighbour carer.


```

LOGISTIC REGRESSION VARIABLES log_g_n
/METHOD=ENTER age d_gender health
/METHOD=ENTER d_mar_stat d_ych or_empst
/METHOD=ENTER educ_lev
/METHOD=ENTER ltc_sys
/CONTRAST (d_gender)=Indicator(1)
/CONTRAST (d_mar_stat)=Indicator(1)
/CONTRAST (d_ych)=Indicator
/CONTRAST (or_empst)=Indicator
/CONTRAST (educ_lev)=Indicator
/CONTRAST (ltc_sys)=Indicator
/CRITERIA=PIN(.05) POUT(.10) ITERATE(20) CUT(.5).

```

* Ordinal regression friend carer.

```

PLUM dep_g_f BY or_gen or_marstat or_ych or_empst educ_lev ltc_sys WITH age health
/CRITERIA=CIN(95) DELTA(0) LCONVERGE(0) MXITER(100) MXSTEP(5)
PCONVERGE(1.0E-6) SINGULAR(1.0E-8)
/LINK=LOGIT
/PRINT=FIT PARAMETER SUMMARY TPARALLEL.

```

* Ordinal regression neighbour carer.

```

PLUM dep_g_n BY or_gen or_marstat or_ych or_empst educ_lev ltc_sys WITH age health
/CRITERIA=CIN(95) DELTA(0) LCONVERGE(0) MXITER(100) MXSTEP(5)
PCONVERGE(1.0E-6) SINGULAR(1.0E-8)
/LINK=LOGIT
/PRINT=FIT PARAMETER SUMMARY TPARALLEL.

```

* Seperate regressions ltc system friend carer, because violation parallel lines test.

```

LOGISTIC REGRESSION VARIABLES pl_gf_d
/METHOD=ENTER d_gender age r_iadl r_adl
/METHOD=ENTER d_mar_stat d_ych or_empst
/METHOD=ENTER educ_lev
/METHOD=ENTER ltc_sys

```

```
/CONTRAST (d_gender)=Indicator(1)
/CONTRAST (d_mar_stat)=Indicator(1)
/CONTRAST (d_ych)=Indicator
/CONTRAST (or_empst)=Indicator
/CONTRAST (educ_lev)=Indicator
/CONTRAST (ltc_sys)=Indicator
/CRITERIA=PIN(.05) POUT(.10) ITERATE(20) CUT(.5).
```

LOGISTIC REGRESSION VARIABLES pl_gf_dw

```
/METHOD=ENTER d_gender age r_iadl r_adl
/METHOD=ENTER d_mar_stat d_ych or_empst
/METHOD=ENTER educ_lev
/METHOD=ENTER ltc_sys
/CONTRAST (d_gender)=Indicator(1)
/CONTRAST (d_mar_stat)=Indicator(1)
/CONTRAST (d_ych)=Indicator
/CONTRAST (or_empst)=Indicator
/CONTRAST (educ_lev)=Indicator
/CONTRAST (ltc_sys)=Indicator
/CRITERIA=PIN(.05) POUT(.10) ITERATE(20) CUT(.5).
```

LOGISTIC REGRESSION VARIABLES pl_gf_dwm

```
/METHOD=ENTER d_gender age r_iadl r_adl
/METHOD=ENTER d_mar_stat d_ych or_empst
/METHOD=ENTER educ_lev
/METHOD=ENTER ltc_sys
/CONTRAST (d_gender)=Indicator(1)
/CONTRAST (d_mar_stat)=Indicator(1)
/CONTRAST (d_ych)=Indicator
/CONTRAST (or_empst)=Indicator
/CONTRAST (educ_lev)=Indicator
/CONTRAST (ltc_sys)=Indicator
/CRITERIA=PIN(.05) POUT(.10) ITERATE(20) CUT(.5).
```

* Seperate regressions ltc system neighbour carer, because violation parallel lines test.

```
LOGISTIC REGRESSION VARIABLES pl_gn_d
/METHOD=ENTER d_gender age r_iadl r_adl
/METHOD=ENTER d_mar_stat d_ych or_empst
/METHOD=ENTER educ_lev
/METHOD=ENTER ltc_sys
/CONTRAST (d_gender)=Indicator(1)
/CONTRAST (d_mar_stat)=Indicator(1)
/CONTRAST (d_ych)=Indicator
/CONTRAST (or_empst)=Indicator
/CONTRAST (educ_lev)=Indicator
/CONTRAST (ltc_sys)=Indicator
/CRITERIA=PIN(.05) POUT(.10) ITERATE(20) CUT(.5).
```

```
LOGISTIC REGRESSION VARIABLES pl_gn_dw
/METHOD=ENTER d_gender age r_iadl r_adl
/METHOD=ENTER d_mar_stat d_ych or_empst
/METHOD=ENTER educ_lev
/METHOD=ENTER ltc_sys
/CONTRAST (d_gender)=Indicator(1)
/CONTRAST (d_mar_stat)=Indicator(1)
/CONTRAST (d_ych)=Indicator
/CONTRAST (or_empst)=Indicator
/CONTRAST (educ_lev)=Indicator
/CONTRAST (ltc_sys)=Indicator
/CRITERIA=PIN(.05) POUT(.10) ITERATE(20) CUT(.5).
```

```
LOGISTIC REGRESSION VARIABLES pl_gn_dwm
/METHOD=ENTER d_gender age r_iadl r_adl
/METHOD=ENTER d_mar_stat d_ych or_empst
/METHOD=ENTER educ_lev
/METHOD=ENTER ltc_sys
```

```
/CONTRAST (d_gender)=Indicator(1)
/CONTRAST (d_mar_stat)=Indicator(1)
/CONTRAST (d_ych)=Indicator
/CONTRAST (or_empst)=Indicator
/CONTRAST (educ_lev)=Indicator
/CONTRAST (ltc_sys)=Indicator
/CRITERIA=PIN(.05) POUT(.10) ITERATE(20) CUT(.5).
```