

Brief communication**Magdalena Rokicka**

Institute for Educational Research
m.rokicka@ibe.edu.pl
ORCID: 0000-0003-1710-0967

Olga Zajkowska

Faculty of Economic Sciences
University of Warsaw
o.zajkowska@uw.edu.pl
ORCID: 0000-0001-6520-1303

DOI: 10.33119/SD.2021.1.3

Informal care for adults: a comparison of Time Use Surveys of 2004 and 2013

Abstract

The aim of this paper is to describe daily patterns and changes in time use of people dealing with older adults' informal care in Poland. The analysis is based on the Time Use Surveys of 2004 and 2013. We use descriptive statistics and graphic sequential analysis. The results show that with the increasing population of adults requiring care, we observe a larger number of caregivers. The rate of women and the rate of the retired increases in the sample of caregivers between the waves of the survey. As a consequence, the average time spent on caregiving also increased over time. We conclude that increasing daily time spent on caregiving of adults and older adults as well as the number of caregivers will continue to increase and, therefore, both market and state supply of caregiving services is required.

Keywords: older adults, informal care, time poverty, time use, leisure

Introduction

Poland, like other countries of Central and Eastern Europe, experienced the phenomenon of the second demographic transition much later and more intensively than the countries of Western Europe (Kotowska, 1999). As a result, negative demographic phenomena are particularly challenging in Polish conditions. In 2013, the total fertility rate (TFR) was 1.29, in 2015: 1.32, and in 2016: 1.39 (Eurostat Database, 2019). Therefore, despite a slight increase, it is still well below the replacement fertility rate. With a negligible rate of net migration varying over the last 10 years within the range of 109 thousand people in 2010 to 24 thousand in 2018 (Eurostat Database, 2019).¹ At the same time, since 1992 there has been an increase in life expectancy (SP, 2016a). According to the AWG estimates, the old-age dependency ratio in 2040 will be 40 persons aged 65+ per 100 persons of working age, and in 2060 as many as 60 persons aged 65+ per 100 persons of working age (EC, 2017). In 2013, healthy life expectancy, i.e., without restrictions due to disability or chronic diseases, was 81% of life expectancy for men and 77% for women. At the same time, for people aged 65, only 46% of life expectancy for men and 39% for women will be a healthy life, which gives 7.2 and 7.8 years of healthy life, respectively (SP, 2016a). In 2014 people aged 65+ accounted for 22.2% of the population and people aged 80+: 4.0% (SP, 2016a). Those people suffer from multimorbidity. While people aged 60–69 on average have 3.6 chronic diseases or ailments, people aged 80+ have on average 4.5 of chronic diseases or ailments (SP, 2016a). Half of the population 60+ can be classified as disabled, that is having limitations performing daily activities. Among people aged 70+ 75% were classified as disabled (SP, 2016a). Even though currently Poland is a country with relatively young population compared to Western Europe, in 2060 it will have one of the oldest populations (EC, 2017). In near future the structure of the population of Poland will experience fast ageing, which – combined with a mediocre health status of this population – creates an urgent and important policy threat of growing demand for care services, both formal and informal. The data provided above also imply that a vast majority of adults with care needs are older adults and, therefore, they are the main focus of this article.

One of the consequences of population ageing is the increase in the number of older adults needing care. Around the age of 60–65 there is a decrease in physical fitness, often later followed by a decrease of intellectual fitness (Millán-Calenti et al., 2010). The incidence of dementia disorders, including Alzheimer's disease, is increasing

¹ We discuss only migrations lasting at least 12 months.

exponentially with age (Mayeux & Yaakov, 2012; Driver et al., 2009). On average, after reaching the age of 80–85, individuals experience difficulties in performing basic activities related to day-to-day functioning, such as moving around or preparing meals, intensify (Kane et al., 2017; Kingston, Comas-Herrera, & Jagger, 2018), leading to increased demand of the oldest-old individuals for care. Therefore, as the number of older adults grows, the number of dependent adults will increase, too. They will need both formal and informal care services.

At the same time, Poland lacks a geriatric care system, and the availability of services is far from that expected in the Long-Term Senior Policy Assumptions (NIK, 2014). Additionally internal medicine and neurological wards are not prepared to care for people with multiple conditions, and the demand for geriatric hospitalisation is expected to increase by 50% in the 2030 horizon compared to hospitalisations carried out in 2014 (NFZ, 2016). In addition, nursing care standards were increased (MZ, 2018). The number of beds is gradually increasing in care and treatment facilities. In 2010, their number amounted to 19,250, in 2014 to 23,099, and in 2017 to 25,615, which gives an average increase of about 4% y/y. At the same time, the number of hospice beds is growing, from 1,126 in 2010, 1,334 in 2014, to 1,809 in 2019. The number of beds in nursing homes is also increasing: 5,688, 7,027, and 7,528, respectively (BDL; stat.gov.pl). Additionally, the number of hospice beds increased between 2010 and 2013 from 1,126 to 1,307, i.e., by around 5% y/y (GUS, 2015). However, compared to the scale of the increase in demand resulting from demographic changes that are occurring, these numbers are far from sufficient. Since the increase in the formal care services supply is not sufficient and not easy to expand, the driven by necessity demand for informal care services for older adults will grow, as will the demand for relative care, neighbourly assistance, as well as other forms of informal support. The insufficient supply of commercial and institutional care services for older adults means that the majority of this type of care is and will be carried out informally, as part of family or neighbourly assistance. The scale of the problem is illustrated by the potential support ratio, parent support ratio and care potential (cf. Szweida-Lewandowska, 2014). The growing supply gap for the older adults care will put pressure on individuals to increase involvement in informal caregiving and reinforce the conflict between work and family duties.

The burden of the informal older adults' care among caregivers is well recognised in both the international (George & Ferraro, 2017; Leigh, 2010) and Polish literature (Szweida-Lewandowska, 2017; Nicińska, 2020). Time devoted to care affects the time budget of caregivers, limiting the time available for other activities, such as sleep, leisure, or work (George & Ferraro, 2016). However, mostly the last dimension is analysed in the literature. The problem of the negative impact of care on the economic

activity of caregivers, mostly women, has been discussed in the world literature on the subject since the 1980s (Gershuny & Robinson, 1988; Wolf et al., 1994; Ciani, 2012). In the years that followed, the problem of mental, physical, and financial burden of people performing informal care over older adults (Wolff et al., 2016) and caregiver support instruments (Brimblecombe et al., 2018) was also discussed. At the same time, attention is drawn to the different scales of time commitment and the varying range of needs of people in need of care (Mentzakis, McNamee, & Ryan, 2009). People with dementia and dementia-related disorders are often studied separately. Researchers also describe the influence of care provision on the physical (Vitaliano, Zhang, & Scanlan, 2003; Pinquart & Sörensen, 2007) and mental (Schulz & Sherwood, 2008; Wolff et al., 2016) health status of caregivers. Stress and the negative impact of care provision on well-being of caregivers is also highlighted (Pinquart & Sörensen, 2007). Over time, the issue of time involvement in informal care at the expense of other activities, including sleep and leisure, also began to be discussed, but the literature is rather scarce (see: Dunn & Strain, 2001).

In the Polish context two areas of the literature on older adults' care are developed. The main focus is on older adults' perspective – institutional framework and policies (Szweda-Lewandowska, 2017a; Bakalarczyk, 2018), services quality (Krętek-Kamińska et al., 2020) or needs (Szweda-Lewandowska, 2017b) and preferences of older adults (Kalbarczyk, 2019). On the other hand, caregivers' perspective is also developed, with the main focus on labour supply of caregivers (Perek-Białas & Stypińska, 2010; Urbaniak, 2017). Researchers describe several risks for caregivers in terms of health, income, and emotional burden (Bakalarczyk, 2018, Abramowska-Kmon, Maciejasz, 2018). The issue of time dimension in the burden of care for older adults is very rarely analysed in Polish research papers (Rokicka & Zajkowska, 2020). Yet in the Polish literature very little attention is paid to the issue of time poverty, that is how care activities constrain time for leisure or other activities, and in particular very little is also known about the care distribution during the typical workday and how it can affect other activities. Therefore, setting the problem of informal care in the framework of time constraints can provide useful insights and help creating recommendations and policies supporting informal caregivers.

Most suitable data for analysis of time use are collected by Statistics Poland in a form of retrospective 24-hour diaries within the Time Use Research. Harmonised surveys of time budgets have been carried out since the 1960s.² In Poland, time

² A complete overview of the time use research carried out globally is held by the repository of the Centre for Time Use Research at the University of Oxford. Retrieved from: <https://www.timeuse.org/mtus> (accessed: 12.08.2019).

budget research started after World War II. So far, 5 waves of research have been carried out: in 1968, 1976, 1984, 1996 (pilot study), 2004 and 2013 (Kolny, 2016). The first works using these datasets were related to time devoted to professional work, especially in the context of the balance between working time and leisure time of working people (Krzyżanowski, 1961; Smoder, 2016). A lot of attention was paid to the analyses of leisure time (Hozer-Koćmiel, 2008; Kolny, 2016; Wałęga & Wałęga, 2017). These studies analysed the value of time and work and the quality of work, while putting less emphasis on the quality of life. In macroeconomics, time use research serves mainly as a supplement for labour market research (Jankiewicz, 2017) and as a source for the valuation of unpaid household production in the entire economy (Hozer-Koćmiel, 2008; Błaszczak-Przybycińska, 2008; Marszałek, 2017).

The aim of this paper is to describe the underdiscussed phenomenon of time use patterns and changes of older adults' informal caregivers over time between the year 2004 and the year 2013. Our paper is a descriptive and exploratory study which contributes to the understated, undermeasured problem not fully present in the public discussion on the scale and daily patterns of informal care of adults, in a majority older adults in Poland.³ The issue is of particular importance for this country, which is an example of a post-transition country with severe outcomes of the second demographic transition in. We also apply a well-known method to a new area of research. We discuss its usefulness and limitations in a given context.

The rest of the article is organised as follows. The first section describes the data and methods. Then we discuss the results and their meaning for the policy dimension. Finally, we summarise and conclude.

Data and methods

The study used individual data from the Time Use Research from the 2004 and 2013 waves. This is the national cross-sectional survey conducted by national statistical offices in European countries at least once in 10 years. In our study we use the Polish survey, which has been harmonised with other European time use surveys under Eurostat standards (HETUS),⁴ which allows for the international comparisons of the results. Data on daily activities (like work, leisure, sleep, or travel) is collected by 24-hour retrospective diaries covering 10-minute time spans. Respondents report

³ Some partial results describing informal caregiving in Poland can be found in Abramowska-Kmon (2015); Abramowska-Kmon & Maciejasz (2018).

⁴ <https://ec.europa.eu/eurostat/web/time-use-surveys>

the type of activity and activity companions. A survey typically covers 2 diaries, usually a weekday and a weekend day. We defined older adults care based on sufficient activity codes. Although both samples (of 2004 and 2013) are cross-sectional and do not form a panel, both samples are representative and, therefore, can be compared.

In 2004, the study covered a sample of people aged 15 and above, while the survey conducted in 2013 also covered teenagers aged 10 and above. In the 2004 survey, care for older adults is grouped into two activities, codes 391 (Care for adult household members) and 428 (Care for adults within the group of activities of informal assistance for other households), whereas in the 2013 survey, care of adults was classified under four activities: 391 (Care for adults chronically ill or disabled household members), 392 (Other specific assistance for chronically ill or disabled adults who are members of the household), 399 (Assistance to other adults who are members of the household) and 425 (Care for an adult member of another household). Most of adult care activities is performed on older adults. The dataset does not include the information on the age of all adults being taken care for. We have no information on the socio-economic variables of the adults in other households. Care performed in the household is also described with the information on the person this activity is performed with. In 2013 36.6% of adult care activities is done with own husband and the average age of the person performing a care activity is 62 years old. 19.5% of the activities are performed with parents and the average age of performers is 52 years.

For the purpose of this article, the sample was limited to persons aged 15+ caring for the adults in their own household or outside their household. Given the age and health structure of the population in Poland described in the previous section, we assume a majority of the individuals receiving care are older adults. For each wave analysed (2004 and 2013) both categories of care mentioned above, were combined due to the small number of observations, especially the care provided outside own household. In order to conduct a sequential analysis, the daily activities reported by respondents were divided into seven basic categories: 1) physiological needs and time devoted to taking care of oneself (without sleep), 2) sleep, 3) work and education, 4) care for older adults, 5) other care and household activities (other chores and housework, caring for people other than adults) 6) leisure.

In this paper we used descriptive and sequential analysis methods. Sequence index plots are a good solution to present complex sequential phenomena (Michelson, 2005) and allow us to display the distributions of activities throughout the day. It shows not only the number and duration of care activities but also provide the context in which these activities occur. As more informative, this method is still descriptive, and it does not allow drawing conclusions about the causality relationships between the observed variables. Sequence analyses were performed separately on the data

of 2004 and 2013, on a sample of people who provided at least once informal care for older care recipients during days covered in their time use diary. The samples of 850 caregiving individuals (4.02% of the unweighted sample 15+, 3.81% of the weighted population) observations in 2004, and 1682 (4.32%, 2.97% using the weighted population) observations in 2013, respectively, were then divided into men and women subgroups. Both surveys are representative, reflect the structure of adult caregivers in the population and can be extrapolated to the whole population. The obtained results can be compared with wave 3 of the SHARE data, where 5.53% of adults aged 50+ self-report providing care for older adults and 5.43% self-report receiving care (Table 1).

Table 1. Providing and receiving older adults' care by age groups

Age	Providing care	Receiving care
50-54	2.37%	0.00%
55-59	6.65%	2.33%
60-64	5.31%	2.56%
65-69	6.58%	4.58%
70-74	4.87%	6.81%
75-79	5.98%	7.48%
80-84	3.35%	12.93%
85-89	1.05%	28.99%
90-94	0.81%	37.47%
95+	0.00%	57.58%
50+	5.53%	5.43%

Source: own calculations based on SHARE wave 4 (2012).

Due to the smaller sample size in 2004, the obtained results should be interpreted with greater caution. In order to generalise the result of proportion and descriptive characteristics of caregivers, we used weighted data, applying personal weights provided by Statistics Poland. More information about weighting algorithms can be found in the methodological section of the Time Use Survey (SP, 2016b).

Between 2004 and 2013, the socio-economic characteristics of the individuals providing care for older adults changed (Table 1). Based on exploratory data analysis, we can describe the basic characteristics of the people caring for older adults. They are usually women: in 2004, the percentage of women among caregivers was 64.3%, while in 2013: 76.3%. An increasing number of caregivers do not work. In 2004, the employed constituted 39.4% of those providing care, while in 2013 it was only 36.4%. A partial explanation to this fact is the increase in the average age of the caregivers.

While in 2004 only 16.2% of caregivers were people over 65 years of age, in 2013 it was 17.5%. Informal caregivers of older adults are more frequently members of the household of retirees and pensioners. Their percentage increased from 39.7% to 42.7%. In addition, the average education level of informal caregivers increased. The percentage of people with higher education who declare caring for older adults is growing. In 2004, it was 14.5% of caregivers, while in 2013: 22.1%. The increase in the percentage of the caregivers residing in the countryside is relatively large: it grew from 29.4% in 2004 to 38.7% in 2013.

Results

A comparison of the age distribution of the caregivers between the surveys partly explains the changes in care patterns described in the following part of the article (Table 2). The presented numbers were calculated using personal weights, so that they can be generalised to the whole population. The average age of the caregiver increased more than it increased for the whole population. The percentage of people aged 15–34 is much smaller, the share of people aged 35–64 is also lower, while the percentage of people aged 65 and over increased.

Table 2. Descriptive statistics of the caregivers' sample

	Informal caregivers of older adults		Other respondents	
	2004 (%, n=850)	2013 (%, n=1682)	2004 (%, n=19361)	2013 (%, n=37285)
Female	64.3 ^{ab}	76.3 ^b	51.7 ^a	50.6
Working during the study week	39.4 ^b	36.4 ^b	45.8 ^a	52.3
Type of household				
Households of employees and farmers	54.9 ^b	54.4 ^b	62.8 ^a	71.7
Households of retirees and pensioners	39.7 ^b	42.7 ^b	31.8 ^a	25.8
Other households	5.4 ^a	2.9	4.3 ^a	2.5
Age group				
15–34 years	23.9 ^{ab}	13.8 ^b	37.9 ^a	35.0
35–64 years	59.8 ^{ab}	68.7 ^b	46.6 ^a	48.1
65+	16.2	17.5	15.5 ^a	16.9
Education				
Lower secondary and below	29.2 ^{a b}	12.4 ^b	33.1 ^a	21.6
Basic vocational	20.4 ^{a b}	28.7 ^b	24.5 ^a	26.5
Secondary	35.9 ^b	36.7 ^b	32.1 ^a	30.3
Higher	14.5 ^{ab}	22.1	10.4 ^a	21.6

	Informal caregivers of older adults		Other respondents	
	2004 (%, n=850)	2013 (%, n=1682)	2004 (%, n=19361)	2013 (%, n=37285)
Place of settlement				
Cities of 500,000 and more	15.2 ^{ab}	10.2	11.7 ^a	10.2
Cities of 200,000–499,000	10.6 ^a	10.6	10.5 ^a	9.3
Cities of 100,000–199,000	6.9	7.2	7.8	7.4
Cities of 20,000–99,000	23.3 ^a	17.8	20.7 ^a	19.7
Towns of less than 20,000	14.6	15.6 ^b	12.5 ^a	13.8
Rural areas	29.4 ^{ab}	38.7	36.7 ^a	39.6
Partnership status				
Married	68.3 ^{ab}	72.3 ^b	57.2 ^a	55.7

a: a significant difference between the 2004 and 2013 surveys, b: the difference between older adults' caregivers and other respondents based on two-sided two sample proportion tests ($\alpha=0.95$).

Source: own calculations based on microdata of the Time Use Survey 2004 and Time Use Survey 2013.

Based on the analysis of the 2013 data, we can depict clear profiles of people caring for older adults. First, often they are women (76.8% in comparison to 63.3% among non-caregivers). Caregivers are also on average older than non-caregivers (the average age is 55 years of age, with the average age in the sample being 48 years). Mostly they are not employed (66.9%). Caregivers rarely have children under the age of 6 under their care. However, they differ depending on whether help and care is provided in the household or outside of it. Individuals giving care in their own household are married, in most cases the person being looked after is their partner. More often these are people living in the countryside or in small towns. At the same time, they are often people who take care of the house and family, as well as retirees and pensioners. Relatively often, the person to whom care is provided is a disabled person.

Caregivers, mostly women, who provide help outside the household are more often widows or in separation. On average, their households are smaller, and there are fewer children living with them than in other households. More often, these individuals live in cities with a population between 100,000 and 190,000, which implies a lack or worse access to care services and health infrastructure in comparison to larger cities. People in this group of caregivers identify themselves as housekeepers, retirees, pensioners, or unemployed.

If people caring for older adults work, they usually work in public institutions, with relatively lower wages and fewer hours of work. It is also not associated with long journeys. This probably means that work is matched to care responsibilities and caregivers of older people are willing or forced to seek employment that has a lower

burden from a logistics point of view, yet it is paid less. However, it is also probable that people with more demanding employment and higher wages are able to pay for care services available in the market. Determining the direction of causality between these phenomena would require the existence of adequate longitudinal data.

Distribution of time spent on caring for older adults

The comparison of the time schedules devoted to care activities by persons caring for the elderly covering two samples from 2004 and 2013 is presented in table 2. It approximates the time distributions with percentile measures. Some of the differences result from a more detailed distinction between caring activities in the study carried out in 2013, but also from a larger sample size and actual increase in the time spent on care. The average amount of time spent on caring for the elderly increased. Among persons performing this activity in 2004, it was 45 minutes on average, while in 2013 it was 80 minutes daily. This increase occurred despite of the increase in average wages, greater availability of household goods such as a dishwasher, which decreases the time of household chores, and greater availability of commercial services such as cleaning. Part of the effect can be also explained by the increasing average age of both elderly receiving help and the average age of caregivers, since the population is ageing and life expectancy is increasing.

Table 3. Changes and distribution (quantiles) of the time spent on caregiving for older adults

Time spent assisting adults	25%	50%	75%	95%	Average	N
2004	15	30	60	140	45 min	850
2013	20	50	100	250	80 min	1682

Source: own calculations based on microdata of the Time Use Survey 2004 and Time Use Survey 2014.

However, our calculations are based on the Labour Force Survey of the Statistics Poland⁵ in 2013, and, depending on the quarter, the reduction of working time was declared by 9,000 to 12,000 people, while between 75,000 to 81,000 people declared quitting their jobs due to caring for an adult member of the household. In contrast, around 180,000 people in 2013 declared that they were not looking for employment due to the unavailability of care institutions providing care for older adults in terms of location, finances, or quality.

⁵ Anonymised individual data were used for quarters 1–4 of 2013.

The number of people declaring care for older adults and the average time devoted to care do not seem to be high. This is partly related to the methodology of the study used. Activities that are directly related to the well-being of older adults, such as drug administration, washing, dressing, or feeding, are classified as care. However, they do not exhaust all the activities necessary to provide older adults with support in their daily functioning. Outside the notion of personal care, there are activities such as help with cleaning, preparing meals, washing clothes, or shopping. Considering the sequence analyses presented below, it seems reasonable to hypothesise that in the case of caregivers there is at least partial complementarity between care and housework. The lack of clear distinction between these categories is particularly evident in the case of people living in the same household or multiple households within one housing unit. Therefore, the total sum of time allocated to older adults' care can be underestimated.

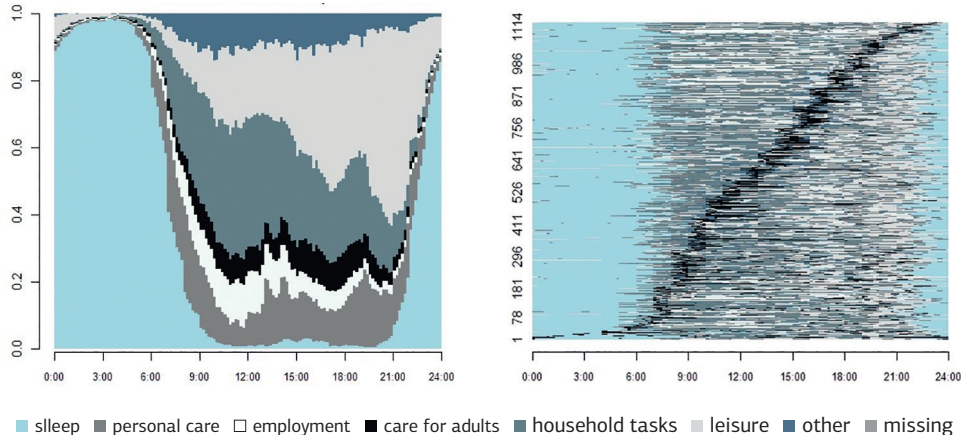
Results of the sequence analysis

Sequence of activities during the day

Figure 1 shows the results of the analysis of daily activity sequences of people taking care for older adults in 2004. The state distribution plot shows the average time spent in each of the activities – it is an aggregation of all the frequencies of each of our seven daily activities at each 10-minute time slot, starting from midnight for the following 24 hours. The vertical axis represents the percentage of observed time use sequences, while the horizontal one the 10-minute time slots. The distribution of time spent on caring for older adults is mainly related to the daily lifecycle of seniors. As we can see between midnight and 6 a.m., the most widespread activity is related to sleep and rest. The first carrying activities start at around 6 a.m., the last ones take place on average around 10 p.m. On average, after 2 p.m., care-related activities replace work. The intensity of activities related to caring for older adults is the largest between 10 a.m. and 1 p.m. However, based on Figure 1, there is no reason to claim that caring activities take place at the expense of physiological needs, caring for one's own basic needs or at the expense of leisure time.

Between 2004 and 2013, the sequence of daily activities of older adults' caregivers slightly changed. In 2013, as presented in figure 3 (on the left), between 8 a.m. and 9 p.m., the percentage of caregivers performing care activities is almost constant over following hours. But the sequences of provided care are longer in comparison to those observed in 2004. Nevertheless, considering the distribution and frequency of caring activities during the day, it is likely that in many cases they do not prevent carers from taking up professional activity.

Figure 1. State distribution and frequency of daily activities in 2004*



* The Y axis on the left-hand side graph depicts the proportion of respondents, while the Y axis on the right-hand-side depicts the number of individuals.

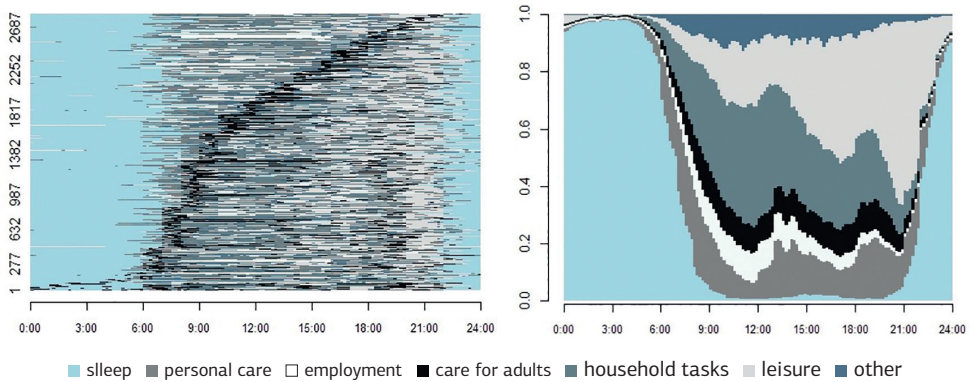
Source: own calculations based on microdata of the Time Use Survey 2004.

The hourly distribution of duties related to caring for older adults slightly changed over time (Figure 3). In 2013, nursing activities start in the morning and reach their maximum daily intensity, measured by the number of people performing the nursing activities, between 8 a.m. and 9 a.m., so they are probably activities related to hygiene, dressing, eating, and administering medicines. Then the percentage of people devoting time to care activities decreases and stabilises until the evening, when it increases slightly between 9 p.m. and 10 p.m., and then falls almost to zero. At the subpopulation level of caregivers, therefore, we observe less fluctuation throughout the day.

Based on Figure 2, it may be concluded that, as compared to 2004, the average time spent by caregivers on professional work decreased, although in both cases full-time work does not seem to be a viable option. On the other hand, the time spent on exercising care and performing household chores increased. However, the time spent on sleep and activities related to self-care did not change. Similarly, the time spent on pleasure (leisure) remains at the same level.

However, those aggregated views can blur the difference in the respondents' time use sequences, as it just depicts the overall frequency of activities in a given time point. To better understand the time use of care providers we should inspect Figure 3. It presents the most common activity sequences of caregivers' daily routines. On the vertical axis it presents the percentage of the sample represented by 20 most frequent time use sequences. The most frequent sequences cover 1.8% of daily routines in 2004 and only 0.8% in 2013, which implies increasing diversity in daily time arrangements.

Figure 2. State distribution and frequency of daily activities (2013)*



* The Y axis on the left-hand side graph depicts the proportion of respondents, while the Y axis on the right-hand side depicts the number of individuals.

Source: own calculations based on microdata of the Time Use Survey 2013.

Figure 3. Sequence frequency 2004 (left) and 2013 (right)

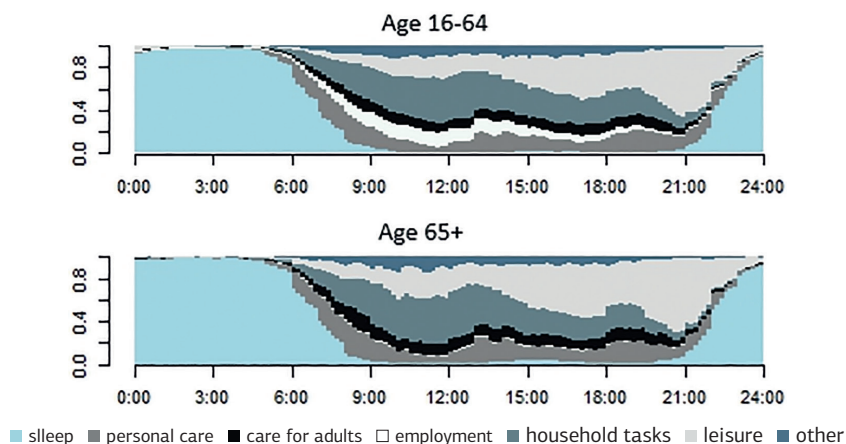


Source: own calculations based on microdata of the Time Use Survey 2013.

Additionally, as can be seen in Figure 4, some differences in daily sequences can be observed depending on the age of caregivers. Older people work less, while spending more time on housework both in terms of the number of activities done and the time needed to complete them. It is noteworthy that, despite the different schedules of activities and responsibilities of caregivers, the intensity of care activities occurs more or less at similar times, which is associated with daily activities of the persons under care, such as eating, personal hygiene in the morning or at bedtime. At the same time, the distribution of these activities for caregivers aged 65+ is more

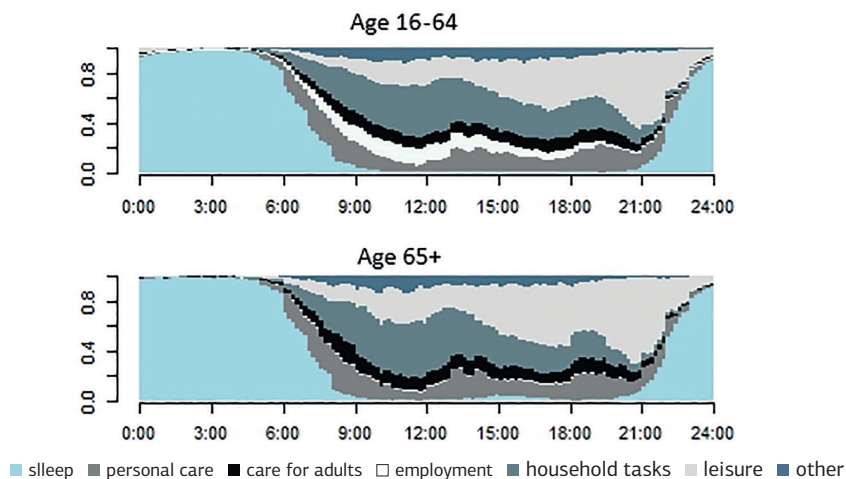
uniform throughout the day than in other cases. This is both related to the age of the person under care, the limited professional activity of the person providing care and the fact that people at this age more often look after their own partner with whom they share the household. In addition, among caregivers of people aged 65+, there are most breaks in caring activities, these activities are shorter on average, but are also performed in more instances during the day. This implies a need of assistance living rather than full time nursing of older adults.

Figure 4. State distribution of daily activities by age in 2004



Source: own calculations based on microdata of the Time Use Survey 2004.

Figure 5. State Distribution of daily activities by broad age groups in 2013



Source: own calculations based on microdata of the Time Use Survey 2013.

Similarly to the conclusions based on the data from 2004, as Figure 5 shows, differences in daily sequences are observed depending on the age of caregivers. Again, caregivers aged 65+ work less, while spending more time on housework, but for both groups the intensity of care activities occurs more or less at similar times defined by daily activities of the persons under care.

The comparison of the age distribution of caregivers between the surveys partly explains the changes in care patterns described in the previous part of the article (Table 2). While the patterns of activity sequences during the day do not change significantly in the distinguished age groups, the proportions of caregivers between these groups shifted from the younger group to the older one.

Conclusion

Our results can be seen as a voice in the discussion on older adults' care in a country with fast population ageing. The intensity of both required and received care varies with age, health status and daily activity limitations of adults in care, as a consequence, concerning older adults in a vast majority of cases. Older adults daily care needs tend to increase over time with recipients' age. Our findings show that most of older adults' care taking place in Poland is covered by living assistance. It implies a relatively large extent of autonomy in daily activities of elders and limited needs of nursing and rehabilitation. Nevertheless, over time the number of older people with greater care and nursing needs will grow. This will also cover to some extent people who are now caregivers themselves. Therefore, this is a crucial moment to initiate an evidence-based discussion and debate about indispensable policy changes. Some of the potential solutions can include medical and nonmedical facilities, assisted living, home care, and other facilities for care providers (especially family, and communities under different funding schemes) (Colombo & Mercier, 2012). If the issue is not considered, informal caregiving will implicitly be a dominant default choice of families. Informal caregiving might be considered as a low-cost alternative for publicly provided care, however, it is associated with several alternative costs incurred by caregivers. That includes their limited labour market activity, lower wages, and negative consequences for their physical and psychological well-being (Heitmueller, 2007; Heitmueller & Inglis, 2007; Estrada Fernández et al., 2019).

The discussion on the potential policy solutions should be preceded by an accurate diagnosis of caregivers' needs. As shown by our findings, currently a majority of care is provided just at a few time slots during the day, yet the proportion might reverse over time, and more intensive care might be needed. This is especially

important in the context of labour market supply of informal caregivers. Different flexible labour market arrangements might be part of the solution, depending on the predominant needs.

Proper recognition of adults' needs would be also helpful in designing both public and market services. Given the structure of the population of adults needing care services, it seems to be reasonable to focus mainly on older adults. These services shall be of two types: direct older adults' care and support of informal caregivers. Public engagement is crucial to ensure affordable pricing of the services and equal access to the infrastructure helping organise the life of families with older adults. Otherwise, some individuals, usually those in a worse financial situation, will be pushed into informal caregiving at the expense of their labour market participation and own leisure time. While there is evidence of benefits coming from granting greater autonomy to older adults, with severity of older adults' conditions more skilled and educated nursing and healthcare support is needed.

Informal caregiving should be a choice based on both: the preferences of older adults and caregivers, and their health statuses. Responsibly policy solutions should also consider that caregivers are at risk of becoming sick or old themselves,⁶ so if not assisted from care providers they can easily convert into care recipients. Formal and informal care need to be complementarities, not substitutes. Last but not least, the issue which has become apparent this year is the epidemiological safety of institutional full-time care facilities. It will increase the demand for in-place care services.

The article deals with the topic of informal care for older adults. In view of the inevitable demographic changes occurring in Poland and the insufficient availability of both public and private care services, this is an important issue from the point of view of social policy.

In this paper we show the patterns of daily routines of informal caregivers. The harmonised Time Use Survey was used. It enables the comparability of results both over time and internationally. We used the sequence method, which is purely descriptive and does not provide grounds to an advanced statistical cohort or causality analysis, but puts caregiving in the context of daily activities aiming to extend the policy discussion. We show that time involvement and characteristics of caregivers as a consequence of ageing of the whole population. It is worth noting that the comparison of the two described waves of the research shows that increasingly older people take care of older adults and it takes them more and more time, which is important from the point of view of engineering social policies in the context of an ageing population.

⁶ The solutions that could be considered are, among others, respite care, pension credits for the time spent on care or payments to compensate forgone earnings.

A significant proportion of current caregivers will also require care over the next few years. Meanwhile, the number of people having the qualifications in care for older adults is not growing fast enough. This means, on the one hand, deterioration in the quality and availability of care for older adults. On the other hand, meeting the growing demand for care services mainly as part of informal assistance is a threat to the economic activation of people near the retirement age.

The presented study is one of the first quantitative studies that address the problem of increasing the time involvement in providing informal care over older adults in Poland. On the one hand, this is due to insufficient public discussion about the broad spectrum of the effects of ageing populations. On the other hand, there is a lack of primary data and surveys devoted to informal care, which would allow for a better assessment of the current situation and better engineering of social policy tools. A good example is the American National Study of Caregiving (NSOC), implemented together with selected waves of the National Health and Aging Trends Study (NHATS). It is especially urgent to differentiate time commitment depending on the scale of the needs of the person in need of care (measured in the scales that ensure comparability, for example ADL, IADL).

The results shown in the article should be treated as an introduction to discussion on the well-being, work-life balance, and care-life balance of informal caregivers in Poland as an example of a post transition country in Central and Eastern Europe. Very little is known and discussed on the issue of individual unmet needs of informal caregivers measured with leisure time (see: Bowles, Dawson, & Ashworth, 2020). The literature does not provide convincing studies on other countries to put Polish results into perspective. As stated by Courtin, Jemiai, and Mossialos (2014) we need better data. The knowledge gap on the time burden of old people's caregivers in Poland remains broad. We need to track the changes on who the caregivers in Central and Eastern Europe are and when they need will care themselves since informal caregiving is not a sustainable solution in the long run.

Acknowledgements

This work was supported by The National Science Centre Poland (grant UMO-2016/23/D/HS4/03067). The authors declare no conflict of interest.

References

- [1] Abramowska-Kmon, A. (2015). Determinanty sprawowania opieki nad starszymi rodzicami w Polsce w świetle danych badania GGS-PL. *Studia Demograficzne*, 2(168), 39–60, <https://doi.org/10.33119/SD.2015.2.3>
- [2] Abramowska-Kmon, A., & Maciejasz, M. (2018). Subjective quality of life of informal caregivers aged 50–69 in Poland. *Studia Demograficzne*, 2(174), 37–65, <https://doi.org/10.33119/SD.2018.2.3>
- [3] Bakalarczyk, R. (2018). *Polityka wsparcia nieformalnych opiekunów niesamodzielnych osób starszych*. Warszawa: Wydawnictwo Uniwersytetu Warszawskiego.
- [4] Bowles, A., Dawson, A. & Ashworth, R. (2020). Time for care: exploring time use by carers of older people. *Aging & Society*, 40, 1735–1758, doi:10.1017/S0144686X19000205
- [5] Brimblecombe, N., Fernandez, J.-L., Knapp, M., Rehill, A., & Wittenberg, R. (2018, Sept). Review of the international evidence on support for unpaid carers. *Journal of Long-Term Care*, 25–40, doi:10.21953/lse.ffq4txr2nftf
- [6] Błaszczak-Przybycińska, I. (2008). *Produkcja gospodarstw domowych jako czynnik dochodotwórczy [Household Production as an Income-Generating Factor]*. (Monographs and Studies). Warszawa: SGH.
- [7] Ciani, E. (2012). Informal Adult Care and Caregivers' Employment in Europe. *Labour Economics*, 19(2), 155–164.
- [8] Colombo, F., & Mercier, J. (2012). Help wanted? Fair and sustainable financing of long-term care services. *Applied Economic Perspectives and Policy*, 34(2), 316–332, doi: 10.1093/aep/pps005
- [9] Courtin, E., Jemai, N., & Mossialos, E. (2014). Mapping support policies for informal carers across the European Union. *Health Policy*. Elsevier Ireland Ltd, 118(1), 84–94.
- [10] Driver, J.A., Logroscino, G., Gaziano, J.M., & Kurth, T. (2009). Incidence and remaining lifetime risk of Parkinson disease in advanced age. *Neurology*, 72(5), 432–438.
- [11] Dunn, N.J., & Strain, L.A. (2001). Caregivers at Risk? Changes in Leisure Participation. *Journal of Leisure Research*, 33(1), 32–55.
- [12] Estrada Fernández, M.E. et al. (2019). Informal care. European situation and approximation of a reality. *Health Policy*, 123(12), 1163–1172.
- [13] European Commission (2017, Nov). The 2018 Ageing Report: Underlying Assumptions and Projection Methodologies. *Institutional Paper*, 065.
- [14] Gershuny, J., & Robinson, J.P. (1988). Historical Changes in the Household Division of Labor, *Demography*, 25(4), 537–552.
- [15] Gierałtowska, U., & Hozer-Koćmiel, M. (2018). Alokacja czasu kobiet w Europie – grupowanie metodą K-średnich [Allocation of Women's Time in Europe – Grouping by K-means]. *Metody ilościowe na rynku nieruchomości i rynku pracy*, (831), 119–126.

- [16] Heitmueller, A. (2007). The chicken or the egg?. Endogeneity in labour market participation of informal carers in England. *Journal of Health Economics*, 26(3), 536–559, DOI: 10.1016/j.jhealeco.2006.10.005
- [17] Heitmueller, A., & Inglis, K. (2007). The earnings of informal carers: Wage differentials and opportunity costs. *Journal of Health Economics*, 26(4), 821–841, DOI: 10.1016/j.jhealeco.2006.12.009
- [18] Hozer-Koćmiel, M. (2008). Gender gap czasu wolnego: analiza ilościowa [Gender Gap of Free Time: Quantitative Analysis]. *Studia i Prace Wydziału Nauk Ekonomicznych i Zarządzania Uniwersytetu Szczecińskiego*, (11), pp. 159–173.
- [19] Jankiewicz, J. (2017). GDP, Time Allocation and Annual Time Worked Per Adult in Central and Eastern European Countries. *Economics and Sociology*, 10(1), 94–111, DOI: 10.14254/2071–789X.2017/10–1/7
- [20] Kalbarczyk, M. (2019). Efekt wypierania w opiece długoterminowej. *Wiadomości Statystyczne*, 64(5), 5–16.
- [21] Kane, R.L. & Ouslander, J.G. & Resnick, B. & Malone, M.L. (Eds), (2017). *Essentials of Clinical Geriatrics*, 8e. McGraw Hill.
- [22] Kingston, A., Comas-Herrera, A., & Jagger, C. (2018). Forecasting the care needs of the older population in England over the next 20 years: estimates from the Population Ageing and Care Simulation (PACSim) modelling study. *Lancet Public Health*, 3(9), E447 – E455, [https://doi.org/10.1016/S2468–2667\(18\)30118-X](https://doi.org/10.1016/S2468–2667(18)30118-X)
- [23] Kolny, B. (2016). Analiza czasu wolnego w budżecie czasu Polaków [Analysis of Free Time in the Poles' Time Budget]. *Handel Wewnętrzny*, 361(2), 228–240.
- [24] Kotowska, I.E. (Ed.) (1999). *Przemiany demograficzne w Polsce w latach 90. w świetle koncepcji drugiego przejścia demograficznego [Demographic Changes in Poland in the 1990s in the Light of the Concept of the Second Demographic Transition]*. Warszawa: Oficyna Wydawnicza SGH.
- [25] Kretek-Kamińska, A., Kukulak-Dolata, I., & Krzewińska, A. (2020). *Wsparcie osób niesamodzielnych. Perspektywa opiekunów i podopiecznych*. Łódź: Wydawnictwo Uniwersytetu Łódzkiego.
- [26] Krzyżanowski, W. (1961). Budżety czasu i racjonalne wyzyskanie czasu po pracy [Time Budgets and Rational Use of Time After Work]. *Folia Oeconomica Cracoviensia*, 2, 57–92.
- [27] Leigh, A. (2010). Informal care and labor market participation. *Labour Economics*, 17(1), 140–149, <https://doi.org/10.1016/j.labeco.2009.11.005>
- [28] Marszałek, M. (2017). Kryteria i dylematy dotyczące wyceny produkcji domowej w Polsce [Criteria and Dilemmas Regarding the Valuation of Home Production in Poland]. *Wiadomości Statystyczne*, 7(674), 25–41.
- [29] Mayeux, R., & Yaakov, S. (2012). Epidemiology of Alzheimer Disease. *Natural Review Neurology*, 7(3), 1–18, doi: 10.1101/cshperspect.a006239

- [30] Mentzakis, E., McNamee, P., & Ryan, M. (2009). Who Cares and How Much: Exploring the Determinants of Co-residential Informal Care. *Review of Economics of the Household*, 7(3), 283–303, <https://doi.org/10.1007/s11150-008-9047-0>
- [31] Michelson, W.H. (2005). *Time Use: Expanding Explanation in the Social Sciences*. Paradigm Publishers, <https://doi.org/10.4324/9781315631561>
- [32] Millán-Calenti, J.C., Tubío, J., Pita-Fernández, S., González-Abraldes, I., Lorenzo, T., Fernández-Arruty, T., & Maseda, A. (2010). Prevalence of functional disability in activities of daily living (ADL), instrumental activities of daily living (IADL) and associated factors, as predictors of morbidity and mortality. *Archives of Gerontology and Geriatrics*, 50(3), 306–310.
- [33] Ministry of Health (2018). Regulation of the Minister of Health amending the regulation on guaranteed services in the field of hospital treatment of 11 October 2018.
- [34] NFZ (2016). *Forecast of utilisation of hospital services financed by the National Health Fund in the context of demographic changes in Poland*. Warszawa: NFZ.
- [35] Nicińska, A. (2020). Wsparcie niefinansowe starszego pokolenia w polskich rodzinach. *Ekonomista*, 47–74.
- [36] NIK (2014). Information on the results of the audit: medical care for the elderly (KZD-4101–003 / 2014).
- [37] Oliva-Moreno, J. et al. (2019). The economic value of time of informal care and its determinants (The CUIDARSE Study). *PLoS ONE*, 14(5), 1–15, <https://doi.org/10.1371/journal.pone.0217016>
- [38] Perek-Białas, J., & Stypińska, J. (2010). Łączenie pracy i opieki nad osobą starszą – wpływ na jakość życia opiekuna. In: D. Kałuża, P. Szukalski (Eds.), *Jakość życia seniorów w XXI wieku. Ku aktywności*. Łódź: Uniwersytet Łódzki.
- [39] Pinquart, M., & Sörensen, S. (2007). Correlates of Physical Health of Informal Caregivers: A Meta-Analysis Sociodemographic Variables Downloaded from. *Journal of Gerontology: Psychological Sciences*, 62(2), 126–137, <https://doi.org/10.1093/geronb/62.2.P126>
- [40] Rokicka, M., & Zajkowska, O. (2020). Informal Elderly Caregiving and Time Spent on Leisure: Evidence from Time Use Survey. *Ageing International*, 45(4), 393–410, DOI: <https://doi.org/10.1007/s12126-020-09396-5>
- [41] Schulz, R., & Sherwood, P.R. (2008). Physical and Mental Health Effects of Family Caregiving. *American Journal of Nursing*, 108 (9 SUPPL.), 23–27, DOI: 10.1097/01.NAJ.0000336406.45248.4c
- [42] Smoder, A. (2016). Czas pracy a problemy równowagi między pracą i życiem pozawodowym. [Working Time and Problems of Work-Life Balance]. *Ubezpieczenia Społeczne. Teoria i praktyka*, 3(257), 132–148.
- [43] Statistics Poland (2013). *Labour force survey in Poland – I quarter 2013, Statistical Information and Elaborations*. Warszawa: GUS.
- [44] Statistics Poland (2013). *Labour force survey in Poland – II quarter 2013, Statistical Information and Elaborations*. Warszawa: GUS.

- [45] Statistics Poland (2013a). *Labour force survey in Poland – III quarter 2013, Statistical Information and Elaborations*. Warszawa: GUS.
- [46] Statistics Poland (2013b). *Labour force survey in Poland – IV quarter 2013, Statistical Information and Elaborations*. Warszawa: GUS.
- [47] Statistics Poland (2015). *Small Statistical Yearbook of Poland 2015*. Warszawa: GUS.
- [48] Statistics Poland (2016a). Note prepared for the meeting of the Sejm Senior Policy Committee regarding *Information of the Minister of Health on the impact of demographic changes and ageing on the organisation of the health care system and the National Health Program*. Department of Demographic and Labour Market Research. Warszawa: GUS.
- [49] Statistics Poland (2016b). *Time Use Survey 2013. Part 2*. Warszawa: GUS.
- [50] Szweda-Lewandowska, Z. (2014). Rynek usług opiekuńczych – perspektywy rozwoju w kontekście starzenia się populacji. *Optimum. Studia ekonomiczne*, 2(68), 148–157, DOI: 10.15290/ose.2014.02.68.11
- [51] Szweda-Lewandowska, Z. (2017a). *Wspierający i wspierani. Opieka nad osobami starszymi*. Łódź: Wydawnictwo Uniwersytetu Łódzkiego.
- [52] Szweda-Lewandowska, Z. (2017b). Potrzeby opiekuńcze seniorów – perspektywa osób w wieku 75 lat i więcej i ich rodzinnych opiekunów. *Społeczeństwo i Ekonomia*, (08), 83–93, doi:10.15611/sie.2017.2.06
- [53] Urbaniak, B. (2017). Wsparcie pracowników sprawujących opiekę nieformalną. *Polityka Społeczna*, 1, 1–9.
- [54] Vitaliano, P.P., Zhang, J., & Scanlan, J.M. (2003). Is Caregiving Hazardous to One's Physical Health? A Meta-Analysis. *Psychological Bulletin*, 129(6), 946–972, DOI: 10.1037/0033-2909.129.6.946
- [55] Wałęga, A., & Wałęga, G. (2017). Leisure Time and Income. Some Evidence From Poland. *Economic and Environmental Studies*, 17(3), 555–575, <https://doi.org/10.25167/ees.2017.43.7>
- [56] Wolf, D.A., & Soldo, B.J. (1994). Married Women's Allocation of Time to Employment and Care of Elderly Parents. *The Journal of Human Resources*, 29(4), <https://doi.org/10.2307/146140>
- [57] Wolff, J.L., Spillman, B.C., Freedman, V.A., & Kasper, J.K. (2016). A National Profile of Family and Unpaid Caregivers Who Assist Older Adults with Health Care Activities. *JAMA Internal Medicine*, 176(3), 372–379, doi:10.1001/jamainternmed.2015.7664