

ORIGINAL ARTICLE IN PUBLIC HEALTH

Predictors of physical and mental health among unemployed people in Greece

Dimitra Latsou¹, Mary Geitona²

Affiliations:

¹ P.h.D., Research Fellow, Department of Social and Educational Policy, University of Peloponnese, Corinth, Greece

² Professor, Department of Social and Educational Policy, University of Peloponnese, Corinth, Greece

Corresponding Author:

Dimitra Latsou, PhD, Research Fellow, Damaskinou & Kolokotroni Str. 20100 Corinth, Greece. E-mail:

demilatsou@yahoo.gr

ABSTRACT

Introduction: Unexpected changes such as unemployment are harmful to an individual's physical and mental health. The aim of this study is to examine the socio-demographic factors affecting the health status of unemployed people in Greece.

Methods: A cross-sectional study was conducted in the Manpower Employment Organization entities in the region of Attica, from June 2016 to September 2017. A random sample of 830 unemployed people participated in the study. A self-completion questionnaire was structured including questions on socioeconomic characteristics, physical health based on the Visual Analogue Scale (VAS) and mental health using the CES-D scale. Descriptive and inferential statistics were performed using SPSS 25.

Results: The mean age of participants was 35.8 ± 10.3 years, 66.1% were women and 71.8% was short-term unemployed. The mean VAS before unemployment was 85 ± 13.6 , which

decreased to 68.3 ± 23.1 during unemployment ($P = 0.001$) and 55.2% of the sample suffered from depressive symptoms. As far as the sociodemographic characteristics, women ($b = -8,011$), predisposed individuals to depression ($b = -0.610$), and long-term unemployed ($b = -1.541$) tended to declare poor physical health. In addition, women ($b = 1.795$), older people ($b = 0.179$) and long-term unemployed ($b = 2,658$) were more likely to present predisposition to depression, while parents ($b = -4,511$) and those who reported good physical health ($b = -0.150$) did not show depressive symptoms.

Discussion and Conclusion: Socio-demographic factors, such as gender, age, existence of children and duration of unemployment appeared to significantly influence unemployed individuals' health status. Policymakers should continuously support unemployed people through the development of innovative labor and unemployment policies as well as the expansion of their health coverage and access to healthcare in order to improve their overall health status.

KEY WORDS: Greece; mental health; physical health; sociodemographic factors; unemployment.

Riassunto

Introduzione: Cambiamenti inattesi come la disoccupazione sono dannosi per la salute fisica e mentale di un individuo. L'obiettivo di questo studio è stato quello di esaminare i fattori socio-demografici che influenzano lo stato di salute dei disoccupati in Grecia.

Metodi: Uno studio trasversale è stato condotto presso la Manpower Employment Organization nella regione dell'Attica dal giugno 2016 al settembre 2017. Un campione randomizzato di 830 individui disoccupati ha partecipato allo studio. Un questionario da compilare autonomamente è

stato strutturato con domande sulle caratteristiche socio-demografiche, la salute fisica con la Scala Visuale Analogica (VAS) e la salute mentale con il questionario CES-D. Statistiche descrittive ed inferenziali sono state eseguite con il SPSS 25.

Risultati: L'età media dei partecipanti era di 35.8 ± 10.3 anni, il 66.1% erano donne ed il 71.8% era disoccupato da poco tempo. Il punteggio medio del VAS prima della disoccupazione pari ad 85 ± 13.6 è diminuito a 68.3 ± 23.1 durante lo stato di disoccupazione ($P = 0.001$) ed il 55.2% del campione soffriva di sintomi depressivi. Per quanto riguarda le caratteristiche socio-demografiche, il sesso femminile ($b = -8,011$), predisponeva gli individui alla depressione ($b = -0.610$), mentre i disoccupati di lunga data tendevano a riferire uno scarso stato di salute fisica ($b = -1.541$). In aggiunta, le donne ($b = 1.795$), gli anziani ($b = 0.179$) ed i disoccupati di lunga data ($b = 2,658$) avevano una probabilità maggiore di essere predisposti alla depressione, mentre i genitori ($b = -4,511$) e quelli che riferivano un buon stato di salute ($b = -0.150$) non hanno evidenziato sintomi di depressione.

Discussione e Conclusione: Fattori socio-demografici come il sesso, l'età, la presenza di bambini e la durata dello stato di disoccupazione hanno influenzato in modo significativo lo stato di salute degli individui disoccupati. I decisori politici dovrebbero continuamente supportare i disoccupati attraverso lo sviluppo di politiche innovative per il lavoro così come aumentare la copertura sanitaria e l'accesso alle cure per migliorare il loro stato di salute complessiva.

TAKE-HOME MESSAGE: Almost 40% of the unemployed people in this Greece-based study, reported from moderate to poor physical health and more than 50% of our sample showed

depressive symptoms. Socio-demographic factors, such as gender, age, existence of children and duration of unemployment appear to significantly influence unemployed individuals' health status.

Competing interests: none declared

Copyright © 2019 Dimitra Latsou et al.

Edizioni FS Publishers

This is an open-access article distributed under the Creative Commons Attribution (CC BY 4.0) License, which permits unrestricted use, distribution, and reproduction in any medium provided the original work is properly cited. See <http://www.creativecommons.org/licenses/by/4.0/>.

Cite this article as: Latsou D, Geitona M. Predictors of physical and mental health among unemployed people in Greece. [published online ahead of print January 30, 2020]. *J Health Soc Sci*. doi10.19204/2020/prdc9

DOI 10.19204/2020/prdc9

Received: 20 December 2019 **Accepted:** 15 January 2020 **Published Online:** 30 January 2020

INTRODUCTION

For the last 100 years, Europe and the United States have incurred several economic recessions, prompting the interest of scientists and policymakers to investigate and understand the effects on population health [1-4]. An economic recession may affect a country's economy, leading to a rapid increase in unemployment and reducing national wealth. In particular, high unemployment rates not only threaten social and economic cohesion, through their negative economic consequences for individuals, but are also a risk factor for population health [5-7]. International literature has shown a negative relationship between unemployment and health status [8, 9]. Epidemiological studies have revealed that unemployment is associated with the occurrence of long-term illnesses such as diabetes and cardiovascular diseases [10]. In addition, longitudinal studies in the 1970s and 1980s demonstrated that the mortality rate for the unemployed was 25% higher than the employed ones [11], highlighting the relationship between unemployment and

increased mortality [10]. The effect of unemployment on health is complex, as each person will cope with it differently based on various demographic and social factors such as age, gender, educational level, socioeconomic status, social and family support, social welfare systems and job market opportunities [12].

The detrimental consequences of unemployment on the mental disorders such as anxiety and depressions are on the rise [13, 14]. It was found that unemployed people have lower levels of self-confidence, life satisfaction and personal control as well as higher levels of despair and fear of failure, than the employed ones [15]. It has also been reported that income is a source of control over one's life, providing experiences, roles and social interaction [16]. The three most remarkable meta-analyzes examining the effects of employment on mental health are those by Murphy and Athanasou [17], McKee-Ryan et al. [18] and Paul and Moser [12], respectively. The findings of the above studies demonstrated poor mental health after job loss, higher prevalence of poor mental health and well-being during unemployment and improvements in health status after employment. Moreover, a European study found that for each 1% increase in unemployment, suicides increase in people under the age of 65 by 0.8%, while a >3% increase in unemployment corresponds to >4%, respectively [19]. Also, a previous research in Australia showed that unemployment is associated with an increased risk of suicidal thoughts, crime and substance abuse [20].

From the past decade, Greece is facing a prolonged economic recession, due to high public deficit and debt levels, combined with the fiscal austerity measures implemented by Memorandum of Understanding (MOU) [21, 22]. This situation has resulted in the reduction of household income from € 21,100 per capita in 2007 to € 16,600 per capita in 2017, the rise of

unemployment from 8.4% in 2007 to 21.5% in 2018, increasing the risk of poverty for unemployed people from 35.4% in 2007 to 45.5% in 2017 [23, 24].

Recently, research attention is riveted on the impact of economic crisis and unemployment on the Greek population health status. Several studies report that unemployment has many negative consequences for health, leading to a decline in quality of life as well as the deterioration in physical health [25-27]. Unemployed people are also more likely to suffer from major depression, anxiety, melancholy, despair and feelings of inferiority [28-30]. It is noteworthy that psychological support has been seeking mainly from people with low education and those who lost their job [31].

Despite the plethora of surveys highlighting the impact of unemployment on health status during the economic recession in Greece, there is an obvious lack of studies clarifying the factors contributing to this association. The aim of this study was to shed light upon the prognostic socio-demographic factors affecting unemployed individuals' health status.

METHODS

Study design and procedure

A cross-sectional study was conducted in the Manpower Employment Organization (OAED) entities in the region of Attica, Greece. OAED is responsible for contrasting-unemployment, promoting employment and vocational training for both unemployed and employed citizens [32]. Moreover, OAED has established numerous Employment Promotion Centres (KPA2) across the country in order to match supply with demand of labour market. KPA2s are located in Attica and specifically in the metropolitan areas of Athens and Piraeus and are spatially distributed in 5

regional units (northern, southern, central, western and Piraeus). For the sample survey, one KPA2 was randomly selected from each regional unit. The data for this study was collected from June 2016 to September 2017.

Study participants and sampling

The study population was based on unemployed individuals registered in OAED. The total number of unemployed people at the time of the survey was approximately 300,000 [33]. Thus, a random sample of 1,000 unemployed was selected and were asked to complete a questionnaire, when they visited KPA2 in the metropolitan areas of Athens and Piraeus. However, out of the 1,000 individuals, 830 questionnaires were included in the study (83% response rate).

Study instruments and measures

A self-administered questionnaire was distributed to the unemployed aiming to assess factors affecting their physical and mental health. The questionnaire was divided into three sections. The first section included the unemployed individual's socio-demographic characteristics such as: gender, age, living arrangement, number of children, level of education, duration of unemployment, and monthly net household income before and during unemployment. The second section evaluated the physical health status of the unemployed based on the Visual Analogue Scale (VAS), which is a general instrument for measuring self-reported health status [34]. VAS takes the form of a 'health thermometer' and measures values from 0 (the 'worst' subjective health possible) to 100 (the 'best' subjective health possible), whereas intermediate values, e.g. VAS = 50 indicate moderate health states [35]. The mental health assessment was investigated in the third section using the CES-D scale (Center for Epidemiologic Studies

Depression Scale). This scale was created in 1977 by Laurie Radloff [36] and was revised in 2004 by William Eaton et al. [37]. It is a well-known self-rating scale for measuring recent depression symptoms and is widely used as a screening tool for individuals without substituting an in-depth interview. The CES-D scale consists of 20 items covering emotional, psychological and physical symptoms of depression. The patient assesses the frequency of symptoms on a 4-point scale from 'not at all – rarely' to 'most of the time'. High scores are indicative of more severe depression [38]. A sum of >16 points is indicative of a predisposition to depression [36]. The questionnaire has been validated into the Greek language by Moore et al. [39]. It should be noted that a pilot study was conducted on a sample of 20 unemployed individuals in order to investigate and discuss the comprehensiveness and functionality of the questionnaire. Feedback was incorporated into the final version [40].

Ethical aspects

The research was approved by the Research Ethics Committee of the University of Peloponnese (Protocol Number 840, 27.01.2015) and by the Administration of OAED (Protocol Number 597, 29.06.2016). The questionnaires were optional and anonymous. Participants were informed about the purpose of the survey and were asked if they wanted to participate, providing an informed verbal consent.

Data analysis

Data was analysed using the Statistical Package for the Social Sciences for Windows, Version 25.0 (SPSS Inc.). The variables were normally distributed and parametric tests were chosen. The statistical significance of difference between two groups was estimated using Student's t-test and

among three groups using analysis of variances. The Pearson correlation (r) between health status and sociodemographic characteristics of the sample was assessed. For the evaluation of the impact of sociodemographic characteristics on health status, the *Backward LR* model of multiple linear regression was used. In the first model the dependent variable was the physical health (VAS scale) and in the second model it was the mental health (CES-D scale). Gender, age, living arrangement, existence of children and educational level of unemployed participants were used as independent variables. Differences in results at the $P < 0.05$ level were considered statistically significant.

RESULTS

Socio-demographic characteristics

In the table 1 the socio-demographic characteristics of the sample are presented. The mean age of participants was 35.8 ± 10.3 years, 66.1% were women, 35.4% lived with their spouse / partner and 73.1% of them had no children. As for the educational level, 41.3% have completed the higher education. The mean duration of short-term unemployment was almost 5 months (± 8.7), while long-term unemployment was 4.1 years (± 3.4). The average monthly income reduction per household was € 685 (± 242).

Table 1. Socio-demographic characteristics of study participants.

		N	%
Gender	Men	281	33.9
	Women	549	66.1
Age groups	20 -30 years old	300	39.9
	31-40 years old	212	28.2

	41-50 years old	154	20.5
	51+ years old	86	11.4
Living arrangement	Alone	252	30.4
	Spouse / partner	294	35.4
	With parents	256	30.8
Existence of children	None	607	73.1
	1 to 2	199	24.0
	3 and up	24	2.9
Educational level	Compulsory	52	6.3
	Secondary	312	37.6
	Tertiary	343	41.3
	Postgraduate	109	13.1
	No answer	14	1.7
Duration of unemployment	Short-term	596	71.8
	Long-term	234	28.2

Based on VAS, respondents reported very good physical health before unemployment, which decreased during unemployment ($P = 0.001$) (Figure 1). The mean of the CES-D was 18.4 points (± 11.3), meaning that respondents' mental health was low and suffered from depressive symptoms (Figure 2).

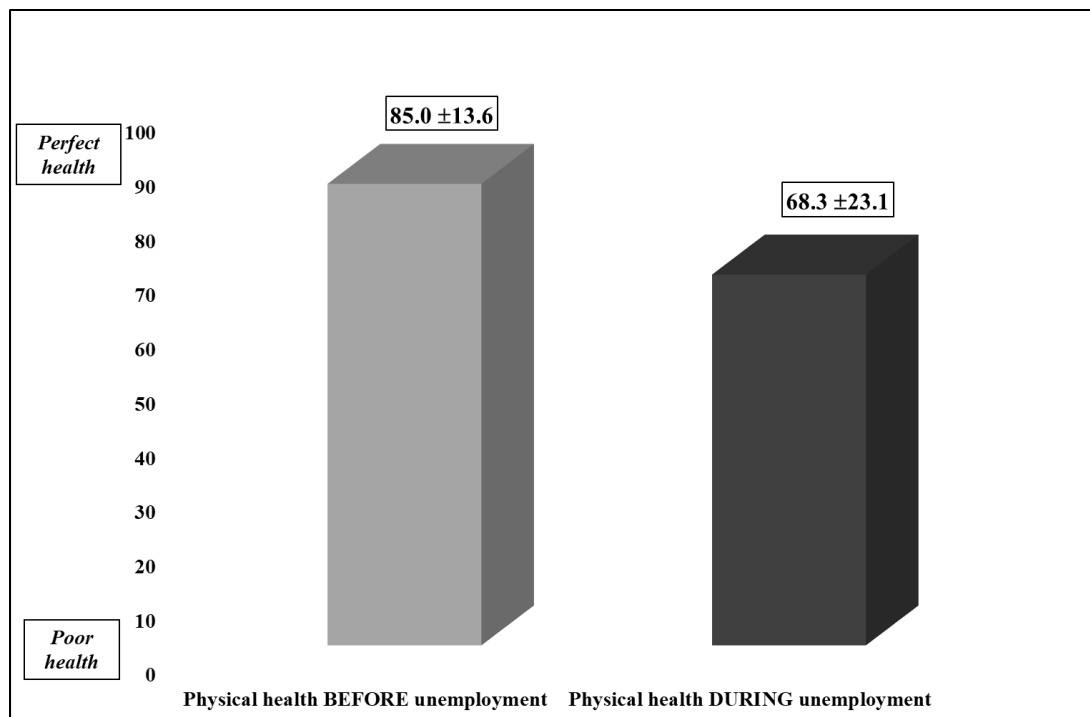


Figure 1. Physical health before and during unemployment.

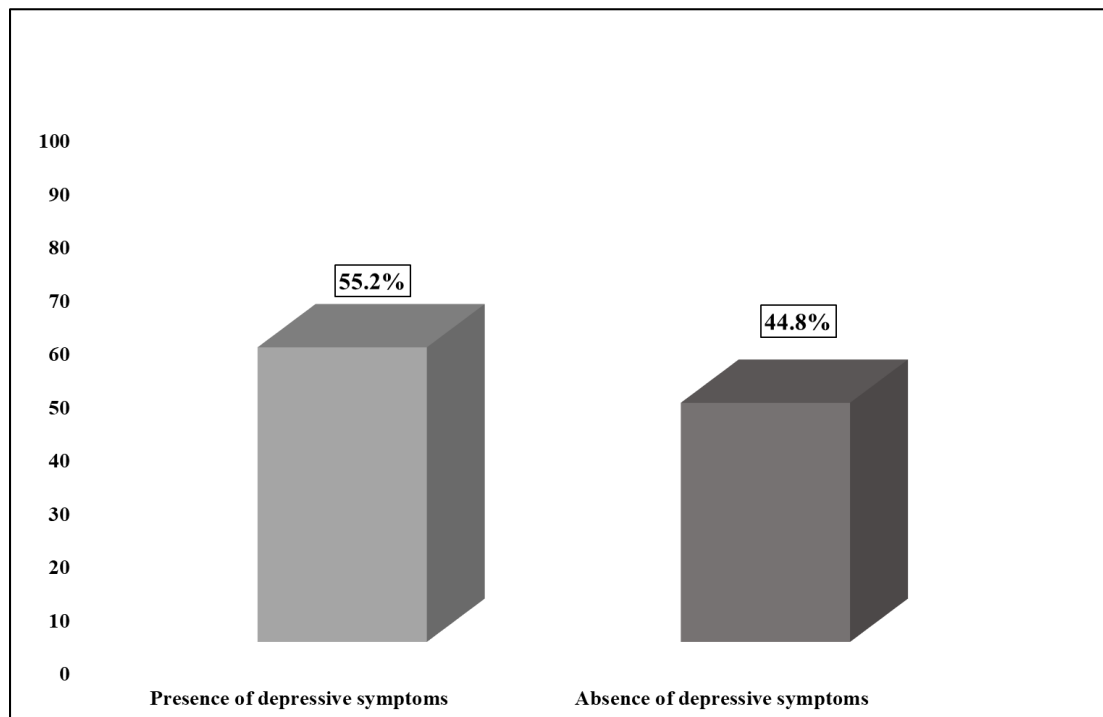


Figure 2. Unemployed's mental health.

Regarding the influence of socio-demographic characteristics of the sample on physical health, gender was found to be statistically significant and in particular women reported worse health (66.5 ± 23.2) than men (71.7 ± 22.0) ($P = 0.004$). Individuals living alone reported their physical health as poor (62.4 ± 24.1), compared to those living with partner or parents (71.2 ± 22.1 , $P = 0.001$). Likewise, unemployed parents stated worse physical health (64.4 ± 24.2) in contrast to people without children (69.9 ± 22.6 , $P = 0.007$). Additionally, age was negatively correlated to physical health ($r = -0.216$, $P = 0.001$), while, educational level in years ($r = 0.200$, $P = 0.001$) and income during unemployment ($r = 0.163$, $P = 0.001$) were positively correlated, respectively.

Concerning mental health and socio-demographic characteristics relations, women reported higher values of CES-D (19.5 ± 11.6), indicating higher predisposition to depression than men (16.4 ± 10.4 , $P = 0.001$). Participants living alone had a higher risk to develop depressive symptoms (20.6 ± 12.3), than those living with parents or partner (17.4 ± 10.7 , $P = 0.001$). In addition, age was found to be positively correlated with the presence of depressive symptoms ($r = 0.174$, $P = 0.001$), while, educational level in years ($r = -0.109$, $P = 0.002$) and income during unemployment ($r = -0.098$, $P = 0.005$) were negatively correlated, respectively. As far as the correlation between the duration of unemployment and health status, it was found that as the duration of unemployment increases, good physical health deteriorates ($P = 0.001$), while the incidence of depressive symptoms rises ($P = 0.001$) (Table 2).

Table 2. Correlation between duration of unemployment and health status.

Duration of unemployment (in months)	Physical health		Mental health	
	Mean	S.D.	Mean	S.D.
1 to 6 months	70.44	22.01	17.47	11.09
7 to 12 months	70.31	20.76	17.29	10.09
13 to 24 months	65.49	25.32	19.96	11.83
24+ months	61.22	26.00	21.90	12.19

Furthermore, data analysis showed a bidirectional relationship between physical and mental health of unemployed respondents ($r = -0.441$, $P = 0.001$), demonstrating that as depressive symptoms increase, good health status decreases and vice versa (Figure 3).

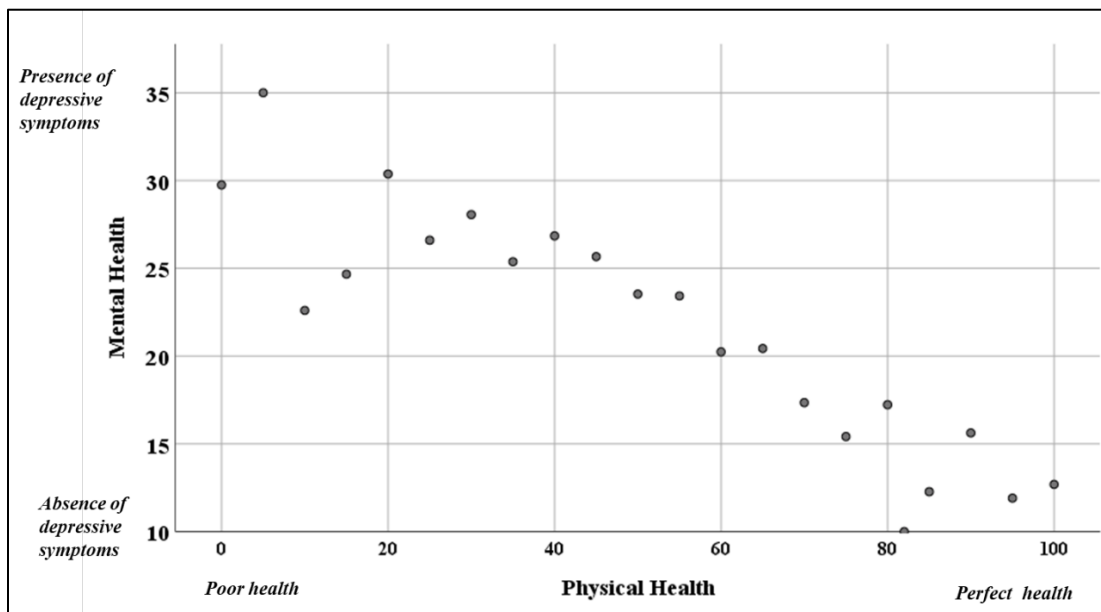


Figure 3. Correlation between physical and mental health.

Moreover, aiming to investigate the prognostic socio-demographic factors affecting physical and mental health, two multiple linear regression models were performed. The results of the first

model showed that women ($b = -8,011$), predisposed individuals to depression ($b = -0.610$,) and long-term unemployed ($b = -1.541$) were more likely to declare poor physical health (Table 3).

Table 3. Comparative effect sizes of key factors predictive of physical health.

	Unstandardized		t	Sig.	95,0% Confidence	
	Coefficients				Interval for B	
	B	Std. Error			Lower Bound	Upper Bound
(Constant)	81.107	5.908	13.729	0.001	69.367	92.847
Gender	-8.011	4.567	-1.754	0.043	-17.087	1.064
Mental health (CES-D)	-0.610	0.166	-3.686	0.000	-0.939	-0.281
Duration of unemployment (in months)	-1.541	0.319	-4.836	0.001	-2.166	-0.915

$R^{2adj} = 0.238, F = 10.478, P = 0.001$

The second model showed that women ($b = 1.795$), older people ($b = 0.179$) and long-term unemployed ($b = 2,658$) were more likely to present predisposition to depression, while parents ($b = -4,511$) and those who reported good physical health ($b = -0.150$) were less likely to present depressive symptoms (Table 4).

Table 4. Comparative effect sizes of key factors predictive of mental health.

	Unstandardized		T	Sig.	95,0% Confidence	
	Coefficients				Interval for B	
	B	Std. Error			Lower Bound	Upper Bound
(Constant)	16.778	2.568	6.532	0.001	11.733	21.823
Gender	1.795	0.842	2.132	0.033	0.142	3.449
Age	0.179	0.045	4.001	0.001	0.091	0.267
Existence of children	-4.511	1.015	-4.446	0.001	-6.504	-2.518
Physical health (VAS)	-0.150	0.020	-7.700	0.001	-0.189	-0.112
Duration of unemployment (in months)	2.658	0.825	3.221	0.001	1.037	4.279

$R^{2adj} = 0.344$, $F = 38.030$, $P = 0.001$

DISCUSSION

This study investigated the predictive socio-demographic factors affecting physical and mental health of unemployed people in Greece. According to our results, deterioration in both physical and mental health of the unemployed has been shown. Almost 40% of the participants reported moderate or poor physical health and >50% depressive symptoms. The physical and mental health of the sample was found to be mutually affected with a strong correlation. In addition, socio-demographic factors, such as gender, age, existence of children and duration of unemployment appeared to significantly influence unemployed individuals' health status.

Several international and national studies confirm our results stating that unemployment is associated with detrimental health effects and that, therefore, it should be a prime target for

policy makers [26, 41-43]. The benefits of work contribute to individual and social well-being either by ensuring financial stability or by controlling life. On the other side, the European study of Voßemer et al. [44] reported that higher unemployment benefits offset the negative effects of unemployment on well-being, but not on health status.

The linkage between unemployment and mental health has been also extensively studied in international [45-48] and Greek literature [26, 49, 50]. Specifically, Wege et al. [51] found that unemployment and job insecurity are associated with a high risk of depression and poor mental health. Hence, Olesen et al. [52] reported that mental health is both a consequence and a risk factor for unemployment. Furthermore, Greek studies revealed high risk of depression and suicidal tendencies for the unemployed people [50]. Additionally, a study conducted by Thomaidis et al. [53] in Athens from 2010 to 2014 during the economic recession, showed that the rise in unemployment and the reduction in GDP are associated with the use of antidepressants, anxiolytic and antipsychotic medicines.

It is worth noting that, based on our results, socio-demographic factors could have a significant effect on the physical and mental health of unemployed. Specifically, unemployed women are more likely to be depressed and report poor physical health, being this a finding consistent with several studies [26, 54]. On the contrary, studies by Rodrigues et al. [47] and Strandh et al. [55] reported that unemployed men are more likely to develop poor mental health probably due to their archetypal role as a dominant model of production and the stigma of unemployment.

Our results showing that older unemployed people have a higher risk of poor physical and mental health, as well as those with a low level of education, converge with international

literature [56-58]. The reasoning behind this finding is that older and low educated people have higher insecurity to find a satisfied job and most times they accept seasonal, temporary or without social security coverage work.

As far as the duration of unemployment, our research showed that as unemployment increases, physical and mental health exacerbates. This finding is in accordance with several studies demonstrating that unemployed individuals suffer from gradual loss of emotional well-being since the prolongation of not finding work is associated with pessimism and eventually fatality [57, 59].

Moreover, the interaction between mental and physical health during unemployment is also a significant finding in our study. Unemployed people who have developed mental or physical disorders may find it difficult to return to the labor market. Poor health status usually leads to prolonged unemployment and the acceptance of a temporary or dissatisfied job. This interaction has been also substantiated by international literature showing the two-way and a causal relationship between the physical and mental health of the unemployed [60, 61]. Similar are the results of the research by Kamerāde and Bennett [62], showing that social causality seems to be the main reason why unemployment negatively affects mental and physical health, whereas significant health improvements are observed in case of employment. At this point, findings by Giuntoli et al. [63] should be mentioned reporting that the consequences of unemployment not only affect subjective well-being and mental health, but also social well-being as well as social networking and relationships.

There are some study's limitations that deserve consideration. The present study was conducted in the region of Attica and not across all over the country. However, our results are not underestimated since 35% of the Greek population resides in this specific region, so they could be representative of the country [65]. Also, despite the fact that the questionnaire was anonymous and self-administered, the possible subjectivity and bias of the sample responses should be noted. In addition, data on mental and physical health reported by unemployed individuals could lead to underestimation or overestimation of their actual health status due to the risk of stigmatization. The cross-sectional design of the study does not permit to state the causal relationship between unemployment and health, due to the reverse causality.

CONCLUSION

Unemployment leads to impaired physical and mental health. Socio-demographic factors, such as gender, age, existence of children and duration of unemployment appeared to significantly influence health status of the unemployed people in Greece. Nowadays, Greek economy is improving, and unemployment is decreasing. However, policymakers should continuously support unemployed people through the development of innovative labor and unemployment policies as well as the expansion of their health coverage and access to healthcare in order to improve their overall health status.

References

1. Barr B, Taylor-Robinson D, Scott-Samuel A, McKee M, Stuckler D. Suicides associated with the 2008-10 economic recession in England: time trend analysis. *BMJ*. 2012; 345, e5142.
2. Vondros S, Hessel P, Leone T, Avendano M. Have health trends worsened in Greece as a result of the financial crisis? A quasi-experimental approach. *Eur J Public Health*. 2013; 23(5):727–731.
3. Santana P, Costa C, Cardoso G, Loureiro A, Ferrão J. Suicide in Portugal: Spatial determinants in a context of economic crisis. *Health Place*. 2015;35:85–94.
4. Branas C, Kastanaki E, Michalodimitrakis M, Tzougas J, Kranioti F, Theodorakis N, et al. The impact of economic austerity and prosperity events on suicide in Greece: a 30-year interrupted time-series analysis. *BMJ*. 2015;5(1):e005619.
5. Levy BS, Sidel VW. The economic crisis and public health. *Soc Med*. 2009;4(2):82–87.
6. Horton R. The global financial crisis: an acute threat to health. *Lancet*. 2009; 373(9661): 355–356.
7. Kondilis E, Giannakopoulos S, Gavana M, Ierodiakonou I, Waitzkin H, Benos, A. Economic crisis, restrictive policies, and the population's health and health care: the Greek case. *Am J Public Health*. 2013;103(6):973–979.

8. Van Rijn M, Robroek J, Brouwer S, Burdorf A. Influence of poor health on exit from paid employment: a systematic review. *Occup Environ Med.* 2014;71(4):295–301.
9. Schuring M, Robroek J, Lingsma F, Burdorf A. Educational differences in trajectories of self-rated health before, during, and after entering or leaving paid employment in the European workforce. *Scand J Work Environ Health.* 2015; 41(5):441–450.
10. Lundin A, Lundberg I, Hallsten L, Ottosson J, Hemmingsson T. Unemployment and mortality—a longitudinal prospective study on selection and causation in 49321 Swedish middle-aged men. *J Epidemiol Community Health.* 2010; 64(01):22–28.
11. Giotakos O. Financial crisis and mental health. *Psychiatriki.* 2010; 21(3):195–204.
12. Paul I, Moser K. Unemployment impairs mental health: Meta-analyses. *J Vocat Behav.* 2009;74:264–282.
13. Pelzer B, Schaffrath S, Vernaleken I. Coping with unemployment: the impact of unemployment on mental health, personality, and social interaction skills. *Work.* 2014;48(2):289–295.
14. Ishmuhametov I, Palma A. Unemployment as a Factor Influencing Mental Well-Being. *Procedia Eng.* 2017;178:359–367.
15. Leon L, Matthews L. Self Esteem Theories: Possible explanations for poor interviewing skills for those experiencing unemployment. *J Rehabil.* 2010; 76:441–450.
16. Pitlik H, Rode M. Free to choose? Economic freedom, relative income, and life control perceptions. *IJW.* 2016;6(1).

17. Murphy C, Athanasou A. The effect of unemployment on mental health. *J Occup Organ Psychol.* 1999;72:83–99.
18. McKee-Ryan F, Song Z, Wanberg R, Kinicki J. Psychological and physical well-being during unemployment: a meta-analytic study. *J Appl Psychol.* 2005; 90(1):53–76.
19. Stuckler D, Basu S, Suhrcke M, Coutts A, McKee M. The public health effect of economic crises and alternative policy responses in Europe: an empirical analysis. *Lancet.* 2009;374:315–323.
20. Fergusson M, Horwood J, Woodward J. Unemployment and psychosocial adjustment in young adults: Causation or selection? *Soc Sci Med.* 2001;53:305–320.
21. International Monetary Fund. Greece: Ex Post Evaluation of Exceptional Access Under the 2010 Stand By Arrangement. No. 13/156. Washington, D.C: International Monetary Fund; 2013.
22. European Commission. Eurostat Report on Greek Government Deficit and Debt Statistics (January). Brussels: European Commission; 2010.
23. Eurostat (2019) [cited 2020 Jan 10]. Available from: <https://ec.europa.eu/eurostat/help/first-visit/database>.
24. Greek Statistical Authority (ELSTAT) (2019) [cited 2020 Jan 10]. Available from: <https://www.statistics.gr/>.

25. Mechili EA, Kalokairinou A, Kaitelidou D, Galanis P, Diomidous M. Health related quality of life in the unemployed population during the financial crisis. *Arch Hell Med.* 2017;34(1): 65–74.
26. Drydakias N. 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. *Soc Sci Med.* 2015;128:43–51.
27. Zavras D, Tsiantou V, Pavi E, Mylona K, Kyriopoulos J. Impact of economic crisis and other demographic and socio-economic factors on self-rated health in Greece. *Eur J Public Health.* 2013;23:206–210.
28. Christodoulou C, Efstathiou V, Ferentinos P, Poullos A, Papadopoulou A, Douzenis A. Comparative study of hostility in depressive patients with and without a suicide attempt history. *Psychol Health Med.* 2017;22(7):866–871.
29. Mylona K, Tsiantou V, Zavras D, Pavi E, Kyriopoulos J. Determinants of self-reported frequency of depressive symptoms in Greece during economic crisis. *Public Health.* 2014;128(8):752–754.
30. Madianos M, Economou M, Alexiou T, Stefanis C. Depression and economic hardship across Greece in 2008 and 2009: two cross-sectional surveys nationwide. *Soc Psychiatry Psychiatr Epidemiol.* 2011;46(10):943–952.

31. Economou M, Angelopoulos E, Peppou E, Souliotis K, Stefanis C. Major depression amid financial crisis in Greece: Will unemployment narrow existing gender differences in the prevalence of the disorder in Greece? *Psychiatry Res.* 2016;242:260–261.
32. OAED [cited 2020 Jan 10]. Available from: <http://www.oaed.gr/>
33. Greek Statistical Authority (ELSTAT), Press Release, Labor research survey: January 2015 [cited 2020 Jan 10]. Available from: <https://www.statistics.gr/>.
34. Gould D, Kelly D, Goldstone L, Gammon J. Examining the validity of pressure ulcer risk assessment scales: developing and using illustrated patient simulations to collect the data INFORMATION POINT: Visual Analogue Scale. *J Clin Nurs.* 2001;10(5):697–706.
35. Yfantopoulos J. Measuring the quality of life and the European health model. *Arch Hell Med.* 2007;24(1):6–18.
36. Radloff LS. The CES-D scale: a self-report depression scale for research in the general population. *Appl Psychol Meas.* 1977;1:385–401.
37. Eaton WW, Muntaner C, Smith C, Tien A, Ybarra M. Center for Epidemiologic Studies Depression Scale: Review and revision (CESD and CESD-R). In: Maruish ME, ed. *The Use of Psychological Testing for Treatment Planning and Outcomes Assessment.* 3rd ed. Mahwah, NJ: Lawrence Erlbaum. 2004; pp. 363–377.
38. Marder SR. Psychiatric rating scales In Kaplan HI, Sadock BJ, eds. *Comprehensive Textbook of Psychiatry/VI* 6th ed. Baltimore, Md: Williams & Wilkins. 1995; pp. 619-635.

39. Moore KA, Alexi N, Argyrides M. Psychometric properties of the center for epidemiological studies-depression scale (CES-D)-Greek version. *HJP*. 2016;13:74–87.
40. Rea LM, Parker RA. *Designing and conducting survey research: A Comprehensive Guide*. 3rd (edn.). San Francisco: Jossey-Bass, A Wiley Imprint; 2005.
41. Tøge AG, Blekesaune M. Unemployment transitions and self-rated health in Europe: A longitudinal analysis of EU-SILC from 2008 to 2011. *Soc Sci Med*. 2015;143:171–178.
42. Vaalavuo M. Deterioration in health: What is the role of unemployment and poverty? *Scand J Public Health*. 2016;44:347–353.
43. Latsou D, Geitona M. The Effects of Unemployment and Economic Distress on Depression Symptoms. *Mater Sociomed*. 2018;30(3):180.
44. Voßemer J, Gebel M, Täht K, Unt M, Högberg B, Strandh M. The effects of unemployment and insecure jobs on well-being and health: the moderating role of labor market policies. *Soc Indic Res*. 2017;1–29.
45. Farré L, Fasani F, Mueller H. Feeling useless: the effect of unemployment on mental health in the Great Recession. *J Labor Econ*. 2018;7(1):8.
46. Wege N, Angerer P, Li J. Effects of lifetime unemployment experience and job insecurity on two-year risk of physician-diagnosed incident depression in the German working population. *Int J Environ Res Public Health*. 2017;14(8):904.

47. Rodrigues P, Sousa-Uva M, Fonseca R, Marques S, Pina N, Matias-Dias C. Depression and unemployment incidence rate evolution in Portugal, 1995–2013: General Practitioner Sentinel Network data. *Rev Saude Publica*. 2017;51,98.
48. Cygan-Rehm K, Kuehnle D, Oberfichtner M. Bounding the causal effect of unemployment on mental health: Nonparametric evidence from four countries. *Health Econ*. 2017;26(12):1844–1861.
49. Efthimiou K, Argalia E, Kaskaba E, Makri A. Economic crisis & mental health. What do we know about the current situation in Greece? *Encephalos*. 2013;50: 22–30.
50. Madianos MG, Alexiou T, Patelakis A, Economou M. Suicide, unemployment and other socioeconomic factors: evidence from the economic crisis in Greece. *Eur J Psychiat*. 2014;28(1):39–49.
51. Wege N, Angerer P, Li J. Effects of lifetime unemployment experience and job insecurity on two-year risk of physician-diagnosed incident depression in the German working population. *Int J Environ Res Public Health*. 2017;14(8):904.
52. Olesen SC, Butterworth P, Leach LS, Kelaher M, Pirkis J. Mental health affects future employment as job loss affects mental health: findings from a longitudinal population study. *BMC psychiatry*. 2013;13(1):144.
53. Thomaidis NS, Gago-Ferrero P, Ort C, Maragou NC, Alygizakis NA, Borova VL, et al. Reflection of socioeconomic changes in wastewater: licit and illicit drug use patterns. *Environ Sci Technol*. 2016;50(18):10065–10072.

54. Silva M, Loureiro A, Cardoso G. Social determinants of mental health: a review of the evidence. *Eur J Psychiatry*. 2016;30(4):259–292.
55. Strandh M, Hammarström A, Nilsson K, Nordenmark M, Russel H. Unemployment, gender and mental health: the role of the gender regime. *Sociol Health Illn*. 2013;35(5):649–665.
56. Córdoba-Doña JA, Escolar-Pujolar A, San Sebastián M, Gustafsson PE. How are the employed and unemployed affected by the economic crisis in Spain? Educational inequalities, life conditions and mental health in a context of high unemployment. *BMC Public Health*. 2016;16(1):267.
57. Batic-Mujanovic O, Poric S, Pranjić N, Ramić E, Alibasić E, Karić E. Influence of Unemployment on Mental Health of the Working Age Population. *Mater Sociomed*. 2017;29(2):92.
58. Huegaerts K, Spruyt B, Vanroelen C. Youth Unemployment and Mental Health: The Mediating Role of Embodiment. *Societies*. 2018;8(2):43.
59. Thern E, de Munter J, Hemmingsson T, Rasmussen F. Long-term effects of youth unemployment on mental health: does an economic crisis make a difference? *J Epidemiol Community Health*. 2017;71(4):344–349.
60. Huegaerts K, Spruyt B, Vanroelen C. Youth Unemployment and Mental Health: The Mediating Role of Embodiment. *Societies*. 2018;8(2):43.

61. Parmar D, Stavropoulou C, Ioannidis JP. Health outcomes during the 2008 financial crisis in Europe: systematic literature review. *BMJ*. 2016;354:i4588.
62. Kamerāde D, Bennett M. Unemployment, volunteering, subjective well-being and mental health, TSI Working Paper Series No. 8. Seventh Framework Programme (grant agreement 613034), European Union. Brussels: Third Sector Impact; 2015.
63. Giuntoli G, Hughes S, Karban K, South J. Towards a middle-range theory of mental health and well-being effects of employment transitions: Findings from a qualitative study on unemployment during the 2009–2010 economic recession. *Health (London)*. 2015;19(4): 389–412.
64. Greek Statistical Authority (ELSTAT), Population-Housing Census, 2011 [cited 2020 Jan 10]. Available from: <https://www.statistics.gr/>.