Users of Care Services in a Nordic Welfare State under Marketisation:

The Rich, the Poor and the Sick

Jiby Mathew Puthenparambil MA [1], Teppo Kröger PhD [2] and Lina Van Aerschot MA[3]

[1]Department of Social Sciences and Philosophy, University of Jyväskylä, Finland.

[2]Department of Social Sciences and Philosophy, University of Jyväskylä, Finland.

[3] School of Social Sciences and Humanities, University of Tampere, Finland.

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Conflict of interest

There are no conflicts of interest to report.

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Abstract

Stricter access to public services, outsourcing of municipal services and increasing allocation of public funding for the purchase of private services have resulted in a marketisation wave in Finland. In this context of a Nordic welfare state undergoing marketisation, this paper aims to examine the use of Finnish care services among older people and find out who are using these new kinds of private services. How wide is their use and do the users of private care services differ from those who are using public services? How usual is it to mix both public and private care services? The questionnaire survey dataset used here was gathered in 2010 among the population aged 75 and over in the cities of Jyväskylä and Tampere (N=1436). The methods of analysis used include cross-tabulation, Chi-square tests and multinomial logistic regression. The findings showed that among those respondents who used care services (n=681), 50% used only public services, 24% utilised solely private services, and the remaining 26% used both kinds of services. Users of solely private services had significantly higher income and education as well as better health than those using public services only. The users of public services had the lowest education and income levels and usually lived in rented housing. The third group, those mixing both public and private services, reported poorer health than others. The results increase concerns about a development towards a two-tier service system, jeopardizing universalistic Nordic principles, and also suggest that older people with the highest needs do not receive adequate services without complementing their public provisions with private services.

Keywords: Older people, care services, private services, public services, service use, Finland.

What is known about this topic

- Finland is a Nordic welfare state where citizens are by the constitution entitled to have equal access to care services.
- However, recently Finland has undergone marketisation reforms and seen the emergence of for-profit providers in care for older people.
- Access to public care has become more difficult and the use of private services has grown rapidly.

What this paper adds

- Half of all older users of care services in Finland use nowadays private services, a quarter mixing them with public provisions.
- Those using only public services have lowest income while those using solely private services have highest income and best health.
- Those mixing private with public services have poorest health, which raises questions about effectiveness and quality of public services.

Introduction

Like practically every other nation, Finland is facing the challenge of an older population that is growing fast. It has been projected that the population aged 65 and over will rise from 18 per cent in 2010 to 26 per cent by 2030, and to 28 per cent by 2060 (Official Statistics of Finland 2012). At the same time, it is estimated that the 75+ age group will be 14 per cent in 2030 (Räty et al. 2003), growing quickly from eight per cent in 2009 (National Institute for Health and Welfare 2010). With ageing, needs for care increase and these needs have to be met either by informal support (family/friends/relatives) or formal support (public/private/third sector). In Finland, public social care services (integrated home help and home nursing, support services and residential care services) are mostly funded with municipal tax revenues, supported by grants from central government as well as fees paid by the service users. These services have traditionally been offered by municipalities to all older people, complemented with some non-profit provisions. However, since the early 1990s, Finland has witnessed significant changes in its care services.

First of all, the overall coverage in home care services has been dramatically reduced by 40 percent from the level at the beginning of the 1990s (Anttonen & Häikiö 2011, Kröger & Leinonen, 2012). A coverage drop is also evident in several kinds of institutional care provisions: residential homes and long-term care at health care centres as well as in sheltered housing (National Institute for Health and Welfare 2013). At the same time, service home provision with 24-hour assistance has increased its coverage but this increase has not filled the gap left by reducing coverage of other care services. Second, there has been substantial and fast growth in the use of private care services. Until the mid-1990s, for-profit provisions were practically unknown in Finland but since then commercial organizations have rapidly expanded their private home care services and sheltered housing service provisions (Yeandle et al. 2012, Karsio & Anttonen 2013, Van Aerschot 2014). The introduction of policies such

as outsourcing of public services in the municipality, tax credits for domestic help (deducting taxes by max 2000 euro per person per annum as a result from purchasing household service from the private sector) and tax-funded service voucher (an income-related or a flat rate voucher to purchase private services) have steered older people towards private services, particularly in home care support (see, Karsio & Anttonen 2013, Van Aerschot 2014).

Earlier public care services, having modest income-related user fees, were almost the only kind of provision but they were received by a large proportion of older people. Recently, municipalities have narrowed down their care provisions to organize services only for people with highest needs (Kröger & Leinonen 2012). As a result, users with less frequent and less intensive needs are required to purchase private services, either fully out-of-pocket or by utilizing the tax credit or service vouchers. The use of service vouchers is still rather rare but tax credits are used widely. A large part of users nevertheless pay their private services fully out-of-pocket (see, Anttonen & Häikiö 2011). Until 2000, there was no clear statistical report on the extent of care for older people that were produced privately. In 2002, it was estimated that the private sector produced a share of 16 % in health and social care services (Salonen & Haverinen 2004). The number of private social service units (one way of measuring private service) increased from 3,018 in 2002 to 4,350 in 2010 (Karsio & Anttonen 2013). Presently, this sector is estimated to produce almost a quarter of both health and social care services (Ministry of Social Affairs and Health 2013). The above evidence gives a clear indication that the long-term care of the Finnish welfare state has experienced a major wave of marketization and privatization.

In Finland, research on care for older people has so far focused mostly on public services, which is explained by the universalistic tax-funded public sector model that was earlier prevalent in the country. Less attention has been paid to private care services, though they represent an emerging and fast-growing phenomenon. The development towards self-

financed private services and a mixed public-private model has not yet fully influenced the focus of research. There is still very little knowledge on who are using these new private care services and why. Also internationally, earlier studies on the use of formal services have often not distinguished private from public services. These studies have observed that age, gender, economic situation, education level, health status, functional disability and living pattern can have a significant impact on the use of services (Evashwick et al. 1984, Wolinsky & Johnson 1991, Kemper 1992, Roos & Mustard 1997, Houde 1998, Kadushin 2004, Redondo-Sendino et al. 2006, Blomgren et al. 2008, McAuley et al. 2009, Vadla et al. 2011, Kehusmaa et al. 2012, Sandberg et al. 2012).

However, those few studies that have focused on private care services suggest that it is especially the economic situation, education level and health status that are determining factors for using private services (Stoddart et al. 2002, Geerlings et al. 2005, Pappa & Niakas 2006, Szebehely et al. 2012). Beside this, knowledge about service availability, limited access to public service, quality of care and need for extra services might influence people to choose private services (Propper 2000, Rissanen & Sinkkonen 2005, Tountas 2005). However, only very few studies have been conducted to discover the characteristics of private service use in any Nordic country. Moreover, there is a knowledge gap concerning those users who mix public and private services. Therefore, in this article we aim to analyse how older people are acting in this emerging world of privatization: who is using for-profit care services, who is mixing them with public services and how do these two groups differ from those who more traditionally use solely public care services? We also ask: what are the factors most closely associated with the above-mentioned three different categories of service use among older people? By answering these questions, we hope to identify current trends in care systems in Finland and thus to add to the existing knowledge on the ongoing development of Nordic welfare states.

Methods

This study analyses data from the "Care, help and everyday life" (in Finnish: "Arki, apu ja palvelut") project, a joint survey research project between the Universities of Jyväskylä and Tampere in Finland. The study was designed to collect information about the population aged 75 and over living at home (including senior housing) in two cities (Tampere and Jyväskylä). These cities were chosen because they closely resemble each other in many ways, their aged population, home care consumption, and private service units (see, National Institute for Health and Welfare 2013); and also to draw a comparison between the two cities. A sample of 1000 people per city was considered to be a reasonable one as often a sample of that size is large enough to have sufficient power to detect small effects. An initial draft of survey questionnaire was prepared using Swedish and Finnish national survey questionnaires as examples (e.g. HYPA-Welfare and Service, 2006). The questionnaire was pretested with 12 people in Tampere. Based on the feedback received from the pretest the questionnaire was modified and finalised. In the beginning of May 2010, the survey questionnaires and consent letters were sent to 1000 participants in each city using addresses collected from the population registry (Central Finland magistrate and Tampere magistrate). The population registry collected these addresses through a randomised computer-generated method (which was independent of the authors). Three weeks later, reminders were posted to those who had not returned the questionnaire. The overall response rate was 71.5 percent (n=1436), which included a response rate of 69.5 per cent from Jyväskylä and 74.1 per cent from Tampere. The whole process of data collection was carried out between May and August 2010. Two-thirds of the respondents were women and one-third were men, which equals the actual gender distribution of people over 75 years in the two cities. Most of the questionnaires were completed by the respondent themselves (74%); the rest with the help of friends or relatives (21%) or with other assistance (5%).

Figure 1 around here

The dependent variable was assessed by the question "Where do you receive or obtain the services you use?". This question listed the following services: meals-on-wheels, shopping, cleaning, safety phone or bracelet, sauna or bathing, assistive devices (technical aids e.g. hearing devices), transportation, home conversion, day care centre, nursing service, short-term institutional care and service housing. Answers for each service were coded as a nominal variable as follows: (1) I use municipal service, (2) I have received a voucher that I use to get a private service that is supported by the municipality, (3) I use a service provided by a private company or a voluntary association, (4) I do not know who provides the service that I use. For this study, the dependent variable was constructed using all the service variables listed above. This was done because all these services are considered as parts of Finnish social care provisions and also due to the rather small sample representation in most of the individual variables. The answers for all services were computed and recoded into a new variable of three categories: (1) using only public services, (2) using only private services, (3) using both public and private services. The group who used only public services included those respondents who reported using at least one municipal service but no private service. Accordingly, those respondents who reported using at least one private service but no municipal service were categorized into the group who used only private services. Finally, those who reported using at least one kind of municipal as well as at least one kind of private service were grouped into those who used both kinds of services. The respondents who reported either "I have received a voucher that I use to get a private service that is supported by the municipality" (n=49) or "I do not know who provides the service that I use" (n=57) were excluded from the grouping because of the specific inclusion criteria (i.e. only public,

only private and both services) defined for this study. Furthermore, the respondents in these two groups might not be exclusionary because these respondents might have also answered in the newly constructed dependent variable. After conducting a cross tabulation separately between the dependent variable and these two groups, only 15 respondents were found to be completely excluded; they all belonged to the "I do not know" category.

The aim of this study was to describe the use of different care services; therefore, by design, the analysis only includes the service users and excludes the missing data (hypothesized as non-service users) (n=740) and those who replied "I do not know who provides the service" (n=15) using a listwise deletion approach (Field 2009). Even after all exclusions, we gained almost an equal representation from the two municipalities (Table 1). The average age of the included participants was 83.5 years (range 76-101) and the great majority of them were female (Table 1). Ethical approval was not required because of the minimal participant risk in this project. However, this project followed all ethical guidelines governed by the National Advisory Board of Research Ethics (Ethical review in Human Sciences, 2009). For example, every respondent signed a consent form and was advised that they could leave the study at any time.

The independent variables included age, gender, city, education, monthly household income, living arrangement, area of residence, housing tenure, received informal care and self-reported health status. Age was categorized into two groups (75-84, 85 and above) because earlier studies have showed that the 85+ group consumes home care twice as much as those 75-84 (Anttonen & Häikiö 2011). Living arrangement was coded dichotomously as 'living alone' or 'living with someone'. Informal care received daily, weekly and monthly was coded into 'yes' category and less frequently and no informal help into 'no' category. Area of residence (city/ town, sub-urban/sparsely populated area), self-reported health (very good/good, fair, poor/very poor) were both coded, with three categories. Education was

measured by four levels (no vocational education, vocational course, vocational degree and university degree). The household income variable was measured in 10 categories. To standardize income for household size, the middle value of the each income category was transformed into individual's income and these values were then divided with the respondents' household size using modified OECD equivalence scale. This scale gave the value of 1 to the first adult in the household, the value of 0.5 to other adults, and the value 0.3 to children aged under 13. Equalized income was coded into quartiles with the cut-of points of 850, 1125 and 1500 euros.

The data was analysed using cross tabulations with χ^2 test (Table 1) and a multinomial logistic regression model (Table 2) at a significance level of $p < 0.05$. This multinomial modelling does not assume linearity, normality and homoscedasticity but needs to satisfy the assumption of multicollinearity (Hosmer & Lemeshow 2000). Therefore, redundant independent variables were checked manually and later, a collinearity diagnostic test was conducted using a tolerance values < 0.1 and VIF value > 10 as an indicator to assess the collinearity problem (Field 2009). The result shows no sign of multicollinearity between two or more independent variables. The results of the model are presented as odds ratios (OR) with their 95% confidence intervals. Respondents with missing data were excluded from the regression analysis. All analyses were performed with the statistical software IBM SPSS version 19.

Results

Comparison between three groups

Of the 1436 respondents who returned the questionnaire (see Table 1), 681 respondents reported using some sort of social care service. Among the service users, 50 percent (n=338)

used only public services while 24 percent (n=164) used only private services. The remaining 26 percent (n=179) used both public and private services. Users of solely private and solely public services were concentrated in the 75-84 age groups, while mixing public and private provisions was more usual among the 85+ population. Among those who used only private services, almost one quarter (22%) of the respondents had a university degree while this was much rarer in the two other groups ($p < 0.001$)

Table 1 around here

Solely private services were most often used by older people with the highest household incomes and higher education; however a reverse situation was observed in the only public service group. The respondents who mixed both public and private services probably lived alone (71%), in owner occupied-housing (65%) and reported their health as poor or rather poor (52%). No statistically significant association ($p > 0.05$) was observed in the cities, informal care and gender variables in terms of service use. Furthermore, to make explicit the demographic difference between the municipalities, a descriptive statistical analysis was conducted using a chi-square test (not listed), with all variables recorded in table 1. The result showed a non-significant statistical difference between the municipalities except for one variable, 'living arrangement' ($p = 0.050$).

Figure 2 around here

Figure 2 illustrates the variation in the use of public and private services among respondents when different kinds of services are observed. Support services, particularly cleaning, home conversion services and shopping services, stand out as those where private service use

already dominates while most other services are still overwhelmingly provided by municipalities. It is nevertheless noteworthy that private providers have entered practically every area of care services and in several there is already a substantial minority who use private service provisions.

Factors related to three different categories of service use

Table 2 around here

The effect of socio economic and health variables on the use of only private and both public and private social care services, using 'only public services' as the reference category is shown in multinomial regression analysis (Table 2). From the univariate analysis, it can be seen that people of lower age i.e. 75-84 years old, living in a city centre, in owner-occupied housing, with good health, with higher education and higher household income have higher odds of using only private services. For the group using both public and private services, the findings were relatively similar to those of the group using only private services concerning the education level and household income; however, in other respects this group differed from the first-mentioned one. After adjusting for all variables except city (see Table 2), most of the associations remained almost the same as in the univariate analysis in all groups, with some variation only in the odds ratio. The adjusted results show that respondents in the lowest education group (OR=0.24, *p=0.003*) as well as in the lowest household income group (OR=0.37, *p*=0.011), both had significantly lower odds of using only private care services than of using only public services. Concerning income and education variables, the odds ratio follows linearity in the use of solely private vs. solely public care services: the higher the education and income, the more usual it was to use solely private services. Those who were

living in a city centre or urban area (OR=1.68, *p*=0.037) and were residing in owner-occupied housing were more likely to use only private services. Participants who gave a self-report of good or fair health had higher odds (OR=2.01 *p*=0.058; OR=1.88, *p=0.035*) of using only private services. To sum up, it is clear that private services are most often used by older people with better incomes, better education, who are comparatively healthy, and who live in privately occupied housing in urban surroundings.

On the other hand, those with poor or very poor health had the highest odds of mixing public services with private provisions. In several other respects the mix group and the solely private service use group were close to each other, especially concerning education, but self-reported health status distinguished these two groups clearly from each other. Apart from the self-reported health and education variables, other variables in the mix group do not show any statistically significant results.

Discussion

This paper has analysed the use of care services among older people and examined to what extent private services are currently used by the older population in Finland, based on questionnaire survey data covering people aged 75+ in two Finnish cities. Marketisation tendencies have changed the Finnish welfare state context for the production of care services. Nordic public sector centeredness and universalism have been giving way to a policy that limits the access to public care services and encourages the production and consumption of private care provisions. As a consequence, the use of private care services has grown rapidly. However, until now, there has been very limited knowledge available on these new private services and their users (Anttonen & Häikiö 2011, Kröger & Leinonen 2012).

The findings show that half of all 75+ service users already use private care services, another 50% using solely public services. It is thus clear that private services are no longer a marginal phenomenon in Finland, used by only a small group of older people. Instead, in a very short period of time they have changed from a total non-issue to a major mainstream issue. The group that uses private services is further composed of two subgroups that are of almost similar size, one where older people use both public and private services and another where public provisions are not present. Looking in more detail at the kinds of services used, it was found that within support services such as cleaning, shopping and home conversion services, private providers have already reached a dominant position, while in other care services the majority still use municipally provided public services (see Figure 2).

The focus of this paper has been on comparing the composition of three groups of users of care services for older people: those who use only private services, those who use only public services, and those who use both. Concerning the first group, the findings show clearly that this group represents the well-off among the older population, that is, those who have the highest household income and education and who also have the best health and live in owner-occupied housing, often in city centres. In brief, within this sample, they could be named "the rich".

Membership of the second group is also best explained by income and education variables, as well as by housing tenure and living area. Those older people who use only public services have regularly low income, low education level and live in rented housing out of city centre. All in all, they are almost an opposite group to the first one - only in regard to health are they not the least advantaged group – and are particularly characterized by a distinctive lack of material resources. Thus, this group can be categorized in this study as "the poor".

The third group, those mixing the public and the private, proves to be different in character to the two other groups. As regards its members' income and education level this group has a close resemblance to the "rich" group but in other respects distinctive differences emerge between the two groups. Unlike in the group using solely private services, housing tenure and residence area do not explain membership in the mix group. Nevertheless, it is self-related health that most clearly separates the two groups: while those who use only private services have low odds of having poor health, it is those who use both public and private services who have the worst health conditions within the sample. Thus, this latter user category could be named as "the sick".

The difference in service use patterns between the first two groups, "the rich" and "the poor", is not a surprise. It has been observed in previous studies (e.g., Stoddart et al. 2002, Geerlings et al. 2005, Szebehely et al. 2012), that there is usually an association between socioeconomic, demographic and health factors and the use of care services. The results of this study follow earlier observations: people from a low educational background use less private services and rely more on public services and, at the same time, the highly educated group uses more private and less public services.

This is not surprising as it feels logical that people with higher education and income would have better access to private services. However, in a Nordic context, these findings raise serious concern. The results suggest that there is a trend towards increasing inequality in the use of care services among older people. In Finland, where earlier almost no private provisions existed, this is a new situation and there seems to be a widening gap between socioeconomic groups in regard to patterns of their care service usage. Booming private care sectors not only benefit more well-off sectors of society but also make the service provision more urban-centred. In addition, the increasing number of out-of-pocket payments combined with cuts in the public services might also cause people from low economic strata to seek

additional support from their families and friends and might also force some people to leave their care needs unmet. Previous research in the Finnish health care setting has reported increasing income-related inequality in accessing care support (Van Doorslaer et al 2006, cited in Wahlbeck et al 2008). A development towards a two-tier service system where people with low income use public services while well-off people instead use private provisions threatens the basis of Nordic universalism (see also Kvist & Greve 2011), according to which all social groups should have equal right to access services which are adequate, uniform and mainly funded with general taxes (Anttonen 2002). A growing divergence in service use between low-income and high-income groups raises questions about whether the shift towards marketisation and privatisation in Finland is starting to jeopardise the opportunities of people from all socioeconomic strata to have such an equal and universal access to care services. Further research is required to identify and confirm whether this risk is real and whether inequality in access to care services has actually grown in Finnish society.

According to the results, "the rich" are not only more wealthy but also more healthy than others. This finding raises additional questions about the policy of current years that has directed public funding, in the form of tax rebates and vouchers, to support the use of private care services. If the users of private services have a better health condition than other service users, then public money that is spent on them is not well allocated, not because they are rather wealthy – as in the Nordic welfare model well-off people are also included in the tax-funded service system – but because, due to their good health, they are not in real need of care services. The profile of private service provisions, seen in Figure 2, seems to support this conclusion as it is particularly low-intensity services, such as cleaning, and not high-intensity personal care services that are most usually received from private providers.

It is not only the gap between “the rich” and “the poor” that raises further questions in the findings. The existence of “the sick” category, that is, the finding that the public-private mix usage model is best explained by poor health, may also be a cause for concern. When there is a high need for services, it seems to be extremely hard to depend completely on a single service provider sector. Older people seem to need a public-private mix of services in order to cope with substantial health problems and care needs. Does this imply problems in the effectiveness and quality of public care services? Do older people with the highest needs complement their public services with private provisions because public care is not extensive or good enough to cover their needs?

We do not yet know enough to answer these questions. Previous studies have mainly examined the use of public services (Portrait et al. 2000, Kadushin 2004, Litwin 2004, Broese et al. 2006, Kim et al. 2006, Blomgren et al. 2008, McAuley et al. 2009, Kehusmaa et al. 2012, Sandberg et al. 2012), and little is known even about the users of private care services in a Nordic welfare context. There is a remarkable knowledge gap concerning those older people who mix private and public provisions. As this is a new phenomenon in Finland and other Nordic countries, information is lacking concerning the situations of this group - which nevertheless represents a quarter of all care service users, based on this data - and their motivations to use private services. The only thing we know at present is that their service use is best explained by health-related factors. The changes that marketisation has brought in the service system have clearly caused an urgent need for new research on the conditions of the new user groups.

This study did not find significant differences in older people’s service use between the two cities (Tampere and Jyväskylä), though a previous study has observed variations in service provisions and use between different municipalities in Finland (e.g., Kehusmaa et al, 2012). The findings of this paper cannot be expected to reveal the national situation because the

sample population represents only two cities in Finland. These samples are sufficient to generalise the result at the local, and not at the national level. It could be expected that the result might be rather similar in other Finnish cities but there is a need for further research that uses a broader national sample and compares variations between Finnish municipalities in a comprehensive way. International comparisons between Finland and other Nordic and non-Nordic nations would also shed more light on what is unique to Finland and which findings have broader relevance across different countries. Even though the data used in this study was derived from 2010, the outcome result is still relevant in the Finnish context as the trend of privatization and marketization has continued in the 2010s. This data is meant to be a part of a longitudinal project.

The results obtained here need to be treated with some caution because missing value represented over half of the total population. Hypothetically, missing values could be considered to represent non-service users; however, in reality, it was impossible to identify whether these respondents did not use any formal care service or were just unwilling to answer questions about their service usage. Demographic comparison shows some dissimilarity between excluded and observed respondents; but among the dissimilarities we found self-reported health variable to be more relevant. As most of the excluded respondents reported good (46%) or fair (43%) health, we can assume them to have only minor care needs. Furthermore, the design of this study does not include people living in institutional care; this exclusion might have some influence on the results because people in institutional care are sicker and require more care than people living at home. It is also possible that some service users did not identify correctly the provider of their services. Especially in cases where municipalities had outsourced their services or provided vouchers, users might have thought they were using a public service when they were actually utilizing a private, outsourced service. Furthermore, 12 % of the respondents were reported to have significant

memory problems, which might have had some influence on how these respondents answered the questions. It is also necessary to remember that the private services reported here were primarily support services such as cleaning and shopping, not intensive personal care services (see, Figure 2). Thus, when comparing the user groups it is also important to consider their group differences in terms of service need and usage. Furthermore, the way services are clustered (i.e. grouping of public and private services) in this study also needs to be taken under consideration because this might influence the results.

The main conclusion of this study is that there is an evident need for more in-depth knowledge about different user groups of public and private care services for older people. The divergence between "the rich" and "the poor", that is, the distinctive difference in service use patterns between well-off and disadvantaged socio-economic groups, raises concern and challenges the Nordic principle of universalism. Similarly, the conditions of "the sick", who combine private provisions with public services in order to cope with severe health problems and care needs, raise doubts about the effectiveness and quality of public care services. However, in order to have confirmation of the validity of these doubts and concerns, more research is needed.

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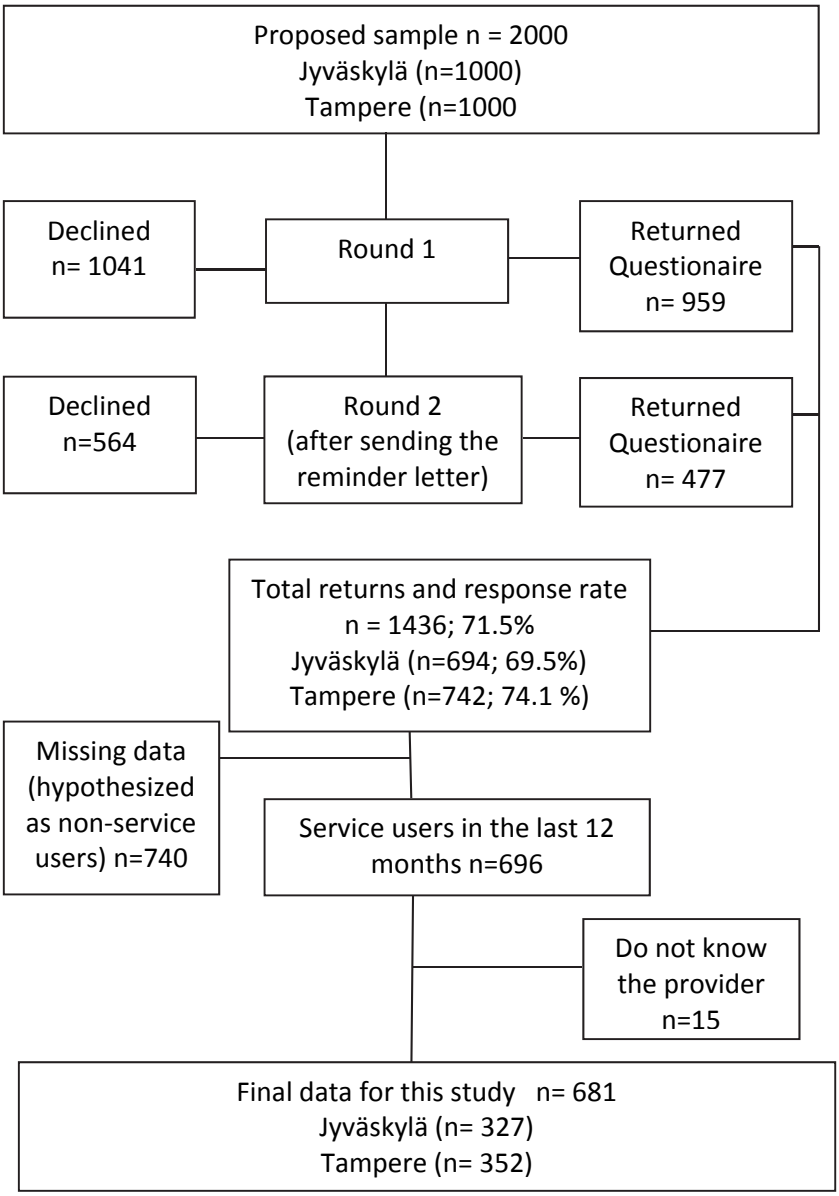

Fig. 1 Flow diagram for recruitment and participation of respondents.

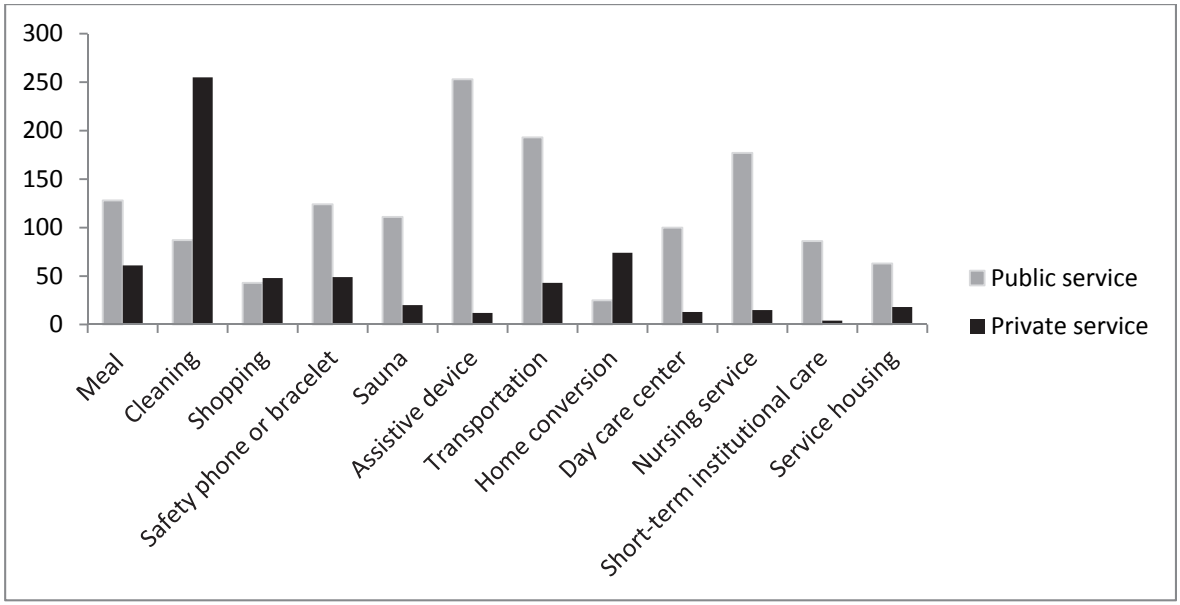

Fig. 2 Use of services according to the service provider

Table 1 Descriptive statistics of service users (n, %)

Variables	Total (*n*=681)	Only public services (*n*=338; 50%)	Only private services (*n*=164; 24%)	Both public and private services (*n*=179; 26%)	*P*-value
City					0.844
Tampere	352 (52)	171 (51)	88 (54)	93 (52)	
Jyväskylä	327 (48)	165 (49)	76 (46)	86 (48)	
Age					<0.001
75-84	399 (61)	195 (60)	125 (77)	79 (45)	
85 or over	259 (39)	127 (40)	37 (23)	95 (55)	
Gender					0.101
Female	467 (69)	223 (67)	109 (67)	135 (75)	
Male	209 (31)	111 (33)	54 (33)	44 (25)	
Living arrangement					0.014
Living alone	422(62)	201 (60)	94 (57)	127 (71)	
Living with someone	259 (38)	137 (40)	70 (43)	52 (29)	
Area of residence					<0.001
City center	320 (47)	134 (40)	97 (59)	89 (50)	
Sub-urban or sparsely populated	355 (53)	198 (60)	67 (41)	90 (50)	
Housing tenure					<0.001
Rented housing	185 (29)	103 (34)	21 (13)	61 (35)	
Owner-occupied housing	447 (71)	198 (66)	136 (87)	113 (65)	
Received informal care					
Yes	538(79)	269(80)	120(73)	149(83)	0.068
No	143(21)	69(20)	44(27)	30(17)	
Self-reported health					<0.001
Good/very good	127 (19)	56 (17)	49 (30)	22 (13)	
Fair	301 (46)	157 (49)	83 (52)	61 (35)	
Poor/ very poor	226 (35)	108 (34)	29 (18)	89 (52)	
Education					<0.001
No vocational education	261 (41)	150 (48)	34 (22)	77 (46)	
Vocational course	152 (24)	86 (27)	29 (18)	37 (22)	
Vocational degree	154 (24)	62 (20)	59 (38)	33 (20)	
University degree	71 (11)	15 (5)	35 (22)	21 (12)	
Equalized household income					<0.001
Quartile (4/lowest)	182 (30)	112 (39)	31 (20)	39 (24)	
Quartile (3)	149 (25)	69 (25)	27 (17)	53 (32)	
Quartile (2)	137(23)	68 (24)	32 (21)	37 (23)	
Quartile (1/highest)	134(22)	35 (12)	65 (42)	34 (21)	

Note: Numbers of categories within a variable might not add up to total because of missing values (including 'I cannot say'). Missing data in the following variables: City, 2; Age, 23; Gender, 5; Living arrangement, 14; Area of residence, 6; Housing tenure, 49 (others =32); Self-reported health, 27 (I cannot say=8); Education, 43; Equalized household income, 79 (I cannot say=32).

Table 2 Multinomial logistic regression on the variables associated with the use of care services

Independent Variables	Univariable						Multivariable (*n*=508)					
	Only private services			Both public and private services			Only private services			Both public and private services		
	Unadjusted odds ratio	95% C.I.	*p*-value	Unadjusted odds ratio	95% C.I.	*p*-value	Adjusted odds ratio	95% C.I.	*p*-value	Adjusted odds ratio	95% C.I.	*p*-value
City												
Tampere	1.11	0.76-1.62	0.561	1.04	0.72-1.50	0.818	-			-		
Jyväskylä	1			1								
Age												
75-84	2.20	1.43-3.38	<0.001	0.54	0.37-0.78	0.001	1.70	0.99-2.93	0.054	0.53	0.33-0.84	0.007
85 or over	1			1			1			1		
Gender												
Female	1.00	0.67-1.49	0.981	1.52	1.01-2.30	0.043	1.80	1.02-3.16	0.040	1.56	0.91-2.67	0.104
Male	1			1			1			1		
Living arrangement												
Living alone	0.91	0.62-1.33	0.646	1.66	1.12-2.45	0.010	0.97	0.54-1.71	0.919	1.44	0.82-2.54	0.198
Living with someone	1			1			1			1		
Area of residence												
City center	2.13	1.46-3.13	<0.001	1.46	1.01-2.10	0.042	1.68	1.03-2.74	0.037	1.16	0.74-1.82	0.511
Sub-urban or sparsely populated area	1			1			1			1		

Housing tenure												
Rented housing	0.29	0.17-0.49	<0.001	1.03	0.70-1.53	0.853	0.35	0.18-0.67	0.001	1.13	0.70-1.83	0.604
Owner-occupied housing	1			1			1			1		
Received informal care												
Yes	0.70	0.45-1.08	0.107	1.27	0.79-2.04	0.316	1.02	0.55-1.88	0.948	1.88	0.63-2-23	0.593
No	1			1			1			1		
Self-reported health												
Good/very good	3.25	1.85-5.71	<0.001	0.47	0.27-0.84	0.010	2.01	0.97-4.13	0.058	0.41	0.20-0.83	0.013
Fair	1.96	1.20-3.20	0.007	0.47	0.31-0.70	<0.001	1.88	1.04-3.40	0.035	0.45	0.27-0.73	0.001
Poor/very poor	1			1			1			1		
Education												
No vocational education	0.09	0.04-0.19	<0.001	0.36	0.17-0.75	0.006	0.24	0.09-0.62	0.003	0.29	0.11-0.74	0.010
Vocational course	0.14	0.06-0.30	<0.001	0.30	0.14-0.66	0.003	0.31	0.12-0.82	0.018	0.21	0.08-0.58	0.002
Vocational degree	0.40	0.20-0.82	0.012	0.38	0.17-0.83	0.016	0.71	0.29-1.69	0.443	0.28	0.10-0.72	0.009
University degree	1			1			1			1		
Equalized house hold income												
Quartile (4/lowest)	0.14	0.08-0.26	<0.001	0.35	0.19-0.65	0.001	0.37	0.17-0.79	0.011	0.50	0.23-1.08	0.079
Quartile (3)	0.21	0.11-0.38	<0.001	0.79	0.43-1.43	0.437	0.49	0.17-0.88	0.024	0.95	0.44-2.02	0.896
Quartile (2)	0.25	0.14-0.45	<0.001	0.43	0.30-1.04	0.066	0.48	0.24-0.96	0.040	0.77	0.37-1.60	0.496
Quartile (1/highest)	1			1			1			1		

Note: For adjusted nominal regression model χ^2= 162.285($p < 0.001$); 2 Log Likelihood = 792.582; Nagelkerke R^2 = 0.310 (list wise deletion of missing data). 'Only public services' was used as reference category in the analysis. Last category in the independent variables was considered as reference group.