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Health Inequalities Among People Experiencing Food Insecurity. An Intersectional Approach

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Abstract

The study examines the socio-economic determinants of physical health among populations experiencing food insecurity and receiving free meals in soup kitchens in the Prefecture of Attica, Greece. Data were collected from the same six soup kitchens in 2012, 2017, and 2021, resulting in a dataset of 1,533 observations. The study revealed that periods characterised by an economic recession are associated with deteriorated physical health of food-insecure people. Moreover, the study found that physical health deteriorations among food-insecure people are associated with older age, female gender, immigration status, disability and/or long-term health conditions, LGBT status, unemployment, economic inactivity, homelessness, living below the poverty threshold, long-term food dependency, illicit drug consumption, and residing in low- and middle-class areas. The study proposes the Intersectional Model of Health Inequalities, which integrates multiple factors involved in shaping the health inequalities of people experiencing food insecurity, from macro-level factors such as a country's economic performance to individual-level factors like education, employment status and demographic characteristics. The model emphasizes that low-income populations should not be treated as a homogeneous entity. Its goal is to inform policymakers about the diverse health inequalities experienced by people with low incomes.

Keywords: Food Insecurity; Poverty; Health

JEL Classifications: I32; I10; I14

1. Introduction

In European countries, following the 2008 economic crisis, there was a significant increase in food insecurity, defined as the inability to afford a meal with meat, chicken, or fish every other day (from 6.1 to 8.7 percent) (Davis and Geiger, 2017; Loopstra, Reeves, and Stuckler, 2015). For instance, between 2003/7 and 2011, significant increases were observed in the UK (from 3.8 to 8.8 percent), France (from 3.1 to 7.1 percent), Spain (from 2.6 to 6.5 percent), Austria (from 3.7 to 4.1 percent), Slovenia (from 6.1 to 10.1 percent), and Greece (from 18.0 to 21.2 percent) (Davis and Geiger, 2017). Indeed, since 2008, Greece has been experiencing a dramatic economic crisis (Drydakis, 2015). Due to increased unemployment and reduced incomes, individuals and households have faced significant cuts in living standards, increased risk of poverty, and food insecurity (Vlassopoulos et al., 2021; Drydakis, 2015). To address the latter issue, public and private bodies, such as religious organisations, charitable agencies, governmental and non-governmental organisations, and philanthropists, provide healthy and nutritious foods to vulnerable population groups (Sotiropoulos and Bourikos, 2014). Food is administered to beneficiaries in various forms, including food parcels and free coupons for food and soup kitchens (Loopstra, Reeves, and Stuckler, 2015). By definition, a soup kitchen is a place where low-income people are provided with free food (Stoolmacher, Tuchman, and Wise, 2011). Aside from free food, soup kitchens occasionally offer other necessities, such as clothing, hygiene kits, and medical/counselling services (Stoolmacher, Tuchman, and Wise, 2011).

Research on food insecurity and soup kitchens has received limited attention in Greece during and after the 2008 economic crisis. Qualitative studies from sociological, anthropological, and political science perspectives have examined the need for food assistance through soup kitchens, the operation of soup kitchens, the associated challenges, as well as the profiles of beneficiaries and people working in soup kitchens (Tsironis and Almpani, 2018; Douzina-Bakalaki, 2016; Kravva, 2014). However, research examining the physical health of people using soup kitchens is scarce. In a broader context, international review studies have found that food insecurity is associated with anaemia, asthma, cancer, obesity, an increased risk of hospitalization, cognitive problems, aggression, and anxiety (Food Research and Action Center, 2017; Gundersen and Ziliak, 2015).

The present study aims to investigate how periods characterised by economic recessions are associated with the physical health outcomes of people who experience food insecurity and receive free meals in soup kitchens in the Prefecture of Attica. The Attica region comprises the entire metropolitan area of Athens, with 3.8 million people, equating to one-third of Greece's population. Moreover, this study aims to investigate the socio-economic determinants and demographic characteristics of individuals who receive free meals in soup kitchens, while also identifying factors

contributing to health inequalities. The determinants of health and health inequalities remain prominent on the socio-epidemiology research agenda (Gkiouleka et al., 2018; Drydakis, 2015). The present study suggests that determinants of health and health inequalities might intersect within low-income populations.

The current study has several strengths. The study aims to evaluate the social determinants of physical health in low-income population groups by proposing the Intersectional Model of Health Inequalities. The model indicates that adverse socio-economic conditions at both the macro-level and the individual level, along with minority demographic characteristics, could be associated with deteriorated physical health among low-income population groups. These intersections could contribute to health inequalities among both less and more vulnerable individuals. Despite the increase in poverty over the last decade (Davis and Geiger, 2017; Loopstra, Reeves, and Stuckler, 2015), a systematic framework on the determinants of health-related outcomes in populations experiencing food insecurity is lacking in the literature. However, this information is crucial for improving health and reducing longstanding inequalities in health and healthcare in marginalized communities (Gkiouleka et al., 2018).

By concentrating on three distinct periods -namely, 2012, 2017, and 2021- the study assesses whether the physical health of individuals experiencing food insecurity deteriorates during periods marked by economic decline, that is, adverse macro-level conditions. Major reviews indicate that seminal studies have examined the association between economic crises and health in general populations (Parmar, Stavropoulou, and Ioannidis, 2016). However, the present study, targeting people experiencing food insecurity, aims to provide evaluations specifically for highly marginalized communities. Given that Greece has experienced the highest levels of economic deterioration among EU member states and the OECD during the economic crisis (Vlassopoulos et al., 2021; Drydakis, 2015), it is essential, from an international perspective, to examine how periods characterized by dramatic economic deterioration in an EU member state can impact the physical health of vulnerable population groups. The present study offers robust evaluations by using information on the real gross domestic product (GDP) growth rate to examine whether patterns across time periods can be verified through macro-economic performance indicators.

In addition to macro-level characteristics, the study highlights the importance of recognizing diversity within low-income populations and its impact on physical health inequalities. The study utilizes information on gender, LGBT status, ethnicity, disability, employment status, homelessness, poverty, long-term food dependency, illicit drug consumption, and geographic regions to examine how these factors can be associated with the physical health of vulnerable population groups. Such a systematic evaluation is missing in the literature. However, there is a recognition that, in order to improve health in low-income communities and achieve health equity,

there is a need for intersectional theoretical and analytical frameworks that address social, economic, and regional factors influencing health (Gkiouleka et al., 2018)

Moreover, by collecting data from the same soup kitchens across a ten-year period, the study controls for time and region fixed effects. This pattern reduces bias from unobservable factors that change over time and regions, thus making it possible to estimate better informed outcomes. In addition, by utilising information regarding mental health, the empirical specification accounts for physical-mental health related endogeneity and offers better informed outcomes with regard to the relationship between economic recession and physical health (Ohrnberger, Fichera, and Sutton, 2017; Doherty and Gaughran, 2014). Furthermore, the findings of the present study are based on two measures of self-reported physical health (i.e., the SF-36 General Health dimension and the EQ-VAS European Quality of Life Visual Analogue Scale), which are perceived to be reliable predictors of clinical outcomes, offering well-informed estimations of the relationships under consideration (Feng, Parkin, and Devlin, 2014; McDowell, 2006; Ware, Kosinski, and Gandek, 2004; Aitken, 1969).

The study evaluates that, to achieve a deeper understanding of health outcomes in low-income populations, it is essential to examine both macro- and individual-level characteristics that may contribute to health inequalities. The empirical analysis of the study validates the proposed Intersectional Model of Health Inequalities for low-income populations.

2. Theoretical framework

2.1 Economic recession and health among low-income population groups

In Greece, during the economic recession, longitudinal studies indicated that increased unemployment and economic problems negatively affected adults' physical and mental health (Drydakis, 2015). Table 1 presents Eurostat data for the years 2012, 2017 and 2021. The data indicate that, in 2012, the country experienced a major economic crisis. In 2012 the unemployment rate was 24.8%, whilst in 2021 it stood at 14.7%. In 2012, the real GDP growth rate was -7.1%. However, in 2021 the real GDP growth rate had risen to 8.3%. In 2012, 34.6% of people were at risk of poverty or social exclusion, whilst in 2021 this was the case for 28.8% of people. Moreover, the health care expenditures (as a percentage of the GDP) were lower in 2012 than in 2021 (8.9% versus 9.5%). Importantly, in 2012 fewer people reported good physical health than in 2021 (28.1% versus 31.3%). Table 1 also presents information for the EU-27. In all cases, Greece underperformed compared to the EU-27.

[Table 1]

Internationally, research shows that people with higher incomes consistently experience better physical and mental health than people with low incomes and those experiencing

unemployment, economic inactivity, and poverty (Parmar, Stavropoulou, and Ioannidis, 2016; Drydakakis, 2015). Periods of economic recession are associated with an increase in poverty rates which affects both the likelihood that people will have risk factors for disease and their ability and opportunity to prevent and manage disease (Sherin, Adebajo, and Jani, 2019; Ruhm, 2015). Studies support a causal link between duration of poverty, unemployment, income loss, and deteriorated physical health (Vaalavuo, 2016; Drydakakis, 2015). It has been found that adverse economic conditions are dose-dependent (i.e., the duration of exposure matters) (Walker and Druss, 2017), affecting whether an individual acquires a long-term health condition (Lustig and Strauser, 2007).

There exist several mechanisms resulting from an economic recession, all of which can negatively impact population groups' physical health. The Absolute Income Hypothesis suggests that income loss due to adverse economic events decreases investments in health-enhancing goods and results in physical and mental health deterioration (Grossman, 2000). These conditions could negatively impact individuals' physical and mental health, exacerbating health inequalities among vulnerable populations (Ruhm, 2015; Grossman, 2000; Drydakakis, 2021a).

Economic recessions can bring health deterioration to low-income population groups by limiting access to proper nutrition and healthy foods, shelter, and safe neighbourhoods to live, as well as other elements that define an individual's standard of living (Sherin, Adebajo, and Jani, 2019; Gkiouleka et al., 2018). Not only do vulnerable people have the tightest budgets, but their incomes are also more precarious during downturns (Drydakakis, 2021a; b; 2022a; b). This exacerbates their financial vulnerability, making it challenging to meet essential needs such as housing, food, and healthcare (Drydakakis, 2021a; b; 2022 b).

Moreover, economic recessions are typically marked by uncertainty regarding the future, which includes concerns about job security, housing stability, and the ability to meet basic needs (Berkman, Kawachi, and Glymour, 2014; Kawachi and Berkman, 2000). Individuals, and especially vulnerable population groups, may resort to substance misuse, such as alcohol or drugs, as a coping mechanism to alleviate the emotional distress caused by economic challenges and stress (Dom et al., 2016; Kawachi and Berkman, 2000). However, it's important to note that while substance misuse may offer temporary relief from mental stress, it is not a healthy long-term coping strategy, and can perpetuate the cycle of stress while exacerbating both mental and physical health issues (Dom et al., 2016; Doherty and Gaughran, 2014; Kawachi and Berkman, 2000).

Furthermore, if economic recessions are aligned with country-wide severe austerity programmes, this could potentially boost physical health deterioration and health inequalities (Rechel, 2019; WHO, 2012). Reductions in public healthcare provision and spending due to national austerity policies, as well as declines in health promotion initiatives due to tighter budgets,

could result in a deterioration of the link between reduced resources and low-income populations' physical health (Drydakis, 2021b; Rechel, 2019; WHO, 2012). If vulnerable population groups are more dependent on public healthcare provision services, a budget cut to public health can have detrimental effects on their physical health (Drydakis, 2021b).

The current study reflects on the presented patterns and suggests that:

Hypothesis 1. Economic recessions are associated with a deterioration in physical health among low-income population groups.

2.2 Socio-economic characteristics at the individual-level, demographic characteristics, and health among low-income population groups

Economic and social factors are linked with physical health across the life course (Braveman and Gottlieb, 2014). Health determinants represent macro-structural factors, e.g., socio-economic events and government policies, as well as individual-level factors, such as education, employment, income, and demographic characteristics. All of these factors may differentially impact access to health care services and health-promoting behaviours (Braveman and Gottlieb, 2014). The intersectionality between socio-economic conditions can be thought of as a web, where different characteristics connect, compounding and exacerbating each other (Gkiouleka et al., 2018; Bowleg, 2013; Nash, 2008).

Most health inequalities are caused by social inequalities in the conditions in which people are born, grow, live, work and age (WHO, 2016). Social inequalities mean that the freedom to enjoy good health is unequally distributed amongst different population groups (Manandhar et al., 2018; WHO, 2016; 2008). International surveys have found that there are significant health inequalities in length of healthy life between men and women (Manandhar et al., 2018; WHO, 2008). Gender-based discrimination and gender stereotypes introduce critical barriers in education and work that reduce economic resources, affecting women's physical and mental health (Manandhar et al., 2018; Drydakis, 2015; WHO, 2008). It has been found that for women, an income loss is associated with worse health outcomes than a relevant income loss for men (Drydakis, 2015).

Moreover, getting old presents a significant, additional risk of becoming economically vulnerable (MacGuire, 2020; WHO, 2017; UNDESA, 2015). This makes older people particularly vulnerable to economic insecurity as well as poverty, with limited options for escape (UNDESA, 2015; WHO, 2017). Older people living with socio-economic disadvantage are more likely to develop disease or die earlier than those living in more advantageous circumstances (WHO, 2017). Women in general live longer than men and studies report that they are more likely to experience

ageism that adversely affects their labour force participation, income and health outcomes (MacGuire, 2020; UNDESA, 2015).

Immigration can add a further dimension to social determinants of health, given that being an immigrant can make individuals more vulnerable to negative influences on their health (Drydakis, 2022a; Giannoni, Franzini, and Masiero, 2016). Social determinants of immigrants' health relate to factors that influence the immigration process, reasons for immigrating, and the mode of travel, length of stay and the immigrants' language skills, race, and legal status (Giannoni, Franzini, and Masiero, 2016). Immigrants go through critical adverse experiences which can affect their health, particularly in settings where they face a combination of legal, social, and economic challenges during the immigration process (Drydakis, 2022a; Giannoni, Franzini, and Masiero, 2016). Immigrants often face barriers to accessing health and social services, especially if they are undocumented, unemployed or encountering adverse working experiences (Drydakis, 2022a).

In addition, racial and ethnic subpopulations must deal with a disproportionate level of economic hardship and are more likely to reside in neighbourhoods characterised by social and structural disadvantage (Rossen, 2014). Then, neighbourhood disadvantages are associated with adverse health (Rossen, 2014). Moreover, adverse economic conditions relate to homelessness (Omerov et al., 2020). Homeless people have higher rates of premature mortality than the rest of the population, especially from suicide and unintentional injuries, as well as an increased prevalence of a range of infectious diseases, illicit drug consumption and mental disorders (Omerov et al., 2020; Kuo et al., 2017).

Furthermore, there are critical economic disparities among individuals based on their sexual orientation and gender identity (Drydakis, 2022b; c). Due to stigma, social rejection, discrimination, and victimization, LGBT individuals experience higher rates of unemployment, poverty, and financial hardships, which have been found to adversely affect their physical and mental health outcomes (Drydakis, 2022b; c).

In Greece, since 2010, research has found that women, disabled people, ethnic minorities, sexual and gender identity minorities, unemployed people, those experiencing low income, disadvantaged populations, and people consuming illicit drugs face deteriorated physical and mental health (Drydakis, 2023; 2015; 2021a; 2022a;b;c). The empirical evidence reviewed indicates that gender, age, ethnicity, sexual orientation, gender identity, employment, long-term health conditions, substance use, and geography might emerge as crucial categories for the study of health determinants and inequalities in populations facing severe economic struggles (Drydakis, 2022a; b; c). Multiple marginalisations are mutually constituted and cannot be understood or ameliorated by approaches that treat single socio-economic characteristics, i.e., gender and low-income, as distinct subjects of inquiry (Gkiouleka et al., 2018).

The present study suggests that within low-income population groups, socio-economic conditions at an individual level and demographic characteristics play a role in increasing the incidence of adverse physical health in specific subgroups while having a lesser impact on others. This feature may contribute to the widening physical health inequalities among low-income populations. This observation is reflected in the patterns presented and can be summarized as follows:

Hypothesis 2. *Adverse socio-economic conditions at the individual level, along with minority demographic characteristics, are associated with a deterioration in physical health among low-income population groups.*

The theoretical considerations of the study are captured by the proposed Intersectional Model of Health Inequalities. This model suggests that adverse socio-economic conditions, at both macro- and individual levels, along with minority demographic characteristics, could be associated with deteriorated physical health among low-income population groups. This pattern contributes to health inequalities among both less and more vulnerable individuals. The model indicates that low-income population groups should not be treated as a homogeneous group. Treating low-income population groups as a homogeneous entity oversimplifies the diverse range of conditions and needs within this demographic group. Recognizing and understanding this diversity is crucial for developing effective policies that address the complex realities and varied needs of different subgroups within the low-income population.

3. Data gathering and variables

3.1 Data gathering

In 2012, the research team identified 62 soup kitchens in Attica, Greece, through a Google search. These soup kitchens, which comprised the study's population, offered cooked meals free of charge. They were run by various entities, including the Greek Orthodox Church, local municipalities, non-governmental organizations, and private initiatives. To enhance the manageability and cost-effectiveness of data gathering, a random sampling approach was employed, enabling a focus on a smaller subset of the population (Kelley et al., 2003). This process included conducting random sampling with a 50% split, resulting in the selection of 31 soup kitchens. Subsequently, contact was established with managers overseeing these 31 soup kitchens. During the initial contact the aim of the study was presented. The document stated that the aim was to approach people utilising soup kitchens' services and gather socio-epidemiological data in recurring periods. A questionnaire was provided for the managers to peruse. If the managers wanted to further

consider the case, they were kindly asked to book an appointment with the primary investigator of the study so that they could be provided details regarding how the research team would distribute participation information sheets, obtain informed consent, secure individuals, and soup kitchens' anonymity, minimise any risk, and handle the data gathering process.

Six managers responded to the invitations. Formal meetings then took place, during which the research team received approval to proceed. In this study, the ethics clearance application adhered to the principles outlined in the Belmont Report (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1978). The Belmont Report emphasizes three main ethical principles for conducting research with human subjects: respect for people, beneficence, and justice. The ethics clearance applications sought input from gatekeepers, namely soup kitchen managers, and beneficiaries to recommend an approach for collecting data. This approach involved conducting data gathering while beneficiaries waited to collect their food, with the research team present to conduct brief interviews. This approach was chosen to ensure inclusivity, provide necessary assistance, and avoid disrupting the beneficiaries' mealtime. Both soup kitchen managers and beneficiaries suggested that conducting data gathering during mealtime could be disruptive. Furthermore, distributing questionnaires for beneficiaries to take home and return to the soup kitchen was considered non-inclusive because some beneficiaries required special assistance and a safe place to participate in surveys due to their unconventional living situations. Additionally, collecting data through short interviews was evaluated by soup kitchen managers and beneficiaries as having the potential to contribute to knowledge due to the relatively large amount of information collected. It was seen as a way to benefit marginalized communities by providing insights that could inform policies affecting them. Research indicates that people in precarious situations, including homelessness, benefit from interactions that allow them to be heard, despite prevailing negative stereotypes regarding their fragility, trauma, mental health, or addiction (Castañeda, and Smith, 2023).

The ethics protocol stated that the research would use aggregate data. During data collection, individuals did not have to reveal their identity. Informed consent was obtained verbally. Based on the research protocol, individuals were made aware of the kinds of questions that would be asked before each brief survey. The research team informed the participants that they could terminate their interaction with the research team at any time. Through the participation information sheets, individuals, soup kitchen staff and managers were provided with information on raising concerns, asking for clarifications, and/or making official complaints to the University Research Ethics Committee. However, no one submitted a complaint during the period spanning 2012-2021.

Between September and December 2012, the research team visited the soup kitchens and conducted the data gathering. In each soup kitchen the research team read the questions to

participants and filled in the questionnaires. The research team initially approached individuals in Greek, inviting them to participate in the survey. If someone had difficulty communicating in Greek, a follow-up approach was made in English. The questionnaires were available in both Greek and English to facilitate the data collection process. Each survey took approximately five minutes to fill in. Between September and December 2017 and 2021, the research team visited the same soup kitchens, and the protocol routine created the 2012-2021 data set.

The sample utilised for this study consists of 1,533 surveys. In 2012, 525 surveys were gathered, whilst in 2017 a total of 551 surveys were collected, and in 2021, 457 surveys were collected. Amongst the six soup kitchens, two were located in lower-class areas (33.3%) and two were in middle-class areas (33.3%), whilst the rest were located in upper-class areas (33.3%). The classification is based on the Hellenic Statistical Authority (HESA, 2015).

3.2. Variables

Key demographic characteristics of individuals were included in the questionnaires after reviewing major socio-epidemiological surveys (Kawachi and Berkman, 2000). These variables constitute critical physical health determinants such as age, sex, LGBT status, and immigration status (Kawachi and Berkman, 2000). Also included in the questionnaires were economic indicators such as employment status (i.e., employed; unemployed but actively looking for a job; unemployed but not looking for a job) and annual personal income (Berkman, Kawachi, and Glymour, 2014). The latter variable made it possible to classify individuals as living below the poverty threshold in Greece in each one of the three data gathering periods. Moreover, the questionnaires also sought information on homelessness status and period of time spent utilising soup kitchens' services to receive a meal. In addition, the study collected information on disability and/or long-term health conditions (Berkman, Kawachi, and Glymour, 2014). Information on illicit drug consumption in the last month, such as cannabis, speed, mephedrone, cocaine, crystal meth, ecstasy, heroin, LSD and magic mushrooms, was included in the questionnaires (Drydakis, 2022c).

Self-reported physical health status was captured through the SF-36 General Health dimension (Ware, Kosinski, and Gandek, 2004) and the EQ-VAS (European Quality of Life Visual Analogue Scale) (Aitken, 1969). The SF-36 General Health dimension is a component of the 36-Item Short Form Health Survey, which constitutes the most widely used measure of self-reported general physical health-related quality of life in population-based studies (Ware, Kosinski, and Gandek, 2004; Ware, 2000). The SF-36 General Health dimension is utilised to assess perceived self-reported physical health through five items, such as whether people believe they are 'in good health, get sick a little easier than other people, and expect their health to get worse' (Ware, 2000). In the present study, the SF-36 General Health dimension was standardised to a T-score using the

standard SF-36 scoring algorithms described by the developers (Ware, Kosinski, and Gandek, 2004); higher values reflected better-perceived physical health status. The literature indicates that the SF-36 General Health dimension provides valid and reliable patterns (Ware, 2000).

Moreover, self-reported physical health status was measured through the European Quality of Life Visual Analogue Scale (EQ-VAS), which records individuals' physical health on a vertical and visual analogue scale with endpoints labelled 'Best imaginable health state' and 'Worst imaginable health state' (McDowell, 2006; Priestman and Baum, 1976; Aitken, 1969). The measurement acts as a quantitative measure which summarises overall health and mirrors the individual's perspective (Feng, Parkin, and Devlin, 2014). Higher values suggest increasing levels of good health (McDowell, 2006). The literature finds that the EQ-VAS scale correlates with other self-reported general physical health status scales such as the 36-Item Short Form Health Survey (Lubetkin, Jia, and Gold, 2004). Studies have indicated that the EQ-VAS scale provides high levels of validity and reliability (Feng, Parkin, and Devlin, 2014; McDowell, 2006).

Finally, to measure mental health, the study utilised the 36-Item Short Form Health Survey's Mental Health dimension (Ware, Kosinski, and Gandek, 2004; Ware, 2000). The SF-36 Mental Health dimension constitutes an element of the 36-Item Short Form Health Survey capturing perceived mental health over the previous month (Ware, Kosinski, and Gandek, 2004; Ware, 2000). Mental health is evaluated through five items, e.g. whether people believe that they 'feel happy, calm, and peaceful' (Ware, 2000). The SF-36 Mental Health dimension was standardised to a T-score (Ware, Kosinski, and Gandek, 2004), with increased scores reflecting better-perceived mental health (Ware, 2000).

4. Descriptive statistics

Table 2 presents the descriptive statistics, whilst Panel I illustrates data for the period 2012, and Panel II displays data for the period 2017. Furthermore, Panel III puts forth data for the period 2021, whilst Panel IV pools the three data sets, and Panel V presents the statistical difference tests between the periods 2012 and 2021.

[Table 2]

The pooled data indicate that 45% of the population are women, 32.8% are immigrants, and 7.7% are LGBT people. The mean age of the population is 37. The outcomes suggest that 68.3% of the population are unemployed, 28.5% are economically inactive, and the rest are employed. It is found that 31.3% of the population have been using soup kitchen services for more than three years, whilst 76.1% live below the poverty threshold, and 32.1% are homeless. The outcomes indicate that 20.9% of the population have a disability and/or a long-term health condition, and 14.8% use illicit drugs.

In Panels I and III, it is found that, in 2012, the sample consisted of older people (36.6 vs 34.5, $t=2.5$; $p<0.01$), more women (46.4 vs 40.9, $z=1.7$; $p<0.10$), more immigrants (33.3 vs 26.9, $z=2.1$; $p<0.05$), more LGBT people (11.6 vs 6.12, $z=2.9$; $p<0.01$), fewer economically inactive people (24.5 vs 30.4, $z=2$; $p<0.05$), and fewer people using soup kitchen services for more than three years (29.5 vs 34.5; $z=1.6$; $p<0.10$) compared to 2021. Moreover, it is found that, in 2012, physical health (SF-36 General Health) was lower compared to 2021 (44.2 vs 48.9, $t=7.8$; $p<0.01$). Similarly, in 2012, when measuring physical health with an additional instrument (EQ-VAS), it is found that physical health was lower compared to 2021 (46 vs 52.8, $t=10.9$; $p<0.01$). In 2012, mental health (SF-36 Mental Health) was lower compared to 2021 (43.4 vs 46.3, $t=3.9$; $p<0.01$).

Table 3 presents a tabulation analysis capturing physical health inequalities. It is found that, for both physical health indicators (i.e. SF-36 General Health and EQ-VAS), women, immigrants, LGBT people, unemployed and economically inactive people, those using soup kitchen services for more than three years, and those living below the poverty threshold, experience lower physical health than the reference categories. Comparable patterns are found for those living with disabilities and/or long-term health conditions, those consuming illicit drugs, and those utilising soup kitchen services in upper or middle-class areas. In all cases, the differences are statistically significant at the 1% level.

[Table 3]

In Table 4, correlation coefficients are offered for both physical health indicators. In Panel I, it is found that there exists a negative correlation between physical health (SF-36 General Health) and older people ($r=-0.37$), women ($r=-0.36$), immigrants ($r=-0.40$), LGBT people ($r=-0.22$), those using soup kitchen services for more than three years ($r=-0.43$) and those living below the poverty threshold ($r=-0.49$). Moreover, a negative correlation is found between physical health and homeless people ($r=-0.41$), those with a disability and/or long-term health condition ($r=-0.36$), and those participating in illicit drug consumption ($r=-0.35$). Additionally, a negative correlation is discovered between physical health and the 2012 period ($r=-0.17$) and people utilising soup kitchen services in lower-class areas ($r=-0.12$). On the other hand, a positive association is found between physical health and employed people ($r=0.16$), good mental health (i.e. SF-36 Mental Health) ($r=0.70$) and the real GDP growth rate ($r=0.20$). In all cases, the correlation coefficients are statistically significant at the 1% level.

In Panel II, comparable correlation coefficients are found if alternative physical health indicators are utilised (i.e., EQ-VAS European Quality of Life Visual Analogue Scale).

[Table 4]

5. Regression analysis

5.1 SF-36 General Health estimates

In Table 5, Models I-III present the SF-36 General Health regression outcomes. In Model I, it is found that the 2012 period is associated with deteriorated physical health ($b=-3.729$; $p<0.01$, or marginal effect= -2.7%). That is, people utilising soup kitchens' services in 2012, i.e., during a period of economic recession, experienced deteriorated physical health compared to the periods 2017 and 2021. Given the estimated patterns, Hypothesis 1 is accepted.

[Table 5]

Moreover, in Model I, it is found that physical health deterioration is associated with older people ($b=-0.216$; $p<0.01$, or m.e.= -17.2%), women ($b=-1.687$; $p<0.01$, or m.e.= -1.6%), immigrants ($b=-2.846$, $p<0.01$, or m.e.= -2.0%), LGBT people ($b=-1.780$; $p<0.01$, or m.e.= -0.2%), unemployed people ($b=-3.839$; $p<0.01$, or m.e.= -5.6%), and economically inactive people ($b=-4.323$; $p<0.01$, or m.e.= -2.6%). Additionally, it is estimated that adverse physical health is associated with the period of time spent using soup kitchen services ($b=-3.844$; $p<0.01$, or m.e.= -2.5%), those living below the poverty threshold ($b=-4.911$, $p<0.01$ or m.e.= -8.0%), and homelessness ($b=-2.394$; $p<0.01$, or m.e.= -1.6%). Furthermore, physical health is negatively associated with disability and/or long-term adverse health ($b=-2.262$; $p<0.01$, or m.e.= -1.0%), illicit drug consumption ($b=-2.954$; $p<0.01$, or m.e.= -0.9%), and those who use soup kitchens in lower-class areas ($b=-1.636$; $p<0.01$, or m.e.= -1.1%) and middle-class areas ($b=-1.119$; $p<0.05$, or m.e.= -0.7%). The patterns presented in Model I indicate that adverse socio-economic characteristics at the individual-level, as well as minority demographic characteristics are associated with deteriorated physical health. Hypothesis 2 is thus accepted.

Model II includes information on mental health (i.e. SF-36 Mental Health). It is found that good mental health is associated with better physical health (i.e. SF-36 General Health) ($b=0.340$; $p<0.01$, or m.e.= 32.7%). Regarding the rest of the estimates, although they become lower in magnitude compared to those of Model I, it is still found that the 2012 period is associated with deteriorated physical health ($b=-3.017$; $p<0.01$, or m.e.= -2.2%). Moreover, it is discovered that adverse physical health is associated with women ($b=-0.737$; $p<0.05$, or m.e.= -0.7%), immigrants ($b=-2.006$, $p<0.01$, or m.e.= -1.4%), LGBT people ($b=-1.043$; $p<0.05$, or m.e.= -0.1%), unemployed people ($b=-2.221$; $p<0.01$, or m.e.= -3.2%), economically inactive people ($b=-2.557$; $p<0.01$, or m.e.= -1.5%), the period of time spent using soup kitchen services ($b=-2.860$; $p<0.01$, or m.e.= -1.9%), those living below the poverty threshold ($b=-3.281$, $p<0.01$ or m.e.= -5.3%), homelessness ($b=-1.617$; $p<0.01$, or m.e.= -1.1%), disabled and/or long-term health impaired people ($b=-1.258$; $p<0.01$, or m.e.= -0.5%), those who consume illicit drugs ($b=-2.237$; $p<0.01$, or m.e.= -0.7%), and those who use soup kitchens located in lower-class areas ($b=-0.867$; $p<0.10$, or m.e.= -0.6%). Given the new estimates, Hypotheses 1 and 2 can be re-accepted.

Model III, instead of the period variable, incorporates information on the real GDP growth rate. The new estimates indicate that the real GDP growth rate is associated with improved physical health ($b=0.237$; $p<0.01$, or $m.e.=0.2\%$). The rest of the estimates are comparable to those of Models I and II. Hence, Hypotheses 1 and 2 can be re-accepted.

5.2 EQ-VAS (*European Quality of Life Visual Analogue Scale*) estimates

In Table 5, Models IV-VI present additional physical health estimates utilising the EQ-VAS instrument. Model IV illustrates that the 2012 period is associated with deteriorated physical health ($b=-5.513$; $p<0.01$, or $m.e.=-3.8\%$), and so Hypothesis 1 is accepted. Moreover, adverse physical health is associated with older people ($b=-0.252$; $p<0.01$, or $m.e.=-18.8\%$), women ($b=-2.294$; $p<0.01$, or $m.e.=-2.0\%$), immigrants ($b=-2.674$, $p<0.01$, or $m.e.=-1.7\%$), LGBT people ($b=-2.412$; $p<0.01$, or $m.e.=-0.3\%$), unemployed people ($b=-3.656$; $p<0.01$, or $m.e.=-5.0\%$), economically inactive people ($b=-3.905$; $p<0.01$, or $m.e.=-2.2\%$), the period of time spent using soup kitchen services ($b=-1.964$; $p<0.01$, or $m.e.=-1.2\%$), living below the poverty threshold ($b=-5.054$, $p<0.01$ or $m.e.=-7.7\%$), homeless people ($b=-1.812$; $p<0.01$, or $m.e.=-1.1\%$), disabled and/or long-term health impaired people ($b=-1.622$; $p<0.01$, or $m.e.=-0.6\%$), those consuming illicit drugs ($b=-2.572$; $p<0.01$, or $m.e.=-0.7\%$), and those who use soup kitchens in lower-class areas ($b=-2.577$; $p<0.01$, or $m.e.=-1.6\%$) and in middle-class areas ($b=-3.056$; $p<0.01$, or $m.e.=-2.0\%$). Hypothesis 2 is thus accepted.

In Model V, by including information on mental health (i.e. SF-36 Mental Health), Hypotheses 1 and 2 can be re-accepted. Similarly, in Model VI, by including information on the real GDP growth rate, instead of time period, Hypotheses 1 and 2 can also be re-accepted.

6. Discussion and conclusions

6.1 Main findings

This study found that economic recessions are associated with a deterioration in the physical health of individuals who experience food insecurity and rely on free meals from soup kitchens. As discussed, a combination of reductions of individual and public spending budgets on health promotion might be associated with health deterioration (Parmar, Stavropoulou, and Ioannidis, 2016; Drydakakis, 2015; Ruhm, 2015). If economic recessions are negatively associated with physical health for people experiencing food insecurity, then enhancing social protection policies would be appropriate. Family support programmes, minimum-income benefits, long-term unemployment benefits, debt relief programmes, active labour market programmes, and access to adequate health care services provide ways of preventing or mitigating the adverse effects of economic recessions on physical health (Drydakakis, 2015; 2021b). Low-income populations should be provided with

resources to purchase those things that are needed for good health, including sufficient quantities of quality food and health care services, as well as access to information on appropriate health-promoting practices (World Bank, 2015).

Moreover, the study found that physical health deteriorations among food-insecure people were associated with older age, female gender, immigration status, disability and/or long-term health conditions, LGBT status, unemployment, economic inactivity, homelessness, living below the poverty threshold, long-term food dependency, illicit drug consumption, and residing in low- and middle-class areas. These findings support the acceptance of the proposed Intersectional Model of Health Inequalities for individuals experiencing food insecurity. The model emphasizes the importance of considering various factors, from macro-level economic conditions to individual-level factors, when addressing health inequalities among low-income people. Health inequalities in marginalised populations might be shaped through an interplay that involves a vector of socio-economic characteristics within specific sociohistorical contexts (Yuval-Davis, 2015). There are multiple ways in which low-income populations may be marginalised and excluded by power systems that sustain, for instance, sexism, racism, ageism and homophobia (Nash, 2008). Hence, there are certain vulnerable population groups which might enjoy better health outcomes in one system of power, such as low-income men vs low-income women, whilst they might suffer in another system of power, such as low-income men vs wealthier men (Gkiouleka et al., 2018; Nash, 2008).

Intersectionality should encourage policymakers to evaluate the substantial heterogeneity within low-income populations, and the interplay of macro-level with individual-level factors producing diverse health patterns (Sen, Iyer, and Mukherjee, 2009). The outcomes of this study highlighted that a vector of policies is needed to handle the unique adverse challenges that low-income people experience in relation to exclusion, long-term poverty and food insecurity. For instance, the greater vulnerability of immigrants and sexual minorities may be explained by factors such as higher insecurity due to lower incomes, debt, and multifaceted stigma and social exclusions, which mainly affect minority groups (Drydakis, 2022b; c). Qualitative studies are essential for gaining a profound and nuanced understanding of the mechanisms that increase vulnerability in minority groups and for determining how these groups prefer to receive support (Tsironis and Almpani, 2018; Douzina-Bakalaki, 2016; Kravva, 2014).

Reducing health inequalities is a long-term commitment that requires sustained effort, resources, and collaboration across sectors (Drydakis, 2022b; Berkman, Kawachi, and Glymour, 2014). The literature indicates that to address economic disparities contributing to health inequalities, policies promoting employment opportunities, especially in marginalized communities, are necessary (Drydakis, 2022b; WHO, 2008; 2012). Moreover, policies should ensure equal access

to healthcare services for all individuals, regardless of their minority or majority status (Berkman, Kawachi, and Glymour, 2014). Additionally, there is a need to implement health education programs targeted at minority populations to raise awareness about preventive measures and healthy lifestyles (Drydakis, 2021a; Berkman, Kawachi, and Glymour, 2014). Policies are also required to implement and enforce anti-discrimination laws and regulations, protecting minority populations from societal bias (Drydakis, 2022a; b; c).

7.2 Limitations and future research

The outcomes of this study require cautious consideration. The study took place in a certain region in Greece which, although accounting for one-third of the country's population, might not represent patterns from other regions. In rural areas, low-income populations may experience unique challenges not captured in the present data set. Similarly, the number of soup kitchens and the generated observations do not necessarily allow for firm generalisations. Thus, new studies with a higher number of participating soup kitchens across the country are necessary for generalisation. Due to resource constraints, it was not feasible to recruit individuals for the research team who had knowledge of more than two languages, namely Greek and English. As a result, only individuals capable of communicating in Greek and/or English were eligible to participate in the study. This non-random selection process should be noted when considering the sample. Hence, new studies should attempt to capture broader populations.

Moreover, participants may have felt a desire to present themselves in a favourable light to the researchers. They may have worried about being judged or stigmatized for their responses, especially when it came to sensitive topics like illicit drug consumption. New studies should attempt to reduce social desirability bias. In addition, the study utilised two physical health inventories. There is a need for new research to utilise information on certain health conditions so as to obtain further insights.

Furthermore, the present study utilised data from an EU member state that had experienced a ten-year recession. Hence, new studies should consider countries where economic deterioration due to the economic crisis was milder than in Greece. Given the nature of the phenomenon under examination, the present study did not utilise longitudinal observations. The estimated patterns might have been impacted by unobserved heterogeneity. Similarly, information on public benefits and other public services support proved unavailable.

The research orientation and outcomes of this study emphasize the need for longitudinal studies in Europe to monitor the impact of economic fluctuations and policy changes on the physical health of vulnerable populations. These studies should compare data from different European countries to identify both commonalities and differences in the socio-economic

determinants of physical health among low-income populations. Additionally, research should evaluate the effectiveness of interventions aimed at improving the physical health of low-income populations, such as nutrition programs, mental health support, or employment initiatives.

7. Conclusions

The study evaluated the socio-economic characteristics influencing the physical health of populations experiencing food insecurity and receiving free meals at soup kitchens in the Prefecture of Attica, Greece. Over a ten-year data collection period, it was found that adverse socio-economic conditions, along with various minority demographic characteristics, were associated with adverse physical health. The research findings of this study should be of interest to European scholars. This study highlights the need for intersectional research to examine how the physical health of vulnerable population groups is influenced by factors such as a country's economic performance, individuals' gender, LGBT status, ethnicity, disability, employment status, homelessness, poverty, long-term food dependency, illicit drug consumption, and geographic regions. The study by proposing the Intersectional Model of Health Inequalities underscores the importance of recognizing the diversity within low-income populations and its impact on physical health inequalities.

References

- Aitken, R. C. B. (1969) Measurement of feelings using visual analogue scales. *Proceedings of the Royal Society Medicine*, 62(10), 989–993.
- Berkman, F. L., Kawachi, I. & Glymour, M. M. (2014) *Social epidemiology*. Oxford: Oxford University Press.
- Bowleg, L. (2013) Once you've blended the cake, you can't take the parts back to the main ingredients: Black gay and bisexual men's descriptions and experiences of intersectionality. *Sex Roles*, 68(11–12), 754–767.
- Braveman, P. & Gottlieb, L. (2014) The social determinants of health: It's time to consider the causes of the causes. *Public Health Reports*, 129(2), 19–31.
- Castañeda, E. & Smith, C. (2023) Conducting research with marginalized populations: Methodological, ethical, and IRB considerations. *Journal of Applied Social Science*, 17(1), 111–131.
- Davis, O. & Geiger, B. (2017) Did food insecurity rise across Europe after the 2008 crisis? An Analysis Across Welfare Regimes. *Social Policy and Society*, 16(3), 343–360.
- Doherty, A. M. & Gaughran, F. (2014) The interface of physical and mental health. *Social Psychiatry and Psychiatric Epidemiology*, 49(5), 673–682.
- Dom, G., Samochowiec, J., Evans-Lacko, S., Wahlbeck, K., Van Hal, G. & McDaid, D. (2016) The impact of the 2008 economic crisis on substance use patterns in the countries of the European Union. *International Journal of Environmental and Research and Public Health*, 13: 122.
- Douzina-Bakalaki, P. (2016) Volunteering mothers engaging the crisis in a soup kitchen of Northern Greece. *Anthropology Matters Journal*, 17(1), 1–24.
- Drydakakis, N. (2015) The effect of unemployment on self-reported health and mental health in Greece from 2008 to 2013: A longitudinal study before and during the financial crisis. *Social Science and Medicine*, 128: 43–51.
- Drydakakis, N. (2021a) Sex workers' self-reported general and mental health in Greece. A repeated cross-sectional study in 2009, 2013 and 2019. *Culture Health and Sexuality*, 24(11), 1514–1530.
- Drydakakis, N. (2021b) *The relationship between recessions and health*. IZA World of Labor No. 283v2. Bonn: IZA World of Labor.
- Drydakakis, N. (2022a) Adverse working conditions and immigrants' general health and depression outcomes: A longitudinal study in Greece. *International Archives of Occupational and Environmental Health*, 95, 539–556.
- Drydakakis, N. (2022b) Social rejection, family acceptance, economic recession, and physical and mental health of sexual minorities. *Sexuality Research and Social Policy*, 19, 1318–1340.
- Drydakakis, N. (2022c) The perceived social rejection of sexual minorities: Substance use and unprotected sexual intercourse. *Drug and Alcohol Review*, 41(6), 1341–1354.
- Drydakakis, N. (2023) Forced labor and health-related outcomes. The case of beggar children. *Child Abuse and Neglect*, 146(December): 106490.
- Feng, Y., Parkin, D. & Devlin, N. J. (2014) Assessing the performance of the EQ-VAS in the NHS PROMs programme. *Quality of Life Research*, 23(3), 977–989.
- Food Research & Action Center (2017) The impact of poverty, food insecurity, and poor nutrition on health and well-being. Washington, D.C.: Food Research and Action Center.
- Giannoni, M., Franzini, L. & Masiero, G. (2016) Migrant integration policies and health inequalities in Europe. *BMC Public Health*, 16, 463.

- Gkiouleka, A., Huijts, T., Beckfield, J. & Bambra, C. (2018) Understanding the micro and macro politics of health: Inequalities, intersectionality and institutions. A research agenda. *Social Science and Medicine*, 200(March), 92-98.
- Grossman, M. (2000) The human capital model, in A.J. Culyer and J.P. Newhouse (Eds.), *Handbook of Health Economics* (vol. 1: 347-408). Oxford: Elsevier.
- Gundersen, C. & Ziliak, J. P. (2015) Food insecurity and health outcomes. *Health Affairs*, 34(11), 1830–1839.
- Hellenic Statistical Authority (HESA, 2015) Distribution of the active population of Attica. Piraeus: Hellenic Statistical Authority.
- Kawachi, I. & Berkman, L. (2000) *Social epidemiology*. New York: Oxford University Press.
- Kelley, K., Clark, B., Brown, V. & Sitzia, J. (2003) Good practice in the conduct and reporting of survey research. *International Journal for Quality in Health Care*, 15(3), 261-266.
- Kravva, V. (2014) Politicizing hospitality: The emergency food assistance landscape in Thessaloniki. *Hospitality and Society*, 4(3), 249-274.
- Kuo, I., Turner, M., Trezza, C. & Peterson, J. (2017) Substance use among women in poverty, in O'Leary, A., and Frew, P. (Eds), *Poverty in the United States*. Cham: Springer.
- Loopstra, R., Reeves, A. & Stuckler, D. (2015) Rising food insecurity in Europe. *The Lancet*, 385, 2041.
- Lubetkin, E. I., Jia, H. & Gold, M. R. (2004) Construct validity of the EQ-5D in low-income Chinese American primary care patients. *Quality Life Research*, 13(8), 1459–1468.
- Lustig, D. C. & Strauser, D. R. (2007) Causal relationships between poverty and disability. *Rehabilitation Counseling Bulletin*, 50(4), 194–202.
- MacGuire, F. A. S. (2020) Reducing health inequalities in aging through policy frameworks and interventions. *Frontier in Public Health*, 8(July), 315.
- Manandhar, M., Hawkes, S., Buse, K., Nosrati, E. & Magar, V. (2018) Gender, health and the 2030 agenda for sustainable development. *Bulletin of the World Health Organization*, 96(9), 644-653.
- McDowell, I. (2006) *Measuring health: A guide to rating scales and questionnaires*. Oxford: Oxford University Press.
- Nash, J.C. (2008) Re-thinking intersectionality. *Feminist Review*, 89 (1), 1-15.
- National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research (1978) *The Belmont report: Ethical principles and guidelines for the protection of human subjects of research*. Bethesda, MD: The Commission.
- Ohrnberger, J., Fichera, E. & Sutton, M. (2017) The relationship between physical and mental health: A mediation analysis. *Social Science and Medicine*, 195, 42–49.
- Omerov, P., Craftman, Å. G., Mattsson, E. & Klarare, A. (2020) Homeless persons' experiences of health- and social care: A systematic integrative review. *Health and Social Care in the Community*, 28(1), 1-11.
- Parmar, D., Stavropoulou, C. & Ioannidis, P. A. J. (2016) Health outcomes during the 2008 financial crisis in Europe: Systematic literature review. *The British Medical Journal*, 354(i4588), 1-11.
- Priestman, T. J. & Baum, M. (1976) Evaluation of quality of life in patients receiving treatment for advanced breast cancer. *Lancet*, 307(7965), 899-900.
- Rechel, B. (2019) Funding for public health in Europe in decline? *Health Policy*, 123(1): 21-26.
- Ruhm, C. J. (2015) Recessions, healthy no more? *Journal of Health Economics*, 42, 17–28.

- Rossen, L. M. (2014) Neighbourhood economic deprivation explains racial/ethnic disparities in overweight and obesity among children and adolescents in the U.S.A. *Journal of Epidemiology and Community Health*, 68(2), 123-129.
- Sen, G., Iyer, A. & Mukherjee C. (2009) A methodology to analyse the intersections of social inequalities in health. *Journal of Human Development Capabilities*, 10(3), 397–415.
- Sherin, K., Adebajo, T. & Jani A. (2019) Social determinants of health: Family physicians' leadership role. *American Family Physician*, 99(8), 476-477.
- Sotiropoulos, D. & Bourikos, D. (2014) Economic crisis, social solidarity and the voluntary sector in Greece. *Journal of Power, Politics and Governance*, 2(2), 33-53.
- Stoolmacher, S. I., Tuchman, M. & Wise, C. P. (2011) *Mission possible: How you can start and operate a soup kitchen*. Lawrenceville, NJ: Open Door Publications.
- Tsironis, C. N. & Almpiani, C. (2018) Living in poverty, living with poverty: The community workers' conceptions on child poverty in Greece. *Palgrave Communications*, 4(59), 1-10.
- UNDESA (2015). Income poverty in old age: An emerging development priority. Washington, D.C: United Nations.
- Vaalavuo, M. (2016) Deterioration in health: What is the role of unemployment and poverty? *Scandinavian Journal of Public Health*, 44(4), 347–353.
- Vlassopoulos, A., Filippou, K., Pepa, A., Malisova, O., Xenaki, D. & Kapsokefalou, M. (2021) Healthy diet assistance for the most deprived in post-crisis Greece: An evaluation of the state food provision program. *Sustainability*, 13, 99.
- Walker, E. R. & Druss, B. G. (2017) Cumulative burden of comorbid mental disorders, substance use disorders, chronic medical conditions, and poverty on health among adults in the United States. *Psychology Health and Medicine*, 22(6), 727-735.
- Ware J. (2000) SF-36 health survey update. *Spine*, 25(24), 3130–3139.
- Ware, J. E., Kosinski, M. & Gandek, B. (2004) SF-36 health survey manual and interpretation guide. Lincoln, RI: Qualitymetric Incorporated.
- WHO (2008) Closing the gap in a generation: Health equity through action on the social determinants of health. Geneva: World Health Organization.
- WHO (2012) Health policy responses to the financial crisis in Europe. Copenhagen: World Health Organization.
- WHO (2016) Women's health and well-being in Europe: Beyond the mortality advantage. Geneva: World Health Organization.
- WHO (2017) Global strategy and action plan on ageing and health (2016-2020). Geneva: World Health Organization.
- World Bank, (2015) Ending poverty and sharing prosperity. Washington, DC.: World Bank.
- Yuval-Davis, N. (2015) Situated intersectionality and social inequality. *Raisons Politiques*, 58(2), 91-100.

Table 1. Socio-economic and well-being indicators. Greece versus EU-27.			
	Year 2012	Year 2017	Year 2021
People at risk of poverty or social exclusion (%)			
Greece	34.6	34.8	28.8
EU-27	24.9	22.5	21.5
Severe housing deprivation (%)			
Greece	7.0	6.0	5.8
EU-27	5.5	4.5	4.3
Real GDP growth (%)			
Greece	-7.1	1.1	8.3
EU-27	-0.7	2.8	5.3
Real GDP per capita growth (%)			
Greece	-6.6	1.3	8.8
EU-27	-0.9	2.6	5.4
Unemployment (%)			
Greece	24.8	21.8	14.7
EU-27	11.1	8.3	7.0
Health care expenditure (%)			
Greece	8.9	8.1	9.5
EU-27	n/a	9.8	n/a
(Good) Self-reported health (%)			
Greece	28.1	29.0	31.3
EU-27	45.9	47.9	47.0
<i>Notes: Eurostat data base.</i>			

Table 2. Descriptive statistics.

	Panel I 2012 period	Panel II 2017 period	Panel III 2021 period	Panel IV Total sample	Panel V Difference tests: 2012 vs 2021
Age (c.)	36.67 (13.28)	39.33 (13.99)	34.56 (12.15)	37.00 (13.35)	t=2.58***
Women (%)	46.47 (0.49)	47.00 (0.49)	40.91 (0.49)	45.00 (0.49)	z=1.75*
Immigrants (%)	33.33 (0.47)	37.38 (0.48)	26.91 (0.44)	32.87 (0.46)	z=2.18**
LGBT people (%)	11.61 (0.32)	5.44 (0.22)	6.12 (0.24)	7.76 (0.26)	z=2.99***
Unemployed people (%)	72.00 (0.44)	65.51 (0.47)	67.61 (0.46)	68.36 (0.46)	z=1.49
Economically inactive people (%)	24.57 (0.43)	30.67 (0.46)	30.41 (0.46)	28.55 (0.45)	z=2.05**
More than three years of utilizing soup kitchens services (%)	29.52 (0.45)	30.49 (0.46)	34.57 (0.47)	31.37 (0.46)	z=1.69*
Living below the poverty threshold (%)	73.14 (0.44)	80.03 (0.40)	75.05 (0.43)	76.19 (0.42)	z=0.68
Homeless people (%)	31.61 (0.46)	34.66 (0.47)	29.75 (0.45)	32.15 (0.46)	z=0.62
Disability and/or long-term health condition (%)	20.19 (0.40)	21.41 (0.41)	21.22 (0.40)	20.93 (0.40)	z=0.33
Illicit drug consumption (%)	14.28 (0.35)	17.05 (0.37)	12.69 (0.33)	14.80 (0.35)	z=0.72
SF-36 General Health (c.)	44.20 (8.67)	46.52 (8.78)	48.94 (10.32)	46.45 (9.42)	t=7.82***
EQ-VAS (European Quality of Life Visual Analogue Scale) (c.)	46.04 (8.30)	50.21 (9.20)	52.85 (11.05)	49.57 (9.90)	t=10.99***
SF-36 Mental Health (c.)	43.46 (11.07)	44.52 (10.94)	46.36 (11.94)	44.70 (11.35)	t=3.93***
Observations	525	551	457	1,533	

Notes (c.) Continues variable. Standard deviations are in parenthesis. (***) Statistically significant at the 1%. (**) Statistically significant at the 5%. (*) Statistically significant at the 10%.

Table 3. Descriptive statistics. Physical health inequalities.

	Panel I SF-36 General Health	Panel II EQ-VAS (European Quality of Life Visual Analogue Scale)
Men (n=843)	49.55 (8.39)	52.70 (9.37)
Women (n=690)	42.65 (9.22)	45.74 (9.15)
t-test	15.30	14.63
Greeks (n=1,029)	49.12 (9.28)	52.00 (9.94)
Immigrants (n=504)	40.99 (7.05)	44.57 (9.90)
t-test	17.36	14.69
Non-LGBT people (n=1,414)	47.06 (9.38)	50.21 (9.84)
LGBT people (n=119)	39.15 (6.35)	41.90 (6.85)
t-test	9.01	9.02
Employed people (n=48)	55.31 (10.12)	57.89 (10.52)
Unemployed or economically inactive people (n=1,485)	46.16 (9.26)	49.30 (9.76)
t-test	6.71	5.98
Less than three years of utilizing soup kitchens services (n=1,052)	49.20 (8.60)	51.57 (9.57)
More than three years of utilizing soup kitchens services (n=481)	40.42 (8.25)	45.19 (9.16)
t-test	18.77	12.26
Living above the poverty threshold (n=365)	54.71 (7.05)	57.21 (8.37)
Living below the poverty threshold (n=1,168)	43.86 (8.54)	47.18 (9.10)
t-test	22.02	18.79
Non-homeless people (n=1,040)	49.11 (9.03)	51.77 (9.73)
Homeless people (n=493)	40.83 (7.58)	44.92 (8.56)
t-test	17.63	13.35
No-disability and/or long-term health condition (n=1,212)	48.22 (8.82)	51.00 (9.60)
Disability and/or long-term health condition (n=321)	39.76 (8.58)	44.17 (9.12)
t-test	15.35	11.44
No-illicit drug consumption (n=1,306)	47.83 (8.95)	50.72 (9.67)
Illicit drug consumption (n=227)	38.52 (8.04)	42.93 (8.47)
t-test	14.66	11.39
People utilizing soup kitchen services in middle- or upper-class areas (n=1,033)	47.30 (8.74)	50.61 (9.46)
People utilizing soup kitchen services in lower-class areas (n=500)	44.70 (10.47)	47.42 (10.43)
t-test	5.10	5.97

Notes: Observations n=1,533. Standard deviations are in parenthesis. In all cases, the differences are statistically significant at the 1% level.

Table 4. Correlation coefficients.		
	Panel I SF-36 General Health	Panel II EQ-VAS (European Quality of Life Visual Analogue Scale)
SF-36 General Health	1	
EQ-VAS (European Quality of Life Visual Analogue Scale)	0.81	1
2012 period [^]	-0.17	-0.25
Real GDP growth rate	0.20	0.27
Age	-0.37	-0.36
Women	-0.36	-0.35
Immigrants	-0.40	-0.35
LGBT people	-0.22	-0.22
Employed people ^{^^}	0.16	0.15
More than three years of utilizing soup kitchen services	-0.43	-0.29
Living below the poverty threshold	-0.49	-0.43
Homeless people	-0.41	-0.32
Disability and/or long-term health condition	-0.36	-0.28
Illicit drug consumption	-0.35	-0.27
People utilizing soup kitchen services in lower-class areas ^{^^^}	-0.12	-0.15
SF-36 Mental Health	0.70	0.70
<i>Notes: Observations n=1,533. (^) The reference category is the periods 2017 and 2021. (^^) The reference category is unemployed or economically inactive people. (^^^) The reference category is people utilizing soup kitchen services in middle- or upper-class areas. In all cases, the correlation coefficients are statistically significant at the 1% level.</i>		

Table 5. Regression estimates

	Model I	Model II	Model III	Model IV	Model V	Model VI
	SF-36 General Health			EQ-VAS (European Quality of Life Visual Analogue Scale)		
2012 period [^]	-3.729 (0.337)***	-3.017 (0.301)***	-	-5.513 (0.374)***	-4.607 (0.329)***	-
Real GDP growth rate	-	-	0.237 (0.024)***	-	-	0.345 (0.027)***
Age	-0.216 (0.058)***	-0.085 (0.054)	-0.085 (0.054)	-0.252 (0.070)***	-0.086 (0.060)	-0.086 (0.060)
Age-squared	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.000 (0.001)	0.000 (0.001)	0.000 (0.001)
Women	-1.687 (0.377)***	-0.737 (0.332)**	-0.722 (0.330)**	-2.294 (0.432)***	-1.085 (0.365)***	-1.064 (0.365)***
Immigrants	-2.846 (0.366)***	-2.006 (0.313)***	-1.887 (0.312)***	-2.674 (0.425)***	-1.606 (0.359)***	-1.433 (0.360)***
LGBT people	-1.780 (0.527)***	-1.043 (0.445)**	-1.166 (0.449)**	-2.412 (0.658)***	-1.475 (0.550)***	-1.696 (0.568)***
Unemployed ^{^^}	-3.839 (0.837)***	-2.221 (0.831)***	-2.480 (0.844)***	-3.656 (0.999)***	-1.598 (0.965)*	-1.966 (0.967)**
Economically inactive people ^{^^}	-4.323 (0.881)***	-2.577 (0.864)***	-2.875 (0.876)***	-3.905 (1.058)***	-1.685 (1.007)*	-2.093 (1.009)**
More than three years of using soup kitchen services	-3.844 (0.396)***	-2.860 (0.343)***	-2.978 (0.342)***	-1.964 (0.425)***	-0.712 (0.392)*	-0.872 (0.392)**
Living below the poverty threshold	-4.911 (0.441)***	-3.281 (0.430)***	-3.231 (0.430)***	-5.054 (0.519)***	-2.982 (0.455)***	-2.887 (0.456)***
Homeless people	-2.394 (0.383)***	-1.617 (0.335)***	-1.583 (0.333)***	-1.812 (0.453)***	-0.824 (0.389)**	-0.771 (0.390)**
Disability and/or long-term health condition	-2.262 (0.461)***	-1.258 (0.396)***	-1.287 (0.396)***	-1.622 (0.508)***	-0.345 (0.441)	-0.381 (0.443)
Illicit drug consumption	-2.954 (0.521)***	-2.237 (0.431)***	-2.122 (0.434)***	-2.572 (0.582)***	-1.660 (0.491)***	-1.496 (0.495)***
Soup kitchens in lower-class areas ^{^^^}	-1.636 (0.572)***	-0.867 (0.498)*	-0.890 (0.498)*	-2.577 (0.641)***	-1.599 (0.538)***	-1.638 (0.544)***
Soup kitchens in middle-class areas ^{^^^}	-1.119 (0.555)**	-0.591 (0.506)	-0.486 (0.508)	-3.056 (0.647)***	-2.384 (0.558)***	-2.224 (0.568)***
SF-36 Mental Health	-	0.340 (0.018)***	0.340 (0.018)***	-	0.432 (0.018)***	0.434 (0.018)***
Soup kitchens fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
F	132.46	159.65	157.77	88.31	135.30	128.86
Prob > F	0.000	0.000	0.000	0.000	0.000	0.000
R ²	0.54	0.64	0.64	0.46	0.61	0.60

Notes: Observations n=1,533. ([^]) The reference category is the periods 2017 and 2021. (^{^^}) The reference category is employed people. (^{^^^}) The reference category is people utilizing soup kitchen services in upper-class areas. Robust standard errors are in parenthesis. (***) Statistically significant at the 1%. (**) Statistically significant at the 5%. (*) Statistically significant at the 10%.