

What Influences Self-Perceived Quality of Life During an Economic Recession? The Case of Greece

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Abstract Quality of life (QoL) is considered a multidimensional concept, which includes both subjective and objective components. Health, social, physical, and macro-economic environment, personality, lifestyle, and demographic and socioeconomic factors are considered the most important determinants of QoL. However, little is known about the factors that influence QoL at the individual level during periods of economic crisis. In 2010, two years after the start of the global financial crisis, the Greek economy was placed under the surveillance of the European Commission, the European Central Bank, and the International Monetary Fund, and the Greek economy entered a phase of severe recession. The objective of this study was to determine the factors affecting self-perceived QoL in Greece in times of austerity. Data from the national cross-sectional “Health and Welfare Survey” were used for this study. The data collection took place between 12/10/2016 and 1/20/2017, i.e., a period within the economic crisis. The sample consisted of 2003 respondents aged 18 years or over. The dependent variable was self-perceived QoL during the last two weeks. Because the response variable was ordinal, an ordinal logistic regression model was fitted. According to the analysis, self-perceived QoL depends on age, marital status, self-rated health, income, education, difficulty in paying the utility bills during the last 12 months, difficulty in responding to the cost of the everyday needs of the household during the last 12 months, religiosity, and smoking status. Because respondents who reported lower QoL were more disadvantaged, the results of this study confirm the international bibliography, providing evidence regarding the mechanism on the basis of which the economic crisis negatively affected the QoL of Greek citizens.

Keywords Quality of life, Economic crisis, Socioeconomic factors, Difficulty in responding to the cost of everyday needs, Difficulty in paying the utility bills, Self-rated health

1. Introduction

QoL has been defined as “individuals’ perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns” [1]. However, this definition is one of several contextual approaches that have been proposed throughout the years [2]. Despite the lack of consensus regarding the way that QoL is approached, it is commonly considered as being a multidimensional concept consisting of both subjective and objective components [3].

Individuals’ experiences can be segmented into “life spheres” [4], which Lindström and Eriksson [5] suggested are: 1) global: ecological, societal, and political resources (dimensions: macro-environment, culture, human rights,

welfare policies); 2) external: social and economic resources (dimensions: work, income, housing); 3) inter-personal: resources in social relationships and support (dimensions: family structure and function, intimate friends, extended social support); and 4) personal: personal resources (dimensions: physical, mental, spiritual).

In addition to the previous classification, the concept of QoL can be further classified based not only on different contexts, i.e., population versus individual, but also on different approaches, i.e., subjective perceptions versus objective conditions. At the population level, some examples of objective conditions that tend to influence QoL are the following: aging of the population, morbidity, burden of disease, and life expectancy. Meanwhile, social values and stereotypes constitute subjective perceptions. Furthermore, life satisfaction constitutes a subjective perception at the individual level, while education, housing, family support, social network, health conditions, functional abilities, physical fitness, religiosity, spirituality, and socioeconomic status constitute objective factors at the same level [6].

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Cummins attempted to group 173 different domain names derived from the literature under seven headings (as used by the Comprehensive Quality of Life Scale (ComQoL). Of the 173 available domain names identified in the 32 studies that fulfilled the research criteria, 68% could be categorized under one of the ComQoL headings. In terms of the aggregate 351 domain names that had been utilized, 83% were successfully classified. Mean scores for each of the 351 domains were provided by the 32 studies. The set of original domains from each study was standardized to the new ComQoL domain values and each new ComQoL domain value was expressed as a *z* – score. Thus, each study could be described as a set of ComQoL domains ranging from 3 to 7. The study of Cummins provided substantial support for the idea that the seven domains of ComQoL can efficiently and comprehensively measure satisfaction and, therefore, well-being [7]. The seven domains of ComQoL are: a) health; b) productivity; c) intimacy; d) safety; e) community; f) emotional well-being; and g) material well-being [8].

In this sense, QoL is both “at the hands” of the individual (i.e., it relies on factors influenced by individual attitudes and behaviors such as health condition, personal security, educational achievement, family, income, and housing) and beyond one’s actions, given that it largely relies on the broader socioeconomic environment, as characterized by the dimensions of freedom, political stability, social security, educational accessibility, and economic environment [9].

For example, Diener and Diener [10] report that income accounts for approximately 62% of the variance in the overall QoL of nations. In this study, the authors attempted to answer the question of whether economic prosperity enhances QoL. The measure of the economic prosperity of nations was the per capita gross domestic product of the nation. Across 101 nations, 32 indices representing a sample of universal human values (e.g., happiness, social order, and social justice) were analyzed. The mean value of the 32 indices represented the total QoL. The correlation coefficient between the total QoL and the per capita gross domestic product was equal to 0.79. The authors’ conclusion was derived from squaring this coefficient.

In this context, this implies that periods of economic growth tend to positively influence QoL, whereas economic downturns can have a significant negative impact [11] relating to the depth and duration of the contraction period. The latter has been documented especially for countries that suffered from a large GDP reduction during an economic crisis [12-14]. These findings reflect the fact that, to be satisfied with their lives, people must have economic security and be empowered to control their lives [15].

However, little is known about the factors that influence quality of life at the individual level during periods of economic crisis.

With respect to Greece, in May 2010, two years after the start of the global financial crisis, the country was put under the supervision of the European Commission, the European Bank, and the International Monetary Fund and signed the

Economic Adjustment Program (EAP) and its revision in autumn 2010. Among the countries facing the economic crisis, Greece was the one that experienced the most severe economic recession, as the EAP led to various measures such as tax increases and salary reductions. The crisis and the EAP led to a 25% contraction in GDP versus the pre-crisis period [16]. Among other things, the crisis affected households mainly through income reductions, job losses, and business closures: The unemployment rate reached a historical high of 27% [17], with almost 24% of households in Greece reporting having at least one family member who lost their job; disposable income decreased severely by almost 24% [18]. As a result, people in Greece quickly reached the top position among their peers in the European Union in terms of difficulties in paying for their everyday needs.

According to the data from Eurostat (2020), 39.9% of Greek households made ends meet with great difficulty in 2017 (year of the survey), while 37.3% of Greek households made ends meet with difficulty. In addition, in 2017, 52.7% of Greek households were unable to face unexpected financial expenses (Eurostat, 2020). Furthermore, in 2017, 38.5% of Greek households had been in arrears on utility bills (Eurostat, 2020). Challenges in meeting basic needs, difficulty in paying bills, and difficulty in meeting ordinary needs strongly impacted poorer segments of the population. During the crisis, 35.8% of the poor population reported living in a house with limited space, 69.5% faced difficulties in financing extraordinary but necessary expenditures of around €600, and 38.9% stated that they were unable to keep their home adequately warm. In the general population, these values were 25.9%, 24.9%, and 18.7%, respectively [19].

In summary, although QoL is difficult to define and quantify, it can be described by the individual, taking many aspects of its life into account, with each of these aspects viewed in terms of differences between expectations and actual experiences [20]. QoL is a multidimensional concept with an objective component, expressed as individuals’ needs, and a subjective component related to their wants and desires [21]. The three overarching dimensions of QoL are: a) what a person is capable of doing (functional status); b) access to resources and opportunities to use these abilities to pursue interests; and c) the sense of well-being. Within these dimensions, life domains such as health, family, social relations, work, financial status, and living situation are identified [22].

Due to the association between economic factors and QoL, an economic crisis may be considered one of the most traumatic events leading to a substantial deterioration in QoL [23].

Because economic factors such as the ability to make ends meet, material deprivation, and financial security influence QoL [24], we attempted to empirically determine the factors that affect self-perceived QoL in Greece based on individual-level cross-sectional data.

2. Methods

Data from the national cross-sectional “Health and Welfare Survey” were used for this study. The data collection took place between 12/10/2016 and 1/20/2017, i.e., a period within the economic crisis. The survey was carried out by the Department of Health Economics of the Greek National School of Public Health.

The sample consisted of 2,003 respondents aged 18 years or over and was stratified by gender, age, geographical region based on Nomenclature of Territorial Units for Statistics II (NUTS II), and degree of urbanization. Computer-assisted telephone interviewing (CATI), based on a structured questionnaire, was used for the data collection.

The dependent variable of the analysis was the self-perceived QoL of the respondent during the last two weeks [25]. Self-perception was directly assessed by the following question: “How would you rate in general your quality of life during the last two weeks?”.

The response measure consisted of a 5-point ordinal scale (1: very bad, 2: bad, 3: moderate, 4: good, 5: very good). Because the response was an ordinal variable, the analysis was based on an ordinal logistic regression model and, more specifically, on a proportional logit model. The proportional logit model assumes that: a) multicollinearity is not present; b) the odds are proportional; and c) there is a linear relationship between the logit (the logistic link function) and the predictors [26].

Multicollinearity refers to a linear relationship between the independent variables, or a weighted sum of the independent variables. Multicollinearity was tested through the variance inflation factor (VIF) and the Tolerance. The VIF is given by:

$$VIF = \frac{1}{(1-R_j^2)} \quad (1)$$

where R_j^2 is the R^2 found when all other predictors are regressed onto the predictor j . The reciprocal of the VIF is called the Tolerance. The VIF should not be greater than 10 and the Tolerance should not be less than 0.1 [27].

The proportional odds assumption states that each predictor has the same effects across the categories of the ordinal outcome variable, i.e., the logit regression coefficients for each predictor are the same across the ordinal categories [28]. Proportionality of odds was tested through the Brant test [29]. To test the proportionality of odds, Brant proposed an approach based on viewing the augmented model as describing a set of $K - 1$ logistic regressions, for variables z_j ($j = 1, 2, \dots, K - 1$) defined by:

$$z_j = \begin{cases} 1 & y > j \\ 0 & y \leq j \end{cases} \quad (2)$$

where y is a response variable with K categories.

The overall Brant test statistic is distributed as χ^2 with $p(K - 2)$ degrees of freedom where p is the number of predictors, while the Brant test statistic for each predictor is distributed as a χ^2 with $K - 2$ degrees of freedom.

The assumption of the linearity of the logit with respect

to the model predictors was tested through the Link Test. If $y = f(\mathbf{x}\beta)$ is the model, where \mathbf{x} are the predictors and $\hat{\beta}$ the parameter estimates, the Link Test calculates the variables $h = \mathbf{x}\hat{\beta}$ and $h^2 = h^2$. The model is then refitted with these two variables. If the model is specified correctly, the h^2 would be non-significant [30,31].

In addition, the goodness of fit of the ordinal logistic regression model was tested through Lipsitz et al.’s goodness of fit test [32]. Considering the proportional logit model:

$$f(x) = \log \left[\frac{Pr(y \leq k | \mathbf{x})}{Pr(y > k | \mathbf{x})} \right] = a_k + \beta_1 x_1 + \dots + \beta_p x_p \quad (3)$$

where $k = 1, \dots, K - 1$, Lipsitz et al.’s goodness of fit test is based on scores s_k assigned to each response category k . Then the predicted mean score is calculated as:

$$\hat{\mu}_i = \sum_{k=1}^K s_k \hat{p}_{ik} \quad (4)$$

where \hat{p}_{ik} are the predicted probabilities.

The observations are then partitioned into G groups based on the percentiles of the predicted mean score $\hat{\mu}_i$. Given the partition of the data, $G - 1$ indicator variables are then created, such that:

$$I_{ig} = \begin{cases} 1 & \text{if } \hat{\mu}_i \text{ is in region } g \\ 0 & \text{otherwise} \end{cases} \quad (5)$$

with $g = 1, \dots, G - 1$. To assess the goodness of fit, an alternative model is considered as follows:

$$L_{ik} = a_k + \beta_1 x_1 + \dots + \beta_p x_p + \sum_{g=1}^{G-1} I_{ig} \gamma_g \quad (6)$$

If the model is correctly specified, then $\gamma_1 = \dots = \gamma_{G-1} = 0$.

In addition, if the model is correctly specified, the likelihood ratio statistic $-2(L_1 - L_0)$ where L_1 and L_0 are the log likelihoods of models 3 and 6, is distributed as χ^2 with $G - 1$ degrees of freedom.

Furthermore, pseudo R^2 coefficients were calculated, specifically, McFadden’s R^2 and Nagelkerke’s R^2 . McFadden’s $R^2 < 0.05$ indicates a low fit, R^2 around 0.10 indicates an acceptable fit, $R^2 > 0.20$ indicates a very good fit, and $R^2 > 0.40$ is hardly observed [33,34].

With respect to Nagelkerke’s R^2 , a rule of thumb is to consider values between 0 and 0.3 as weak, values between 0.3 and 0.6 as moderate, and values higher than 0.6 as strong. However, because pseudo R^2 coefficients are not “percent of variance explained” measures, they must be interpreted simply as having a weak, moderate, or strong effect size for the model in question [35]. Thus, no one measure is clearly superior and none has the advantages of a clear interpretation in terms of explained variation [36].

The independent variables that were used in the analysis are shown in Table 1.

From the variables of Table 1, age and ordinal variables (self-reported health status, monthly income, education, household economic difficulties, frequency of economic difficulties, and religiosity) were treated as continuous. From each nominal variable with k categories (marital status, occupation, geographic prefecture, and smoking), $k-1$ dummy variables (0, 1) were obtained and used as binary in the analysis. Binary variables (gender, existence of a

diagnosed chronic health condition, urbanity status of permanent residence, difficulty in paying the utility bills during the last 12 months, and difficulty in responding to the cost of everyday needs of the household during the last 12 months) were treated as such.

The STATA 14 statistical software package was used for the analysis. Specifically, the commands *collin* (Author: Philip B. Ender), *ologit*, *brant* [37], *ologitof* [38], *linktest* [31] and *fitstat* [37] were used.

Table 1. Independent Variables

Variable	Categories (Range)
Gender	0: Female
	1: Male
Age	(18-93)
Marital Status	1: Married or Unmarried Partnership
	2: Single Living Alone
	3: Single Living with Parents
	4: Widowed
	5: Divorced
Self-Reported Health	1: Very Bad and Bad
	2: Moderate
	3: Good and Very Good
Existence of a Diagnosed Health Condition	0: No
	1: Yes
Monthly Household Income	1: 0 €
	2: 1-500 €
	3: 501-1000 €
	4: 1001-1500 €
	5: 1501-2000 €
	6: 2001-3000 €
	7: 3001 € +
Occupation	1: Employed
	2: Unemployed
	3: Pensioner
	4: Housewife
	5: Student
	6: Other Occupation
Education	1: Basic
	2: Primary
	3: Secondary
	4: Tertiary
Household Economic Difficulties	1: Have Severe Financial Difficulties
	2: Have Significant Financial Difficulties
	3: Have Some Financial Difficulties
	4: Managing Well
	5: Managing Quite Well
	6: Managing Very Well

Frequency of Economic Difficulties	1: Most of the Time
	2: Sometimes
	3: Never
Religiosity, i.e., Intensity of Practicing Religious Beliefs	1: Low-10: High
Geographic Prefecture	1: Attica
	2: East Macedonia and Thrace
	3: West Macedonia
	4: Central Macedonia
	5: Epirus
	6: Thessaly
	7: West Greece
	8: Central Greece
	9: Islands of Northern Aegean
	10: Islands of Southern Aegean
	11: Peloponnese
	12: Ionian Islands
	13: Crete
Urbanity Status of Permanent Residence	0: Rural
	1: Urban
Smoking Status	1: Non-Smoker
	2: Current Smoker
	3: Ex-Smoker
Difficulty in Paying the Utility Bills During the Last 12 Months	0: No
	1: Yes
Difficulty in Responding to the Cost of Everyday Needs of the Household During the Last 12 Months	0: No
	1: Yes

3. Results

Approximately 52% (52.22%) of the sample were women and 48% (47.78%) were men. The average age in the sample was 49.97 years (± 16.18). The majority of the respondents (40.61%) evaluated the quality of their life in the last two weeks as good (Table 2).

Table 2. Self-Perceived Quality of Life During the Last Two Weeks

Self-Perceived Quality of Life During the Last Two Weeks	n (%)
Very Bad	50 (2.50)
Bad	186 (9.29)
Moderate	625 (31.22)
Good	813 (40.61)
Very Good	328 (16.38)

According to Table 3 multicollinearity is not present ($VIF < 10$ for all predictors and $Tolerance > 0.1$ for all predictors).

Table 3. VIF and Tolerance

Variable	VIF	Tolerance
Age	1.69	0.59
Single Living Alone	1.22	0.82
Single Living with Parents	1.37	0.73
Widowed	1.14	0.88
Divorced	1.07	0.93
Self-Reported Health	1.14	0.88
Monthly Household Income	1.37	0.73
Education	1.32	0.76
Difficulty in Paying the Utility Bills During the Last 12 Months	1.52	0.66
Difficulty in Responding to the Cost of Everyday Needs of the Household During the Last 12 Months	1.46	0.68
Religiosity	1.14	0.88
Current Smoker	1.20	0.83
Ex-Smoker	1.13	0.88

According to the ordinal logistic regression model (Table 4), age, marital status, self-rated health, income, education, difficulty in paying the utility bills during the last 12 months, difficulty in responding to the cost of everyday needs of the household during the last 12 months, religiosity, and smoking status were found to be statistically significant.

Specifically, age, difficulty in paying the utility bills during the last 12 months, difficulty in responding to the cost of everyday needs of the household during the last 12 months and smoking are negatively associated with self-perceived QoL, while being single, living alone, self-rated health, income, education, and religiosity are positively associated with self-perceived QoL.

In more detail, QoL decreases as age increases, given that the odds ratio for age is below unity ($OR=0.984<1$). QoL in the elderly may be characterized by changes in health status as well as new restrictions in life [39,40].

Although, there is evidence that other demographic factors—such as gender—influence QoL [41], this variable was found to be non-statistically significant in this study.

In addition, the corresponding odds ratios for a single individual living alone is 1.764, suggesting that the odds of having higher QoL for a single individual living alone are higher than the odds for a married individual. A possible reason is the financial situation of households. It is evident from this survey that single individuals spend a relatively lower amount of their income to make ends meet.

In the same vein, QoL increases with better health status ($OR=3.342>1$). In other words, good health directly contributes to QoL [42]. Health is, indeed, a significant aspect of QoL [43], not only because the disease may be painful or unpleasant but also because it provides the means by which individuals can meet their targets [44]. An important empirical finding is that individuals with a higher education level and a higher income reported a higher health-related QoL (HRQoL) during the financial crisis in

Greece [45].

Table 4. Ordinal Logistic Regression Results

Variable	Odds Ratio	Standard Error	p	95% Confidence Interval
Age	0.984	0.004	<0.001	(0.977, 0.991)
Marital Status			0.003	
Single Living Alone	1.764	0.316	0.002	(1.241, 2.507)
Single Living With Parents	0.879	0.316	0.419	(0.642, 1.203)
Widowed	1.387	0.285	0.111	(0.928, 2.074)
Divorced	0.871	0.202	0.550	(0.553, 1.371)
Self-Rated Health	3.342	0.289	<0.001	(2.821, 3.958)
Income	1.259	0.052	<0.001	(1.162, 1.364)
Education	1.202	0.090	0.014	(1.037, 1.393)
Religiosity	1.043	0.017	0.009	(1.011, 1.077)
Smoking Status			0.015	
Current Smoker	0.773	0.081	0.015	(0.629, 0.950)
Ex-Smoker	1.098	0.141	0.466	(0.854, 1.413)
Difficulty in Paying the Utility Bills During the Last 12 Months	0.732	0.082	0.005	(0.588, 0.912)
Difficulty in Responding to the Cost of Everyday Needs of the Household During the Last 12 Months	0.686	0.076	0.001	(0.552, 0.852)
Cut ₁	-0.479	0.461		(-1.383, 0.425)
Cut ₂	1.338	0.447		(0.463, 2.213)
Cut ₃	3.506	0.455		(2.615, 4.398)
Cut ₄	5.804	0.465		(4.893, 6.715)

Furthermore, QoL increases with a higher intensity of practicing religious beliefs ($OR=1.043>1$). This finding is consistent with a strand of the literature, as several studies have found a positive association between aspects of religiosity and satisfaction with life [46]. A possible reason is that involvement with religion and spirituality is associated with greater social support and lower rates of health risk behaviors [47]. However, it should be mentioned that increased religiosity has been observed during economic crises, possibly resulting from religious institutions' ability to provide public goods, both financial and emotional, in the form of community support [48].

Moreover, QoL is lower for current smokers as compared to non-smokers ($OR=0.773<1$). The negative effect of smoking on QoL corroborates the notion that there is a link between lifestyle and QoL and confirms the international bibliography focusing on the impact that health behaviors and lifestyle choices have on individuals' QoL [49,50].

Although financial strain may negatively impact engagement in healthy behaviors [51], health-related behaviors, such as smoking and exercise, have shown improvement in Greece during the economic crisis [52].

Because QoL increases with higher income (OR=1.259>1) and higher education (OR=1.202>1), our analysis confirms a significant strand of the literature, which shows that socioeconomic positions as reflected by education and income are positively associated with QoL [53-55]. An important finding of this analysis is the demonstration of a statistically significant association between the ability to pay household bills and self-perceived QoL. Specifically, individuals who had difficulty paying their utility bills during the last 12 months (OR=0.732<1) or those who had difficulty responding to the cost of everyday needs of the household during the last 12 months (OR=0.686<1) are significantly more likely to report lower QoL. The reason is that individuals with lower socioeconomic status have less access to material resources [56].

Although there is evidence that employment is associated with QoL [57], this variable was found to be non-statistically significant in this study.

According to the Brant Test [29] ($\chi^2(42.69, 39) p=0.315$), the proportionality of odds assumption is valid.

Based on the Link Test [30,31] (Table 5), the model is correctly specified, meaning that there is a linear relationship between the logit and the predictors.

Table 5. Link Test

Variable	Coefficient	Standard Error	p	95% Confidence Interval
h	0.846	0.219	<0.001	(0.416, 1.275)
h ²	0.023	0.031	0.471	(-0.039, 0.084)
Cut1	-0.698	0.367		(-1.418, 0.021)
Cut2	1.109	0.359		(0.405, 1.813)
Cut ₃	3.269	0.378		(2.529, 4.009)
Cut ₄	5.575	0.381		(4.828, 6.323)

According to Lipsitz *et al.*'s goodness of fit test [22] ($\chi^2(5.396, 9) p=0.799$), the model has a good fit.

However, although, McFadden's R^2 was found to be equal to 0.11, indicating an acceptable fit, Nagelkerke's R^2 was found to be equal to 0.27 indicating a weak effect size.

Because financial security has been found to have a great impact on wellness and QoL, the results of this study confirm the international bibliography [58].

4. Conclusions

As mentioned in the previous sections, QoL depends on physical, social, and material well-being.

More specifically, the physical, social, and macro-economic environment, personality, health, demographic factors, lifestyle, and socioeconomic characteristics are considered the most important determinants of QoL [59-63].

Among those factors, the economic environment, as defined primarily by financial circumstances, remains a key determinant of self-perceived QoL. In this sense, financial downturns affect not only key economic measures but also individual and societal well-being.

We used Greece as a case study, considering that it is a country that has experienced a massive and prolonged economic recession. This study aimed to identify the key determinants of self-perceived QoL during a period of severe economic crisis.

It is evident that Greek citizens report low levels of life satisfaction resulting from the economic recession [64]. The deterioration of the standard of living—one of the life satisfaction domains [65]—can be attributed to the economic crisis [66] that pushed a substantial part of the population into extreme poverty [67].

The mechanism behind the findings mentioned above is as follows. Economic crises result in unemployment, decreases in income, higher prices, and decreases in the purchasing power of households [68]. In addition, individuals' ability to satisfy basic needs such as subsistence, reproduction, security, affection, understanding, participation, leisure, spirituality, creativity, identity, and freedom arises from the opportunities available and constructed from social, built, human, and natural capital [69]. Thus, because the satisfying of needs is related to QoL and well-being [70], the decrease in Greek citizens' QoL during the economic crisis [71] reflects, to a large extent, the fact that during the crisis, the sharp decline in disposable income and the dramatic increase in unemployment led to a significant deterioration in economic prosperity [72].

Economic development is a necessary condition for improvement of QoL [73].

In other words, QoL is generated in a circular, dynamic process that links capabilities (resources in human, social, and material capital, and the freedom to choose which needs to be fulfilled and how) to well-being (emotional states and reflections of meaning of life based on the subjective experience of one's fulfillment of needs) though strategies (instrumental means of fulfilling needs) and needs (reasons for action that require no further explanation or justification) [74].

From a welfare perspective, improving QoL is a primary goal of economic and social policy [75].

Identifying the determinants of self-perceived QoL is particularly important because specific policies based on these determinants can be applied, especially for those who are expected to bear the greatest burden, in relation to the worsening of their status, during a period of recession.

Although this is not an easy task, due to multi-dimensional nature of QoL, meaning that several factors should be addressed, policy decisions should ensure the provision of a fertile, resource-rich, and opportunity-rich environment within which individuals have opportunities to achieve a "good" QoL [76].

REFERENCES

- [1] The WHOQOL Group, 1998, Development of the World Health Organization WHOQOL-BREF quality of life assessment. *The WHOQOL Group, Psychol Med*, 28(3), 551–558.
- [2] Farquhar, M., 1995, Definitions of quality of life: A taxonomy, *J Adv Nurs*, 22(3), 502–508.
- [3] van der Lippe, T., and Bäck-Wiklund, M., 2011, Quality of life and work in a changing Europe., In M. Bäck-Wiklund, T. Lippe, L. D. van der Dulk, A. Doorne-Huiskes, T. van der Lippe, and L. den Dulk (Eds.), *Quality of life and work in Europe* (pp. 1–13), Palgrave Macmillan, London.
- [4] Sirgy, M. J., 2012, *The psychology of quality of life*, Springer, Dordrecht.
- [5] Lindström, B., and Eriksson, M., 2010, A salutogenic approach to tackling health inequalities, In A. Morgan, E. Ziglio and M. Davies (Eds.), *Health assets in a global context* (pp. 17–39), Springer-Verlag, New York.
- [6] Fernández-Ballesteros, R., 2011, Quality of life in old age: Problematic issues, *Appl Res Qual Life*, 6(1), 21–40.
- [7] Cummins, R. A., 1996, The domains of life satisfaction: An attempt to order chaos, *Soc Indic Res*, 38(3), 303–328.
- [8] Cummins, R. A., McCabe, M. P., Romeo, Y., Reid, S., and Waters, L., 1997, An initial evaluation of the comprehensive quality of life scale-Intellectual disability, *Int J Disabil Dev Educ*, 44(1), 7-19.
- [9] Singh, A. B., and Tiwari, P. S. N., 2013, Factors affecting quality of life of rural population, *Indian Journal of Health and Wellbeing*, 4(5), 1197–1198.
- [10] Diener, E., and Diener, C., 1995, The wealth of nations revisited: Income and quality of life, *Soc Indic Res*, 36(3), 275–286.
- [11] Rojas, M., 2012, Quality of life in Latin America and the Caribbean. In K. C. Land, A. C. Michalos and M. J. Sirgy (Eds.), *Handbook of social indicators and quality of life research* (pp. 529–545), Springer, Dordrecht.
- [12] Egedy, T., 2012, The effects of global economic crisis in Hungary, *Hungarian Geographical Bulletin*, 61(2), 155–173.
- [13] Somarriba Arechavala, N., Zarzosa Espina, P., and Pena Traperero, B., 2015, The economic crisis and its effects on the quality of life in the European Union, *Soc Indic Res*, 120(2), 323–343.
- [14] Spyridakis, M., and Feronas, A., 2014, The impact of the economic crisis on the quality of life for residents of Attiki area. The experience from the City of Marousi, *Social Cohesion and Development*, 9(1), 5–28.
- [15] Abbott, P., and Wallace, C., 2012, Social Quality: A way to measure the quality of society, *Soc Indic Res*, 108(1), 153–167.
- [16] Mavridis, S., 2018, Greece's economic and social transformation 2008–2017, *Social Sciences*, 7(1), 9.
- [17] International Labour Organization., 2014, *Studies on growth with equity. Greece. Productive jobs for Greece*, International Labour Organization, Geneva.
- [18] European Bank for Reconstruction and Development., 2016, *Life in transition. A decade of measuring transition*, European Bank for Reconstruction and Development, London.
- [19] Mitrakos, T. M., 2014, Inequality, poverty and social welfare in Greece: Distributional effects of austerity, *J Hell Stud*, 22(1), 65–94.
- [20] Sussan, F., and Hall, R., 2019, Quality of life determinants for retirees, In B. W. Sloboda, C., Putcha, and S., Rana (Eds.), *Interacting factors between physical health, mental health, and a long quality life* (pp. 294-330), Balboa Press, Bloomington.
- [21] Nakou, S., 2001, Measurement of quality of life in the health care field. Applications in child health, *Archives of Hellenic Medicine*, 18(3), 254-266 (In Greek).
- [22] Lehman, A. F., 1995, Measuring quality of life in a reformed health system, *Health Aff*, 14(3), 90-101.
- [23] Pandelica, A., Didea, I., and Diaconu, M., 2013, Are you panicked? Economic and health consequences of the economic crisis: A psychological approach in Romanian context, *Scientific Bulletin-Economic Sciences*, 12(1), 39-49.
- [24] European Foundation for the Improvement of Living and Working Conditions., 2013, *Third European Quality of Life Survey—Quality of life in Europe: Trends 2003–2012*, Publications Office of the European Union, Luxembourg.
- [25] Power, M., 2003, Development of a common instrument for quality of life, In A. Nosikov and C. Gudex (Eds.), *EUROHIS: Developing Common Instruments for health surveys* (pp. 145–163), IOS Press, Amsterdam.
- [26] Menard, S., 2010, *Logistic regression: From introductory to advanced concepts and applications*, Sage, London.
- [27] Miles, J., 2014, *Tolerance and Variance Inflation Factor*, Wiley StatsRef: Statistics Reference Online.
- [28] Liu, X., 2015, *Applied ordinal logistic regression using STATA: From single-level to multilevel modeling*, Sage, London.
- [29] Brant, R., 1990, Assessing proportionality in the proportional odds model for ordinal logistic regression, *Biometrics*, 46(4), 1171–1178.
- [30] Hilbe, J. M., 2009, *Logistic regression models*, CRC Press, New York.
- [31] Stata., 2017, *Base reference manual.*, Stata Press, College Station, TX.
- [32] Lipsitz, S. R., Fitzmaurice, G. M., and Molenberghs, G., 1996, Goodness-of-fit tests for ordinal response regression models, *Appl Stat*, 45(2), 175–190.
- [33] Andreß, H-J., Golsch, K., and Schmidt, A. W., 2013, *Applied panel data analysis for economic and social surveys*, Springer, Berlin.
- [34] Putler, D. S., and Krlder, R. E., 2012, *Customer and business analytics: Applied data mining for business decision making using R*, CRC Press, New York.
- [35] Garson, G. D., 2016, *Logistic regression: Binary and multinomial*, Statistical Publishing Associates, Asheboro.

- [36] Long, J. S., 1997, *Regression models for categorical and limited dependent variables*, Sage, London.
- [37] Long, J. S., and Freese, J., 2014, *Regression models for categorical dependent variables using Stata*, Stata Press, College Station, TX.
- [38] Fagerland, M. W., and Hosmer, D. W., 2017, How to test for goodness of fit in ordinal logistic regression models, *STATA J: Promoting Communications on Statistics and Stata*, 17(3), 668–686.
- [39] Sováriová Soósová, M., 2016, Determinants of quality of life in the elderly, *Central European Journal of Nursing and Midwifery*, 7(3), 484–493.
- [40] Walker, A., and Mollenkopf, H., 2007, International and multidisciplinary perspectives on quality of life in old age. Conceptual issues, In H. Mollenkopf and A. Walker (Eds.), *Quality of life in old age* (pp. 3–13), Springer, Dordrecht.
- [41] Fodor, E., Lane, L., Schippers, J., and van der Lippe, T. (2011). Gender differences in quality of life, In M. Bäck-Wiklund, T. Lippe, L. D. van der Dulk, A. Doorne-Huiskes, T. van der Lippe, and L. den Dulk (Eds.), *Quality of life and work in Europe* (pp. 149-161), Palgrave Macmillan, London.
- [42] Mwabu, G., 2001, Health status in Africa: A regional profile, *S Afr J Econ*, 69(2), 319–335.
- [43] Dodge, R., Daly, A., Huyton, J., and Sanders, L., 2012, The challenge of defining wellbeing, *International Journal of Wellbeing*, 2(3), 222–235.
- [44] Marcum, J. A., 2008, *An introductory philosophy of medicine: Humanizing modern medicine*, Springer, Dordrecht.
- [45] Mechili, A. E., Kalokairinou, A., Kaitelidou, D., and Diomidous, M., 2015, Greece financial crisis and quality of life, In J. Mantas, A. Hasman and M. S. Househ (Eds.), *Enabling health informatics applications* (pp. 207-209). IOS Press, Amsterdam.
- [46] Ferriss, A. L., 2002, Religion and the quality of life, *J Happiness Stud*, 3, 199-215.
- [47] Koenig, H. G., 2001, Religion and medicine II: Religion, mental health, and related behaviors, *Int J Psychiatry Med*, 31(1), 97–109.
- [48] Orman, W. H., 2019, Religiosity and financial crises in the United States, *J Sci Study Relig*, 58(1), 20-46.
- [49] Goldenberg, M., Danovitch, I., and IsHak, W. W., 2014, Quality of life and smoking, *Am J Addict*, 23(6), 540–562.
- [50] Ventegodt, S., and Merrick, J., 2003, Lifestyle, quality of life, and health, *The Scientific World Journal*, 3, 811–825.
- [51] Macy, J. T., Chassin, L., and Presson, C. C., 2013, Predictors of health behaviors after the economic downturn: A longitudinal study, *Soc Sci Med*, 0, 8-15.
- [52] Beletsioti, C., Papadopoulos A., and Niakas, D., 2018, The impact of financial crisis on health and health care in Greece, *Archives of Hellenic Medicine*, 35(5), 686-697 (In Greek).
- [53] Edgerton, J. D., Roberts, L. W., and von Below, S., 2012, Education and quality of life, In K. C. Land, A. C. Michalos, and M. J. Sirgy (Eds.), *Handbook of social indicators and quality of life research* (pp. 265–296), Springer, Dordrecht.
- [54] Ferriss, A. L., 1971, *Indicators of trends in the status of American women*. Russell Publishing Sage Foundation, New York.
- [55] Raggi, A., Corso, B., Minicuci, N., Quintas, R., Sattin, D., De Torres, L., Chatterji S., Erisoni G. B., Haro J. M., Koskinen S., Martinuzzi A., Miret M., Tobiasz-Adamczyk B. and Leonardi, M., 2016, Determinants of quality of life in ageing populations: Results from a cross-sectional study in Finland, Poland and Spain, *PLOS ONE*, 11(7), e0159293.
- [56] Stansfeld, S. A., Head, J., and Marmot, M. G., 1998, Explaining social class differences in depression and well-being, *Soc Psychiatry Psychiatr Epidemiol*, 33(1), 1–9.
- [57] Drobnič, S., Beham, B., and Präg, P., 2010, Good job, good life? Working conditions and quality of life in Europe, *Soc Indic Res*, 99(2), 205–225.
- [58] Chater, S. S., 1996, The future of social security and its impact on older women, *Health Care for Women Int*, 17(1), vii–xiii.
- [59] Pukeliene, V., and Starkauskiene, V., 2011, Quality of life: Factors determining its measurement complexity, *Engineering Economics*, 22(2), 147–156.
- [60] Dahlan, A., Ibrahim, S. A. S., and Masuri, M. G., 2016, Role of the physical environment and quality of life amongst older people in institutions: A mixed methodology approach, *Procedia-Soc Behav Sci*, 234, 106–113.
- [61] Jackson, K., Pitner, R., Holschuh, J., Takahashi, R., and Waller, M., 2010, The social dimension for assessing social functioning, In J. B. Ashford and C. W. LeCroy (Eds.), *Human behavior in the social environment: A multidimensional perspective* (pp. 132-187), Brooks/Cole - Cengage Learning, Belmont.
- [62] Stewart, A. L., and King, A. C., 1994, Conceptualizing and measuring quality of life in older populations In R. P. Abeles R.P., Gift H., and Ory M. G. (Eds.). *Aging and quality of life* (pp. 27–54), Springer Publishing Company, New York.
- [63] Wrosch, C., and Scheier, M. F., 2003, Personality and quality of life: The importance of optimism and goal adjustment, *Qual Life Res*, 12 (Suppl. 1), 59–72.
- [64] Rokicka, E., 2014, The concept of “quality of life” in the context of economic performance and social progress, In D. Eißel, E., Rokicka, and J., Leaman (Eds.) *Welfare state at risk* (pp. 11-34), Springer, Berlin.
- [65] Panas, E. E., 2013, Homeorhesis and indication of association between different types of capital on life satisfaction: The case of Greeks under crisis, *Soc Indic Res*, 110, 171-186.
- [66] Papanastasiou, S., and Papatheodorou, C., 2018, The Greek depression: Poverty outcomes and welfare responses, *J Econ Bus*, XXI, Nos 1-2, 205-222.
- [67] Zavras, D., Tsiantou, V., Pavi, E., Mylona, E., and Kyriopoulos, J., 2012, Impact of economic crisis and other demographic and socio-economic factors on self-rated health in Greece, *Eur J Public Health*, 23(2), 206-210.
- [68] Hotchkiss, D. R., and Jacobalis, S., 1999, Indonesian health care and the economic crisis: Is managed care the needed reform? *Health Policy*, 46, 195-216.
- [69] Costanza, R., Fisher, B., Ali, S., Beer, C., Bond, L., Boumans,

- R., Danigelis, N. L., Dickinson, J., Elliott, C., Farley, J., Elliott Gayer, D., MacDonald Glenn, L, Hudspeth, T. R., Mahoney, D. F., McCahill, L, McIntosh, B, Reed, B, Turab Rizvi, A., Rizzo, D. M., Simpatico, T., and Snapp, R., 2008, An integrative approach to quality of life measurement, research, and policy, S.A.P.I.E.N.S, 1(1), 17-21.
- [70] De Negri Filho, A., 2008, A human rights approach to quality of life and health: Applications to public health programming, *Health Hum Rights*, 10(1), 93-101.
- [71] Kokaliari, E., 2018, Quality of life, anxiety, depression, and stress among adults in Greece following the global financial crisis, *International Social Work*, 61(3), 410-424.
- [72] Mitrakos, T., 2013, Inequality, poverty and living conditions in Greece: Recent developments and prospects, *Social Cohesion and Development*, 8(1), 37-58. [75] Todaro, M. P., and Smith, S. C., 2015, *Economic development*, Pearson, New York.
- [73] Todaro, M. P., and Smith, S. C., 2015, *Economic development*, Pearson: Boston.
- [74] Rauschmayer, F., Omann, I., and Frühmann, J., 2011, Needs, capabilities and quality of life. Refocusing sustainable development In F. Rauschmayer, I. Omann, and J. Frühman (Eds.) *Sustainable development, capabilities, needs, and well-being* (pp. 1-24), Routledge: London.
- [75] Costanza, R., Farley, J., and Templet, P., 2002, Quality of life and the distribution of wealth and resources, in R. Costanza, and S. E. Jørgensen (Eds.) *Understanding and solving environmental problems in the 21th century* (pp. 221-258).
- [76] Alborz, A., 2017, The nature of quality of life: A conceptual model to inform assessment, *J Policy Pract Intellect Disabil*, 14(1), 15-30.