THE EFFECT OF DISTRESS FROM COVID-19 AND WORKPLACE LONELINESS ON JOB PERFORMANCE AMONG ACADEMICS IN MALAYSIAN PUBLIC UNIVERSITIES

Afif Jazli Samion & Shukran Abd Rahman¹

Abstract

The COVID-19 pandemic has affected the activities of higher education institutions and has also caused adverse psychological impacts on the populace. The current study aimed to investigate the relationship of distress from COVID-19 and workplace loneliness with job performance amongst academics in Malaysian public universities. One hundred forty-one academics from 20 different Malaysian public universities aged 27 to 71 years old were analysed for the study using a quantitative, cross-sectional design. IES-R, UCLAW, and IWPQ were administered to measure distress from COVID-19, workplace loneliness, and job performance, respectively. A Pearson productmoment correlation and multiple linear regression were utilised to examine the relationship of the two predictors with the dependent variable. Results showed a weak negative relationship between distress from COVID-19 and job performance and a moderately strong negative correlation between workplace loneliness and job performance. Regression analysis indicated that the model was a significant predictor of job performance. Furthermore, workplace loneliness contributed significantly to the model, while distress from COVID-19 did not. Implications and suggestions for employees and organisations are discussed.

Keywords: Academics, COVID-19, Distress, Job performance, Workplace loneliness

Introduction

The recent developments of the COVID-19 pandemic have affected the global population in many ways. Research on mental health during COVID-19 have shown a high percentage of stress, psychological distress, traumatic stress, and other adverse psychological impacts among various groups of individuals in several countries (Krishnamoorthy et al., 2020; Salari et al., 2020; Xiong et al., 2020),

Corresponding author: afifjazli@yahoo.com



¹ Department of Psychology, Kuliyyah of Islamic Revealed Knowledge and Human Sciences, International Islamic University Malaysia, P.O. Box 10, 50728 Kuala Lumpur, Malaysia.

indicating that the pandemic is severely affecting the global population. Several measures have been taken to mitigate the adverse impact of the pandemic, including the adoption of remote and virtual working (Savić, 2020). However, it might lead to psychological consequences for employees, especially job performance (Kniffin et al., 2020; O'connor et al., 2020; Rudolph et al., 2020).

The COVID-19 pandemic has also affected employees in many job sectors, including higher education institutions (HEIs). Research found that teaching and learning activities, research, community engagement, and other aspects of higher education have been affected by the COVID-19 pandemic (Marinoni et al., 2020), forcing academics to adopt new ways of accomplishing academic activities (Dhawan, 2020; Coleman et al., 2020; Rajhans; 2020). Nonetheless, several stressors and psychosocial risk factors have been found to affect their performance (García-González et al., 2020; Odriozola-González et al., 2020), and in turn, decrease their job effectiveness (Rosewell & Ashwin, 2018).

Despite the reported changes in work processes and their impacts, little research has been conducted to study the extent to which COVID-19 and remote working are related to job performance, especially among academics in Malaysia, hence warrants the current study. The current study results are expected to contribute to the literature on job performance in light of the current pandemic, focusing on the variables that serve as a predictor for job performance. Such will help practitioners, such as clinical or organisational psychologists, design and implement necessary interventions during times of crisis (Kniffin et al., 2020); or manage resources to address the current situation and prepare for future crises or pandemics (Muller et al., 2020; Soklaridis, 2020).

In this paper, distress refers to the circumstance when an individual is unable to cope or adapt to the stress they are experiencing (National Research Council, 2008). It refers explicitly to severe stress, occurs for a long time, or both. It occurs when an individual encounters stressor, like their experience during COVID-19, that go beyond what they can handle, which is a form of adverse stress (Le Fevre et al., 2003). Operationally, distress from COVID-19 is the score obtained on the level of subjective distress from a specific event as measured via the Impact of Event Scale-Revised (Weiss & Marmar, 1997) during the COVID-19 pandemic time.

Workplace loneliness refers to social or emotional separation (Akçit & Barutçu, 2017). The perceived discrepancy between the expected and actual relationships both interpersonal and organisational—occurs in the workplace and the absence of any capability to alter the situation (Wright, 2005; Zhou, 2018). It is operationally defined as the score obtained on perceived loneliness at the workplace as measured by the adapted UCLA Loneliness Scale for a work setting (Ozcelik & Barsade, 2011, 2018). Job performance refers to the accumulation of multiple behaviours that occur over time with a total expected value to the organization (Motowidlo & Kell, 2012). In this study, *job performance* is defined as the three dimensions known as task performance, contextual performance, and counterproductive work behaviour. The current study operationally defines *job performance* as the score obtained on individual work performance as measured by the Individual Work Performance Questionnaire (IWPQ) by Koopmans (2014).

Literature Review

Distress and job performance

Job stress has been found to negatively predict job performance (Ahmed & Ramzan, 2013; Akçit & Barutçu, 2017; Gharib et al., 2016; Ismail et al., 2015; Murali et al., 2017; Vijayan, 2017). When employees experience a burdening amount of stress, they have reduced effectiveness, efficiency, and interest in work, decreasing their commitment towards the organisation and job (Tekeste & Nekzada, 2014).

COVID-19 pandemic has caused moderate to high levels of distress, traumatic symptoms, and adverse psychological impact among the general population in China (Li, 2020; Wang et al., 2020a; Wang et al., 2020b), Iran (Vahedian-Azig mi et al., 2020), Ireland (Karatzias et al., 2020), Italy (Forte et al., 2020; Rossi et al., 2020), Lebanon (Fawaz & Samaha, 2020), Mexico (González Ramírez et al., 2020) Saudi Arabia (Joseph et al., 2020), and Spain (Rodríguez-Rey et al., 2020). In the context of the workforce, DeFraia (2016) found that traumatic stress resulting from stressful or traumatic incidents can impact employees' occupational functioning, manifested via absenteeism and reduced productivity (Cocker et al., 2013); decreased work performance; and decreased job involvement (Bhagat, 1983). Such was also the case for employees who were quarantined during a SARS outbreak, in that they had the reluctance to work and developed higher resignation intentions (Bai et al., 2004).

However, Qin and Jiang (2011) found that there is no significant relationship between distress and job performance. They found that employees' job performance increased after experiencing an earthquake disaster, attributable to the feeling of 'guilt over survival priority' that employees experience following a disaster, which propels them to contribute significantly to the reconstruction and rebuilding of the business (Qin & Jiang, 2011). However, this feeling is not entirely applicable in the case of the current pandemic, as its effects are still ongoing, and everyone is affected. Another study found no significant correlation between traumatic stress and job performance (Kerai et al., 2017). Despite this, most findings imply that the distress from the current pandemic might affect employee job performance.

Workplace loneliness and job performance

In a systematic review, Zhou (2018) stated that workplace loneliness could influence job satisfaction, commitment, turnover intention, mental and physical health, and work behaviours, including job performance. A different study found

that loneliness at work is associated with other aspects such as self-esteem, psychological wellbeing, and perceived organisational support (Mohapatra et al., 2020). Additionally, a negative relationship between workplace loneliness and employee job performance has also been observed (Ozcelik & Barsade, 2011, 2018). Sîrbu and Dumbravă (2019) found a moderate negative relationship between loneliness at work and job performance, a similar finding by Deniz (2019) when studying hospital employees; and by Akçit and Barutçu (2017) who studies academics in Turkey. Despite this, there is still a lack of research on workplace loneliness (Ozcelik & Barsade, 2018; Zhou, 2018), especially those studying its relationship with job performance in Malaysia among academics.

Theoretical and conceptual framework

Two theoretical frameworks were drawn to explain the relationship of each of the two predictors with job performance. First, concerning psychological distress and job performance, two models - Khan et al. (2012) and Wright and Cropanzano (1998) have been postulated based on the Conservation of Resources (COR) theory (Hobfoll et al., 2018). The COR theory explains that every individual has things they value, known as resources, which are constantly being used in our daily lives. As these resources are depleted or exhausted through various means, an individual enters a stage of self-preservation which often includes defensive, irrational, or even counterproductive behaviour (Hobfoll et al., 2018).

Drawing on the COR model, Wright and Cropanzano (1998) found that when resources are depleted due to stressors, emotional exhaustion occurs, leading to withdrawal in behaviours, influencing job performance. Similarly, Khan et al. (2012) posit that resources moderate the effects of stress on job performance for teachers, potentially leading to a decrease or increase in the latter based on the available resources (see Figure 1).



Note. The model is a simplified and adapted explanation based on previous studies (Khan et al., 2012; Wright & Cropanzano, 1998).

Figure 1: Simplified Model of the COR Theory

Meanwhile, the Affect Theory of Social Exchange (ATSE) is used to explain the relationship between workplace loneliness and job performance (Lawler, 2001). According to the ATSE, individuals who engage in social exchange develop emotions that generate stronger or weaker ties to relations, groups, or others (Lawler, 2001). Ozcelik and Barsade (2018) explain that individuals' perception of social exchanges as either positive or negative may influence their affective commitment to the relationship. Therefore, if individuals feel that the exchange is of no benefit to them, they may withdraw from it. Ozcelik and Barsade (2018) drew on the ATSE. They postulated that loneliness influences job performance and is mediated by the affective commitment or affiliation of the employee with the organisation (see Figure 2).



Note: The model is a simplified and adapted explanation based on Ozcelik and Barsade's study (2018).

Figure 2: Simplified Model of ATSE

The two theories from the theoretical framework combined guide the conceptual framework of the current study, whereby distress from COVID-19 and workplace loneliness predict job performance.



Figure 3: Conceptual Framework of the Current Study

Method

Hypothesis

Based on the above review, three hypotheses have been formulated for the current research.

- 1) Hypothesis 1 (H1): There is a negative relationship between distress from COVID-19 and job performance among academics.
- 2) Hypothesis 2 (H2): There is a negative relationship between workplace loneliness and job performance among academics.
- 3) Hypothesis 3 (H3): Distress from COVID-19 is a better predictor than workplace loneliness in predicting the job performance of academics

Study design and participants

One hundred forty-one academics (males = 38, females = 103) from 20 different Malaysian public universities, aged 27 to 71 years old, have been selected using a quantitative, cross-sectional design (see Table 1). Participants were conveniently selected from the staff directory of their respective institutional websites, ensuring that they are academics and have been working with their affiliated institutions for more than three months. They comprised academics from different knowledge domains, including human sciences, life sciences, architecture, law to technology, and even engineering. Following recommendations from experts (Green, 1991; Harris, 1985; Wilson Van Voorhis & Morgan, 2007), the targeted number of participants in the current study is calculated to be N > 75 using G*Power Analysis (Faul et al., 2009). Therefore, this sample size will yield a medium effect size with 80% statistical power.

		n	%
Gender	Female 103		73.0
	Male	38	27.0
Age	e 27 to 40 years old		36.9
	41 to 50 years old	59	41.8
	50 to 65 years old	28	19.9
	> 66 years old	2	1.4
Ethnicity	Malay	130	92.2
	Chinese	2	1.5
	Indian	4	2.8
	Others	5	3.5

Table 1: Demographic Data of Participants

Working location	Home	33	23.4
	Office	17	12.1
	Combination of both	91	64.5
Years worked with institution	1 - 5	33	23.4
	6 - 10	20	14.2
	11 - 20	56	39.7
	21 and above	32	22.7

Measures

The Impact of Event Scale-Revised (IES-R) by Weiss and Marmar (1997) was used to measure the level of distress among participants. It has three subscales, intrusion, avoidance, and hyper arousal containing 22 items with a response on distress level selection ranging from not at all (1) to extremely (5). Higher scores signify more significant distress. An example of an item is "I thought about it when I didn't mean to." IES-R has good concurrent and discriminant validity, in addition to high total and subscale internal consistency, ranging from .85 to .95 (Beck et al., 2008), including among Malaysian test-takers (Norhayati & Aniza, 2014). In the current study, certain words or phrases have been simplified, considering that the targeted samples are non-native English speakers whose culture might be different from the intended sample of the scale. In addition, several subject matter experts helped determine the face validity of the measure in the current study. The Cronbach's alpha of IES-R in the current study is .864, indicating its good internal consistency.

The UCLA Loneliness Scale for a work setting (UCLAW) by Ozcelik and Barsade (2011, 2018) contains 20 items to measure workplace loneliness. Its response choice has a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5). Higher scores indicate greater workplace loneliness. An example of an item is "I lack companionship at my work." The scale showed evidence of good concurrent, convergent, and construct validity (Russell, 1996; Russell et al., 1980). Over two months, it also has high internal consistency (α =.96) and test-retest (r=.73) reliability. It is also widely used in Malaysia (Swami et al., 2006; Syed Elias et al., 2020). The Cronbach's alpha of the UCLAW in the current study is .897, indicative of excellent internal consistency. The measure was also shown to subject matter experts who helped determine its face validity.

The Individual Work Performance Questionnaire (IWPQ) by Koopmans (2014) contains 18 items measuring task performance, contextual performance, and counterproductive work behaviour dimensions to measure job performance. It utilizes a five-point Likert scale ranging from seldom (0) to always (4). Higher scores indicate higher job performance. An example of an item is "I was able to set priorities." The IWPQ has evidence of convergent, discriminant, and construct

validity as well as internal consistency reliability ($\alpha = .86 - .94$) across several studies in Malaysia (Hartini et al., 2019; Nuruzzakiyah et al., 2020; Sheikh Khairuddin et al., 2018; Sheikh Khairuddin et al., 2019). Several subject matter experts also determined the face validity of the measure in the current study. Good internal consistency was also found in the current study ($\alpha = .843$).

Procedure

Participants from all 20 Malaysian public universities were included in the current study. They were conveniently selected from their institutional website, specifically from the staff directory, representing all different domains of knowledge available at their respective institution. A non-threatening, non-intrusive email was sent to recruit the identified academics, requesting them to respond to online questionnaires voluntarily. Other internet communication tools such as WhatsApp and Facebook were also used to recruit participants. A comprehensive explanation of the study and informed consent was given and obtained in the survey. The questions were sequential such that no questions might be left unanswered or skipped to avoid missing data. Depending on the participants' proficiency, the survey required 10-15 minutes to complete.

SPSS version 26 and Microsoft Excel were used to analyse the data collected. Pearson correlation and multiple regression were employed to examine the relationship of the predictor variables with the criterion variable, with descriptive analyses of the data included. Assumptions for the proposed statistical analyses were also tested using P-P and scatter plots and other statistical methods.

Results

The relationship between distress from COVID-19 (IES-R) and workplace loneliness (UCLAW) with job performance (IWPQ) was examined using a Pearson product-moment correlation coefficient (see Table 2). A weak negative relationship was found between distress from COVID-19 (M = 25.67, SD = 11.38) and job performance (M = 8.93, SD = 1.72, r = -.214, p = .005), with high levels of distress associated with lower levels of job performance. Meanwhile, workplace loneliness (M = 39.60, SD = 11.35) and job performance showed a moderately strong negative correlation, r = -.535, p < .001 with each other, indicating the lower the levels of loneliness, the higher the level of job performance. These results provide sufficient statistically significant evidence to accept both H1 and H2 of the study. Interestingly, a weak positive correlation was also observed between distress from COVID-19 and workplace loneliness (r = .267, p = .001), suggesting that higher levels of distress from COVID-19 are related to higher levels of workplace loneliness.

Subsequently, a multiple linear regression was then employed to assess further the ability of the two predictors (distress from COVID-19 and workplace loneliness) to predict job performance (see Table 3) significantly. Again, results indicated that the model was a significant predictor of job performance F(2, 138) =

28.34, p < .001, whereby the variance explained by the model as a whole was 29.1%.

	Pearson Correlation Analysis			
	IWPQ	IES-R	UCLAW	
Job Performance (IWPQ)	1.000	214*	535***	
Distress from COVID-19 (IES-R)	214*	1.000	.267**	
Workplace Loneliness (UCLAW)	535***	.267**	1.000	

Table 2: Pearson Correlation of Variables

Note. * .005 level (1-tailed); **.001 level (1-tailed); *** < .001 level (1-tailed)

IWPQ = Individual Work Performance Questionnaire; IES-R = Impact of Event Scale – Revised; UCLAW = Adapted UCLA Loneliness Scale for a work setting

Table 3: Summary of Regression Model

Model	R Square	df1	df2	F	p.
Regression	.291	2	138	28.336	.000

Note. a. Predictors: (Constant), Distress from COVID-19, Workplace Loneliness

b. Dependent Variable: Job Performance

The individual predictors were examined further (see Table 4), and it was found that workplace loneliness contributed significantly to the model (B = -.078, p < .001), while distress from COVID-19 did not (B = -.012, p = .306). Therefore, there is insufficient evidence to support the acceptance of H3. The final predictive model was Job Performance = 12.315 + (-.012*Distress from COVID-19) + (-.078*Workplace Loneliness).

Table 4:	Coefficients	of Reg	ression
		<u> </u>	

		Unstanc Coeffi	dardised cients	Standardised Coefficients		
М	odel	В	Std. error	Beta	t	р
1	(Constant)	12.315	.478		25.755	.000
	Distress from COVID-19	012	.011	076	-1.027	.306
	Workplace Loneliness	078	.011	514	-6.911	

Note. Dependent Variable: Job Performance

Discussion and Recommendation

The current study examined the relationship between distress from COVID-19 and workplace loneliness with job performance among a sample of academics from Malaysian public universities. Although the levels of psychological distress reported in the current study were not as high as those observed in previous studies (i.e., Fawaz & Samaha, 2020; Forte et al., 2020; González Ramírez et al., 2020; Joseph et al., 2020; Karatzias et al., 2020; Krishnamoorthy et al., 2020; Li, 2020; Rodríguez-Rey et al., 2020; Rossi et al., 2020; Salari et al., 2020; Vahedian-Azimi et al., 2020; Wang et al., 2020a; Wang et al., 2020b; Xiong et al., 2020), approximately 55 per cent of the participants are still experiencing some distress due to the COVID-19 situation. Similarly, 43 per cent of the respondents are experiencing mild levels of workplace loneliness, while 16 per cent report moderate to severe levels of loneliness. Observation on the occurrence of academics working on different modes (work from home, work from office, hybrid of both) informs the need for future research that assesses the relationship between the three variables among them.

A significant negative correlation was observed between levels of distress due to COVID-19 and job performance of academics. It has been observed that distress experienced during the COVID-19 pandemic affects job performance among employees in organisations, and this distress is mainly due to the stressors related to the working-from-home situation (Kumar et al., 2021). This relationship can also be explained using the COR theory (Hobfoll et al., 2018). When individuals' resources are depleted due to the distress, they are experiencing. They will withdraw as an act of 'self-preservation,' leading to decreased job involvement and performance.

Similarly, the depletion of resources can also cause emotional exhaustion, leading to affected work behaviours. However, it should also be noted that the relationship between distress from COVID-19 and job performance found in the study was weak. In addition, it was also shown that the distress due to COVID-19 experienced by academics does not provide a significant unique contribution to the prediction of job performance, indicating that distress from COVID-19 is not a good predictor for job performance.

It has been explained that symptoms of adverse psychological impact were more prevalent during the early stages of the pandemic (Xiong et al., 2020) due to forced quarantine, challenges in work and employment, and general uncertainty outbreak (Ho et al., 2020). Xiong et al. (2020) also mention that the duration of adverse psychological symptoms is essential since the psychological responses to stressful events can be acute due to evolutionary or protective factors (Yaribeygi et al., 2017; Brosschot et al., 2016).

The current study was conducted during the middle to late stage of the second wave of the COVID-19 outbreak in Malaysia. This could perhaps explain the discrepancy of distress levels when compared to previous studies, which were mostly conducted during the early phases of the COVID-19 outbreak, indicating that

the high levels of distress observed might be acute in nature. Due to the time that has passed since the initial emergence of the pandemic (almost 1 year), academics might have been able to cope with the situation better. This is reflected in the lower acute distress levels observed, and because of this, their job performance is less affected.

In line with previous studies (Akçit & Barutçu, 2017; Amarat et al., 2018; Deniz, 2019; Ozcelik & Barsade, 2011, 2018; Sîrbu & Dumbravă, 2019; Zhou, 2018), a negative relationship between workplace loneliness and job performance was also observed in the current study. It was also found that workplace loneliness significantly predicts job performance (β = -.514, p < .001), meaning that when compared with distress from COVID-19 (β = -.076, p = .306), workplace loneliness is a better predictor of job performance. It is believed that when employees perceive that their social exchange needs are not met, they will attribute it to the organisation, leading to withdrawal from their responsibilities and the organisation (Ozcelik & Barsade, 2018).

In a different study, it was found that the job environment, which included aspects such as personal and co-worker belonging, as well as job-related communication, had a direct impact on job performance (Diamantidis & Chatzoglou, 2019). This meant that the degree of social connection with peers, the communication with supervisors, and the degree of the job environment satisfying the employee's social needs all influenced job performance. When the job environment is perceived as unsatisfactory, it influences an employee's intrinsic motivation, proactivity, and adaptability, ultimately affecting their job performance (Diamantidis & Chatzoglou, 2019).

Additionally, the lack of face-to-face interaction with specific parties can also influence an individual's job performance. Orhan et al. (2016) found that when individuals interact physically with those significant to their tasks, they feel a sense of belongingness, which translates to better job performance. In the case of academics, although most are working with a combination of at home and the office, one of the most influential people they previously interact with daily is missing; the students. Even if they can still interact with their colleagues and their organisation, the shift towards online learning means that direct interaction with students is no longer possible. Although an academic's responsibilities are manifold, educating students remains one of the prominent roles. The lack of direct interaction with students, or anyone deemed essential to a task, might lead to feelings of loneliness, thus affecting job performance.

Although not part of the study's objective, it should also be noted that results showed higher levels of distress associated with higher levels of workplace loneliness. This association between the predictors (distress from COVID-19 and workplace loneliness) and the non-significant prediction contribution of distress towards job performance might suggest probable mediation effects between the variables in the current study. It could explain why distress from COVID-19 showed no unique contribution in predicting job performance, as its effect might be indirect rather than direct.

From a theoretical standpoint of the COR theory (Hobfoll et al., 2018), the perceived feeling of being lonely can be considered exhaustion of a psychological resource that helps cope with distress, which could lead to impacted job performance. Nevertheless, there is insufficient evidence to substantiate this explanation, suggesting that it is only a possible reason. Further research should be conducted to test the role of loneliness as a mediator in predicting job performance in the presence of distress.

Interventions to cope with distress from COVID-19 and workplace loneliness to facilitate better job performance

Building on the results of the current study, it is clear that job performance is associated with feelings of distress due to COVID-19 and workplace loneliness. Therefore, sustained efforts and interventions should be implemented to manage these experiences to facilitate better job performance. The findings could inform the design of four levels of intervention (Cummings & Worley, 2015), which include:

- 1) Human process interventions concentrate on social relationships and team dynamics among working members, aimed to alleviate reactions of distress and loneliness and facilitate enhanced job performance.
- 2) Human resource management interventions can focus on designing policies that mitigate the effects of COVID-19 on employees, which might translate into improved work outcomes.
- Techno structural, which focuses on improving the technology and structure of organisations to achieve flexible and more agile ways of working (Cummings & Worley, 2015), can be adapted by revising job responsibilities or structure of processes and hierarchies, as well as flexibility in the implementation of tasks through the use of new technologies.
- 4) Strategic change interventions emphasise the need to help employees cope with the psychological impact caused by COVID-19 and facilitate practical work by using relationships and interactions with parties outside the organisation.

Conclusion

Several limitations should be considered in light of the results of the current study. The use of non-probability sampling utilised might suggest that the data is not representative of the population. Despite meticulous care given to include respondents from varying demographic backgrounds, it can be seen that the majority of the participants were Malay and not representative of the generic Malaysian population, which includes Chinese and Indian ethnicities as well as other minorities. The current study results are also limited in terms of the sample size obtained, which is 141. Limitations regarding the use of self-report questionnaires should also be highlighted, whereby the ratings obtained might not indicate the realistic situation, especially in the case of self-reported individual performance ratings. It should also be noted that explanations regarding the mediating role of

workplace loneliness require further evidence to prove its effects. Studies should employ a random sampling method that includes a national sample with varying measurements for more robust generalisations. Future research should also study the post-COVID-19 effects on psychological impact and workplace-related aspects of other sectors in the industry.

Despite the limitations, the current study contributes to job performance literature by highlighting the association between distress experienced due to COVID-19 and workplace loneliness with job performance. Notably, it was found that workplace loneliness does predict job performance. The study also extends research on workplace loneliness, where it has been mentioned that there is a scarcity of research related to the topic. Additionally, the study's findings also provide insight into some of the effects that the current COVID-19 pandemic exerts on academics and its relation to the workplace.

In conclusion, the distress from COVID-19 and workplace loneliness that academics experience is not disconnected from their job performance. In this case, academics and universities, employees, and organisations should implement individual or organisational reactive and proactive strategies to help cope with these experiences and help build a healthier and more productive workplace. Additional research should also be conducted to understand better how distress from COVID-19 and workplace loneliness affects job performance, especially from a causal perspective. Further studies should also consider how the different working environments (working from home, working from an office, a hybrid of both) can influence the variables and their relationship.

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