Creating CURE-Elderly-Personas
Project Deliverable D.2

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Task 3.1: Analysis of relevant data

Task 3.2: Explore dependencies between variables

Task 3.3: Generation of CURE-Elderly-Personas

Inhalt

Acknowledgements

The CURE-Elderly-Personas are fictitious persons synthetically generated from average traits mixed across countries. Photos are taken from an external database. CURE-Elderly-Personas materials and documents do not represent private data from a single person. Information included in CURE-Elderly-Personas materials and documents do not infringe any privacy and data security rights.

1 Abstract

This document summarizes the creation of CURE-Elderly-Personas using multivariate statistical methods. Based on literature research and first data analysis carried out in Work Package 2, skeletons for CURE-Elderly-Personas were created which will be turned into text-content Personas in Work Package 4.

Task T3.1 constituted an analysis of relevant variables of the SHARE database. Therefore, the distribution of these variables was analyzed and appropriate groupings were created. As expected, it turned out that for various variables, possible subgroups coded in the database were too small, and consequently comparable levels were collapsed into one group so that comparison between groups was statistically meaningful.

Task T3.2 aimed to explore dependencies between variables and to select a final set of variables for generating CURE-Elderly-Personas. Using partitional cluster analysis, numerous combinations of variables were carried out in order to create subgroups, which constitute the basis for CURE-Elderly-Personas. Finally, eight variables were chosen to build the skeleton of CURE-Elderly-Personas using cluster analysis. These variables are most relevant within the scope of AAL, yield converging results and allow variability between subgroups.

Task T3.3 comprised the generation of CURE-Elderly-Personas skeletons by sex, age and region. As it turned out that persons in their fifties were rather healthy and reported few limitations in activities of daily living, the project concentrated on persons aged 60 years and more. Ten years age groups were chosen (60-69, 70-79, 80+), from a geographical point of view the project distinguished between Central, Southern and Northern European countries. The final set includes 30 CURE-Elderly-Personas. On the one hand, eight variables identified in Task T3.2 were used for generating clusters, on the other, numerous further indicators on physical and mental health, psychological well-being, behavioral risks and demographic background were used for building skeletons of CURE-Elderly-Personas.

2 Preparation of data for creating CURE-Elderly-Personas

Based on first descriptive analyses carried out in Work Package 2, further preparation of data was carried out. Numerous variables were combined to create new variables useful in the domain of AAL. For example, the number of children and the geographical proximity and the contact to each of the children was combined to a single variable indicating whether the respondent is (1) childless, (2) living with a child in the same household, (3) has daily contact to a child, (4) has weekly contact to a child or (5) less than weekly contact to a child or children. The information of parity (i.e. number of children), geographical proximity and contact is an important aspect regarding the possible availability of support by family members in case of health problems or limitations.

The distribution of relevant variables was analyzed and appropriate groupings were created. As expected, it turned out that for various variables, possible subgroups coded in SHARE were too small, and consequently comparable levels were collapsed into one group so that comparison between groups was statistically meaningful. For example, the database includes very detailed information on the financial situation, like labor earnings, rent payments, imputed rents received from housing properties or capital income like bonds, stocks or interests from bank accounts. Some of these variables had very large ranges between minimum and maximum amount, and the combination of these different income sources, assets and saving turned out to be most challenging, especially when household size, income of other household members as well as differences between countries have to be considered. Apart from the rather detailed information on the economic situation, respondents were asked about their subjective assessment of the economic situation. Litwin and Sapir (2009) showed that perceived income adequacy is a useful indicator of one's economic well-being and an especially important indicator for understanding the financial capacities of older people. They conclude that self-rated economic status is a robust indicator of financial capacity in older age and can be used to gain meaningful information. We therefore concentrated on self-perceived income adequacy. The underlying question was: "Thinking of your household's monthly income, would you say that your household is able to make ends meet?" with possible answers (1) with great difficulty, (2) with some difficulty, (3) fairly easily, and (4) easily. We collapsed these possible answers into two groups, namely (1) with great/some difficulties and (2) (fairly) easily. The given two examples are intended to illustrate the preparation of data. For the final grouping of variables we refer to table A1 in the Appendix.

3 Method

The Personas approach has been applied by numerous researchers as well as business organizations and companies to gather realistic user descriptions and profiles. For example: Microsoft for the development of a new WEB browser or for a specific product release (Pruitt and Grudin 2003), Ford in the development of their new crossover SUVs (Productbeautiful 2006), Forrester for designing user interfaces (Kreitzberg and Little, 2009) or Cisco for network solution products (Nieters et al., 2007). In an ongoing international cooperation financed within the framework of FP7, the project PrimeLife (Primelife, 2011) addresses the core privacy and trust issues pertaining to protect privacy in emerging Internet applications

3.1 Approaches to generate Personas

In the literature there are several approaches to generate Personas. Miaskiewicz and colleagues presented the application of the LSA (Latent Semantic Analysis) for developing Personas for an Institutional Repository system (Miaskiewicz et al. 2008). Another approach for generating Personas comes from McGinn and Kotamraju that created Personas for a training organization performing factor analysis (McGinn and Kotamraju, 2008). Their approach first involved the stakeholders in the early design phase to define the needed attributes that are most meaningful to the design team. In a second step data was collected by sending surveys to representatives of the target group that were specifically adjusted to gather information about the defined attributes. Resulting groupings from factor analysis were enlarged with information coming from interviews to refine the Persona set. Further, Tychsen and Canossa defined Personas in games using metrics by generating representations of "how players interact with the game" to inform the game design (Tychsen and Canossa; 2008, p. 73). Pruitt and Adlin gave various examples of how to generate and apply Personas in a design team (Pruitt and Adlin, 2006).

Marcengo and colleagues (2009) suggest a Personas layering model that allows to adopt Personas to different contexts. They consider the single Persona as a composite entity, consisting of several layers, namely the 'basic' Persona which is fixed, and the 'external layer' which is developed on the basis of the application context and therefore specific (Marcengo et al., 2009, p. 258). Working in telecommunication projects, Marcengo and colleagues exemplify the Personas layering framework by giving a practical application of their model within different projects developed in their research area, such as seamless communication and interaction within a home or in-car communication.

3.2 Layering model for generating CURE-Elderly-Personas

We followed the approach by Marcengo and colleagues (2009) described above and developed so-called basic Personas based on SHARE. The aspects captured by our 'basic' Personas are socio-demographic situation, health and social networks. Marcengo and colleagues (2009) suggest using quantitative data from national statistical institutes, market research as well as qualitative data collected through focus groups or interviews for building 'basic' Personas. As our used database includes not only socio-economic and demographic characteristics but also detailed information on lifestyle, needs and psychological characteristics, we can shape 'basic' Personas by using quantitative data only. The numerous aspects included in the interdisciplinary survey allow a multifaceted description at rather low costs.

3.3 Multivariate method

To find the most representative prototypes for older persons, cluster analysis was applied. Cluster analysis is a class of statistical techniques that sorts through the raw data and groups them into so-called clusters. In other words, cluster analysis reduces the number of observations by grouping them into a smaller set. A cluster is a group of relatively homogeneous cases or observations. Objects in a cluster are similar to each other. They are also dissimilar to objects outside the cluster, particularly objects in other clusters. "The goal is that the objects within a group be similar (or related) to one another and different from (or unrelated) to the objects in the other groups." (Tan, Steinbach and Kumar, 2004, p. 490). Technically, the goal is to minimize intra-cluster distances and to maximize inter-cluster distances.

There are numerous ways to form clusters. Hierarchical clustering and partitional clustering are the most commonly used techniques (Norusis, 2010). Whereas hierarchical clustering produces a set of nested clusters organized as a hierarchical tree, partitional clustering divides data objects into non-overlapping subsets (clusters) such that each data object is in exactly one subset. If the number of clusters is specified and the researcher aims to produce a certain number of clusters, partitional clustering (or k-means clustering) is an appropriate tool.

3.4 Classification of CURE-Elderly-Personas

AAL technologies focus on individuals with disabling conditions, health or social limitations and restrictions in daily living. Since interviewed respondents in the age group 50 to 59 years were in good health and since variation in the numerous variables related to health was rather small, we concentrated on individuals aged 60 years and more.

Due to gender-specific differences in morbidity and mortality (UN, 1988; Luy, 2003; Vallin, 2006) but also in basic demographic characteristics such as partner status, we created separate sets of male and female prototypes. Taking into account that age is a main determinant for health, we further divided our male and female samples into age-groups. In order to keep the number of subgroups small, we chose 10-years age groups 60-69 years, 70-79 years and 80+ years.

SHARE includes countries across Europe with different cultural and institutional backgrounds. Comparative studies revealed remarkable differences in health status and life expectancy across Europe (Vallin, Meslé and Valkonen, 2001). We therefore divided our sample in three groups: (1) Germany and Austria, (2) Southern European countries (Italy, Spain and Greece) and (3) Northern European countries (Sweden, Denmark, the Netherlands). We concentrated on Central Europe, i.e. on Austria and Germany, as funds were provided by the Austrian Research Promotion Agency and as our target group is developers in this region. We did not include Switzerland, as the individual response rate in this country was very low (Börsch-Supan and Jürges, 2005) which might indicate problems for the representativeness of the Swiss sample.

For the two neighboring countries Austria and Germany with similar cultural background we created a full Persona for all age groups. In our project, these two countries represent Central Europe. Apart from the Personas for Germany and Austria, we created Personas for Northern European countries and for Southern European countries. Compared to Austria and Germany, it turned out that the main differences were related to housing and family status and to mental health. Since these differences appeared especially at higher ages, we created Personas for Northern as well as for Southern Europe only for the age group 80 years and more.

The analysis sample comprised 12,496 respondents aged 60 years and older in the three country groups mentioned above. The subset for Austria and Germany included 3,159 people (1,411 men and 1,748 women), the subsets of the northern and southern countries being larger with 4,459 and 4,846 interviewed persons.

Therefore we ended up with eight subgroups: Central European women aged 60 to 69 years, Central European women aged 70 to 79 years, Central European women aged 80 years and more, Central European men aged 60 to 69 years, Central European men aged 70 to 79 years, Central European men aged 80 years and more, Northern European women aged 80 years and more, Northern European men aged 80 years and more, Southern European women aged 80 years and more and Southern European men aged 80 years and more (see Table 1). For each of these eight subgroups separated cluster analyses were carried out yielding a set of Personas for each of these eight groups.

	Males	Females
Central Europe	60-69	60-69
	70-79	70-79
	80+	80+
Northern Europe	80+	80+
Northern Europe	80+	80+

Table 1. Subgroups for creating CURE-Eldery-Personas by age and region

4 Results – CURE-Elderly-Personas

The main task of Work Package 3 was the creation of a skeleton of CURE-Elderly-Personas.

4.1 Selection of cluster variables

Numerous cluster analyses were carried out to find a combination of variables which captured the most relevant dimensions for creating Personas, yielded convergent results and allowed variability between the clusters that is essential for describing the cluster (Personas) for the end users. As can be expected, various health-related variables were highly correlated. The final analyses included the following eight 'clustering variables':

- Self-perceived general health with the categories (1) very good, (2) good, (3) fair, (4) bad, and (5) very bad.
- Self-perceived general health as dichotomous variable with the categories (0) (very) good and (1) less than good.
- Self-reported limitations with 'activities of daily living' (ADL) including the following six activities: dressing, walking across a room, bathing or showering, eating, getting into and out of bed, using the toilet. The categories used for building clusters were (0) no ADL limitations and (1) one or more ADL limitations lasting for at least three months.
- Cognitive functioning measured by the number of words recalled out of a list of ten words, ranging from (0) zero to (10) ten words.
- Use of home care service including home care for nursing or personal care, home care for domestic tasks as well as meals-on-wheels with the categories (0) none of these services used and (1) one or more of these services used during the last twelve months.
- Economic restraints measured by the way the household makes ends meet with the categories (0) with great difficulties or with some difficulties and (1) fairly easily or easily.
- Taking part in social activities during the last month, including: voluntary or charity work; caring for a sick or disabled adult; providing help to family, friends or neighbors; attending an educational or training course; going to a sport, social or other kind of club; taking part in a religious organization; taking part in a political or community organization. Fur the cluster analysis a dichotomous variable was used indicating (0) at least one or (1) none out of the six mentioned activities.

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- Contact with children distinguishing between (1) living with child(ren) in the same household, (2) daily contact, (3) contact several times a week or weekly, (4) less than weekly contact, and (5) childless.

These eight clustering variables used for building the 'skeleton' of our Personas concentrate on rather broad aspects of health and conditions. We included two variables on self-perceived general health, an ordinal one and a dichotomous one. In this way, general health was the main characteristic for generating clusters. As already mentioned before, the described specification of variables used for clustering turned out to produce the most appropriate clusters for AAL purposes.

4.2 Number of CURE-Elderly-Personas

In order to allow variability between the clusters and to keep the total number of prototypes manageable for the end user, i.e. the product developer, the number of clusters (Personas) was set to five. Thus, using partitional cluster analysis, for each of the eight subgroups five clusters were calculated with the software package STATA. It turned out that for some subgroups, three or four was the optimal number of clusters. As it turned out that some clusters were very similar, we collapsed some clusters and could therefore reduce the number of prototypes to a final set of 30 CURE-Elderly-Personas, among them 18 for Central European countries, 6 for Northern European countries and 6 for Southern European countries.

4.3 Numerical output

In this chapter, we give as an example the numerical output of one specific cluster analysis, namely for men in Central Europe aged 80 years and more (Table 2).

Variable	Self-perceived health	Self-perceived health (dichotom)	Limitations in activities of daily living	Cognitive funtioning (delayed recall)	Received home care	Economic situation	Social activities	Contact with child(ren)
Code of variable	Spheu	spheu2	adl2	cf016tot	hc032 dno	Meet ends	ac002 dno	ch_con~t
1	3,063	0,688	0,271	1,417	0,787	0,727	0,646	1,979
2	2,654	0,423	0,192	4,04	0,923	0,882	0,769	2,5
3	2,818	0,545	0,227	1,591	0,667	0,824	0,591	4
Total	2,896	0,583	0,24	2,147	0,798	0,791	0,667	2,273

Table 2. Means within cluster; men in Central Europe aged 80+

This output was the basis for CURE-Elderly-Personas. It includes three clusters which will become the three CURE-Elderly-Personas for this specific group. The table gives the mean value for all eight cluster variables described in Chapter 4.1.

4.4 Further included aspects

To take advantage of the three pillars of SHARE, namely health, economics and social context, we used a wide range of information included in the dataset in order to describe the prototypes. The relevant dimensions capture detailed information on demographic background, physical health, mental health, cognitive functioning, behavioral risks, health care, children, and psychological well-being. For a detailed list of 'further variables for description' of our Personas we refer to Table A1 in the Appendix. The aspects we took into consideration are briefly listed below:

- Demographic background: partner status, highest educational level, number of children
- Physical health: various chronic diseases and symptoms, various limitations in activities of daily living (ADL) and instrumental activities of daily living (IADL), hearing, eyesight, drug use, limitations in activities of daily living such as bathing, eating, groceries shopping, etc.
- Mental health: various symptoms of depression like sleeping problems, loss of appetite, irritability, fatigue, poor concentration or little hopes for the future
- Cognitive functioning: orientation as to date, month, year and day of the week, numeracy, memory and recall, self-rated reading and writing skills
- Behavioural risks: body mass index (BMI), smoking, drinking alcohol, doing exercise, sports or vigorous activities
- Health care: hospitalisation, including duration and reasons for hospitalisation, receiving different forms of home care
- Children: contact with children, geographical distance to children
- Activities: different dimensions of social engagement such as voluntary or charity work, caring for sick people, attending educational or training courses, participation in political organisations or communities or taking part in religious organizations
- Psychological well-being: satisfaction with life, personal feelings.

To sum up, we used in a first step eight 'cluster variables' to build the clusters, incorporating in a second step further variables for interpretation. Therefore, the distribution of the 'variables for description' was the base for a more detailed description of Personas. Whereas the parameter values of certain variables allowed a clear classification, for other variables the different parameter values were rather equally distributed and allowed no specification. In the first case, a specific variable was used for describing the Personas, in the latter one this variable was not taken into consideration. This is why the variables used for describing the various Personas differ and do not constitute a fixed set of items.

4.5 CURE-Elderly-Personas Skeleton

We give as an example the skeletons generated on the basis of cluster analysis and further descriptive statistics mentioned above. The presented skeletons are for men in Central Europe aged 80 years and more (Table 3). In this specific case, the cluster generated three groups. Each group represents a Persona and was given a fictive name. This output derived from multivariate and bivariate statistical analyses is the basis for text-content work in the final Work-Package 4.

Males 80+, Central Europe

	Group 1	Group 2	Group 3
	Karl-Heinz Ruhend	**Helmuth Schlingel**	**Siegfried Trauer**
Health Status	bad	good	fair
Diseases	high blood pressure arthritis or rheumatism cataracts	heart attack or other heart problems	no
Symptoms	bothered by pain in back, knees, hips or other joint bothered by breathless-ness bothered by fear of fall-ing down	no	bothered by heart trou-ble bothered by dizziness, faints or blackouts Depression
Limitations	difficulties walking 100 meters difficulties climbing sev-eral flights of stairs difficulties climbing one flight of stairs difficulties stooping, kneeling, crouching difficulties pulling or pushing large objects	no	difficulties getting up from chair difficulties lifting or carry-ing weights over 5 kilos
	difficulties dressing, in-cluding shoes and socks difficulties shopping for groceries		difficulties using a map in a strange place difficulties preparing a hot meal difficulties doing work around the house or garden
Drugs	yes	no	needed

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	Group 1	Group 2	Group 3
	Karl-Heinz Ruhend	**Helmuth Schlingel**	**Siegfried Trauer**
Eyesight /Hearing	no problems	eysight less than good uses glases hearing less than good uses hearing aid	eysight less than good uses glases hearing less than good
Hospital	hernia repair or any other inpatient surgery	no	no
Bmi	normal	overweight	normal
Cognitive Function	average - bad	good	average
Memory	average - bad	good-average	average
Mental Health	hopes for the future fatigue	hopes for the future	concentration problems sad or depressed last month ever treated for depression by doctor or psychiatrist
Behavioural Risk	physical inactiv		
Home Care	no	no	yes
Marital Status	married	married	widowed
Children	1-2 Children, in same hh	1-2 children, weekly contact	0 children
Economic	maybe difficult	easy	easy
Education	basic	basic	medium
Activities	no	no	gone to a sport, social or other kind of club
Life Satisfaction	satisfied	satisfied	satisfied
Size of group	50%	27%	23%

Table 3. Skeleton for CURE-Elderly-Personas; men in Central Europe aged 80+

4.6 Final set of CURE-Elderly-Personas

As mentioned in chapter 4.2 a total of 30 Personas was generated. These are summarized in table 4 and grouped by region, sex and age. Same names indicate that the corresponding skeletons were similar and were collapsed into one group. As an example we refer to Hilde Eifrig who is represented both in the age groups 60-69 and 70-79 years of Central Europe. As a further example of collapsing groups we refer to women aged 80+ in Southern European countries, where group 1 and group 2 were collapsed into one group, with the fictive name Mrs. Isola. Moreover, the reader should bear in mind that we also collapsed male and female groups, if characteristics were very similar. For example, Maria-Klaus Liege appears in Central Europe in the female group age 60-69, in the female group aged 70-79 and in the male group aged 60-69. Figures 1 and 2 visualize the generated CURE-Elderly-Personas by age, sex and region.

FEMALES Central Europe

	60-69 years	%	70-79 years	%	80+ years	%
Group 1	Ingrid Reisen	9	Hilfe Eifrig	16	Adelheit Hüftleid	30
Group 2	Judith Einzig	30	Ingobert Tugend	36	Luise Insel	22
Group 3	Maria-Klaus Liege	10	Doris Schwester	13	Adelheit Hüftleid	26
Group 4	Roswitha Blumenthal	26	Roswitha Blumenthal	17	Maria Jung	22
Group 5	Hilde Eifrig	24	Maria-Klaus Liege	18		
Total		99		100		100

MALES Central Europe

	60-69 years	%	70-79 years	%	80+ years	%
Group 1	Peter Meister	15	Andreas Renner	24	Karl-Heinz Ruhend	50
Group 2	Stefan Vater	25	Achim Herz	15	Helmuth Schlingel	27
Group 3	Stefan Vater	25	Stefan Vater	21	Siegfried Trauer	23
Group 4	Maria-Klaus Liege	15	Michael Elend	27		
Group 5	Achim Herz	19	Ingobert Tugend	13		
Total		99		100		100

Northern Europe 80+

	Females	%	Males	%
Group 1	Mrs. Jungenson	23	Mr. Johnsen	31
Group 2	Mrs. Allenson	38	Mr. Calmberg	24
Group 3	Mrs. Ostegaard	28	Mr. Traussen	45
Group 4	Mrs. Allenson	11		
Total		101		100

Southern Europe 80+

	Females	%	Males	%
Group 1	Mrs. Isola	15	Mr. Calmo	58
Group 2	Mrs. Isola	20	Mr. Trauis	13
Group 3	Mrs. Vitalis	28	Mr. Nicolo	29
Group 4	Ms. Giovana	36		
Total		99		100

Table 4. Generated CURE-Elderly-Personas by age, sex and region

Females Central Europe 60-69:
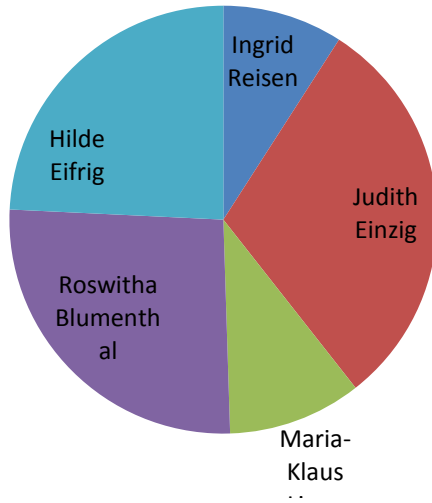
Males Central Europe 60-69:
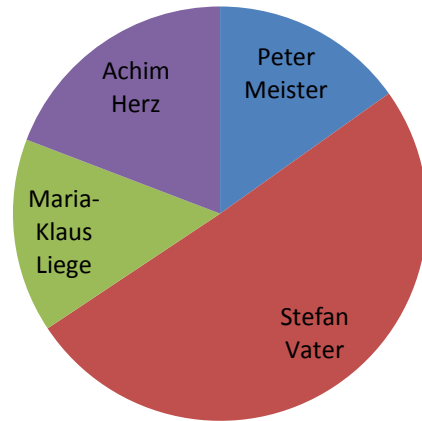
Females Central Europe 70-79:
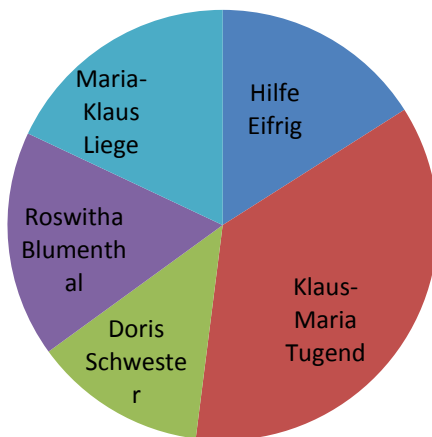
Males Central Europe 70-79:

Figure 1: Generated CURE-Elderly-Personas aged 60-79

Females Central Europe 80+:
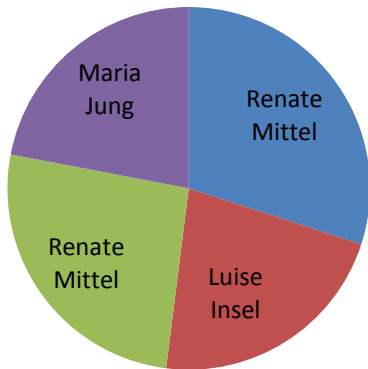
Maria Jung
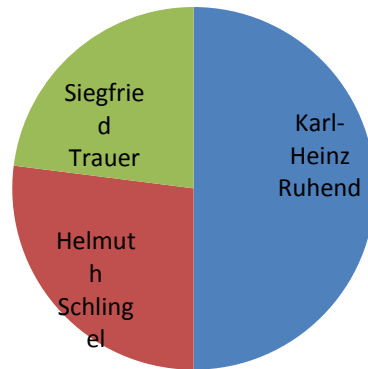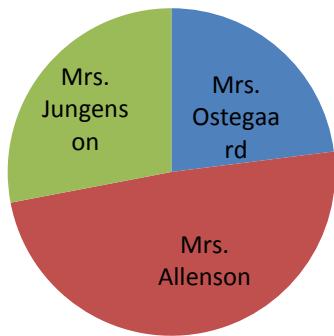
Renate Mittel

Renate Mittel

Luise Insel

Males Central Europe 80+:

Siegfried Trauer

Karl-Heinz Ruhend

Helmuth Schlingel

Females Northern Europe 80+:

Mrs. Jungenson

Mrs. Ostegaard

Mrs. Allenson

Males Northern Europe 80+:

Mr. Traussen

Mr. Johnson

Mr. Calmberg

Females Southern Europe 80+:

Mrs. Giovana

Mrs. Isola

Mrs. Vitalis

Males Southern Europe 80+:

Mr. Nicolo

Mr. Calmo

Mr. Trauis
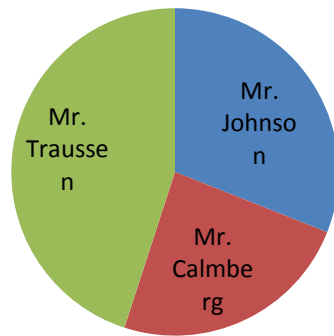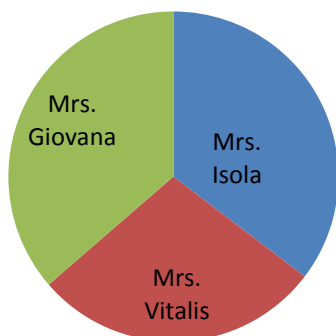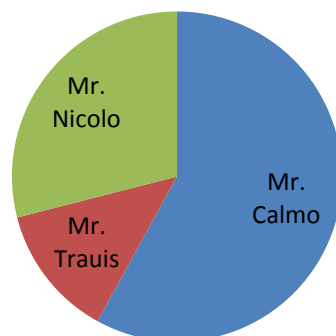
Figure 2: Generated CURE-Elderly-Personas aged 80+

5 Conclusion and Next Steps

The main task of Work Package 3 was the creation of a skeleton of CURE-Elderly-Personas. It comprised the multivariate analysis of SHARE data. Numerous cluster analyses were carried out to find a combination of variables which captured the most relevant dimensions for creating Personas, yielded convergent results and allowed a variability between the clusters that is essential for describing the cluster (Personas) for the end users. In a close cooperation, VID and CURE finally created the skeleton for 30 CURE-Elderly-Personas. In a next step, the numerical output will be turned into text-related Personas. Due to the relatively large number of final Personas – which were necessary due to age-, gender- and country-specific differences – the team agreed to implement in Work Package 4 filters for end-users which helps the user to choose an appropriate set of CURE-Elderly-Personas.

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7 Appendix

7.1 List of variables

The following table A1 includes Variables used for analysis and for building skeletons of CURE-Elderly-Personas

Description of variable	Labels	Variable name[1]
Age and sex		
Gender	1 male 2 female	gender
Age group	2 60-69 3 70-79 4 80+	age_group
Cluster variables		
Self-perceived health (European version)	1 very good 2 good 3 fair 4 bad 5 very bad	spheu
Self-perceived health, dichotomous (European version)	0 (very) good 1 less than good	spheu2
Limitations in activities of daily living (ADL)	0 none 1 one or more	adl2
Delayed recall	0 to 10	cf016tot
Received no home care or meals-on-wheels	0 yes 1 no	hc032dno
Household able to make ends meet	0 with great/some difficulties 1 (fairly) easily	co007 (meetends)
Social activities	0 at last one out of the six activities activities[2] 1 engaged in none of the six mentioned activities	ac002dno
Contact with child(ren)	1 living in same household 2 daily contact 3 weekly contact 4 less than weekly contact	ch014 (ch_contact)
Further variables used for description		
Marital status 1	1 with partner 2 single	Marstat
Marital status 2	1 married 2 partnership 3 separated 4 never married 5 divorced 6 widowed	marstatD
Highest educational level	1 to 6	dn010 (education)

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[1] For further information on the exact wording of the question and the different possible answers we refer to Buber 2009.

[2] These activities are (1) voluntary or charity work, (2) providing care for a sick or disabled adult, (3) providing help to family, friends or neighbors, (4) attending an educational or training course, (5) going to a sports, social or other kind of club, and (6) taking part in a political or community organization.

Number of children	0 none 1 one 2 two 3 three 4 four or more	ch001 (children)
Distance to the child living closest	1 living in same household 2 less than 25 km 3 25 to 100 km 4 more than 100 km	ch007 (ch_location)
Number of chronic diseases	0 less than two 1 two or more	chronic2
Heart attack or other heart problems	0 no 1 yes	ph006d01
High blood pressure	0 no 1 yes	ph006d02
High blood cholesterol	0 no 1 yes	ph006d03
Stroke or cerebral vascular disease	0 no 1 yes	ph006d04
Diabetes	0 no 1 yes	ph006d05
Chronic lung disease	0 no 1 yes	ph006d06
Asthma	0 no 1 yes	ph006d07
Arthritis or rheumatism	0 no 1 yes	ph006d08
Osteoporosis	0 no 1 yes	ph006d09
Cancer or malignant tumour	0 no 1 yes	ph006d10
Stomach, duodenal or peptic ulcer	0 no 1 yes	ph006d11
Parkinson disease	0 no 1 yes	ph006d12
Cataracts	0 no 1 yes	ph006d13
Hip or femoral fracture	0 no 1 yes	ph006d14
None of these chronic diseases	0 no 1 yes	ph006dno
Number of symptoms	0 less than two 1 two or more	symptom2
Bothered by pain in back, knees, hips or other joint	0 no 1 yes	ph010d01
Bothered by heart trouble	0 no 1 yes	ph010d02
Bothered by breathlessness	0 no 1 yes	ph010d03
Bothered by persistent cough	0 no 1 yes	ph010d04
Bothered by swollen legs	0 no 1 yes	ph010d05
Bothered by sleeping problems	0 no 1 yes	ph010d06
Bothered by falling down	0 no 1 yes	ph010d07
Bothered by fear of falling down	0 no 1 yes	ph010d08

Bothered by dizziness, faints or blackouts	0 no 1 yes	ph010d09
Bothered by stomach or intestine problems	0 no 1 yes	ph010d10
Bothered by incontinence	0 no 1 yes	ph010d11
None of these symptoms	0 no 1 yes	ph010dno
Bothered by other symptoms	0 no 1 yes	ph010dot
Limitations with activities	0 not limited 1 limited	gali
Limitations with instrumental activities of daily living (IADL)	0 not limited 1 limited	iadl2
Difficulties in walking 100 metres	0 no 1 yes	ph048d01
Difficulties in sitting for two hours	0 no 1 yes	ph048d02
Difficulties in getting up from chair	0 no 1 yes	ph048d03
Difficulties in climbing several flights of stairs	0 no 1 yes	ph048d04
Difficulties in climbing one flight of stairs	0 no 1 yes	ph048d05
Difficulties in stooping, kneeling, crouching	0 no 1 yes	ph048d06
Difficulties in reaching up or extending arms above shoulder	0 no 1 yes	ph048d07
Difficulties in pulling or pushing large objects	0 no 1 yes	ph048d08
Difficulties in lifting or carrying weights over 5 kg	0 no 1 yes	ph048d09
Difficulties in picking up a small coin from a table	0 no 1 yes	ph048d10
None of these difficulties	0 no 1 yes	ph048dno
Difficulties in dressing, including shoes and socks	0 no 1 yes	ph049d01
Difficulties in walking across a room	0 no 1 yes	ph049d02
Difficulties in bathing or showering	0 no 1 yes	ph049d03
Difficulties in eating, cutting up food	0 no 1 yes	ph049d04
Difficulties in getting into or out of bed	0 no 1 yes	ph049d05
Difficulties in using the toilet, including getting up or down	0 no 1 yes	ph049d06
Difficulties in using a map in a strange place	0 no 1 yes	ph049d07
Difficulties in preparing a hot meal	0 no 1 yes	ph049d08
Difficulties in shopping for groceries	0 no 1 yes	ph049d09
Difficulties in telephone calls	0 no 1 yes	ph049d10
Difficulties in taking medications	0 no 1 yes	ph049d11
Difficulties in doing work around the house or garden	0 no	ph049d12

	1 yes	
Difficulties in managing money	0 no 1 yes	ph049d13
None of these difficulties	0 no 1 yes	ph049dno
Eyesight	0 fair, poor or blind 1 excellent, very good or good	eyes
Use of glasses	0 no 1 yes	ph041
Hearing	0 fair or poor 1 excellent, very good or good	hearing
Use of hearing aid	0 no 1 yes	ph045
Body mass index	1 underweight (below 18.5) 2 normal (18.5 – 24.9) 3 overweight (25 – 29.9) 4 obese (30 or higher)	bmi2
Taking drugs at least once a week	0 no 1 yes	drugs
Currently smoking	1 yes 2 no	cusmoke
Drinking more than 2 glasses of alcohol almost every or 5/6 days a week	1 yes 0 no	drinkin2
Physical inactivity	0 some moderate or vigorous physical activity 1 (almost) never engaging into moderate nor vigorous physical activity	phactiv
Depression scale EURO-D; number of depressive symptoms	0 to 12	eurod
Depression 'caseness' based on EURO-D	0 not depressed (0 to 3) 1 depressed	eurodcat
Sad or depressed during last month	0 no 1 yes	mh002
Hopes for the future	0 no hopes mentioned 1 any hopes mentioned	mh003
Feeling one would rather be dead	0 no 1 yes	mh004
Feeling guilty	0 no 1 yes	mh005
Excessive guilt or self-blame	0 no 1 yes	mh006
Sleeping problems	0 no 1 yes	mh007
Less or same interest in things	0 no loss of interest 1 less interest than usual	mh008
Keeps up interest	0 no 1 yes	mh009
Irritability	0 no 1 yes	mh010
Appetite	0 no 1 yes	mh011
Eating less	0 no 1 yes	mh012
Fatigue	0 no 1 yes	mh013
Concentration on entertainment	0 no 1 yes	mh014
Concentration on reading	0 no 1 yes	mh015

Enjoyment	0 no 1 yes	mh016
Tearfulness	0 no 1 yes	mh017
Having ever been depressed	0 no 1 yes	mh018
Orientation to date, month, year and day of week	0 bad 1 2 3 4 good	orienti
Numeracy score	1 bad 2 3 4 5 good	numeracy
Memory, based on a list of ten items	0 to 10	cf008tot
Self-rated reading skills	1 excellent 2 very good 3 good 4 fair 5 poor	cf001
Self-rated writing skills	1 excellent 2 very good 3 good 4 fair 5 poor	cf002
Concentration problems with TV, radio or reading	0 no 1 yes	m_conc
Self-rated reading skills	0 fair or poor 1 excellent, very good or good	reading
Self-rated writing skills	0 fair or poor 1 excellent, very good or good	writing
Special features in accommodation that assist persons with physical impairments or health problems	0 no 1 yes	ho033
Admitted in a hospital overnight during last 12 months	0 no 1 yes	hc012
Times admitted in a hospital overnight during last 12 months		hc013
Reason hospital: inpatient surgery	0 no 1 yes	hc015d1
Reason hospital: medical tests or non-surgical treatments	0 no 1 yes	hc015d2
Reason hospital: mental health problems	0 no 1 yes	hc015d3
Reason hospital: other than inpatient surgery, medical tests or non-surgical treatments or mental health problems	0 no 1 yes	hc015dno
Kind of surgery (based on a list)		hc018
Received home care for nursing or personal care	0 no 1 yes	hc032d1
Received home care for domestic tasks	0 no 1 yes	hc032d2
Received meals-on-wheels	0 no 1 yes	hc032d3
Received neither home care for nursing or personal care, for domestic tasks or meals-on-wheels	0 no 1 yes	hc032dno
Voluntary or charity work	0 no 1 yes	ac002d1
Cared for a sick or disabled adult	0 no 1 yes	ac002d2

Provided help to family, friends or neighbours	0 no 1 yes	ac002d3
Attended an educational or training course	0 no 1 yes	ac002d4
Gone to a sport, social or other kind of club	0 no 1 yes	ac002d5
Taken part in a religious organization	0 no 1 yes	ac002d6
Taken part political or community organization	0 no 1 yes	ac002d7
None of the mentioned activities	0 no 1 yes	ac002dno
How often done voluntary or charity work	1 daily 2 weekly 3 less than weekly	ac003_1
How often cared for a sick or disabled adult	1 daily 2 weekly 3 less than weekly	ac003_2
How often provided help to family, friends or neighbors	1 daily 2 weekly 3 less than weekly	ac003_3
How often attended an educational or training course	1 daily 2 weekly 3 less than weekly	ac003_4
How often gone to a sports, social or other kind of club	1 daily 2 weekly 3 less than weekly	ac003_5
How often taken part in a religious organization	1 daily 2 weekly 3 less than weekly	ac003_6
How often taken part in a political or community organization	1 daily 2 weekly 3 less than weekly	ac003_7
Life satisfaction	1 very or somewhat satisfied 0 somewhat or very dissatisfied	q1
Age prevents me from doing things I would like to do	1 often or sometimes 0 rarely or never	q2a
Out of my control	1 often or sometimes 0 rarely or never	q2b
Feeling left out	1 often or sometimes 0 rarely or never	q2c
I do what I want	1 often or sometimes 0 rarely or never	q2d
Family responsibilities prevent me from doing what I want to do	1 often or sometimes 0 rarely or never	q2e
Shortage of money	1 often or sometimes 0 rarely or never	q2f
Looking forward to each day	1 often or sometimes 0 rarely or never	q2g
Life has meaning	1 often or sometimes 0 rarely or never	q2h
Looking back with happiness	1 often or sometimes 0 rarely or never	q2i
Full of energy	1 often or sometimes 0 rarely or never	q2j
Full of opportunities	1 often or sometimes 0 rarely or never	q2k
Future looks good	1 often or sometimes 0 rarely or never	q2l

Pursue goals with energy	1 (strongly) agree 0 (strongly) disagree	q3a
Usually expect the best	0 none or some of the time 1 most or all of the time	q3b
Optimistic about future	0 none or some of the time 1 most or all of the time	q3c
Not expect things to go my way	0 none or some of the time 1 most or all of the time	q3d
Find ways to solve problems	0 none or some of the time 1 most or all of the time	q3e
Rarely expecting positive things	0 none or some of the time 1 most or all of the time	q3f
Felt prepared for future	0 none or some of the time 1 most or all of the time	q3g
Felt depressed	0 none or some of the time 1 most or all of the time	q4a
Everything is exhausting	0 none or some of the time 1 most or all of the time	q4b
Sleep was restless	0 none or some of the time 1 most or all of the time	q4c
Was happy	0 none or some of the time 1 most or all of the time	q4d
Felt lonely	0 none or some of the time 1 most or all of the time	q4e
People were unfriendly	0 none or some of the time 1 most or all of the time	q4f
Enjoyed life	0 none or some of the time 1 most or all of the time	q4g
Felt sad	0 none or some of the time 1 most or all of the time	q4h
People disliked me	0 none or some of the time 1 most or all of the time	q4i
Couldn't get going	0 none or some of the time 1 most or all of the time	q4j
Didn't feel like eating	0 none or some of the time 1 most or all of the time	q4k
Had lot of energy	0 none or some of the time 1 most or all of the time	q4l
Felt tired	0 none or some of the time 1 most or all of the time	q4m
Felt rested in the morning	0 none or some of the time 1 most or all of the time	q4n
Balance within partnership	0 none or some of the time 1 most or all of the time	q5a
Received adequate appreciation	0 none or some of the time 1 most or all of the time	q5b
Balance in major activity	0 none or some of the time 1 most or all of the time	q5c
Seriously disappointed	0 none or some of the time 1 most or all of the time	q5d

7.2 CURE-Elderly-Personas skeletons

Females 60-69, Central Europe

	Group 1	Group 2	Group 3	Group 4	Group 5
	Ingrid Reisen	**Judith Einzig**	**Klaus-Maria Liege**	**Roswitha Blumenthal**	**Hilde Eifrig**
Health Status	very good	good-fair	fair-bad	good	fair
Diseases	no	high blood pressure	high blood pressure osteoporosis	arthritis or rheumatism	high blood pressure high blood cholesterol
Symptoms	no		bothered by pain in back, knees, hips or other joint bothered by breath-lessness bothered by swollen legs bothered by sleeping problems	bothered by pain in back, knees, hips or other joint	bothered by pain in back, knees, hips or other joint
Limitations	no	difficulties lifting or carrying weights over 5 kilos	difficulties getting up from chair difficulties climbing several flights of stairs difficulties stooping, kneeling, crouching difficulties using a map in a strange place difficulties doing work around the house or garden		difficulties climbing several flights of stairs
Drugs	no	no	yes	yes	yes
Eyesight /Hearing	eyes and hearing good, glases	eyes good, hearing good	eyes and hearing less than good, glases	eyes and hearing good, glases	eyes and hearing good

			yes - surgical treatment of fracture or ortopae-dic trauma		
Hospital					
Bmi	overweight	normal	obese	normal	overweight
Cognitive Function	average	average	bad	good	average
	Group 1	**Group 2**	**Group 3**	**Group 4**	**Group 5**
	Ingrid Reisen	**Judith Einzig**	**Klaus-Maria Liege**	**Roswitha Blumenthal**	**Hilde Eifrig**
Memory	bad	average	bad	good	Average
Mental Health	enjoyment	tearfulness	sad or depressed trouble sleeping tearfulness concentration problems		trouble sleeping
Behavioural Risk	smokes				
Home Care	no	no	no	no	no
Marital Status	married	divorced	married	married	widowed
Children	1 child	childless	2 children	2 children	3 children
Economic	easy	easy	difficult	easy	
Education	basic	medium	basic	medium	basic
Activities	taken part in a religious organization -less often	no	no	voluntary or charity work (al-most every week) gone to a sport, social or other kind of club (almost every week)	provided help to family, friends or neighbours - almost daily
Life Satisfaction	satisfied	satisfied		satisfied	satisfied
Size of group	9%	30%	10%	26%	24%

Females 70-79, Central Europe

	Group 1	Group 2	Group 3	Group 4	Group 5
	Hilde Eifrig	**Ingobert Tugend**	**Doris Schwester**	**Roswitha Blumenthal**	**Klaus-Maria Liege**
Health Status	fair	good	fair	good	bad
Diseases	osteoporosis cataracts	high blood pressure high blood cholesterol	no	high blood pressure arthritis or rheumatism	heart attack or other heart problems
Symptoms	bothered by pain in back, knees, hips or other joint bothered by swollen legs bothered by sleeping problems	bothered by pain in back, knees, hips or other joint	no	bothered by pain in back, knees, hips or other joint bothered by breathlessness	bothered by heart trouble bothered by fear of falling down bothered by stomach or intestine problems
Limitations	difficulties walking 100 meters difficulties getting up from chair difficulties climbing one flight of stairs difficulties lifting or carrying weights over 5 kilos	no	difficulties climbing several flights of stairs	no	difficulties sitting two hours difficulties getting up from chair difficulties climbing several flights of stairs difficulties stooping, kneel-ing, crouching difficulties reaching or ex-tending arms above shoul-der difficulties pulling or push-ing large objects difficulties lifting or carrying weights over 5 kilos
			difficulties shopping for groceries difficulties doing work around the house or garden		difficulties using a map in a strange place
Drugs	yes	yes	no	yes	yes
	Group 1	Group 2	Group 3	Group 4	Group 5
	Hilde Eifrig	**Ingobert Tugend**	**Doris Schwester**	**Roswitha Blumenthal**	**Klaus-Maria Liege**

Eyesight /Hearing	eyes and hearing less than good, glases	eyes and hearing good	eyes and hearing good, glases	eyes and hearing good, glases	eyes and hearing good, glases
Hospital	no	no	cataract surgery or cardiac catheterization, including removal of obstruction	no	no
Bmi	obese	overweight	normal	normal	overweight
Cognitive Function	date good, num. Bad	average	average	good	bad
Memory	bad	average	average	good	bad
Mental Health	sad or depressed, hopes for the future, trouble sleeping keeps up interest tearfulness	Hopes for the future, fatigue	hopes for the future, keeps up interest eating less concentration on reading	hopes for the future, blaming for ever depressed	sad or depressed trouble sleeping eating less fatigue enjoyment tearfulness
Behavioural Risk	no	no	no	no	no
Home Care					
Marital Status	widowed	widowed	never married	married	married
Children	3 children, in hh	2 children, daily	childless	2 children weekly	1 child, less than weekly
Economic	difficult	easy	difficult	easy	easy
Education	basic	medium	medium	high	basic
Activities	no	no	taken part in a religious organization – weekly	gone to a sport, social or other kind of club – weekly	no
Life Satisfaction	satisfied	satisfied	satisfied	satisfied	satisfied
Size of group	16%	36%	13%	17%	18%

Females 80+, Central Europe

	Group 1	Group 2	Group 3	Group 4
	Adelheit Hüftleid	**Luise Insel**	**Adelheit Hüftleid**	**Maria Jung**
Health Status	fair	bad	fair	good
Diseases	heart attack or other heart problems cataracts osteoporosis	diabetes	high blood pressure high blood cholesterol arthritis or rheumatism	high blood pressure
Symptoms	bothered by pain in back, knees, hips or other joint bothered by heart trouble	bothered by fear of falling down bothered by dizziness, faints or blackouts	bothered by pain in back, knees, hips or other joint bothered by breathless-ness bothered by incontinence	no
Limitations	difficulties in sitting 2 hours difficulties in getting up from chair difficulties in stooping, kneeling, crouching difficulties in lifting or carrying weights over 5 kilos	difficulties in walking 100 meters, difficulties in getting up from chair, difficulties in climbing several flights of stairs, difficulties in stooping, kneeling, crouching difficulties in lifting or carrying weights over 5 kilos	difficulties in climbing several steps	no
Drugs	yes	yes	yes	yes
Eyesight /Hearing	eyes good, glases, hearing less than good, hearing aid	eyes less than good, glases, hearing good	eyes good, hearing less than good	eyes and hearing good, glases
Hospital	hip replacement	no	no	no
Bmi	overweight	overweight	normal	obese
Cognitive Function	date good, num bad	fair	num fair	good
Memory	bad	very bad	average	good

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	Group 1	Group 2	Group 3	Group 4
	Adelheit Hüftleid	**Luise Insel**	**Adelheit Hüftleid**	**Maria Jung**
Mental Health	sad or depressed trouble sleeping less interest in things keeps up interest eating less concentration on enter-tainment enjoyment	sad or depressed felt would rather be dead blaming for trouble sleeping keeps up interest appetite fatigue concentration on reading tearfulness ever treated for 35epress-sion	hopes for the future keeps up interest depression ever ever treated for 35epress-sion	sad or depressed keep up interest eating less
Behavioural Risk		inactiv		
Home Care	no	yes – for nursing or per-sonal care for domestic tasks meals-on-wheels	no	no
Marital Status	widowed	widowed	widowed	never married
Children	3 children in hh	1 child – weekly contact	2 children daily contact	childless
Economic	easy	easy	easy	difficult
Education	basic	basic	basic	medium
Activities	no	no	no	taken part in a religious organization
Life Satisfaction	satisfied	satisfied	satisfied	satisfied
Size of group	30%	22%	26%	22%

Males 60-69, Central Europe

	Group 1	Group 2	Group 3	Group 4	Group 5
	Peter Meister	**Stefan Vater**	**Stefan Vater**	**Maria-Klaus Liege**	**Achim Herz**
Health Status	good-fair	very good	good	fair	fair-bad
Diseases	no	no	no	high blood pressure diabetes	heart attack or other heart problems high blood pressure high blood cholesterol
Symptoms	no	no	no	bothered by pain in back, knees, hips or other joint	bothered by pain in back, knees, hips or other joint bothered by sleeping problems
Limitations	no	no	no	difficulties sitting two hours difficulties getting up from chair	difficulties climbing several flights of stairs difficulties stooping, kneeling, crouching
Drugs	no	no	no	yes	yes
Eyesight /Hearing	good, glases	good	good,glases	good	good, glases
Hospital	no	no	no	cardiac catheterization, including removal of 36bstructtion, any other inpatient surgery	no
Bmi	normal	overweight	overweight	overweight	obese
Cognitive Function	good	average	very good	average – bad	average
Memory	good	average	very good	bad	average

	Group 1	Group 2	Group 3	Group 4	Group 5
	Peter Meister	**Stefan Vater**	**Stefan Vater**	**Maria-Klaus Liege**	**Achim Herz**
Mental Health	hopes for the future keeps up interest	hopes for the future keeps up interest	hopes for the future keeps up interest	depression ever	sad or depressed last month hopes for the future trouble sleeping irritability eating less fatigue
Behavioural Risk	smokes, drinks	-	-	-	-
Home Care	-	-	-	-	-
Marital Status	never married	married	married	married	married
Children	childless	2 children daily contact	2 children weekly contact	1 child weekly contact	3 children in same hh
Economic	easy	easy	easy	one of them with difficulties	
Education	medium	basic	high	basic	basic
Activities	no	activities last month: voluntary or charity work activities last month: gone to a sport, social or other kind of club	activities last month: provided help to family, friends or neighbours activities last month: taken part in a religious organization	activities last month: gone to a sport, social or other kind of club	no
Life Satisfaction	satisfied	satisfied	satisfied	satisfied	satisfied
Size of group	15%	25%	25%	15%	19%

Males 70-79, Central Europe

	Group 1	Group 2	Group 3	Group 4	Group 5
	Andreas Renner	**Achim Herz**	**Stefan Vater**	**Michael Elend**	**Ingobert Tugend**
Health Status	good	bad	good	fair	fair
Diseases	no	high blood cholesterol	high blood pressure	high blood pressure diabetes cataracts	heart attack or other heart problems arthritis or rheumatism
Symptoms	no	pain in back, knees, hips or other joint	no	depressed pain in back, knees, hips or other joint bothered by breathlessness bothered by stomach or intestine problems	pain in back, knees, hips or other joint bothered by heart trouble bothered by sleeping problems
Limitations	no	no	no	difficulties in getting up from chair difficulties in climbing several stairs difficulties in stooping, kneeling, crouching difficulties in pulling or pushing large objects difficulties in lifting or carrying weights over 5 kilos difficulties in dressing, includeing shoes and socks difficulties bathing or showering	climbing several stairs stooping, kneeling, crouching
Drugs	no	yes	yes	yes	yes
Eyesight /Hearing	uses glases	hearing less than good uses hearing aid		uses glases	38ort he38 less than good uses glases

	Group 1	Group 2	Group 3	Group 4	Group 5
	Andreas Renner	**Achim Herz**	**Stefan Vater**	**Michael Elend**	**Ingobert Tugend**
Hospital	no	yes: cardiac catheterization, including removal of obstruction or knee replacement or any other inpatient surgery	no	no	no
Bmi	overweight	obese	overweight	normal	overweight
Cognitive Function	good	average – bad	good	good-average	average
Memory	good	bad	very good	average	bad
Mental Health	hopes for the future eating less	concentration problems, reading, writing less than good	hopes 39ort he future	hopes for the future sad or depressed last month trouble sleeping eating less	hopes for the future sad or depressed last month trouble sleeping irritability eating less
Behavioural Risk	no	drinks	no	no	no
Home Care	no	no	no	no	no
Marital Status	married	married	married	married	widowed
Children	childless	3 children, in hh	2 children, daily contact	2 children, weekly contact	1 child, weekly contact
Economic	easy	difficult	easy	easy	easy
Education	medium	basic	high	basic	basic
Activities	gone to a sport, social or other kind of club	no	gone to a sport, social or other kind of club taken part in a religious organization	provided help to family, friends or neighbours	no
Life Satisfaction	satisfying	satisfying	satisfying	dissatisfying	satisfying
Size of group	24%	15%	21%	27%	13%

Males 80+, Central Europe

	Group 1	Group 2	Group 3	

	Karl-Heinz Ruhend	Helmuth Schlingel	Siegfried Trauer
Health Status	bad	good	fair
Diseases	high blood pressure arthritis or rheumatism cataracts	heart attack or other heart problems	no
Symptoms	bothered by pain in back, knees, hips or other joint bothered by breathlessness bothered by fear of falling down	no	bothered by heart trouble bothered by dizziness, faints or blackouts Depression
Limitations	difficulties walking 100 meters difficulties climbing several flights of stairs difficulties climbing one flight of stairs difficulties stooping, kneeling, crouching difficulties pulling or pushing large objects	no	difficulties getting up from chair difficulties lifting or carrying weights over 5 kilos
	difficulties dressing, including shoes and socks difficulties shopping for groceries		difficulties using a map in a strange place difficulties preparing a hot meal difficulties doing work around the house or garden
Drugs	yes	no	needed
Eyesight /Hearing	no problems	eysight less than good uses glases hearing less than good uses hearing aid	eysight less than good uses glases hearing less than good

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	Group 1	Group 2	Group 3
	Karl-Heinz Ruhend	**Helmuth Schlingel**	**Siegfried Trauer**
Hospital	hernia repair or any other inpatient surgery	no	no
Bmi	normal	overweight	normal
Cognitive Function	average - bad	good	average
Memory	average - bad	good-average	average
Mental Health	hopes for the future fatigue	hopes for the future	concentration problems sad or depressed last month ever treated for depression by doctor or psychiatrist
Behavioural Risk	physical inactiv		
Home Care	no	no	yes
Marital Status	married	married	widowed
Children	1-2 Children, in same hh	1-2 children, weekly contact	0 children
Economic	maybe difficult	easy	easy
Education	basic	basic	medium
Activities	no	no	gone to a sport, social or other kind of club
Life Satisfaction	satisfied	satisfied	satisfied
Size of group	50%	27%	23%

Females 80+, Northern Europe

	Group 1	Group 2	Group 3	Group 4
	Mrs. Jungensoon	**Mrs. Allenson**	**Mrs. Ostegard**	**Mrs. Allenson**
Health Status	good	fair	fair	bad
Diseases	heart attack or other heart problems high blood cholesterol	heart attack or heart problems	cataracts	arthritis or rheumatism Osteoporosis
Symptoms	bothered by swollen legs	bothered by pain in back, knees, hips or other joint bothered by sleeping problems	bothered by pain in back, knees, hips or other joint bothered by breathlessness bothered by dizziness, faints or blackouts	bothered by heart trouble bothered by fear of falling down bothered by stomach or intestine problems bothered by incontinence
Limitations	difficulties in walking 100 meters	difficulties in climbing several flights of stairs, difficulties in stooping, kneeling, crouching difficulties in lifting or carrying weights over 5 kilos difficulties in shopping for groceries difficulties in managing money	no	difficulties in walking 100 meters, difficulties in climbing several flights of stairs difficulties in stooping, kneeling, crouching, difficulties in pulling or pushing large objects difficulties in lifting or carrying weights over 5 kilo difficulties in dressing, including shoes and socks difficulties in bathing or showering difficulties in using a map in a strange place difficulties in preparing a hot meal difficulties in doing work around the house or garden
	Group 1	**Group 2**	**Group 3**	**Group 4**
	Mrs. Jungensoon	**Mrs. Allenson**	**Mrs. Ostegard**	**Mrs. Allenson**
Drugs	yes	yes	yes	yes

Eyesight /Hearing	eyes and hearing good	eyes good, glases hearing less than good, hearing aid	eyes and hearing good, glases	eyes less than good, glases, hearing good
Hospital				surgical treatment of fracture or ortopaedic trauma
Bmi	overweight	normal	normal	normal
Cognitive Function	good	fair	fair	bad
Memory	good	bad	average	bad
Mental Health	sad or depressed hopes for the future Irritability	sad or depressed hopes for the future trouble sleeping fatigue tearfulness	hopes for the future ever depressed	fatigue concentration on reading enjoyment
Behavioural Risk				inactiv
Home Care	no	home care for domestic tasks	no	received meals-on-wheels home care for domestic tasks
Marital Status	married	widowed	widowed	never married
Children	1 child – weekly contact	2 children – weekly contact	2 children – daily contact	childless
Economic	easy		easy	
Education	High	basic	medium	basic
Activities	gone to a sport, social or other kind of club weekly	no	no	no
Life Satisfaction	satisfied	satisfied	satisfied	
Size of group	23%	38%	28%	11%

Males 80+, Northern Europe

	Group 1	Group 2	Group 3
	Mr. Johnson	**Mr. Calmberg**	**Mr. Traussen**
Health Status	good	fair	bad
Diseases	cataracts	high blood pressure	heart attack or other heart problems
Symptoms	no	bothered by breathlessness bothered by oncontinence	bothered by pain in back, knee, hips or other joint
Limitations	no	difficulties in climbing several flights of stairs difficulties in stooping, kneeling, crouching difficulties in doing work around the house and garden	difficulties in getting up from chair
Drugs	no	yes	Yes
Eyesight /Hearing	eyes and hearing good	eyes and hearing less than good, glases and hearing aid	eyes and hearing good glases
Hospital	no	no	no
Bmi	normal	overweight	normal
Cognitive Function	good	good	fair
Memory	good	average	bad
Mental Health	Hopes 44ort he future	Sad or depressed Hopes for the future Trouble sleeping Fatigue	Concentration on reading
Behavioural Risk	no	no	no
Home Care	no	received home care for domestic tasks	no
Marital Status	married	married	widowed
Children	2 children – weekly contact	4 children – daily contact	1 child – weekly contact
Economic	easy	easy	easy
Education	high	basic	medium
	Group 1	**Group 2**	**Group 3**
	Mr. Johnson	**Mr. Calmberg**	**Mr. Traussen**

Activities	helped family and friends	no	no
Life Satisfaction	satisfied	satisfied	satisfied
Size of group	31%	24%	45%

Females 80+, Southern Europe

	Group 1	Group 2	Group 3	Group 4
	Mrs. Isola	Mrs. Isola	Mrs. Vitalis	Mrs. Giovana
Health Status	fair	fair	bad	good
Diseases	arthritis or rheumatism	high blood pressure	heart attack or other heart problems high blood pressure arthritis or rheumatism osteoporosis	cataracts
Symptoms	bothered by pain in back, knees, hips or other joint	bothered by sleeping problems	bothered by pain in back, knees, hips or other joint bothered by breathlessness bothered by swollen legs bothered by fear of falling down	bothered by pain in back, knees, hips or other joint
Limitations	difficulties in climbing several flights of stairs, difficulties in stooping, kneeling, crouching, difficulties in carrying weights over 5 kilos difficulties in using a map in a strange place	difficulties in climbing several flights of stairs, difficulties in stooping, kneeling, crouching difficulties in pulling or pushing large objects	difficulties in walking 100 meters difficulties in getting up from chair difficulties in climbing several flights of stairs difficulties in stooping, kneeling crouching difficulties in lifting or carrying weights over 5 kilos difficulties in dressing, including shoes and socks difficulties in bathing or showering difficulties in getting in or out of bed difficulties in using a map in a strange place difficulties in preparing a hot meal difficulties in shopping for groceries	difficulties in climbing several flights of stairs
Drugs	yes	yes	Yes	
	Group 1	Group 2	Group 3	Group 4
	Mrs. Isola	Mrs. Isola	Mrs. Vitalis	Mrs. Giovana
Eyesight /Hearing	eyes and hearing less than	eyes and hearing good	eyes and hearing less than good,	eyes and hearing good

	good, glases		glases	
Hospital	no	no	no	
Bmi	normal	overweight	normal	overweight
Cognitive Function	good	bad	date good, num bad	date good, num fair
Memory	average	good	bad	average
Mental Health	fatigue concentration on reading	hopes for the future tearfulness	sad or depressed felt would rather be dead trouble sleeping less interest in things irritability appetite fatigue concentration on entertainment concentration on reading enjoyment tearfulness	hopes for the future
Behavioural Risk	inactiv		inactiv	
Home Care	no	no	received home care for domestic tasks	no
Marital Status	never married	widowed	widowed	married
Children	childless	1 child, daily contact	3 children in same hh	2 children in same hh
Economic	difficult	difficult	difficult	easy
Education	medium	basic	basic	basic
Activities	no	taken part in a religious organization, weekly	no	no
Life Satisfaction	satisfied	satisfied	dissatistfied	satisfied
Size of group	15%	20%	28%	36%

Males 80+, Southern Europe

	Group 1	**Group 2**	**Group 3**
	Mr. Calmo	**Mr. Trauis**	**Mr. Nicolo**
Health Status	fair	bad	Good
Diseases	arthritis or rheumatism	heart attack or other heart	high blood pressure

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	cataracts	problems high blood cholesterol	
Symptoms	bothered by pain in back, knees, hips or other joint bothered by breathlessness bothered by sleeping problems	bothered by pain in back, knees, hips or other joint bothered by swollen legs bothered by fear of falling down	bothered by stomach or intestine problems
Limitations	difficulties in getting up from chair difficulties in climbing several flights of stairs difficulties in stooping, kneeling, crouching	difficulties in walking 100 meters difficulties in climbing several flights of stairs difficulties in stooping, kneeling, crouching difficulties in lifting or carrying weights over 5 kilos difficulties in dressing, including shoes and socks difficulties in bathing or showering difficulties in using a map in a strange place difficulties in preparing a hot meal difficulties in shopping for groceries	no
Drugs	yes	yes	yes
Eyesight /Hearing	eyes and hearing good, glases	eyes and hearing less than good	eyes and hearing good, glases
	Group 1	**Group 2**	**Group 3**
	Mr. Calmo	**Mr. Trauis**	**Mr. Nicolo**
Hospital	no	no	no
Bmi	overweight	normal	overweight
Cognitive Function	date good, num bad	date	date good, num fair
Memory	bad	good	average
Mental Health	sad or depressed trouble sleeping irritability	hopes for the future tearfulness	hopes for the future eating less

	fatigue concentration on entertain- ment concentration on reading enjoyment		
Behavioural Risk		inactiv	
Home Care		received home care for nursing or personal care	
Marital Status	married	widowed	married
Children	3 children in same hh	1 child contact several times a week	2 children daily contact
Economic	difficult	difficult	easy
Education	basic	basic	medium
Activities	no	taken part in a religious organization - weekly	no
Life Satisfaction	satisfied	satisfied	satisfied
Size of group	58%	13%	29%