

EDUCATION FOR WORK RELATED TO LIFESTYLE HEALTH

**Marinel Cornelius DINU¹, Nicolae GOGA², Ana Maria NEAGU²,
Robert ANCUCEANU³**

¹*Business Administration, The Bucharest University of Economic Studies,
Piata Romana 6, Bucharest Romania, Email: marineldinu@gmail.com*

²*Department of Engineering in Foreign Languages University Politehnica
Bucharest Romania, Email: n.goga@rug.nl, anatrocmaer@yahoo.com*

³*University of Medicine and Pharmacy “Carol Davila” Bucharest,
Pharmaceutical botany and cell biology Department, Faculty Member,
Email: robert.ancureanu@umf.ro*

How to cite: DINU, M.C., GOGA, N., NEAGU, A.M. & ANCUCEANU, R. (2020). “Education for Work Related to Lifestyle Health.” *Annals of Spiru Haret University. Economic Series*, 20(3), 99-115, doi: <https://doi.org/10.26458/2034>

Abstract

Studies performed in various countries, including Romania, have shown that a number of factors are negatively impacting the health of the population at the workplace and in the household. The connection between health and work has been researched for a number of years as an important driver towards wellbeing. Several studies have been conducted in order to identify problems and to find solutions to harmonize the balance between wealth and health. Increased globalization, the chase for competitive advantage and the reduction of costs (especially labour costs) moved employers' attention from the wellbeing of employees to higher profits. We discuss about such situations mainly in the East European Countries since the labour force is cheaper than in Western Europe. We should not forget that this current trend started in the US and was

Issue 3/2020

adopted also by European companies in order to increase profits. In West Europe, there are quite a number of studies regarding the relation between work and health, while in East Europe the number of such studies is quite small. The present paper proposes as an objective the study of several working factors and the relationship to health in Romania. Some of the results in our study reveal the concordance between the propensity of individuals to sacrifice from their one time and time for work without significant discrepancies between genders. Also, the more people invest in their time to rest, the more they are able to work hard without injuries. When it comes to gender characteristics, we determined slight changes in behaviour with almost the same labour pattern for both participants.

Another interesting finding was that rural and urban areas are clearly determining the type of stress exposure for participants with a higher impact for workers coming from the urban area. Physical exercise and labour can be channelled in good order according to the gender capabilities.

Keywords: *innovation; technology; education; lifestyle change; research projects.*

JEL Classification: I12, I15, I18, I31

Introduction

Studies performed in various countries, including Romania [Bartel, MacEachen, Reid-Musson *et al.*, 2019; Mitra, Gao, Chen, & Zhang, 2020; Brate, 2014], have shown that a number of factors are negatively impacting the health of the population at the workplace and in the household. The connection between health and work has been researched for a number of years as an important driver towards wellbeing. Several studies [Rohlman, Parish, Hanson, & Williams, 2018; Verra, benzerger, Jiao, & Ruggeri, 2019] conducted focused on identifying problems and finding solutions to harmonize the balance between wealth and health.

Increased globalization, the chase for competitive advantage and reduction of costs moved employer's attention from the wellbeing of employees to higher profits. Such situations occur mainly in the Eastern Europe Countries since the labour force

is cheaper than in Western Europe. We should not forget that this current trend started in the US and was adopted also by European companies in order to increase incomes. Nowadays US dropped such policies of long lasting working hours and promoted a friendlier approach. Unfortunately, in Europe we still have to struggle with such policies and these influences the health of workers. Among them we discuss about difficulties in adapting to the work place and taking into consideration the region – rural/urban – where they work.

According to Eurostat data, Romanian employees work an average of 39.8 hours per week (2019), which is slightly greater than the European average of 37.1 hours. By gender, the discrepancy is higher with 39.3 hours worked by women compared to EU average of 34.1 hours¹ [Pașnicu, & Ghinararu, 2019]. Almost 21.71% of the employed population work in agriculture in Romania, which is the highest proportion in the EU and significantly greater than the European average of 4.36%.

At the opposite end of the scale, Romania has the lowest percentage of employees working in service sector market – 48.2%, compared to a European average of 70.75%² [William, & Turton, 2014]. There are differences between people who work in rural and urban areas and having different levels of education. Also it is known that people who do not have a healthy lifestyle suffer difficulties in adapting to the workplace which causes people to quit their job, or be laid off. These situations create disturbances in social and professional life.

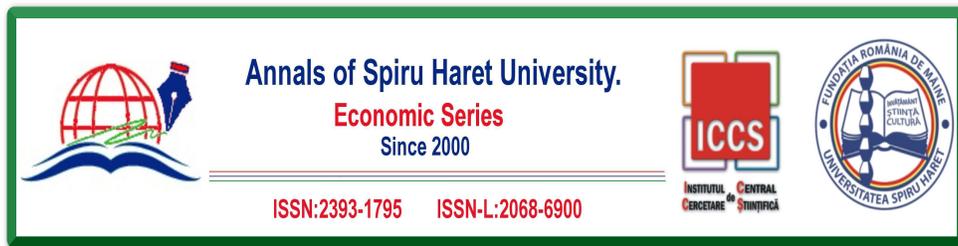
In West Europe there are quite a number of studies regarding relation between work and health, while in East Europe the number of such studies is quite small. The present paper proposes the study of several working factors and the relationship to health in Romania.

Literature Context Review

The term stress is referred as: “name given to any environmental factor (factors) that is causing an abnormal reaction of the human body” (DEX: stress definition). Unfortunately, for humans it is almost impossible to avoid this disturbance factor

¹ <http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do>

² <https://tradingeconomics.com/european-union/employment-in-services-percent-of-total-employment-wb-data.htm>



Issue 3/2020

that affects the health and also the wellbeing of individuals. “We can say nowadays that the term ‘stress’ is part of our daily existence, it is used by most people, whether they carry out an activity in an organizational framework or not, being either employees, employers, self-employed or unemployed persons. In fact, people try to describe in just one word their reaction when they cannot adapt to the different demands and pressures that may arise at the level of personal and family life or at work” [Popescu, Iancu, Vasile, & Popescu].

In what follows we will discuss first the situation at an international level – in order to place our research in an international context – and after that come down to the situation in Romania.

In a study regarding the analysis of mental health risks caused by overwork, the author look to the correlations between the psychosocial state of the individual and the workplace. It was concluded that occupational hazards are risks for physical and mental health. The author proposes laws to regulate the relationships between the stress caused by work and human health. Exposure factors have been identified that are making workers’ health worse. Methods and strategies for eliminating these factors are preventive measures for human health with potential benefits especially if they are backed by legal framework. For sure, psychological health disorders can be caused by work with negative consequences for the entire life of individuals, personal and professional. Strategies must be developed to eliminate stress in the workplace. Another study has a similar conclusion. Research into exploring the health risks of drivers [Potter, O’Keeffe, Leka, Webber, & Dolland, 2019] has shown that stress related to traffic or passengers are leading to mental and physical illness for drivers. Driving is a very risky job. They are exposed to driving stress.

The relationship between health and work in urban versus rural area is analysed in another study [Bartel, MacEachen, Reid-Musson *et al.*, 2019]. The study looks at how work affects young and old individuals in health. Several categories of consequences related to overwork were analysed. These adverse consequences include health problems related to heart disease, cancer, and depression. There were a higher percentage of those with health problems who work in the city. A lower percentage was registered for individuals working in rural areas. Among middle aged workers from the rural area, health decrements are significantly associated with a lower likelihood of working and reduced work hours, earnings, and income. These areas



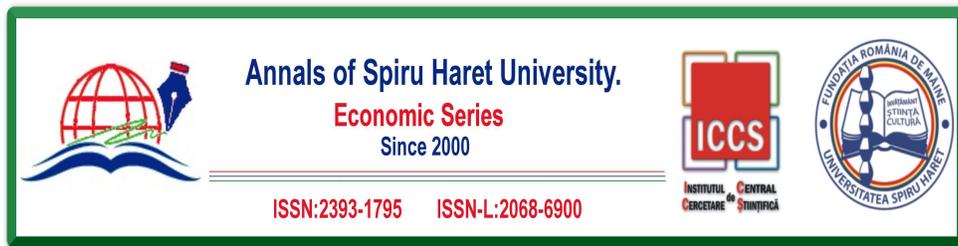
Issue 3/2020

have been recommended and identified as low risk areas. It seems that working for women in the city does not affect as much as it does for men.

In another study regarding the degree of influence of mental health due to certain types of work [Sato, Kuroda, & Owan, 2020], the author noted some work characteristics with negative effects on human health. Some illnesses were due to the work performed over the normal program, i.e. above the maximum allowed limit. Others were responsible for the work done during the weekend. Some diseases have their origin in non-alternating work with rest or even its absence. Another cause of health problems was due to long working hours.

The correlation between level of education and the decision to work is discussed in another study. The article suggests that both health and employment status are closely linked to socioeconomic status, especially educational level. Studies of workers' health status have shown the importance of education as a strong predictor of health [Jung, Choi, Myong, Kim, & Kang, 2020]. The aim of the study was to analyse whether or not the degree of education of the population influences the decision to work. The sample for these studies was a South Korean group aged between 30 and 79 years. Generally, people will choose to work to a greater or lesser extent due to the influence of others. At the same time, people still make the decision to work based on the level of education. The results showed that people with higher education are more willing to work and take the initiative much faster compared to those who do not study and tend to give up looking for a job more quickly. The results of the study suggest that there is a negative association between Unable to work due to ill-health (UWdIH) and educational level; the less the educational level, the more likely to be UWdIH.

The relationship between theory and practice, in terms of health at work is discussed from the perspective of Labour management [Verra, Benzerga, Jiao, & Ruggeri, 2019]. The study proposes to complement the protection of work by promoting a healthy lifestyle. Health and safety strategies at work should be improved with practice at European level. A study was initiated to identify the percentage of measures against personal injury, psychosocial risks and measures to promote health. The results showed that 73% of the measures are against personal injury, 36% prevention of psychosocial risks and only 29% for the promotion of a healthy lifestyle. The solution would be to promote strategies and laws to encourage a



Issue 3/2020

healthy lifestyle that will improve the health and well-being of the worker at the workplace.

At European level, stress is also an important factor that is related to work [Thorvaldsen, Kongsvik, Holmen *et al.*, 2020]. This condition is well known as a main driver for physical and mental illness. Romania faces also a substantial level of work stress. A study [Brate, 2014], developed a questionnaire that identifies the level of stress regarding employees at work. In the Romanian organizations, the workers face different stressful situations. The study showed that from a health point of view, stress is the most common problem especially by gender. Women's are much more reactive than men and they cope with all kinds of worries, lack of confidence and a higher degree of stress than men. In order to counteract stress, certain managerial measures must be used like an intervention program focusing on individual, organizational or for specific socio-professional categories.

We can conclude after a short literature review that different studies provide in the end similar conclusions. Stress is the most common incriminated factor that causes work illness along with bad nutrition and a correlation with the level of education. Overwork also causes a lot of health problems. Also there are differences between rural and urban areas regarding work factors and their influence on health. Internationally, working in rural areas causes less healthy problems as compared to urban areas. Lifestyle plays an important role in the performance at work. Work and health influence each other. Studies undertaken suggest a higher attention towards legislation to support the work-leisure balance.

Materials and Methods

The objectives: The main objectives of the study are the following:

- To look at the differences between work in rural areas and urban areas in Romania, workers' opinion.
- To study the relation between stress, health and work, via data obtained from the survey conducted.
- To draw relevant conclusions and to encourage policies regarding the balance between health, lifestyle and work.

The Methodology: The purpose of our study is to determine differences among rural and urban areas in work attitudes and level of implication (number of hours

and effort). The study comprised 239 subjects from rural and urban area in Romania. We used a convenience sampling method. The study was based on a questionnaire with closed questions. The questionnaire was administrated through face-to-face contact.

The study was done in rural and urban areas from Romania on both genders and with an age range between 20 and 65. We analysed different factors that are related to work and the relation between work and health in Romania from the respondents' perspective.

Statistical analysis was performed in the R computing and programming environment [Team, 2013]. 95% confidence intervals for proportions were computed using the Clopper-Pearson exact method, as implemented in the "PropCIs" R package [Scherer, 2018]. Chi-square test was used to compare proportions. A significance level of 0.05 was used in the analyses.

Results

Urban and rural population mobility: The first question referred to urban and rural population mobility in order to determine the degree of openness of respondents and the connection with the homeland. Respondents were asked whether or not they *live* now in the same area where they grew up. The largest part of the respondents (58.64%, 95% CI 51.83-65.06%) answered affirmative. This was true for both urban and rural environment; the proportion of those living in the same area was only slightly higher for the respondents from the rural environment than for those from the urban environment (63.92% vs. 57.02%, $p=0.379$).

Mobility of work as compared to the origin area: For the second question we were interested to understand whether the respondents *work* in the same area in which they grew up or in a different area. 37.44% of the respondents work in the same area, 37.90% work in an area different from the one in which they grew up, whereas 24.66% do not work at all. As shown in Fig. 1, less respondents from the urban environment were not working at all in comparison with those from the rural environment; otherwise, the proportion of those working in the same area in which they grew up was roughly equal with that of those working in a different area ($p=0.164$, chi-squared).

Issue 3/2020

The mobility of work as compared to the origin area shows slightly the same propensity of respondents from rural and urban area. The belonging sentiment seems stronger for Romanians and the tendency towards change is not amongst their preferences.

Attitude: When it comes to determining the attitude towards physical work, we were interested to probe the attitude of the respondents as a whole and also by residence. Our data shows that about half of them (46.73%, 95 % CI 38.75%-52.28%) are rather indifferent in their attitude, one third of the respondents (32.71%) are rather satisfied about physical work, whereas only 20.56% (95% CI 14.92%-25.90%) perceive the physical work as rather a tiring drudgery (chi-square $p=0.081$).

Mobility of work as compared to the origin area

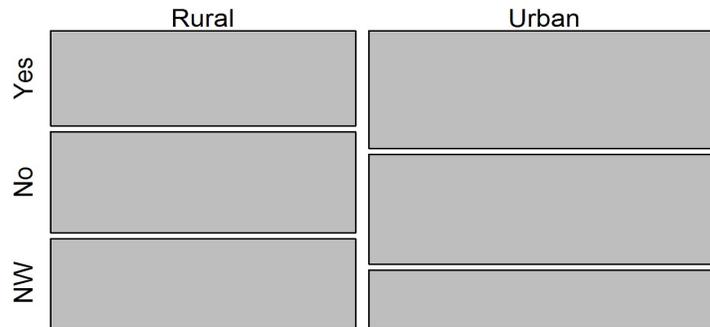


Fig. 1. Mosaic Plot Representing the Proportions of Respondents Working in the Same Area They Grew Up in, Split by the Urban/Rural Environment of the Respondents

Source: Personal contribution

When examining these perceptions against the rural or urban origin of the respondents, we find that most of the respondents from the country tend to express indifference towards physical activity, and a larger minority is rather satisfied with it. Because the proportion of those with neutral feelings in the urban environment

was lower, relatively more of them were satisfied with the physical works, but also relatively more when perceiving work as a fatiguing donkeywork (Fig. 2).

Attitude towards physical activity

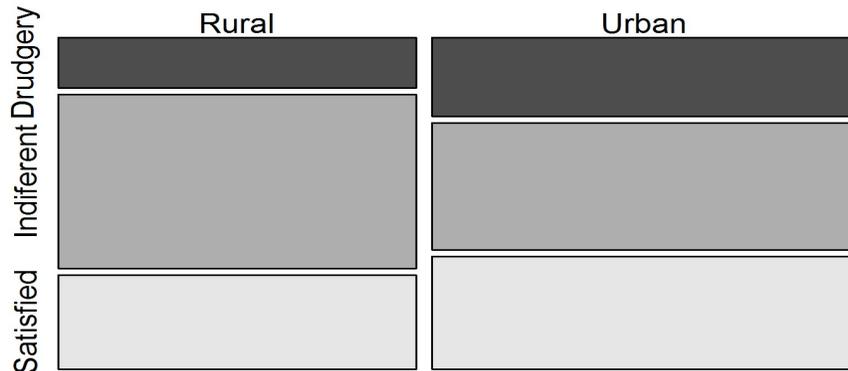


Fig. 2. Mosaic Plot Representing the Proportion of Respondents Satisfied about the Physical Work, Depending on Their Rural or Urban Origin
Source: Personal contribution

Daily working hours: In order to gauge the length of time the respondents work every day, they were asked to estimate the working hours in each day as an interval between a minimum and a maximum number of hours. About one in every five respondents from both rural and urban environment either they do not work at all or work one hour a day at most (21.00% in the rural environment, 18.92% in the urban environment).

About half of the respondents work at least 6 hours every day (41% in the rural environment, 47.75% in the urban environment). 2-4% of the respondents work every day at least nine hours, and about half of the respondents report working up to 10 hours a day (42% of the respondents from the rural environment, 49.55% of the respondents from the urban environment). 1% of the rural respondents and

Issue 3/2020

about 2% of the urban respondents reported working up to 20 hours in some – hopefully few – days.

Data collected proves that work hours, especially for the urban area, represent a challenge for individuals. If half of respondents work up to 10 hours per day than the stress and fatigue level for sure are important factors that affect individual's health. The difference coming from belonging environment is not substantial – 42, compared to 49, but probably the type of labour makes the difference between working life with mental stress or working life with physical stress. (Fig. 3)

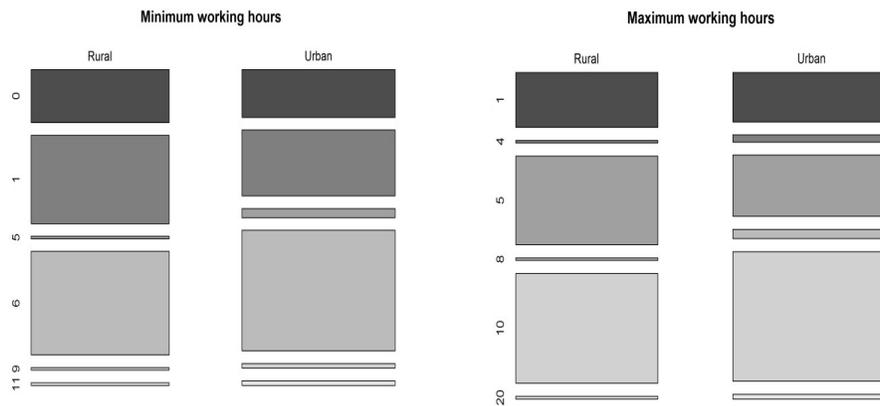


Fig. 3. Comparative Mosaic Plots Representing the Daily Working Hours of the Respondents, Depending on Their Rural or Urban Provenance
Source: Personal contribution

Examining the distribution of working hours by gender shows that whereas the minimum or maximum number of hours varies (most respondents indicating 0.1 or 6 hours as a minimum and 1.5 up to 10 hours as a maximum, with modal values of 6 and 10 hours, respectively), there seems to be little difference between the two genders ($p > 0.62$ for both minimum and maximum working hours, chi-square) (Fig. 4).

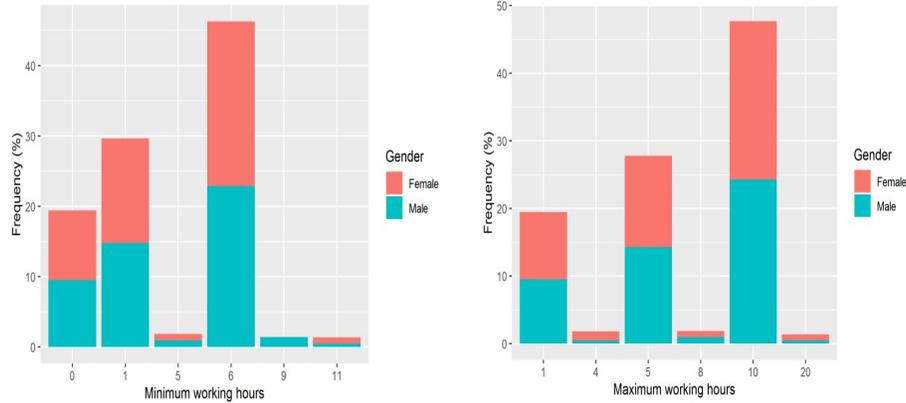


Fig. 4. Bar Plots Showing the Proportion by Gender of the Minimum and Maximum Working Hours Per Day among Respondents
Source: Personal contribution

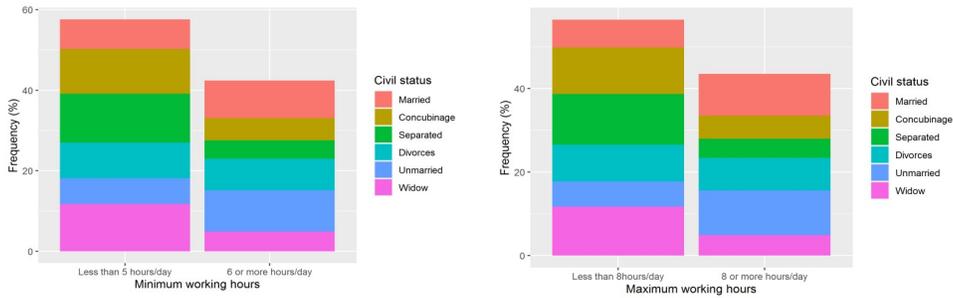


Fig. 5. Stacked Bar Plots Illustrating the Variation of Minimum and Maximum Daily Working Hours by Respondents' Marital Status
Source: Personal contribution

Looking at the relationship between the working hours and civil status, it tends to indicate that unmarried or married respondents work more hours, whereas those divorced, separated, living in concubinage or widows work less hours. This was

Issue 3/2020

seen when examining both minimum and maximum working hours, but with our sample size the differences were not significant ($p=0.184$ for the minimum daily working hours and $p=0.0629$ for the maximum working hours, chi-square). For easier visualization we binarized the number of working hours (Fig. 5).

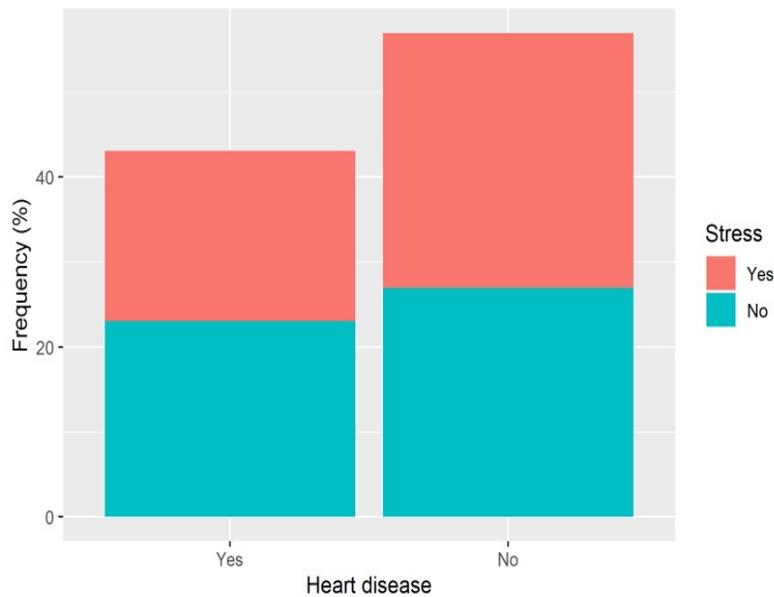


Fig. 6. Distribution of Heart Disease among the Respondents according to the Stressful Character of Their Job
Source: Personal contribution

Stressful work and health: In order to probe the perception of the respondents on the stressful character of their job, they were asked to state whether or not their job was stressful. Only 7.66% of the participants labelled their job as suck, whereas the large majority of respondents did not consider their job “stressful”. About half of the respondents (46.33%, 95% CI 39.19%-52.74%) acknowledged suffering

from various heart diseases (such as high blood pressure, ischemic heart disease etc.). We were interested to assess if there was any association between the stressful job and heart disease amongst the respondents, but no such association could be detected ($p=0.85$, Fig. 6).

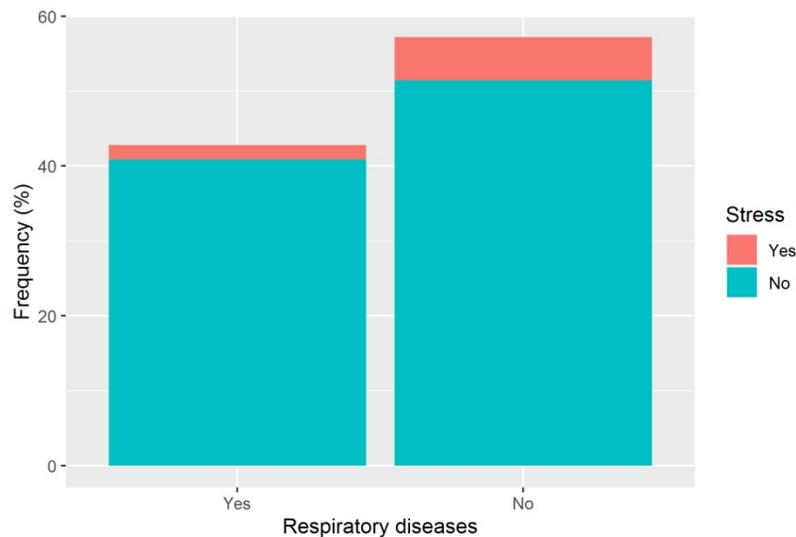


Fig. 7. Distribution of Respiratory Diseases among the Respondents according to the Stressful Character of Their Job
Source: Personal contribution

It has long been known that work-related stress is a risk factor for cardiovascular disease and that prolonged stress at work or at home may increase the probability of developing coronary heart disease by 40-50% [Steptoe, & Kivimäki, 2012]. The studies performed up to date have mainly been concerned with males and the limited data regarding women have been considered insufficient to draw firm conclusions on the relationship between work stress and ischemic heart disease [Eller, Netterström, Gyntelberg *et al.*, 2009]. Our study did not find such an association, but several

Issue 3/2020

factors might explain this finding. As it has been recognized in the literature, evaluating “work stress” is particularly difficult, because of the “subjectivity” of the concept and the problems associated with blending its main components in meaningful metrics [Sara, Prasad, Eleid, Zhang, Widmer, & Lerman, 2018]; ours was a simple cross-section study, and we only assessed “work related-stress” based on the perception of the respondents, and not through a more objective metrics (i.e. there may be a high proportion of misclassification with respect to work-related stress). Secondly, the proportion of participants describing their jobs as “stressful” was fairly low (less than 10%), and therefore it is likely that the law of small numbers [Rabin, 2002] may operate and explain the results. Thirdly, other sources of stress amongst the participants reporting as having non-stressful jobs could also cause confusion and lack of an apparent relationship between the two variables. Finally, additional confounding variables may both increase the heart disease risk in the group without stressful jobs and decrease the risk in those with stressful jobs, explaining the absence of any apparent relationship between the two.

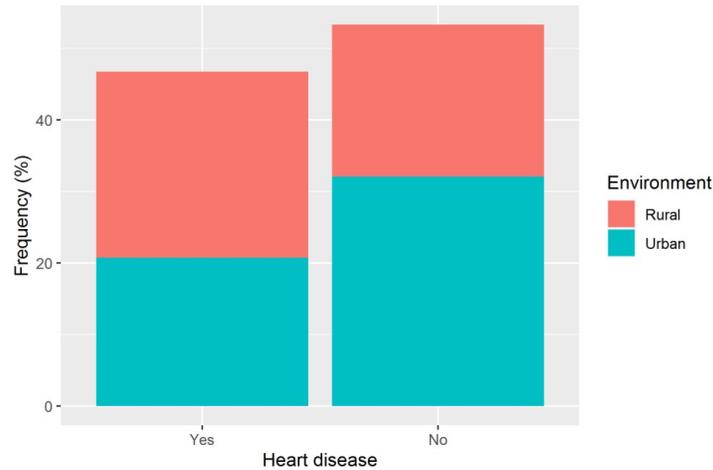


Fig. 8. Distribution of Heart Diseases among the Respondents according to Their Living Environment (Rural/Urban)

Source: Personal contribution

The proportion of respondents acknowledging as suffering from various respiratory diseases was similar to that recorded for the heart disease (40.83%, 95% CI 36.98%-50.47%). No direct association was seen between the work-related stress (more accurately the self-reported stressful jobs) and the respiratory disease (the proportion of the respondents with stressful jobs was rather higher amongst those with no respiratory diseases, than those suffering from such health issues – $p=0.217$, chi-squared, Fig. 7).

Living environment and health: We analysed the relationship between the presence of heart disease among study participants and the rural or urban environment in which they reported living. Our findings indicate that respondents from the rural environment have a higher frequency of heart diseases than their counterpart from the urban environment ($p=0.031$, Fig. 8).

A similar relationship was found for the distribution of respiratory diseases. Respondents from the rural environment tended to report disproportionately more diseases of this nature, unlike those from the urban environment ($p=0.033$, Fig. 9).

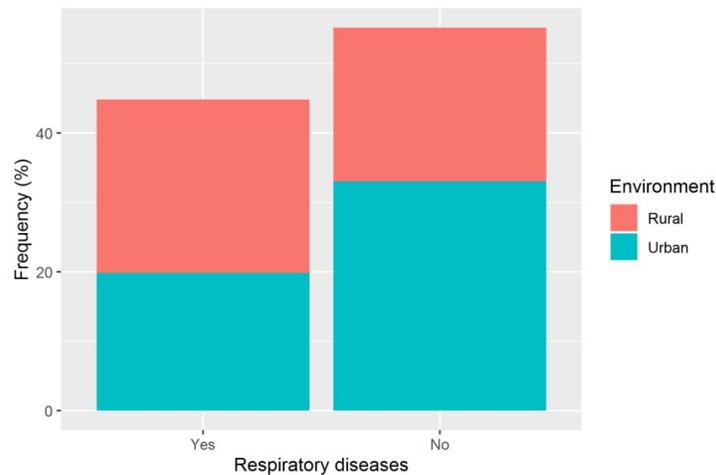


Fig. 9. Distribution of Respiratory Diseases among the Respondents according to Their Living Environment (Rural/Urban)

Source: Personal contribution

Issue 3/2020

Conclusions

The quantitative study reveals the concordance between the propensity of individuals to sacrifice from their one time and time for work without significant discrepancies between genders. Also the more people invest in their time of rest, the more they are able to work hard without injuries. When it comes to gender characteristics, we determined slight changes in behaviour with almost the same labour pattern for both participants.

Another interesting finding was that rural and urban areas are clearly determining the type of stress exposure for participants with a higher impact for workers coming from the urban area. Physical exercise and labour can be channelled in good order according to the gender capabilities. Balancing the connections between physical conditions and mental adaptability can produce an equilibrium situation between stress and work time. Rural and urban areas can favour health opportunities for individuals as long as they work plenty of time without extenuation. The attitude towards work can be a determinant factor regarding the implications of work results and health characteristics.

References

- [1] Bartel E., MacEachen E., Reid-Musson E., et al. (2019). "Stressful by design: Exploring health risks of ride-share work." *Journal of Transport & Health*, 14: 100571.
- [2] Mitra S., Gao Q., Chen W., & Zhang Y. (2020). "Health, work, and income among middle-aged and older adults: A panel analysis for China." *The Journal of the Economics of Ageing*, 17: 100255.
- [3] Brate A.T. (2014). "Diagnosing occupational stress in Romanian organisations." *Procedia – Social and Behavioural Sciences*, 127: 559-564.
- [4] Rohlman D.S., Parish M.A., Hanson G.C., & Williams L.S. (2018). "Building a Healthier Workforce: An Evaluation of an Online Nutrition Training for Apprentices." *Journal of nutrition education and behaviour*, 50: 913-917. e911.
- [5] Verra S.E., Benzerga A., Jiao B., & Ruggeri K. (2019). "Health promotion at work: A comparison of policy and practice across Europe." *Safety and Health at Work*, 10: 21-29.
- [6] Pașnicu D., & Ghinararu C. (2019). Analysis of the Main Employment Trends at EU and Romanian Levels.
- [7] <http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do>. Available from URL: <http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do>



Issue 3/2020

- [8] Williams T., & Turton V. (2014). *Trading Economics: A Guide to Economic Statistics for Practitioners and Students*. John Wiley & Sons.
- [9] <https://tradingeconomics.com/european-union/employment-in-services-percent-of-total-employment-wb-data.htm>
- [10] Popescu L., Iancu A., Vasile T., & Popescu V. (2018). "Stress and burnout of human resources at the level of Mehedinti County–Romania organisations." *Economic research-Ekonomska istraživanja*, 31: 498-509.
- [11] Potter R., O’Keeffe V., Leka S., Webber M., & Dollard M. (2019). "Analytical review of the Australian policy context for work-related psychological health and psychosocial risks." *Safety science*, 111: 37-48.
- [12] Sato K., Kuroda S., & Owan H. (2020). "Mental health effects of long work hours, night and weekend work, and short rest periods." *Social Science & Medicine*, 246: 112774.
- [13] Jung J., Choi J., Myong J.-P., Kim H.-R., & Kang M.-Y. (2020). "Is Educational Level linked to Unable to Work due to Ill Health?" *Safety and Health at Work*.
- [14] Thorvaldsen T., Kongsvik T., Holmen I.M. *et al.* (2020). "Occupational health, safety and work environments in Norwegian fish farming-employee perspective." *Aquaculture*, 735238.
- [15] Team R.C. (2013). R: A language and environment for statistical computing.
- [16] Scherer R. (2015). "PropCIs: Various Confidence Interval Methods for Proportions"; 2018. URL <http://CRAN.R-project.org/package=PropCIs>. R package version 0.2-0, p 62.
- [17] Steptoe A., & Kivimäki M. (2019). "Stress and cardiovascular disease." *Nature Reviews Cardiology*, 9: 360-370.
- [18] Eller N.H., Netterstrøm B., Gyntelberg F. *et al.* (2009). "Work-related psychosocial factors and the development of ischemic heart disease: a systematic review." *Cardiology in review*, 17: 83-97.
- [19] Sara J.D., Prasad M., Eleid M.F., Zhang M., Widmer R.J., & Lerman A. (2018). "Association between Work-Related stress and coronary heart disease: a review of prospective studies through the job strain, Effort-Reward balance, and organizational justice models." *Journal of the American Heart Association*, 7: e008073.
- [20] Rabin M. (2002). "Inference by believers in the law of small numbers." *The Quarterly Journal of Economics*, 117: 775-816.

