# European Journal of Mental Health

https://doi.org/10.5708/EJMH/17.2022.1.1

## RESEARCH ARTICLE

# Differences of Subjective Well-Being in European Long-term Care Regimes

Márta FEKETE (D<sup>1, 2</sup> ), László PATYÁN (D<sup>3</sup>, Lajos HÜSE (D<sup>4</sup>, Éva HUSZTI (D<sup>5</sup>, and Péter TAKÁCS (D<sup>6</sup>)



- Gálfi Béla Therapeutics and Rehabilitation Public Nonprofit Ltd. Pomáz, Hungary
- <sup>2</sup> MDRG Ltd., Budapest, Hungary
- <sup>3</sup> Department of Gerontology, Faculty of Health, University of Debrecen, Nyíregyháza, Hungary
- <sup>4</sup> Department of Social Work, Faculty of Health, University of Debrecen, Nyíregyháza, Hungary
- Department of Sociology and Social Policy, Institute of Political Science and Sociology, Faculty of Humanities, University of Debrecen, Debrecen, Hungary
- <sup>6</sup> Department of Health Informatics, Faculty of Health, University of Debrecen, Debrecen, Hungary

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Márta Fekete

Gálfi Béla Therapeutics and Rehabilitation Public Nonprofit Ltd.

Postal Address: 311 Kiskovácsi, H-2013 Pomáz, Hungary

Email: fekete.marta.se@gmail.com

#### History

Received: 24 October 2020 Accepted: 5 February 2022

#### Citation

Fekete, M., Patyán, L., Hüse, L., Huszti, E., & Takács, P. (2022). Differences of subjective well-being in European long-term care regimes. *European Journal of Mental Health, 17*(1), 5–14. https://doi.org/10.5708/EJMH/17.2022.1.1

Introduction: With the increase of life expectancy, the issue of quality of life (QoL) for the elderly is getting more focus. Beside the individual view, social and economic aspects are becoming more pronounced.

Aims: In this study, we set out to establish a new classification of long-term care (LTC) regimes by examining the relationship between care systems and subjective quality of life.

Methods: Our work was based on data from the Survey of Health, Ageing and Retirement in Europe through a secondary analysis of CASP-12 results. It was assumed that higher quality of life values could be observed in countries providing a higher standard of social care. We studied the background variables in different LTC regimes.

Results: The data shows that the development and availability of care systems have a significant indirect correlation with older people's subjective well-being. Our results raise the possibility of a new subdivision of care regimes.

Conclusions: Those countries featured earlier as family-based systems and Central-Eastern European countries were growing closer to each other in this classification. As our statistical method proved, family-based and Central-Eastern European regimes are not significantly different (Minimisers). Northern countries, where investment and quality of life are also high, remain highly positioned on the scale (Maximisers). Countries that have medium-level investments and subjective well-being parameters place in the middle of the scale (Optimisers). Global changes (climate, migration, political culture, technology) are expected to have an effect on social care regimes, especially on Minimisers, where the realization or failure of investments is a critical question.

Keywords: SHARE, CASP-12, LTC, quality of life, social care

# Introduction

# Ageing in Europe

According to Eurostat's latest report on the elderly's everyday life in the European Union – published in September 2019 – (Eurostat, 2019), in the EU population those aged 65 years or more are currently around 20% and by 2050 will be close to 30%. This increase is also remarkable in absolute terms, as it means a rise from 100 million to nearly 150 million. The phenomenon of population ageing bears a significant impact on the functioning of societies, both in numerical and structural terms (Jackson, 2007). In addition to increasing life expectancy, drastic reductions in infant and child mortality also contribute to numerical growth. The shift in age-group ratios, that is, structural ageing, is primarily a consequence of changes in fertility and birth rates. All this leads to an increase in the old-age dependency rate, which will have serious economic effects. Firstly, the decline of the ratio in the active-age-group compared to the elderly causes problems in maintaining the pension system. Secondly, provision for the elderly in need of care will be a problem and, as a result of the decline in the generation capable of caring, it is expected to place a greater burden on the state.

From a care provider standpoint, the projection of a 60% increase in the 75–84 age group by 2050 compared to 2018 is particularly important. In addition, the number of so-called oldest old people (aged 85 and over) will be at least doubled, and the number of centenarians (people aged 100 years or more) will be five times higher (Eurostat, 2019). All of this predicts that age-related decline in functioning and therefore, consequently, the need for care, will increase. Although some differences exist between the individual member states in terms of demographic trends, the median age will increase by almost four years in each country, by 2050. These tendencies are particularly challenging should we focus on the long-term care (LTC) sector, but huge differences exist also among the member states in terms of cost and care systems' development.

## Long-Term Care (LTC) Systems

Population ageing increases the costs of long-term care services, as well. According to the further scenarios, GDP related LTC costs will increase to 153–224% till 2060 (De la Maisonneuve & Martins, 2015). The growing pressure influences the national budgets and determines the availability and quality of services. Consequently, long-term care systems can influence the quality of life, too. According to the OECD (2021), long-term care is defined as "consists of a range of medical, personal care, and assistance services that are provided with the primary goal of alleviating pain and reducing or managing the deterioration in health status for people", but it also has a strong social dimension, as it aims to reduce personal dependency and, if necessary, compensate for it with assistance.

EU member states, based on their particular characteristics, are often grouped into North (Scandinavian), Western European, Southern and Eastern European systems (Carrera et al., 2013). Classification of care systems is typically based on characteristics found in the divisions of state roles, family, and market, on how care tasks are organised, and on the development and availability of care needs and care services.

We used three care models as a basis of our analysis:

- 1. Kraus et al. (2011) formed four care clusters according to the extent of public and private financing, service, and/or care support. Models were evaluated using empirical research and secondary analysis of national databases. Main variables identified by cluster analysis were the popularity of informal care systems among users, organisation level of the systems, and generosity of funding for care systems. The first cluster was identified by the lower need of private contribution, and higher focus on informal care (Czech Republic, Germany, Slovak Republic, Belgium), the second was formed as a group of countries with generous and accessible services (Sweden, The Netherlands, Denmark), the main characteristic of the third cluster consisted of high private contribution, with good accessible services (Austria, England, Finland, France, Spain). The fourth cluster contained two countries (Hungary, Italy) formed by high care needs of informal care and a low level of financing.
- 2. Nies et al. (2013) revised Lamura's (2008) system classification, used in the analysis of need for care, extent of formal care, and informal care support. They identified four care models ("care mix", "universal Nordic", "family-based", "transitional"). They found that although elderly care needs in Central and Eastern European countries ("transitional system") are lower, there remains a serious need to support informal care due to the underdevelopment of their formal-institutional care systems. Countries with a "care mix" system of care, in addition to the moderately advanced institutional care system, are trying to compensate for higher care

needs with the provision of personal financial support for care (cash for care). For countries in the "universal care system" group, the support for informal systems is complementary to a high level of formal care. Countries belonging to the "family-based care" system typically focus on the role of family care, assisted by low-quality family support forms. However, it should be noted that in many cases, this model is objectionable. For example, the Czech Republic started to shift to cash for care in 2006, and as a result, it provides a unique care system in Eastern European countries that resembles more the Austrian than the Slovakian system (Kubalciková & Havliková, 2016). In Spain, where traditionally family-based care remains common, the capacity of institutional care has increased in a few years (Valarino et al., 2018).

3. The international working group on Mobilising the Potential of Active Ageing in Europe (MoPAct) developed the typology used by Leichsenring and Schulmann (2016); during the creation of this system, emphasis was placed on the conditions found in Central and Eastern European countries. Long-term care systems have an impact on the lives and QoL of individuals, yet paradoxically, long-term care is most needed in those countries where long-term care systems remain underdeveloped or difficult to access (Srakar et al., 2015). This results in a corresponding burden of unmet needs on older people and their families. (See in Table 2.)

Several comparative studies have been carried out to explain the creation of groups and their characteristics, highlighting examples using the member state groups defined above (Geerts et al., 2012). Ogg (2005) analysed three such groups of welfare regimes (i.e., North, Mediterranean and Post Socialist) and found that systems have an impact on the risk of old-age social exclusion. Even before the turn of the millennium, a growing body of evidence showed that health deterioration and the QoL related to a longer life span (higher age) are influenced by social inequalities, the societies' health, and elderly policies, as well as their care systems (Marmot, 2010; Nussbaum & Sen, 1993; Scharf et al., 2005; Townsend, 1979; Wilkinson, 1996).

Niedzwiedz et al. (2014) examined the impact of welfare systems on QoL by using the Survey of Health, Ageing and Retirement in Europe (SHARE) database and found that countries with more generous welfare systems are characterised by a higher QoL and a smaller difference in QoL among all members of society. In the Southern and post-communist countries, the socio-economic position of their previous career more affects the QoL of the young-old. Scandinavian countries seem to be an exception, where the previous career has a minimal effect on QoL. The above-mentioned authors also point out the role of financial difficulties and its use in measuring these phenomena. They found that early old age financial difficulty / tension is related to the financial situation of the previous career. The recognition of this relationship can potentially be a focus of social policy intervention since the elimination of financial difficulties can lead to the improvement of the QoL (Niedzwiedz et al., 2015).

## Measuring Well-Being

Measurements of prosperity, as well as the development of countries and societies, started in the mid-20th century. The early researchers focused their first approaches on economic aspects, which identified welfare states. Later, human/societal aspects came to the forefront. There existed a need to define aspects and factors of "the good life" on a scientific basis. In addition to material and economic aspects, they also mentioned emotional and psychological factors. After many decades of research, the OECD Better Life Initiative project launched in 2011 had garnered considerable results. In line with these, in 2013 OECD published the Guidelines on Measuring Subjective Well-being (OECD, 2013), which described and grouped a list of indicators, and the authors underlined that they based the guidelines on methodological and not political issues. However, this study was based on the work of the Commission on the Measurement of Economic Performance and Social Progress in 2009 (headed by Joseph Stiglitz, Amartya Sen, and Jean-Paul Fitoussi) (Stiglitz et al., 2009). This essay marked a milestone in terms of advocating that GDP has a strong limitation in representing the prosperity of a society. Nevertheless, GDP has an influence on individual and communal material living conditions, wealth, earnings, and other material circumstances that are only certain aspects of describing a country's progress. On the other hand, a variety of factors determine social and individual well-being, such as capabilities, perceptions, moods, emotions or satisfaction.

Influences on QoL in old age include factors such as housing conditions (Szabo et al., 2018), current or active age employment, position at work, and the income and pension resulting from it (Blane et al., 2007). In addition, physical and psychological factors together with the relations of the person, with special emphasis on the family and neighbor relations, also play a key role in maintaining the QoL (Webb et al., 2011; Jivraj et al., 2014). Social relationships have been found to have a positive impact on QoL even in vulnerable groups of elderly people

(Fekete et al., 2019). Furthermore, "ageing in place" is an important factor of the QoL in old age (Gilleard et al., 2007).

The quality of life concept stands fundamentally based on Diener's (1984) philosophical and theoretical considerations. Nevertheless, the indicators of QoL show great variety. The conceptualisations of both QoL and subjective well-being (SWB) have changed over time. Formerly, many considered happiness to be the source of well-being, as it is "the highest good and ultimate motivation for human activity" (Diener, 1984, p. 542), while later the negative aspects came into focus and "human unhappiness was explored in depth" (Diener, 1984, p. 542). Although the characteristics of SWB are more or less stable, its definition greatly depends on the context and goal of its use. Firstly, SWB is a subjective concept, so it is a measure rated by the individual without noting its connection to objective factors such as wealth and health. Secondly, SWB is prominently based on positive measures but negative experiences also carry a great role in the assessment. Thirdly, SWB is multidimensional, since the different measures can place the emphasis on different aspects, and the time frame also influences the results. Diener's collection of measures dateing from the 1960's introduces single-item and multi-item scales (Diener, 1984). The reliability and validity of single-item measures remain questionable as several aspects of SWB are not considered in such investigations. Multi-item scales can show more aspects and domains of life-satisfaction. Interestingly, many of the multi-item scales listed by Diener were tailored to older respondents since they were used in the geriatric field.

The concept of SWB remains elusive still, and it lacks a precise definition. Social scientists' application of SWB measures has vastly contributed to further shaping the original definition (Diener, 1984). Higgs and his colleagues published a new, older-population-fitted tool for identifying QoL (Higgs et al., 2003). This study set out to develop a tool for distinguishing causes and consequences – the well-being indicators and factors. They argued that, against common belief, that health status, material conditions, or existence of social connections do not determine older people's QoL.

The conceptualisation of QoL is especially interesting in terms of the early old age (Hyde, 2003). As generations change, this population is renewing, harboring different needs than previous young elderlies. Higgs and colleagues placed the focus on the needs in their QoL conception, and they identified satisfaction as a measurable factor.

The CASP-12, one of the several tools that measure QoL, contains four dimensions (control, autonomy, self-realization and pleasure). Numerous international research studies used this method, the SHARE (Börsch-Supan & Jürges, 2005) being one among them. We also base our study on this data analysis. The original 19-items and the revised 12-items versions of CASP scale measure the degree to which the older adults have their needs covered. The scale conceptualizes QoL in psychosocial terms and focuses on advantageous features of ageing (Higgs et al., 2003).

#### Aims

The aim of this research was to examine the impact of societies' social policies and care systems on the subjective QoL based on the SHARE database. The hypothesis was that higher CASP-12 values would occur in countries where a higher standard of care is provided, which meets multiple social care needs, and where the public sector plays a significant role in care. This complex set of underlying variables can be examined by using the concept of LTC systems. The purpose of this paper is to examine the relationship between LTC models and QoL based on the SHARE database. We do this with the help of CASP-12 data. Another goal is to present a new approach to classifying the LTC regimes, which takes into account the subjective QoL in addition to state expenditures.

# Methods

This study is based on a secondary analysis involving waves of SHARE research databases. SHARE – as mentioned above – used a shortened version of the CASP-12 questionnaire. It includes each of the four dimensions with three items. Each item is answered on a four-point Likert scale (1 = never; 4 = often), and some items have a reversed score (positive and negative aspects of personal feelings). The total score for QoL ranges from 12 to 48, where higher scores indicate a better QoL. The CASP has shown a strong internal consistency for the total score (Cronbach's alpha = .83) (von dem Knesebeck et al., 2007). This study used data from the waves of W2, W4, W5, and W6 of SHARE directly.

W2 Country W4 W5 W<sub>6</sub> rank rank difference rank rank mean rank rank mean mean mean mean Αll 36.96 37.06 37.95 37.08 40.6 40.71 3 41.5 41.37 Denmark 1 1 1 1.50 2 40.76 2 2 40.5 2 1 40.93 40.78 1.75 Switzerland 1 40.37 3 40.75 2 40.81 3 2.67 1 **Netherlands** \_ Ireland 39.14 4 4.00 7 37.82 40.17 39.84 3 4.50 Austria 39.71 4 4 \_ 39.69 6 39.75 4 5.00 2 Luxemburg 38,93 5 38.85 6 39.8 5 39.53 5 5.25 1 Sweden Slovenia -39.24 5 39.43 7 38.33 7 6.33 2 -Germany 38.64 6 38.7 7 39.08 8 39.16 6 6.75 2 France 36.71 9 37.74 8 38.16 9 37.89 9 8.75 1 9 2 8 10 Belgium 37.32 36.92 37.81 38.27 8 8.75 Spain 35.43 11 35.67 10 35.87 11 36.06 10 10.50 1 Croatia \_ \_ \_ \_ \_ 36.04 11 11.00 Poland 34.52 35.35 35.86 12.00 13 11 12 2 35.91 Israel 10 \_ 35.62 12 34.81 16 12.67 6 Hungary 34.91 13 13.00 Estonia 35.23 12 35.29 13 35.39 14 13.00 2 34.57 35.18 14 35.53 13 13.25 Czech Rep. 35 12 14 2 Italy 33.39 15 33.79 15 33.65 15 34.83 15 15.00 0 34.12 31.84 Greece 14 18 16.00 4 \_ \_ \_ \_ Portugal 32.17 16 33.34 17 16.50 1

Table 1. A CASP-12 Mean Rank by Countries, and the Overall Rank of Each Country Based on CASP-12

The supply systems of the countries examined can be grouped according to several approaches. The three grouping systems mentioned in the introduction were used in this study: Kraus et al. (2011); Nies et al. (2013); Leichsenring and Schulman systems (2016). The Eurostat (2015) provided the LTC expenditures for 2015.

The first step of data analysis involved calculating CASP-12 data averages for each country in W2, W4, W5 and W6. The total CASP-12 average (for all countries) was then calculated for each wave. The next step consisted of determining the rank order of countries. Then it was possible to examine changes in each country's rank in successive waves. The country averages were compared according to the grouping of Leichsenring and Schulman (2016); we used the ANOVA and Kruskal-Wallis tests for this. The relationship between LTC expenditures and CASP-12 has been investigated by point diagram plotting and developing a regression model. SPSS v22 and Excel 2007, SP3 were used for statistical analyses. The error level was 0.05.

# Results

# CASP-12 Averages and Country Rankings

The first table shows the CASP-12 averages and the order for the different waves (Table 1). Denmark ranked first (1.50) based on cumulative averages, while Portugal was the last (16.50). The lowest CASP-12 average was recorded in the sixth wave (W6) (Greece: 31.84). Denmark (41.5) achieved the highest value in the fifth wave (W5). It is worth noting that the CASP-12 values and the order of the countries did not change significantly in the different waves. Israel showed the largest change in the ranking of each wave (6), followed by Austria (4). For other countries, the change of order was 0–2.

Table 2. SHARE Countries by LTC Models

Country		Kraus et al. (2011)				Nies et al. (2013)				Leichsenring and Schulman (2016)			
	mean of order	1th Cluster	ZndCluster	3rdCluster	4thCluster	Care mix	Universal	Family-based	Transition	Standard care mix	North universal	Family-based	Central- Eastern European
Denmark	1.50		Х				Х				Х		
Switzerland	1.75												
Netherlands	2.67		X				Х				Χ		
Ireland	4.00							Х				Х	
Austria	4.50			Х		Х				Х			
Luxemburg	5.00												
Sweden	5.25		Χ				Х				Х		
Slovenia	6.33												
Germany	6.75	Х				Х				Х			
France	8.75			Х		Х				Х			
Belgium	8.75	Х											
Spain	10.50			X				Х				Х	
Croatia	11.00												
Poland	12.00								Х				Х
Israel	12.67												
Hungary	13.00				Х				Х				X
Estonia	13.00								Х				X
Czech Rep.	13.25	Х							Х				Х
Italy	15.00				Х			Х				Х	
Greece	16.00							Х				Х	
Portugal	16.50							Х				Х	

#### Care Models and CASP-12

The first step in studying the care models involves classifying countries according to the LTC based on the systems discussed (Table 2). Column 2 shows CASP-12 rankings – same as in Table 1. The results are displayed in relation to three LTC systems models (Kraus et al., 2011; Nies et al., 2013; Leichsenring & Schulman, 2016). Not all SHARE-participating countries can be found in these three models, as only countries typical of each regime were included in them.

The four classification groups of Leichsenring and Schulmann (2016), and Nies et al. (2013) were compared using the national mean of the CASP-12 (ANOVA) and the rankings of the countries (Kruskal-Wallis). Both analyses resulted in statistically significant differences between the groups (F(3, 43) = 57.9, p = .001; K-W df = 3, Chi-Square = 34.88; p = .001). A Tamhane Post-Hoc analysis found that the countries belonging to the Standard care mix and the countries of the North universal LTC regimes are significantly different from each other, while the Family-based and Central-Eastern European regimes are not significantly different.

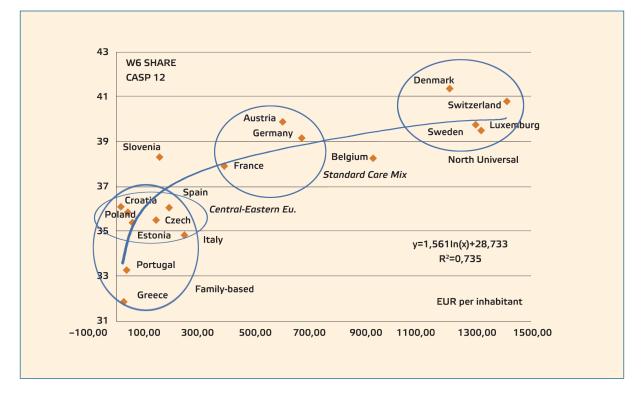


Figure 1. Relationship of LTC Expenditures and Means of CASP-12

### Discussion

# LTC Expenditures and CASP-12

We used the statistical regression model to examine the previous prediction that family-based and Central-Eastern European regimes are not significantly different. For this purpose, we included the LTC cost per capita variable in the research study. LTC cost per capita was related to CASP-12 values. The horizontal axis of Figure 1 shows per capita spending on long-term care in 2015, while the vertical axis shows the CASP-12 values in wave 6. It can be seen that the means of CASP-12 values increase non-linearly with LTC expenditures (Figure 1). The logarithmic model fitted the regression models best.

Care systems are very difficult to compare due to the different member states' care practices. These systems are the products of multidimensional analysis of care systems and care needs, thus it may be important to recognise how much member states are able to nominally spend on care. In the cost of care context, three interpretable sets have been developed (see the three separate sections in Figure 1) that are different from the previous four care systems (see Table 2).

One of the country groups – with subsidiary systems, found in the North Universal regimes – is typically one with advanced care systems and a stable mix of organisational solutions. These countries stand clearly distinct from the other countries. The Central-Eastern European and Family-based systems, which form similar overlapping sets in terms of expenditures, lie on the other side of the graph. The lowest CASP values can be found in the context of the Eastern and Southern countries' systems and expenditures. Countries of the Standard care mix settle in the middle of the graph.

Despite the difficulty of modeling and the diversity of model-developing aspects, some similarities can be observed between the regimes described by the three models and the rankings based on the country's CASP-12 values. Based on their CASP-12 scores, nations with higher CASP-12 scores sit at the top of the list and typically belong to the Care mix and Universal regimes (Nies et al., 2013), or, similar to the Leichsenring and Schulman (2016) model, belong to the Standard care mix and North universal regimes. Countries at the bottom of the rankings with low CASP-12 scores belong to Family-based and Transition, (Nies et al., 2013) or to the Family-based and Central-Eastern European (Leichsenring & Schulman, 2016) regimes. In the model of Kraus et al. (2011), one can also see some relationship, but it is not strong.

# Strength and Limitations

Each LTC regime has a relationship with the CASP-12 values measured in each country, or more precisely, with the subjective quality of life expressed by CASP-12 that exists almost independently from the theoretical models describing these regimes. Further possible explanations may obtain. First, LTC regimes might have a direct impact on the elderly's subjective well-being. In this case, one assumes that the factors fundamentally affecting the QoL of the elderly who have an increasing socio-economic importance, should be found in the range (diversity) of supply services provided by a particular regime – in the specific content and quality of services and in the availability of services (equity vs. inequity). If this is the case, then it is possible to show a difference that can be demonstrated by data in the supply services of the nations in each regime.

The other possible explanation: the effect of a variable not studied in this research may influence the relationship, specifically the rate of old-age activity. The positive correlation between old-age activity and subjective well-being has been well-documented and the items in the CASP-12 are also closely linked to the activity of the elderly. Finally, another aspect of the relationship can be placed into the broader interpretative framework of the LTC regime. If we study their societies and the social policies of the countries, including the age-specific labor market policy, one can see that in the standard care mix of the North universal regimes, there is more emphasis, more resources, and broader services provided to support active ageing compared to the family-based and Central-Eastern European regimes. In Central-Eastern European regimes, the emphasis on old age shifts to meeting the needs of those elderly who become partially incapable.

# Conclusion, Implications and Future Directions

Our new results identify three different types of regimes in terms of the relationship between social care systems and quality of life, in the so-called LTC-related QoL domain. We find that European countries can be distinguished into Minimiser, Maximiser and Optimiser categories. We emphasise that the design and naming of these categories was based on our search for a relationship between expenditure on care and older people's perceptions of their own quality of life.

The data shows that the development and availability of care systems have a significant indirect correlation with the elderly's subjective well-being. However, while studying the care systems, it became clear that the less developed care systems in the Eastern European and Southern European countries resulted in lower CASP values overlapping each other. This was confirmed by the previous analysis of other QoL scales (SMT, ADL, EURO-D) available from SHARE databases (Hüse et al., 2016). Based on the data, we can distinguish three groups of countries instead of four, which are referred to as LTC-related QoL domains.

Figure 1 and its associated classification support this statement. The data shows that some European states are looking for a minimal investment and the outcome results in a low SWB. This is called *minimiser* in the LTC-related QoL domain. Family-based and Central-Eastern EU countries are included. At the other end of the spectrum lie nations that, at very high cost, achieve high SWB for the age group under study. This is the North Universal group, which is called the *maximiser* domain. Between the minimizing and maximizing domains, a group of countries exist that achieve a higher SWB compared to minimisers but less than maximisers at a moderate investment. The figure includes Standard care mix countries, which are called *optimisers*. This is a good indication of the optimum proportion of GDP as well as the reasonably high QoL that it achieves. The quality and availability of care pose a challenge to all of Europe in the future but will place a greater burden on the Southern and Eastern member states as they will only be able to achieve the appropriate quality care via a significant increase in costs.

According to projections by Eurostat, a demographic division of Europe can be expected in the future (Eurostat, 2019). The population will be increasing in the Northern and Western European countries until 2080, and moderate changes will be observed in Finland and Germany. Southern and Eastern European nations can expect a drastic decline in population. These effects, due typically to external and intra-community migration processes, will have a direct impact on the sustainability of the pension systems and the care systems ensuring the elderly's well-being. According to these projections, the research on the factors affecting the well-being of the elderly is of paramount importance. The question may be how far global changes (global warming, migration, new political culture, technical achievements) are already affecting the model outlined (minimiser, optimiser, maximiser) and how they affect the issue of future development or regression. From this point of view, minimiser countries are likely to be indicators of the process, as the benefits of an increasing investment may be most pronounced in their case.

#### Acknowledgements

Authors would like to thank to Alexandra Bakó for her proofreading.

#### **Funding**

The authors received neither financial nor non-financial support for the research (including data acquisition) and/or authorship and/or publication of this article.

#### **Author contributions**

Márta Fekete: conceptualization, design, methodology, investigation, project administration, writing original draft.

László Patyán: conceptualization, design, methodology, investigation, interpretation, writing original draft.

Lajos Hüse: conceptualization, design, methodology, investigation, writing review and editing.

Éva Huszti: conceptualization, design, methodology, investigation, project administration, interpretation, supervision, writing original draft, writing review and editing.

Péter Takács: conceptualization, design, methodology, investigation, project administration, data management, formal analysis, interpretation, supervision, writing review and editing.

All authors gave final approval of the version to be published and agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

#### Declaration of interest statement

The authors have no conflicts of interest to disclose.

#### **Ethical statement**

This manuscript is the authors' original work.

Human participants have been not involved in this study.

No ethical approvement, informed consent, or data handling policy was needed.

#### **ORCID**

Márta FEKETE D https://orcid.org/0000-0002-7276-0303

László PATYÁN D https://orcid.org/0000-0002-6815-0393

Lajos HÜSE https://orcid.org/0000-0002-9137-3771

Éva HUSZTI D https://orcid.org/0000-0002-5290-4066

Péter TAKÁCS D https://orcid.org/0000-0002-0620-7753

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