PEER-REVIEWED RESEARCH PAPER

Perceived Stress in Relation to Socioeconomic and Lifestyle Characteristics in Greece: A Cross-Sectional Study

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Abstract

*Mental stress is associated with serious negative health outcomes. The aim of this study was to investigate perceived stress levels, in Greek adults, in relation to certain socioeconomic and lifestyle characteristics. This cross-sectional study conducted in the urban area of the Attica region, in Greece. Healthy individuals (*N = *1281), aged ≥ 18 years, completed the Perceived Stress Scale-14. Sociodemographic, anthropometric and certain lifestyle characteristics were also assessed. Mann-Whitney U test, chi-square test and multiple linear regression models were used. The sample's perceived stress mean value (*SD*) was 26.46 (7.27) with women scoring significantly higher than men (*p = *0.040). Regression analysis showed that perceived stress was significantly associated with sex (*p = *0.027), job status (*p = *0.001), annual income (*p = *0.031) and physical activity (*p < *0.0001). Also, age and education were significantly negatively associated with higher perceived stress (*p = *0.014 and* p = *0.024, respectively).Perceived stress in this sample of Greek adults is significantly associated with women, younger age, lower socioeconomic status and with a sedentary lifestyle.*

KEYWORDS: PERCEIVED STRESS; SOCIOECONOMIC CHARACTERISTICS; LIFESTYLE; GREECE

Introduction

Stress-related disorders are an increasing public health problem globally and they constitute a major cause of ill health and premature death in Europe (WHO, 2011). In addition, an individual's ability to cope with certain stressors can have a serious impact on their psychosomatic health.

More specifically, psychological stress has been associated with the activation of the hypothalamic-pituitary-adrenal axis and the body's inability to regulate inflammatory response and it increases an individual's vulnerability to the ageing process (Lee et al., 2020). Stress can also significantly affect mood, quality of life, sense of well-being (Schneiderman et al., 2005), eating behaviour (Christaki et al., 2013; Costarelli & Patsai, 2012), can trigger depression (Khan & Khan, 2017) and may also lead to negative health behaviors (Slopen et al., 2013).

Perceived stress is defined as "the feelings or thoughts that an individual has about how much stress they are under at a given point in time or over a given time period" (Phillips, 2013, n.p.). It is important to note that perceived stress includes feelings related to the unpredictability of life: dealing with sudden changes, hassles and problems occurring in one's life, and having the ability to cope with these difficulties.

Data on stress and anxiety levels and their determining factors, in the general population in Greece, is relatively scare, in spite the prolonged economic austerity period faced by Greece, which seems to have affected many aspects of health and well-being of the population (Economou, Madianos et al., 2012; Kentikelenis, Karanikolos et al., 2011; Madianos, Economou et al., 2011). In a study conducted by Kokaliari, 2016, 16.3% of the participants reported *severe* or *extremely severe* stress using the Depression Anxiety Stress Scales (DASS) (*n* = 911) (Kokaliari, 2016).

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In an another cross-sectional comparative study conducted in 2013, comparing young adults from the city of Athens in Greece (n = 124) and from the city of Linkoping in Sweden (n = 112), the Greek participants reported significantly higher perceived stress ($p < 0.0001$), had experienced more serious life events ($p = 0.002$), lower hope for the future ($p < 0.0001$), and had significantly more widespread self-reported symptoms of depression ($p < 0.0001$) and anxiety ($p < 0.0001$) than the Swedes (Ashild Faresjo et al., 2013).

The current study aims at assessing the prevalence of perceived stress in adults, in the urban area of Attica, Greece and concurrently aims at investigating the potential association between perceived stress and certain sociodemographic and lifestyle factors.

Methods

Ethical approval

The study was approved by the Institutional Ethics Review Board of the Harokopio University. The protocol number was 57 and the date of expedition was 15/09/2017. Participants were informed about the purpose of the study, via a cover letter, prior to consenting to taking part, giving an informed consent.

Study design and sample collection

This cross-sectional study took place in the urban area of the Attica region, in Greece. The areas of recruitment were selected on a feasibility basis among Athens metropolitan greater area municipalities. The recruitment of the sample lasted for six months from October 2017 to April 2018. Power analysis showed that a number of 1083 of participants is adequate to evaluate two-sided differences between subgroups of the study and the investigated parameters greater than 20%, achieving statistical power >0.80 at < 0.05 probability level (*P*-value). The final sample consisted of 1281 individuals (59.4% women). The recruitment of participants was done in a feasibility base in participants' work places or places of residence and from Open Care Centers for the elderly. No random selection was performed. Inclusion criteria concluded: participants of both sexes, ≥18 years of age and the ability to read and write in Greek, with no other exclusion criteria. The participation rate was 85.4%, with 14.6% dropping out.

Material

The questionnaire that was used included questions about sociodemographic and anthropometric characteristics, lifestyle factors and the Greek version of Perceived Stress Scale-14 (PSS-14) which are described below. Participants filled the questionnaire either in a printed (in their place) or in electronic form. The mean time of completion of the questionnaire was about seven minutes.

Sociodemographic characteristics

Sociodemographic characteristics such as sex, age and education in years, job status and annual income were assessed via a specifically designed questionnaire.

Anthropometric data and weight status assessment

The anthropometric characteristics were self-reported (height in meters and weight in kg). Participants' weight status category was calculated as BMI = weight/height^2. The classification of weight status categories was as follows:

- < 18.49 kg/m^2 underweight
- 18.5–24.99 kg/m^2 normal weight
- 25.0–29.99 kg/m^2 overweight, and
- >30.0 kg/m^2 obese.

Lifestyle factors

Lifestyle factors such as smoking, alcohol consumption and physical activity were assessed, via a specifically designed questionnaire with closed ended questions.

Perceived Stress Scale-14 (PSS-14)

The PSS-14 is a self-reported 14-item questionnaire with a 5-point Likert type scale (0 = *never*, 1 = *almost never*, 2 = *sometimes*, 3 = *fairly often*, 4 = *very often*) (Cohen et al., 1983). This measure assesses whether situations experienced by a person during the last month are stressful. The tool includes seven positive and seven negative items and the range of the final score is between 0-56. A higher score indicates higher levels of perceived stress during the past month. Is considered to be a brief and easy tool for completion. The scale has been validated into Greek (Andreou et al., 2011; Katsarou et al., 2012).

Statistical Analysis

Data are presented as *N* (%) for categorical variables (i.e., sex, job status, etc.) and as mean (SD) and median (IQR) for continuous variables (i.e., age and education in years and PSS scores). Due to the skewed distribution of the continuous variables (i.e., age and parental feeding practices scores) the Mann-Whitney, non-parametric test was used to evaluate differences between sexes. Also the Pearson chi-square test was used to evaluate differences between sexes and the categorical variables. Then, multiple linear regression analysis was also employed to evaluate whether perceived stress levels (dependent variable) were associated with sociodemographic and anthropometric characteristics and lifestyle factors (independent determinants). The inclusion of the independent variables was based on literature review made and the tested research hypothesis of the present study. Multicolinearity was evaluated using the Variance Inflation Factor (VIF; variables with value > 4 were not included at the same time in the model). The STATA software, version 14 (MP & Associates, Sparta, Greece) was used for all statistical analyses.

Results

Participants' descriptive and anthropometric characteristics, lifestyle factors and perceived stress scores are presented in Table 1. In total, 1281 individuals (59.4% women vs 40.6% men) participated in the study. Their mean age (*SD*) was 44.52 (17.44). Women were younger ($p < 0.0001$) and more educated ($p = 0.002$) than men. Also, more women had low annual income (52.5%) in comparison to men (42.1%), while more men had medium annual income (49.7%) in comparison to women (41.3%) ($p = 0.008$). According to their weight status, more women were classified in the normal weight category (61.5%), contrary to men where most of them were classified in the overweight category (45.9%) ($p < 0.0001$). As for their lifestyle, less women were smoking and consuming alcohol ($p = 0.0002$ and $p < 0.0001$, respectively). According to the perceived stress levels, women scored higher than men ($p = 0.040$) and the total sample's mean (*SD*), min and max values were 26.46 (7.27), 4 and 47 respectively.

Table 2 presents the results of a linear regression analysis when considering descriptive, anthropometric characteristics and lifestyle factors, as potential significant factors for perceived stress levels. In the model where sex, age, education, job status, annual income, weight status, smoking, alcohol, consumption and physical activity were included, the results showed that:

i. sex was significantly associated with perceived stress levels, with male scoring -0.999 points ($p = 0.027$) than women

ii. age was significantly negatively associated with higher levels of perceived stress with -0.037 points ($p = 0.014$)

iii. education was significantly negatively associated with higher levels of perceived stress with -0.311 points ($p = 0.024$)

iv. job status was significantly associated with perceived stress levels, with unskilled scoring 1.681 points ($p = 0.001$) than skilled,

v. annual income was significantly associated with perceived stress levels, with those with low income scoring 1.086 points ($p = 0.031$) than those with high income, and

vi. physical activity was significantly associated with perceived stress levels, with those who were physically active scoring -2.513 points ($p < 0.0001$) than those who were physically inactive.

Table 1 **Sample's Descriptive Characteristics for Men and Women**

		Men		Women			Total	
Category	**Sub-category**	***n***	**%**	***n***	**%**	***p***	***N***	**%**
Participants		520	40.6	760	59.4		1281	100
Age	Mean (SD)	46.9	17.7	42.9	17.1	< 0.0001	44.5	17.4
	Median (IQR)	43.0	24.8	39.0	28.0		41.0	24.0
Education in years	Mean (SD)	6.9	1.9	7.1	2.0	0.002	7.0	2.0
	Median (IQR)	7.0	2.0	8.0	2.0		8.0	2.0
Job status	Skilled	249	49.1	383	52.4	< 0.0001	632	51.0
	Semi-Skilled*	164	32.3	112	15.3		277	22.4
	Unskilled*	94	18.5	236	32.3		330	26.6
Annual income	Low*	155	42.1	288	52.5	0.008	443	48.3
	Medium*	183	49.7	227	41.3		411	44.8
	High	30	8.2	34	6.2		64	7.0
Weight status category	Underweight*	4	0.8	18	2.4		22	1.7
	Normal Weight*	175	33.9	463	61.5	< 0.0001	639	50.3
	Overweight*	237	45.9	197	26.2		434	34.2
	Obese*	100	19.4	75	10.0		175	13.8
Smoking	Yes	173	33.5	219	29.1		392	30.9
	No*	252	48.8	439	58.4	0.002	692	54.5
	Ex-smoker*	91	17.6	94	12.5		185	14.6
Alcohol consumption	Yes*	380	73.1	397	52.7	< 0.0001	777	60.9
	No*	140	26.9	357	47.3		498	39.1
Physical activity	Yes	304	58.8	471	62.1	0.254	776	60.8
	No	213	41.2	287	37.9		500	39.2
PSS	Mean (*SD*)	25.8	7.3	26.9	7.3	0.04	26.5	7.3
	Median (IQR)	27.0	9.0	27.0	10.0		26.5	19.0

Note: $p < 0.005$, Mann-Whitney, x^2, * shows categories hold a significance difference according to sex

Table 2 **Results (b, SE) From Regression Analysis Models That Evaluated Determinants of Perceived Stress**

Category	**Sub-category**	**b ± SE**	***p***
Sex	(Men/Women)	-0.999 ± 0.453	0.027
Age in years		-0.037 ± 0.015	0.014
Education in years		-0.311 ± 0.138	0.024
Job (Reference: Skilled)	Semi-Skilled	0.818 ± 0.542	0.131
	Unskilled	1.681 ± 0.528	0.001
Annual Income (Reference: High)	Low	1.086 ± 0.528	0.031
	Medium	0.92 ± 0.509	0.071
Weight status Category (Reference: Normal Weight)	Underweight	-2.763 ± 1.544	0.074
	Overweight	-0.173 ± 0.477	0.717
	Obese	0.832 ± 0.66	0.208
Smoking (Reference: Smokers)	Non Smokers	-0.349 ± 0.466	0.454
	Ex-Smokers	-0.001 ± 0.658	0.999
Alcohol Consumption	(Yes/No)	-0.418 ± 0.442	0.345
Physical Activity	(Yes/No)	-2.513 ± 0.428	<0.0001

Discussion

The current study was set out to investigate the prevalence of perceived stress in Greek adults, in relation to selected sociodemographic and lifestyle characteristics. Perceived stress levels in the current study (mean score, *SD*), were slightly higher in comparison to a relatively small number of similar studies, conducted in the past, in Greece (Andreou et al., 2011; Katsarou et al., 2012; Kokaliari, 2016). It is highly likely that the prolonged economic austerity period in Greece, which seems to have affected levels of health and well-being of the population, is one of the reasons, of the relatively higher levels of perceived stress levels, reported in this study.

With respect to sex, in the current study women reported significantly higher levels of perceived stress, which is in accordance to the findings of other studies conducted in Greece (Andreou et al., 2011; Katsarou et al., 2012) and worldwide (Allen et al., 2011; Worly et al., 2019). It is interesting to note that in a recent study by Kokaliari (2016), Greek women reported statistically scientifically lower levels of quality of life together with higher levels of anxiety, in comparison to men (Kokaliari, 2016). It is well documented that usually women report higher levels of perceived stress than men, which could partially be attributed to their different roles in family life and work (Xu et al., 2015). There is also evidence that women and men are at risk for different types of stress-related disorders, with women being at greater risk for depression and anxiety and men being at greater risk for alcohol-use disorders (Kajantie & Phillips, 2006; Kessler et al., 1993). In a study conducted in the USA, men and women responded differently to stress, with women experiencing greater anxiety and sadness, while men demonstrated a greater integration of reward motivation and emotional stress systems. (Chaplin et al., 2008).

Given the fact that an increasing number of people nowadays live to a very old age and that currently in Greece, about one in four people, is over the age of 65 years (Eurostat, 2021), thoroughly investigating levels of mental stress in the elderly and their determining factors, is of great importance. It is interesting to note that, in spite of the fact that, older people are considered more vulnerable to ill health and mental health problems (de Mendonça Lima & Ivbijaro, 2013; WHO, n.d.), in the current study, older age was associated with significantly lower levels of reported perceived stress. The above finding warrants further investigation; however, it has been supported by similar studies in the past. The study of Vasunilashorn et al., 2014, reported that perceived stress tended to decrease over time (Vasunilashorn et al., 2014). This finding was in accordance to the result that negative affect decreases during late life (Carstensen et al., 2000; Charles et al., 2001; Mroczek & Kolarz, 1998). It is likely that older adults use different and possibly more effective coping mechanisms to different stressors, compared to younger individuals. Usually, younger people prefer to focus on negative stimuli in contrast to older people who are usually focused on positive stimuli (Mather & Carstensen, 2005). Also, older people give emphasis to emotional goals, they prefer positive information in the context of attention and memory (Mather & Carstensen, 2003) and they usually report greater self-control of their emotions (Gross et al., 1997; Lawton et al., 1992). Moreover, older people when they deal with a difficult situation, they are less likely to employ destructive behavioral responses (Birditt & Fingerman, 2005). An interesting study by Commodari & Di Nuovo, 2019, investigated the impact of sociodemographic characteristics and appraisal of the life experiences, on perceived stress in elderly Italians. The results indicated that life appraisal of the elderly participants' influences levels of perceived stress. More specifically, beliefs on aging and quality of life, affected perceived stress, more than other physical and objective variables associated with stress.

In the current study, education was significantly negatively associated with higher levels of perceived stress, together with job status and annual income, which was anticipated. Mental health disorders, such as depression, anxiety, and stress, have been found in the past to be associated with socioeconomic factors, such as unemployment, low level of education, and poverty (Algren et al., 2018; Freeman et al., 2016).

Finally, the most statistically significant finding of the current study, is the strong positive association between lack of physical activity and levels perceived stress. This finding has been supported by previous studies (Algren et al., 2018) and it was anticipated given the fact that regular physical activity is often recommended as a strategy for managing stress and it improves mood (Arent et al., 2000; Edwards, 2006), sense of wellbeing and quality of life (Atlantis et al., 2004).

Perceived stress in the current study is significantly associated with women, younger age, lower socioeconomic status and particularly with a sedentary lifestyle. Considering the detrimental effects of stress and sedentary behavior on psychosomatic health, these results could be useful in the formation of targeted health promotion programs, incorporating physical activity strategies to reduce stress.

Limitations

Limitations include: the cross-sectional design of the study and as a result, a temporal relationship cannot be supported, the instruments used were subjective measures. Also, participants were recruited only from the urban area of the Attica region. In addition, this study did not collect data with variables that may have an explanatory impact on its findings, including personal characteristics, life events, as well as low sense of coherences, poor social network and appraisal of the stressor(s) (Chu et al., 2016; Feizi et al., 2012; Moore & Cooper, 1996; Ozbay et al., 2007).

Conflicts of interest

The authors declare no conflict of interest. All authors have contributed to writing and revision of the article.

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References

Algren, M. H., Ekholm, O., Nielsen, L., Ersbøll, A. K., Bak, C. K., & Andersen, P. T. (2018). Associations between perceived stress, socioeconomic status, and health-risk behaviour in deprived neighbourhoods in Denmark: a cross-sectional study. *BMC Public Health, 18*(1), 250. doi: 10.1186/s12889-018-5170-x

Allen, M. T., Bocek, C. M., & Burch, A. E. (2011). Gender differences and the relationships of perceived background stress and psychological distress with cardiovascular responses to laboratory stressors. *International Journal of Psychophysiology, 81*(3), 209-217. doi: 10.1016/j.ijpsycho.2011.06.013

Andreou, E., Alexopoulos, E. C., Lionis, C., Varvogli, L., Gnardellis, C., Chrousos, G. P., & Darviri, C. (2011). Perceived Stress Scale: Reliability and Validity Study in Greece. *International Journal of Environmental Research and Public Health, 8*, 3287-3298. doi: 10.3390/ijerph8083287

Arent, S., Landers, D. M., & Etnier, J. (2000). The Effects of Exercise on Mood in Older Adults: A Meta-Analytic Review. *Journal of Aging and Physical Activity, 8*(4), 407-430.

Atlantis, E., Chow, C. M., Kirby, A., & Singh, M. F. (2004). An effective exercise-based intervention for improving mental health and quality of life measures: a randomized controlled trial. *Preventive Medicine, 39*(2), 424-34. doi: 10.1016/j.ypmed.2004.02.007

Birditt, K. S., & Fingerman, K. L. (2005). Do we get better at picking our battles? Age group differences in descriptions of behavioral reactions to interpersonal tensions. *Journals of Gerontology, 60*(3), 121–128. doi: 10.1093/geronb/60.3.p121

Carstensen, L. L., Pasupathi, M., Mayr, U., & Nesselroade, J. R. (2000). Emotional experience in everyday life across the adult life span. *Journal of Personality and Social Psychology, 79*(4), 644–655. doi.org/10.1037/0022-3514.79.4.644

Chaplin, T. M., Hong, K., Bergquist, K., & Sinha, R. (2008). Gender differences in response to emotional stress: an assessment across subjective, behavioral, and physiological domains and relations to alcohol craving. *Alcoholism: Clinical and Experimental Research, 32*(7), 1242-50. doi: 10.1111/j.1530-0277.2008.00679.x

Charles, S. T., Reynolds, C. A., & Gatz, M. (2001). Age-related differences and change in positive and negative affect over 23 years. *Journal of Personality and Social Psychology, 80*(1), 136–151. doi.org/10.1037/0022-3514.80.1.136

Christaki, E., Kokkinos, A., Costarelli, V., Alexopoulos, E. C., Chrousos, G. P., & Darviri, C. (2013). Stress management can facilitate weight loss in Greek overweight and obese women: a pilot study. *Journal of Human Nutrition and Dietetics*, *26*(1), 132-9. doi: 10.1111/jhn.12086

Chu, J. J., Khan, M. H., Jahn, H. J., Kraemer, A. (2016). Sense of coherence and associated factors among university students in China: cross-sectional evidence. *BMC Public Health, 16* (336). doi.org/10.1186/s12889-016-3003-3

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A Global Measure of Perceived Stress. *Journal of Health and Social Behavior, 24*(4), 385-396. doi.org/10.2307/2136404

Commodari, E., & Di Nuovo, S. (2019). Perception of stress in aging: the role of environmental variables and appraisal of the life experiences on psychological stress. *Neurology, Psychiatry and Brain Research, 34,* 28–33. doi.org/10.1016/j.npbr.2019.09.001

Costarelli, V., & Patsai, A. (2012). Academic examination stress increases disordered eating symptomatology in female university students. *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity, 17*(3), e164-e169. doi: 10.1007/BF03325343

de Mendonça Lima, C. A., & Ivbijaro, G. (2013). Mental health and wellbeing of older people: opportunities and challenges. *Mental Health in Family Medicine, 10*(3), 125-7.

Economou, M., Madianos, M., Peppou, L. E., Theleritis, C., & Stefanis, C. N. (2012). Suicidality and the economic crisis in Greece. *The Lancet, 380*(9839), 337. doi.org/10.1016/S0140-6736(12)61244-6

Edwards, S. (2006). Physical exercise and psychological well-being. *South African Journal of Psychology, 36*(2), 357–373. doi.org/10.1177/008124630603600209

Eurostat. (2021). *Population structure and ageing*. https://ec.europa.eu/eurostat/statistics-explained/index.php/Population_structure_and_ageing

Faresjo, A., Theodorsson, E., Chatziarzenis, M., Sapouna, V., Claesson, H. P., Koppner, J., & Faresjo, T. (2013). Higher Perceived Stress but Lower Cortisol Levels Found among Young Greek Adults Living in a Stressful Social Environment in Comparison with Swedish Young Adults. *PLoS ONE, 8*(9), e73828. doi: 10.1371/journal.pone.0073828

Feizi, A., Aliyari, R., & Roohafza, H. (2012). Association of Perceived Stress with Stressful Life Events, Lifestyle and Sociodemographic Factors: A Large-Scale Community-Based Study Using Logistic Quantile Regression. *Computational and Mathematical Methods in Medicine,* 2012 (151865). doi.org/10.1155/2012/151865

Freeman, A., Tyrovolas, S., Koyanagi, A., Chatterji, S., Leonardi, M., Ayuso-Mateos, J. L., Tobiasz-Adamczyk, B., Koskinen, S., Rummel-Kluge, C., & Haro, J. M. (2016). The role of socio-economic status in depression: results from the COURAGE (aging survey in Europe). *BMC Public Health, 16*(1), 1098. doi: 10.1186/s12889-016-

Gross, J. J., Carsten, L. L., Pasupathi, M., Tsai, J., Götestam Skorpen, C., & Hsu, A. Y. C. (1997). Emotion and aging: Experience, expression, and control. *Psychology & Aging, 12*(4), 590–599. doi: 10.1037//0882-7974.12.4.590

Kajantie, E., & Phillips, D. I. (2006). The effects of sex and hormonal status on the physiological response to acute psychosocial stress. *Psychoneuroendocrinology, 31*(2), 151-78. doi: 10.1016/j.psyneuen.2005.07.002

Katsarou, A., Panagiotakos, P., Zafeiropoulou, A., Vryonis, M., Skoulgaris, I., Tryposkiadis, F., & Papageorgiou, C. (2012). Validation of a Greek Version of PSS-14; A global measure of perceived stress. *Central European Journal of Public Health, 20*(2), 104–109. doi: 10.21101/cejph.a3698

Kentikelenis, A., Karanikolos, M., Papanicolas, I., Basu, S., McKee, M., & Stuckler, D. (2011). Health effects of financial crisis: omens of a Greek tragedy. *The Lancet, 378*(9801):, 1457-8. doi.org/10.1016/S0140-6736(11)61556-0

Kessler, R. C., McGonagle, K. A., Swartz, M., Blazer, D. G., & Nelson, C. B. (1993). Sex and depression in the National Comorbidity Survey. I: Lifetime prevalence, chronicity and recurrence. *Journal of Affective Disorders, 29*(2-3), 85-96. doi: 10.1016/0165-0327(93)90026-g

Khan, S., & Khan, R. A. (2017). Chronic Stress Leads to Anxiety and Depression. *Annals of Psychiatry & Mental Health, 5*(1), 1091.

Kokaliari, E. (2016). Quality of life, anxiety, depression, and stress among adults in Greece following the global financial crisis. *International Social Work, 61*(3). doi: 10.1177/0020872816651701

Lawton, M. P., Kleban, M. H., Rajagopal, D., & Dean, J. (1992). Dimensions of affective experience in three age groups. *Psychology and Aging, 7*(2), 171–184. doi: 10.1037//0882-7974.7.2.171

Lee, C. M., Watson, R. E. B., & Kleyn, C. E. (2020). The impact of perceived stress on skin ageing. *Journal of the European Academy of Dermatology and Venereology, 34*(1), 54–58. doi: 10.1111/jdv.15865

Madianos, M., Economou, M., Alexiou, T., & Stefanis, C. (2011). Depression and economic hardship across Greece in 2008 and 2009: two cross-sectional surveys nationwide. *Social Psychiatry and Psychiatric Epidemiology, 46*(10), 943-952. doi: 10.1007/s00127-010-0265-4

Mather, M., & Carstensen, L. L. (2003). Aging and attentional biases for emotional faces. *Psychological Science, 14*(5), 409–415. doi: 10.1111/1467-9280.01455

Mather, M., & Carstensen, L. L. (2005). Aging and motivated cognition: The positivity effect in attention and memory. *Trends in Cognitive Sciences, 9*(10), 496–502. doi.org/10.1016/j.tics.2005.08.005

Moore, K. A., & Cooper, C. L. (1996). Stress in mental health professionals: A theoretical overview. *International journal of social psychiatry, 42*(2), 82-89.

Mroczek, D. K., & Kolarz, C. M. (1998). The effect of age on positive and negative affect: A developmental perspective on happiness. *Journal of Personality and Social Psychology, 75*(5), 1333–1349. doi: 10.1037//0022-3514.75.5.1333

Ozbay, F., Johnson, D. C., Dimoulas, E., Morgan, C. A., Charney, D., & Southwick, S. (2007). Social support and resilience to stress: from neurobiology to clinical practice. *Psychiatry, 4*(5), 35–40.

Phillips, A. C. (2013). Perceived Stress. In M. D. Gellman & J. R. Turner (Eds.), *Encyclopedia of Behavioral Medicine*. Springer.

Schneiderman, N., Ironson, G., & Siegel, S. D. (2005). Stress and health: psychological, behavioral, and biological determinants. *Annual Review of Clinical Psychology 1*, 607-28. doi: 10.1146/annurev.clinpsy.1.102803.144141

Slopen, N., Kontos, E. Z., Ryff, C. D., Ayanian, J. Z., Aldert, M. A., & Williams, D. R. (2013). Psychosocial stress and cigarette smoking persistence, cessation, and relapse over 9-10 years: A prospective study of middle-aged adults in the United States. *Cancer Causes and Control, 24*(10), 1849-63. doi: 10.1007/s10552-013-0262-5

Vasunilashorn, S., Lynch, S. M., Glei, D. A., Weinstein, M., & Goldman, N. (2014). Exposure to stressors and trajectories of perceived stress among older adults. *Journals of Gerontology, Series B: Psychological Sciences and Social Sciences, 70*(2), 329–337. doi: 10.1093/geronb/gbu065

World Health Organization. (n.d.). *Risk factors of ill health among older people*. https://www.euro.who.int/en/health-topics/Life-stages/healthy-ageing/data-and-statistics/risk-factors-of-ill-health-among-older-people

World Health Organization. (2011). *Mental health in Europe*. World Health Organization.

Worly, B., Verbeck, N., Walker, C., & Clinchot, D. M. (2019). Burnout, perceived stress, and empathic concern: differences in female and male Millennial medical students. *Psychology, Health & Medicine, 24*(4) , 429-438. doi.org/10.1080/13548506.2018.1529329

Xu, X., Bao, H., Strait, K., Spertuc, J. A., Lichtman, J. H., D'Onofrio, G., Spatz, E., Bucholz, E. M., Geda, M., Lorenze, N. P., Bueno, H., Beltrame, J. F., & Krumholz, H. M. (2015). Sex differences in perceived stress and early recovery in young and middle-aged patients with acute myocardial infarction. *Circulation, 131*(7), 614-623. doi: 10.1161/CIRCULATIONAHA.114.012826