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JOB PERFORMANCE AND MENTAL HEALTH IN WORKFORCE IN NORTH MACEDONIA DURING COVID-19 PANDEMIC

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ABSTRACT: The COVID-19 pandemic is a major public health disaster having significant influence on economic, mental health and well-being of entire world population including North Macedonia. The existing literature is suggesting changes in the work performance and job satisfaction influencing mental health of employed individuals. The need for changes in “new normal” ways of working and performing in COVID-19 made a significant impact on mental health and well-being of the employees. Aim of the study is to explore the connection between the changes in workplace practices and task performance before and during the COVID-19 pandemic among employees and their mental health. The study is a cross-sectional including 297 participants, employed adults from the general population in North Macedonia. The convenient sample is based on a snowball recruitment of the participants. The following self-reported measurement were used in the study: Depression, Anxiety and Stress Scale (DASS-21) short version for determining stress and anxiety, adopted version of Individual Work Performance Questionnaire (IWPQ) and instrument for measuring the task performance changes in workplace practices questions are aligned with the questions from a large study on work-related consequences of COVID-19 across Europe. Results showed that being females and younger is associated significantly with higher levels of both stress and anxiety ($t(267)=2.82, p=.005$). The results from the regression analyses showed that perception of task performance in the last three months; the increased difficulty of work due to the pandemic requirements, and change in meeting other people are significant predictors for stress in employees. The study also revealed that significant predictors for anxiety are increased difficulty of work which has positive relations with anxiety and increased workload, which has negative relation with anxiety. The study findings will also contribute to reinforce recommendations about the need for developing mental health services and organizational policies, programmes and interventions to support the workers and sustain their well-being.

Keywords: COVID-19, mental health, workforce, practices, task performance

INTRODUCTION

The novel coronavirus (COVID-19) pandemic, proclaimed by World Health Organization (WHO), caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), beginning in Wuhan, China, has become a global health and economic problems (WHO, 2020). The rapid spreading of the COVID-19 around the globe made a major impact each domain of everyday life including social gathering, staying at home changing the way of working, dropping official travel and closure of some businesses (WHO, 2021). National governments also declared states of health emergencies to reduce the burden of the coronavirus imposing measures such as: lock downs, physical distancing, staying at home, working from home and other relevant health recommended behaviors such as: washing hands often or thoroughly; wearing a face mask; avoid shaking hands; avoid touching face; and others. The impact on the workforce dramatically influence work style, performance, for some sectors closure of business, and for health workers work overload and extreme work pressure. For some it was maintaining the standard work, and for some was adopting new ways of organization in which company perform.

The changes in the organizational settings of the companies that has appeared in COVID -19 has influenced employees' performance, although many must continue their usual work. The evidence show higher prevalence of anxiety, fear and psychological stress in workers, especially in health workers and frontline worker, during COVID-19 (Badahdah et al., 2020; Khanal et al., 2020; Khajuria et al., 2021; Lai et al., 2020; Lenzo et al., 2021). It is of very huge importance to see the link between workplace measures taken by employers could reduce employees' anxiety and stress about COVID-19 and maintain acceptable work

performance. Additionally, the governmental and organizational measures taken during COVID-19 may influence job performance (Graves and Karabayeva, 2020) and cause detrimental effects on mental health and well-being of the employees.

Studies that have been investigating work from home or teleworking have come up with both positive and negative outcomes linked to job performance. Golden and Gajendran (2019) study brought some novelty regarding teleworking, suggesting that employees who are holding multifaceted jobs, jobs with lower levels of interdependence and having lower social support, teleworking is positive linked with job performance. Similar finding have been found in other studies, reporting advantages in teleworking associated with flexibility, expediency, independence, (Bailey and Kurland, 2002; Hesketh and Cooper, 2019). Some other studies indicate the negative outcomes of teleworking on mental health and well-being of the employees (Marshall et al., 2007; Stich, 2020). However, up till now the outcome of work from home on job performance on the staff have controversial and contradictory results and consequently it is crucial to further address this evidence gap (Allen, Golden and Shockley, 2015; Susilo, 2020).

At present there is an increasing trend in data gathering and evidence generating regarding mental health outcomes on the workforce during COVID-19, with results revealing serious mental health problems in employees (Badahdah et al., 2020; Khanal et al., 2020; Khajuria et al., 2021; Lai et al., 2020; Lenzo et al., 2021). For example Lai et al. (2020) investigated the mental health outcomes such as: depression, anxiety, insomnia, and distress, among 1257 frontline health care workers (HCWs) in 34 hospitals from Wuhan city in China. Results showed that 50.4% of participants reported depressive symptoms, 44.6% anxiety, 34% insomnia and 71.5%

reported distress symptoms. Being a nurse, women, and frontline health care workers is increasing the risk depression, anxiety, and distress. Additionally, Badahdah et al. (2020) in their study investigated the prevalence of anxiety, and stress among health care 509 workers recruited from 10 health care facilities in Oman, of which 315 nurses (61.9%) and 194 physicians (38.1%). The findings show that the largest proportion of respondents in the study (74.1%) experienced minimal to mild anxiety. Around 26% reported moderate to severe anxiety. Regarding the exposure to stress 43.6% reported lower stress, while more than half (56.4%) of HCW reported being exposed to high stress. It is important to point out that females and younger employees, reported higher levels of anxiety and stress in comparison with males and older employees. In other study Khanal et al. (2020) examined the symptoms of depression, anxiety and insomnia in 475 employees in Nepal. Results revealed that 41.9% of health workers reported anxiety symptoms, 37.5% had depressive symptoms and 33.9% had insomnia. Nurses are more likely than other groups to experience anxiety, higher depression and severe insomnia than other HCWs. Insufficient protective measures at workplace were linked with higher probabilities of having anxiety and depressive symptoms. The study of Lenzo et al. (2021) investigated the mental health in total sample of 218 Italian workers in an online survey, during the lockdown to the COVID-19. The study aims at understanding depression, anxiety, and stress symptoms among healthcare workers. The results indicated a prevalence of moderate to extremely severe symptoms of depression in 8%, then 9.8% for anxiety, and 8.9% for stress. The findings revealed that healthcare workers working with COVID-19 patients had higher prevalence rates of depression, anxiety, and stress, in comparison with other study participants. Moderate-to-extremely

severe prevalence of anxiety was present in 21.5% of participants and 33.4% for stress. Khajuria et al. (2021) conducted an international, cross-sectional study implemented in 41 countries with total of 2527 healthcare staff participated. The findings revealed high levels of emotional distress with more than 60% reporting feeling down, depressed or hopeless at least some of the time, and one in six experiencing these feelings often or all the time (Khajuria et al., 2021).

The evidence on mental health of workers; job performance, and work-related variables have been investigated independently, and until now only few studies have examined the relationship between job performance, work-related variables and mental health such as stress and anxiety of employees. There is a lack of studies for workers other than health-care workers and specifically for a number of variables that are work-related during the pandemic and mental health. The aims of this study are: 1) to fill the gap of literature on work performance during the coronavirus pandemic and levels of anxiety and stress in workers; 2) to investigate the link between socio-demographic characteristics of the respondents such as: age, gender and years of experience in the company and the levels of stress and anxiety; 3) to test if stress and anxiety as outcomes variables can be predicted by work related variables such as: task performance, change in task performance in the last three months, change in workload, change in difficulty of work, decrease in monthly income, change in meeting other people during work and change in telecommuting.

The study hypothesized that the stress as outcomes variable in employees can be best predicted by: task performance, change in task performance in the last three months, change in workload, change in difficulty of work, decrease in monthly income, change in meeting other

people during work and change in telecommuting. The second hypothesis is predicting that anxiety as outcome variable is linked to: task performance, change in task performance in the last three months, change in workload, change in difficulty of work, decrease in monthly income, change in meeting other people during work and change in telecommuting as predictors.

MATERIAL AND METHODS

STUDY DESIGN, SAMPLE AND PARTICIPANTS

Cross-sectional study design was applied in the Republic of North Macedonia on a convenient sample of employees from different sectors. The study was implemented online in the period from beginning of March to end of April 2021. The total number of the study participants was 297 out of 310 total participants, with 13 participants excluded after applying quality check control. The socio-demo-

graphic data of the sample are presented in Table 1. About 45.5% of the participants are male, 52.5% female and binary/missing with 2%. An average age of the participants is 30 years of age. The majority of the participants are holding bachelor degree (37%), and similar percentage about 33.7% are participants with high-school diploma. In the study, the greater part of the participants are having work experience between 1 and 5 years, employed in small level and medium level companies as presented in Table 1.

MEASUREMENT

Mental Health: Stress and anxiety

The outcomes variables stress and anxiety were assessed using the Depression Anxiety Stress Scales (DASS-21) as a self-report inventory. This instrument is composed of three subscales for measuring the negative emotional states of depression, anxiety and stress, developed by Lovibond and Lovibond (1995). For the

Table 1.

Socio-demographic data

Gender	Percentage of respondents
Male	45.5
Female	52.5
Non-binary/Prefer not to answer	2
Level of education	
Non-completed high school	2.4
High-school degree	33.7
Bachelor degree	37
Master and above	26.9
Work Experience (duration)	
Less than 1 year	23.6
1 to 5 years	38
6 to 10 years	6.7
Above 10 years	31.6
Size of company	
Less than 10 employees	30.7
11-50 employees	34.1
51- 250 employees	20.9
Above 251 employees	14.2

purposes of this study only two subscales have been used: Anxiety and Stress subscales. The DASS is consisted of 4 items Likert type scale and individuals are asked to score every item on a scale from 0 (did not apply to me at all) to 3 (applied to me very much) in the last week. For example for anxiety they are asked how much they agree with the statement “I had a feeling of shakiness (e.g. legs going to give way)” and for stress they are asked how much they have felt as “I found myself getting upset by quite trivial things”. The scores for each subscale can range from 0–21. The DASS has no direct implications in diagnostic categories postulated in classification systems and is principally intended for measuring the severity of symptoms of depression, anxiety and stress. Cronbach’s alphas for the DASS–21 subscales have proven sufficiently high in several studies been from .82 to .87 for Anxiety scale, and .90 to .91 for Stress scale, (Antony et al., 1998; Henry and Crawford, 2005).

The work-related instruments

Task Performance for the last three months is self-reported instrument consisted of 5 items for work-related consequences of COVID-19 in Europe (Prochazka et al., 2020), taken from Koopmans et al (2014) and implemented in this study. The individuals are asked on a 5 point Likert type scale with 1 meaning seldom and 5 meaning always, regarding their assessment of the effectiveness in planning and performing work tasks using minimal time and effort as well as separating main from side issues at work. Lower score means less successful self-perception of Task performance (Prochazka et al., 2020).

The variable **Change in task performance in the last three months** is self-reported measure composed of 5 items scale (Koopmans et al., 2014). The individuals

are asked on a 5 point Likert type scale with 1 meaning seldom and 5 meaning always, regarding their assessment of the change in successfulness in planning and performing work tasks using minimal time and effort as well as separating main from side issues at work Koopmans et al (2014). Lower score results mean evaluation of worse Task Performance in the last three months compared to previously.

In addition a number of specific work related changes as a result of the pandemic were used adopted from the work of Klein and Cooper (2014): **change in workload** (with higher levels meaning more workload in the pandemic), **increase in difficulty of work** (with higher levels meaning more difficult work during the pandemic), **change in meeting other people during work** and **change in telecommuting** were also used in the study. The above mentioned variables were measured on a 10 point scale, with 1 meaning not at all and 10 meaning all the time. The higher score on this instrument mean bigger difference in meeting people and telecommuting prior to the pandemic and during the pandemic.

All the scales had relatively high reliability and the Cronbach Alpha was ranging from .826 for the scale Change in task performance to .958 for the scale Change in organizational commitment accordingly. The details are displayed in the Table 2.

Table 2.

Cronbach Alpha results

	Cronbach Alpha
Actual task performance	.826
Change in task performance	.879
Stress	.880
Anxiety	.868

RESULTS

Prior to testing the hypothesis of the study, an exploratory analysis was performed for the outcome variables stress and anxiety for various demographic groups of participants. The results of the analysis are displayed in Table 3. As can be seen females experience higher levels of both stress and anxiety. The differences for stress are statistically significant $t(267)=2.82$, $p=.005$, and the results for anxiety are also statistically significant $y(266)=2.01$, $p=0.04$. This means that females report higher levels of both stress and anxiety in comparison to males during the COVID-19 pandemics. When it comes to education there are no statistically significant differences between the groups for both stress and anxiety. Work experience seems to play a role in the experienced stress and anxiety with those having between 6 to 10 years work experience reporting highest levels of both stress and anxiety. The difference is statistically significant only

for anxiety and the results of the ANOVA test show statistically significant main effect ($F(3,273)=5.93$, $p=.001$) and the post-hoc test reveals statistically significant difference only in the anxiety levels of those with 6 to 10 years of experience and the other groups. The differences in experience of stress and anxiety between employees working in different sizes of organizations are not statistically significant.

To test the research hypothesis two regression analysis were performed. The first one was done for the stress as outcomes variable and the predictors were: task performance, change in task performance in the last three months, change in workload, change in difficulty of work, decrease in monthly income, change in meeting other people during work and change in telecommuting. The results are displayed in Table 4. The regression model explains 12.4% of the variance in the outcome variable and the model is statistically significant ($F(6,217)=6.13$,

Table 3.
Differences in stress and anxiety among participants

Demographic variable	Stress	Anxiety
Gender		
Males	6.25	4.74
Females	8.07	5.97
Level of education		
Non-completed high school	6.43	5.71
High-school degree	8	6.12
Bachelor degree	6.75	5.37
Master and above	7.06	4.9
Work Experience (duration)		
Less than 1 year	7.86	6.44
1 to 5 years	7.49	5.84
6 to 10 years	8.33	8
Above 10 years	6.2	3.83
Size of company		
Less than 10 employees	7.16	5.25
11-50 employees	7.6	5.53
51 – 250 employees	6.9	5.41
Above 251 employees	7.18	6.05

Table 4.*Regression analysis on work-related factors as predictors for stress among participants*

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	7.653	1.978		3.869	.000
Task Performance in the last three months	(1.022)	.477	(.157)	(2.142)	.033
Change in Task Performance	.117	.418	.020	.280	.780
Increased difficulty of work	.368	.108	.225	3.418	.001
Increased workload	(.120)	.106	(.073)	(1.126)	.261
Change In Meeting People	.338	.122	.190	2.766	.006
Change in Telecommuting	.068	.115	.040	.592	.555

Table 5.*Regression analysis on work-related factors as predictors for anxiety among participants*

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	4.063	1.863		2.181	.030
Task Performance in the last three months	(.151)	.446	(.025)	(.337)	.736
Change in Task Performance	(.099)	.391	(.018)	(.254)	.800
Increased difficulty of work	.488	.100	.321	4.869	.000
Increased workload	(.221)	.099	(.145)	(2.224)	.027
Change In Meeting People	.140	.114	.085	1.231	.220
Change in Telecommuting	.098	.108	.063	.911	.363

$p=.00$). As can be seen in Table 4 the statistically significant predictors of stress are: the perception of task performance in the last three months ($\beta=-.16$, $p<0.01$), the increased difficulty of work due to the pandemic requirements ($\beta=.23$, $p<0.01$) and change in meeting other people ($\beta=.19$, $p<0.01$). The appraisal of task performance is negatively related to stress, while increased difficulty of work and change in meeting other people are positively related to stress.

The second regression was done to test the prediction of anxiety as outcome

variable based on task performance, change in task performance in the last three months, change in workload, change in difficulty of work, decrease in monthly income, change in meeting other people during work and change in telecommuting as predictors. The model explains 11,8% of the variance of the outcome variable and it is statistically significant ($F(6,218)=5.87$, $p=.00$). The only statistically significant predictors of anxiety are increased difficulty of work ($\beta=.32$, $p<0.01$) which has positive relations with anxiety and increased work-

load ($\beta = -.15$, $p < 0.05$) which has negative relation with anxiety as presented in Table 5.

DISCUSSION

The evidence on mental health of workers and work-related factors during coronavirus pandemic have been investigated independently, and occasionally, therefore this study aims at filling this gap and contribute to the body of literature. The study also aims to understand the link between socio-demographic factors (age, gender and years of experience in the company and the levels) and the levels of stress and anxiety in employees. Finally, this study investigated work-related factors as predictors for stress and anxiety in workers.

The results of the study display that when it comes to stress and anxiety there are differences between males and females with females reporting higher levels of stress compared to males during the COVID-19 pandemics. The results regarding gender are in line with previous studies (Badahdah et al., 2020; Lai et al., 2020) and serve as an extension of findings of more reported stress among females in other sectors besides the healthcare one during the pandemic. Being a nurse, women, and frontline health care workers is increasing the risk for anxiety and distress (Badahdah et al., 2020; Lai et al., 2020). This finding is something that needs further investigation especially in terms of understanding why do women report more stress and how best to support them. The results also show that the employees with work experience between 6 and 10 years show highest level of stress and anxiety which is an interesting finding and the reasons need further exploration. This findings are also confirming similar findings, where being younger is linked with higher likelihoods of having anxiety and distress (Khajuria et al., 2021).

The study findings have shown that perception of task performance in the last three months; the increased difficulty of work due to the pandemic requirements, and change in meeting other people are significant predictors for stress in employees. The regression results show that certain changes in the workplaces have detrimental effect on the stress and anxiety among the employees. Namely those participants who report better task performance in the last three months also report higher levels of stress which might mean that putting an extra effort into work during the pandemic is linked to higher levels of stress among employees. The perceived increase in the difficulty of work due to the pandemic such as having to wear protective equipment, heightened hygiene requirement or communicating only online are also linked to higher reported levels of stress. The greater change in how many people employees meet during work hours prior and during the pandemic is also linked to higher levels of stress. The results mean that having to adapt to the requirements of the workplace during the pandemic significantly increased the levels of stress among employees and it is linked primary to changes in meeting people and the difficulty of work posed by the pandemic requirements. The higher levels of stress among employees linked to the changes in meeting people is also in line with studies of Marshall et al. (2007) and Stich (2020) that revealed that changes in meeting people. Especially employees that need supervision and guidance might find difficulties in task performance as a result of work from home increasing the level of stress and influencing well-being of the employees (Marshall et al., 2007; Stich, 2020)

In addition the reported anxiety of employees is linked to increased workload and increased difficulty of work. This means that the increase in the difficulty of work during the pandemic (such

as having to wear protective equipment, heightened hygiene requirement or communicating only online) is linked to heightened anxiety among employees. Those who perceive that their workload also increased during the pandemic tend to feel more anxious. The results of the study are in line with other studies (Graves and Karabayeva, 2020) that show that certain measures taken by the Government and organizations can impact the adaptation and mental health of workers during the pandemic. Other difficulties that might influenced higher level of anxiety in workers is also fear of not being sufficiently protected. For example some findings revealed that insufficient protective measures at workplace were linked with higher likelihoods for anxiety symptoms (Khanal et al., 2020).

Although the study was done on a convenient sample in a short time frame it still serves as a valuable finding in understanding the relationship between workplace variables, change in work practices during the pandemic and stress and anxiety among workers. The study calls for further exploration of the activities and practices that companies have and their support to the workers to protect their mental health and ease the burden felt by the workers.

CONCLUSIONS

The study findings confirmed that being females and younger is associated with higher levels of both stress and anxiety in employees. The results exhibited several predictors for stress in employees: perception of task performance in the last three months; the increased difficulty of work due to the pandemic requirements, and change in meeting other people. The

study also revealed that significant predictors for anxiety are increased difficulty of work and increased workload. Taken into the consideration the findings, prevention intervention should be planned that could contribute to reduce, anxiety, and stress among workers during the COVID-19 outbreak. Further investigation of preventive programmes and interventions at workplace is especially important in cases where workers feel that they need to put extra effort into their work and this is linked to detrimental effects on the mental health. In addition the findings accentuate the importance of human contact for mental health of the workers. Thus companies need to pay special attention to the change of work demands during these difficult times and develop practices and programs to help the workers adapt to the changes caused by the pandemic and also to support them in protecting their mental health.

CONFLICT OF INTEREST

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

AUTHOR CONTRIBUTIONS

Concept of the manuscript was made by D.J.P., A.T., and K.T.; additionally D.J.P., A.T., and K.T., contributed significantly towards data acquisition; A.T. conducted data cleaning and analysis. Draft of the manuscript was written by D.J.P., A.T., and K.T. All listed authors have read and agreed to the published version of the manuscript.

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