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ORIGINAL PAPER

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The Effects of Unemployment and Economic Distress on Depression Symptoms

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ABSTRACT

Introduction: The financial crisis in Greece had its strongest impact on unemployment, which led to exacerbation of shrinking incomes and depression symptoms. **Aim:** To investigate the combined effects of unemployment and economic distress on the Greek population mental health in times of economic crisis. **Material and Methods:** A cross-sectional study was conducted in the Piraeus Manpower Employment Organization (OAED), during September-December 2017, with 21,600 unemployed people records. A random sample was selected among unemployed who attended this entity. A questionnaire was structured including questions on the unemployed' sociodemographic characteristics, the Index of Personal Economic Distress (IPED), and the CES-D (Center for Epidemiological Studies -Depression) scale. Descriptive and inductive statistics were performed in order to find the statistical significance of differences. Binary logistic regression was realized to investigate the associations of unemployment and economic distress as prognostic factors for the experience of symptoms associated with depression. **Results:** Totally, 130 unemployed participated in the study. 67.7% was female, the mean age was 37.8 years and 47.7% had a secondary educational level. A significant reduction in household monthly income before and after unemployment was observed ($p=0.001$). The majority of sample was long-term unemployed and 42.3% was short-term. The mean score of IPED was 12, meaning great economic distress. Moreover, based on CES-D score 63.8% of unemployed presented elevated depression and 36.2% no symptoms of depression. Positive correlation was found between the duration of unemployment with IPED ($r=0.565$) and with CES-D score ($r=0.173$). The logistic regression showed that the likelihood of expressing depression was influenced by increasing IPED ($OR=1.089$) and du-

ration of unemployment ($OR=1.322$). **Conclusions:** The duration of unemployment and economic hardship led to a higher risk of depressive symptoms, thus policy actions must place greater emphasis on providing additional support through the creation of a more adequate and effective integrated social and health care network. **Keywords:** unemployment, economic hardship, mental health, Greece.

1. INTRODUCTION

The global economic crisis has become a worldwide problem, influencing many of the key social determinants of health, both through changes to living conditions and to public spending. Periods with serious economic downturns are characterized by a rise in unemployment, reductions in income as well as in health and social care spending.

People who lose their job experience prolonged financial hardship and deterioration in their mental health status. Unemployment is associated with an increase in distress and psychosomatic symptoms, anxiety, depression, melancholy, feeling of dependency, inability to solve routine problems, self-dissatisfaction and lower self-esteem (1-5). In those context World Health Organization signaled that affective disorders are expected to be second in frequency of appearance, after ischemic heart disease by 2020 (6).

Greece is facing an extremely severe economic crisis by 2008 which led the country in 2010 under the supervision of European Commission, European Central Bank and the International Monetary Fund, signing a series of economic adjustment programs as financial rescue (7-9). In 2008, the Gross Domestic Product (GDP) per capita in Greece was estimated at €21,800 and

reached €17,400 in 2017 (10). Financial crisis has strong impact on labor market, since the unemployment was estimated at 7.8% of active population in 2008 and reached 21.5% in 2017 (10). Similar are the data as far as long-term unemployment (i.e., more than 12 months of continued unemployment) is concerned, where in 2008 was 3.7% and reached 17% in 2016 (10). Moreover, public health expenditure per capita was estimated at €1.389 in 2009 and reached €789 in 2016 (11).

In Greece, plenty of studies have been conducted to examine the effects of economic crisis on the Greek population health status, mental health as well as on health care access to and related resources. Specifically, several studies reveal an increase in people who report their health as poor due to the economic crisis (12-14). Other studies report a worsening in the Greek population' mental health as the prevalence of major depression was 3.2% in 2008 and reached 8.2% in 2011 (14-16). Moreover, literature searches show an increase of 39.2% in suicides between 2008 and 2015 (17) and a significant rise of people reporting unmet medical and dental needs due to reductions in access to healthcare (10, 12, 13).

To the best of our knowledge, only a longitudinal study has been conducted from 2008 to 2013 examining the relationship between unemployment and mental health of the Greek population (18), without pinpointing the effect of economic distress. Thus, the aim of this paper is to investigate the combined effects of unemployment and economic distress on Greek population' mental health in times of economic crisis.

2. AIM

To investigate the combined effects of unemployment and economic distress on the Greek population mental health in times of economic crisis.

3. MATERIAL AND METHODS

This study was performed in Piraeus city where the major commercial and touristic port of Greece is located and is the largest (in passenger) port of Europe (19). Piraeus geographically belongs to the Attica region and is one among the highest populated cities of Greece (17).

Study design and sample selection

A cross-sectional study has been conducted in September-December 2017. The study held in the Piraeus Manpower Employment Organization (OAED) which is the only entity located in the city. OAED is the national employment agency with numerous entities across the country, responsible to promote the employment and support the unemployed population with social benefits (20). National data in 2017 report 163,688 inhabitants and 21,600 unemployed people in Piraeus. Thus, the representative sample should be 378 unemployed in order to achieve a 95% confidence level, 50% response distribution and 5% margin of error (21). A random sample was selected among unemployed people who attended the Piraeus OAED, while waiting to be served. Individuals were informed on the study objectives and scope and were asked if they wanted to participate, providing an informed verbal consent. The study was undertaken by the University of Peloponnese and has been

approved by the Ethics Committee of the School of Social Sciences as well as the administration of OAED.

Study Instruments

An anonymous questionnaire was structured in order to ensure confidentiality, focused on the economic distress and the experience of symptoms associated with depression. The questionnaire included three sections. The first section consisted of eight questions regarding the unemployed individual's sociodemographic such as gender, age, education level, employment status before job loss, living arrangement, house living and household monthly income before and after unemployment. Economic distress was investigated in the second section, using the Index of Personal Economic Distress (IPED), which is a self-reported instrument that encompasses eight questions describing unemployed persons difficulty in fulfilling their daily household financial demands during the last six months. Should be noted that one more question was added in the IPED regarding the individual's out of pocket health spending. Responses were made on a three-point-scale, reflecting frequency dimensions: never (1), sometimes (2) and often (3). The third section included questions about the experience of depressive symptoms, by using the CES-D (Center for Epidemiological Studies -Depression) scale, containing 20 items, rated on a 4-point scale ranging from 0 (rarely or none of the time) to 3 (most or all of the time). The possible range of scores is 0 to 60, with higher scores indicating the presence of more depressive symptoms and a cutoff score of 16 identifying depressed individuals (22). Both instruments have been validated by Madianos et al. (23, 24).

Statistical Analysis

For the assessment of the questionnaire internal consistency, the coefficient a Cronbach was used. To describe the sample, descriptive statistics (mean, standard deviation, absolute number and percentages) were performed. The variables are normally distributed and parametric test in order to explore any differences was chosen. The statistical significance of difference between two related groups was assessed using paired t-test and between two independent groups using Student's t-test. Correlation between duration of unemployment, IPED and CES-D scores was assessed. Binary logistic regression analysis using the Enter method was conducted in order to investigate the associations of unemployment and economic distress (independent variables) as prognostic factors for the experience of symptoms associated with depression (dependent variable). Differences in results at the $p < 0.05$ level were considered statistically significant. Data were computed and analyzed using the Statistical Package for the Social Sciences, Version 25.

4. RESULTS

The total sample was 130 unemployed who accepted to participate in the survey. However, 183 cases refused to be interviewed and 65 were excluded from our analysis due to not completion over 50% of the questionnaire (i.e. missing data). The majority of the sample (Table 1) was female, had a secondary educational level, was employee before job loss and lived in their own house. The distribution of respondents by age was the following: under 25 years (15%), 25-34

	N	%
Gender		
Male	42	32.3
Female	88	67.7
Mean Age = 37.8 (S.D.10.7)		
Education level		
Compulsory	11	8.5
Secondary	62	47.7
Tertiary	42	32.3
Postgraduate	9	6.9
No answer	6	4.6
Employment status before job loss		
Worker	17	13.1
Employee	97	76.2
Self-employed	14	10.7
Living arrangement		
Alone	33	25.4
Spouse / partner	41	31.5
With parents	51	39.2
No answer	5	3.9
House living		
Owned	95	73.1
Renting	35	26.9

Table 1. Sociodemographic characteristics of the sample

years (27.5%), 35-44 years (30%), 45-54 years (18.3%) and 55-64 years (9.2%).

As shown in Figure 1, the household monthly income was decreased after unemployment and approximately 19% of unemployed stated that they had not any other sources of income. Statistical significant difference was found between household monthly income before and after unemployment ($p = 0.001$).

The duration of unemployment was separated in short-term where the mean was 4.1 (± 2.8) months and in long-term where the mean was 3.2 (± 2.3) years. Thus, 57.7% was long-term unemployed and the rest percentage (42.3%) was short-term.

The elaboration of IPED reliability was performed using Cronbach's alpha coefficient score which show acceptable inter-item reliability (0.927). Sample majority highlighted that they were often unable to pay the public utility/bills regularly and cannot afford health care expenses (Table 2). The mean score of IPED was 12 (± 5.8) meaning great economic distress. Statistical significant differences were found between IPED and short-term or long-term unemployment ($p = 0.006$). The mean score of IPED for short-term unemployed was 10.9 (± 5.5) and for long-term was 13.7 (± 5.7). Also, the duration of unemployment is positively correlated with IPED ($r = 0.565$), meaning that as unemployment increases, the economic difficulties also increases.

	Percentage
Unable to pay the public utility/bills regularly (electricity, telephone, etc.)	40
Difficulties in paying installments of bank loans	13.1
Not capable of paying the minimum installment of credit card	10
Difficulties in paying installments of car	5.4
Delaying to pay the rent	16.9
Not enough money to be spent for education tuition	14.6

Cannot afford the expenses for clothing, etc.	29.2
Paying the minimum for food, beverages, etc.	33.1
Cannot afford health care expenses	33.8

Table 2. Index of Personal Economic Distress (responses of often)

The assessment of CES-D scale internal consistency was very good, with Cronbach's alpha equaling 0.872. The mean of CES-D score was 19.9 (± 10.8) with maximum value 53 and minimum 0. Using the conventional cutoff score of 16 ($< 16, \geq 16$) recommended by Radloff (22), the percentage of unemployed with elevated depression was 63.8% and with no symptoms of depression was 36.2%. Association was found between duration of unemployment with CES-D score ($r = 0.173$), meaning that as unemployment increases, the symptomatology of depression also increases.

Aiming to determine how the duration of unemployment and economic distress influence the experience of symptoms associated with depression, binary logistic regression analysis was conducted (Table 3). The logistic regression model was statistically significant, $\chi^2 = 14,287, p < 0.05$. The model explained 17.0% (Nagelkerke R^2) of the variance in CES-D cut off points and correctly classified 62.0% of cases. Increasing IPED was associated with an increased likelihood of expressing depression (OR = 1.089), and increasing duration of unemployment was associated with an increase in the likelihood of expressing depression (OR = 1.322).

	β	Sig.	Exp(B)	95% C.I. for EXP(B)	
				Lower	Upper
IPED	0.085	0.047	1.089	1.001	1.184
Duration of unemployment	0.279	0.048	1.322	0.979	1.785
Constant	-2.618	0.076	0.073		

Table 3. Risk of depression among the unemployed, logistic regression analysis

5. DISCUSSION

The present study is a first attempt to turn attention to unemployment and economic distress as risk factors for expressing depressive symptoms. According to the study results, approximately 7 out of 10 unemployed were women and a half had secondary educational level. The majority belonged to 25-34 and 35-44 years age groups and was long-term unemployed. Significant reductions in the household monthly income after job loss were observed and unemployed individuals were in high economic distress, mostly the long-term ones. High prevalence of depressive symptoms has been found (approximately 6 out of 10 participants). Also, our findings highlighted an association between unemployment and mental health problems, meaning the higher the unemployment, the higher the depressive symptoms. Moreover, a positive relationship was proved among duration of unemployment, economic distress and the experience of symptoms related with depression.

The study results are consistent with the national and international literature. The relationship between unemployment and economic distress has been found in various studies. In the Godofsky et al. study (25), half of unemployed individuals stated a poor financial situation reporting major difficulties in fulfilling their daily financial household demands. Also, Boire - Holtz et al. (26) high-

lighted that long-term unemployed express their financial hardship because they borrowed money from friends, spent down savings and missed mortgage or rent payments. Similar research revealed that unemployment has direct impact on family resources through lost earnings that might be decreased by 40% and above (27).

As far as the association between unemployment and mental health both EU and US literature confirms contemporaneous relations between unemployment and mental health (18, 28-33). Specifically, in a Greek study is also reported that unemployment seems to be more detrimental to mental health in periods of high unemployment (18). Furthermore, the fact that long-term and female unemployment, economic distress factors such as public utility/bills, nutrition and housing expenses deteriorate mental health is also reported elsewhere (9, 18, 29, 28, 34).

A finding that should be highlighted is that unemployed stated that they cannot afford their healthcare expenses. Should be noted that all Greek population is universally covered for healthcare and specifically the unemployed ones are equally eligible for free access to health care although they are uninsured (35). This result brings to light the rise of unaffordable coinsurance rates and out of pocket expenses, due to significant decreases in public health expenditure and social coverage benefits during the economic crisis. The impact of strict austerity measures on public health spending and on health outcomes has been also supported by other studies (36-42).

There are some potential limitations that merit consideration. First of all, the low response rate of our study has been also discussed in another one reporting that discouraged job seekers due to the difficulties they face in finding a job, may be less inclined to participate in such surveys (43). Also, the fear of stigmatization might be another explanation of incomplete questionnaire of CES-D scale. An additional limitation is that our findings are not generalizable to the country because recruitment sample came only from one OAED entity. However, Piraeus is chosen as the 5th multitudinous city and the first industrial, commercial and tourist port of Greece. So thus, our results seem not to be underestimated and are indicative of the relationship among unemployment, economic distress and experience of depressive symptoms.

6. CONCLUSION

In conclusion, the duration of unemployment has a significant impact on economic distress, which in turn affects the experience of depressive symptoms. A vicious circle among unemployment, financial hardship and poor mental health might become entrenched with the prolongation of economic crisis in Greece. A clear understanding of the aforementioned relationships is vital for policy shaping and decision making focused on strengthening the Greek economy and labor market as well as narrowing socioeconomic inequalities and social exclusion phenomena.

- **Author's contribution:** DL and MG have equally contributed to the conception, design, analysis and interpretation of data as well as to the writing of the manuscript.
- **Conflict of interest:** none declared.

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