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Employee mindfulness and proactive coping for technostress in the COVID-19 outbreak: The roles of regulatory foci, technostress, and job insecurity

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ABSTRACT

The transition to digital platforms during the COVID-19 pandemic has created technostress to several workers. Our study aims to investigate whether employee mindfulness contributes to their proactive coping for technostress. We built the dataset from 714 employees from service industries during the pandemic. The findings lent credence to the role of prevention focus in mediating the positive link between dispositional mindfulness and proactive coping for technostress as well as the role of promotion focus in mediating the positive relationship between interpersonal mindfulness and proactive coping for technostress. Technostress was found to strengthen the negative association between prevention focus and proactive coping for technostress while job insecurity represented an attenuating effect on such a link. The results further confirmed the attenuating effect of job insecurity on the positive link between promotion focus and proactive coping for technostress. This study adds dispositional and interpersonal mindfulness as crucial personal antecedents to proactive coping for technostress as well as offers insights into mechanisms underlying such relationships.

1. Introduction

The COVID-19 outbreak has induced unprecedented challenges not only to individuals' lives but also to organizations and industries (Coulombe et al., 2020; Kniffin et al., 2021). Through impacting individuals' social, occupational, and financial circumstances, the COVID-19 pandemic has imposed some psychological effects such as reduced well-being and quality of life on employees (Restubog et al., 2020). Business shutdowns and organizations' social distancing measures against the virus spread, such as working from home and digitalization, have added to challenges to employees (Kniffin et al., 2021; Spagnoli et al., 2020). Digitalization during the COVID-19 remote working has been reported to create technostress for employees (Spagnoli et al., 2020), defined as the stress that an individual experiences due to their inability to deal with the demands from information technology use (Ayyagari et al., 2011).

Proactive coping can function as a protective factor for employees who face technostress (Pirkkalainen et al., 2019) such as resulting from the COVID-19 induced digitalization (Nimrod, 2020). Proactive coping refers to efforts that an individual devotes to building up resilience against ongoing stressful situations (Schwarzer & Taubert, 2002). Regardless of the magnitude of proactive coping for technostress during

a crisis such as the COVID-19, research has not provided a full understanding of individual factors that may influence workers to develop proactive coping against technostress. This study takes a step further to examine if mindfulness predicts the formation of proactive coping for technostress among employees in the face of the COVID-19. This assumption is based on the role of mindfulness as a protective factor for resilience (Lomas et al., 2019; Pidgeon & Key, 2014; Sünbül & Güneri, 2019). Mindfulness refers to deliberately attending to the present moment via an accepting stance (Germer, 2005), which resilient individuals tend to hold towards their life experiences (Grabbe et al., 2012).

As the relationship between mindfulness and proactive coping for technostress has not been empirically established, the mechanism through which mindfulness translates into proactive coping for technostress is not understood. Since regulatory foci have been found to link mindfulness to individuals' work outcomes such as job satisfaction (Andrews et al., 2014) or well-being (Zivnuska et al., 2017), we draw upon the regulatory focus theory to expect that regulatory foci may mediate the nexus between mindfulness and proactive coping for technostress. Regulatory focus refers to individuals' self-regulatory inclination towards future self-states (Higgins, 2002). Regulatory foci consist of promotion-focused and prevention-focused modes. Promotion-focused

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individuals strive to reach goals related to their ideal self and growth, whereas prevention-focussed individuals strive to achieve safety and security, and fulfill goals related to their ought self, comprising their duties and obligations (Higgins, 1997). Since different regulatory foci may be activated by different variables (Lanaj et al., 2012), we deduce that promotion focus and prevention focus may be triggered by different forms of mindfulness, consisting of dispositional mindfulness and interpersonal mindfulness. Furthermore, since the relationship between regulatory foci and proactive coping in general and proactive coping for technostress has been rarely examined particularly in a crisis context, the interplay between regulatory foci and contextual factors in the equation of proactive coping for technostress has not been fully understood. We take an extra step to unravel the moderating roles of the two contextual factors comprising technostress and job insecurity.

To advance our understanding of coping behavior for technostress as well as fill the aforementioned gaps in this stream of research, our study aims to examine: (1) if prevention focus mediates the positive relationship between dispositional mindfulness and proactive coping for technostress during a crisis such as the COVID-19; (2) if promotion focus mediates the positive relationship between interpersonal mindfulness and proactive coping for technostress; (3) if high technostress level under the digitalization accentuates the relationship between prevention focus and proactive coping for technostress, as well as attenuates the relationship between promotion focus and proactive coping for technostress; (4) if job insecurity attenuates the negative relationship between prevention focus and proactive coping for technostress as well as the positive relationship between promotion focus and proactive coping for technostress.

2. Literature review and hypothesis development

Regulatory focus theory and the mediating role of regulatory foci.

Regulatory focus theory (Higgins, 1997) distinguishes two self-regulatory orientations, comprising promotion focus and prevention focus. Employees with prevention focus connect their goals to duties and obligations and display safety and security needs, whereas promotion-focused employees frame their goals around ideal end-states, gains, and aspirations, and exhibit needs for learning and growth (Wallace et al., 2016). In comparison to prevention-focused individuals, promotion-focused individuals focus more on (a) advancement needs than on security needs, (b) aspirations and hopes than on responsibilities and rules, and (c) gains than on losses (Neubert et al., 2008). These regulatory foci can coexist and be activated in response to different needs, goal pursuits, or crucial outcomes (Neubert et al., 2013; Scholer & Higgins, 2010). An individual may also activate both to some extent since promotion focus and prevention focus are not mutually exclusive (Higgins, 1997; Neubert et al., 2013). It is critical to note that promotion focus and prevention focus are viewed as orthogonal constructs (Higgins, 1997). Thus, individuals can score high on one focus but not on the other, on both foci, or on neither (Brenninkmeijer & Hekkert-Koning, 2015; Lanaj et al., 2012).

Regulatory focus has been considered to be both a psychological state influenced by situational cues (Neubert et al., 2008) as well as a trait-like construct that is influenced by other individual dispositional traits (Brockner & Tory Higgins, 2001; Higgins, 1997). Lanaj et al. (2012) used a distal-proximal framework to explain how regulatory focus is influenced by personality variables and link personality antecedents to work outcomes. Personality traits serve as distal individual difference variables that impact work outcomes via regulatory foci (i.e., proximal motivational constructs). Mindfulness in the workplace is likely an important trait in the prediction of outcomes such as proactive control behavior (Li et al., 2018). We further use Lanaj et al.'s (2012) distal-proximal framework of regulatory foci to posit the role of regulatory foci in mediating mindfulness and proactive coping for technostress.

Since different regulatory foci may be triggered by different

individual variables (Lanaj et al., 2012), we deduce that promotion focus and prevention focus may be activated by different forms of mindfulness. In addition to dispositional mindfulness defined as general tendency to draw attention to the present reality purposefully and nonjudgmentally (Brown & Ryan, 2003), Pratscher et al. (2019) proposed and defined interpersonal mindfulness as mindfulness that occurs during interpersonal interactions. As a non-judgmental attention to the present reality (Brown & Ryan, 2003), dispositional mindfulness is consistent with prevention focus, which frames around fulfilling duties and avoiding failures in the current work role (Wallace et al., 2016). On the other hand, promotion focus, which involves learning and advancement (Wallace et al., 2016; Zivnuska et al., 2017), can be activated by relational forces (Zivnuska et al., 2017) such as interpersonal mindfulness. Awareness and acceptance of others in interpersonal mindfulness also reflect a transcendent sense of self and adaptability (Germer, 2005), leading to promotion focus (Wallace et al., 2016). In other words, while dispositional mindfulness is presumed as an internal antecedent to prevention focus, interpersonal mindfulness may function as a relational antecedent to promotion focus.

Prevention-focused individuals tend to follow rules and value security (Neubert et al., 2008). They approach tasks with vigilance and concern themselves with accuracy (Förster et al., 2003). In addition, individuals who are high in prevention focus are concerned with what they ought to do, acting out of duties and obligations and in line with expectations (Higgins, 1997). This indicates that prevention-focused employees incline to fulfill explicit performance expectations and avoid deviations from work role and other organizational expectations (Neubert et al., 2008). Moreover, Gorman et al.'s (2012) meta-analytical work of regulatory foci unveils that prevention focus was negatively and significantly associated with job satisfaction, but not significantly associated with extra-role behavior. Prior findings further indicate that prevention focus was related to passive coping styles for stressful events (Brockner & Higgins, 2001; Zhao & Namasivayam, 2012). It is hence plausible that prevention focus may undermine the development of proactive coping for technostress.

On the contrary, promotion-focused individuals direct energy away from maintaining the status quo, as well as direct attention and energy towards opportunities to grow and gain (Neubert et al., 2008). This orientation is inclined to manifest itself in behaviors that go beyond minimum role expectations (Neubert et al., 2008). A meta-analytical study of regulatory foci by Gorman et al. (2012) indicates that promotion focus was positively and significantly linked with job satisfaction and extra-role behavior. Prior studies further reveal the positive link of promotion focus with active coping styles and positive responses to stressful events (Brockner & Higgins, 2001; Zhao & Namasivayam, 2012). This suggests the potential of promotion focus in activating proactive coping for technostress. In juxtaposition with the prior reasoning, we expect that promotion focus mediates the relationship between interpersonal mindfulness and proactive coping for technostress, whereas prevention focus mediates the relationship between dispositional mindfulness and proactive coping for technostress:

H1. Prevention focus mediates the positive relationship between dispositional mindfulness and proactive coping for technostress.

H2. Promotion focus mediates the positive relationship between interpersonal mindfulness and proactive coping for technostress.

2.1. Interactive effects of prevention focus with technostress and job insecurity

Job insecurity alludes to an employee's perception of the probability of losing his or her job particularly in crisis times (De Witte, 1999). Research has reported the relevance of the COVID-19 pandemic to job insecurity (Aguar-Quintana et al., 2021) as well as to technostress (Nimrod, 2020). Prevention-focused employees tend to concentrate on

fulfilling basic duties and requirements while avoiding behaviors that move them toward risks and errors (Wallace et al., 2016) such as those associated with technology. Therefore, from the conservation of resources (COR) perspective (Hobfoll, 1989), perceiving a high technostress level as a demand that depletes their resource pool, prevention-focused employees tend to act defensively to conserve their resources and become even less inclined to engage in proactive coping for technostress.

Nonetheless, situational cues that are relevant to an individual's trait can affect their attitudes and behaviors (Tett & Burnett, 2003; Tett & Guterman, 2000). It is therefore tenable to presume that the effect of prevention focus on proactive coping for technostress can be moderated by job insecurity as a situational cue, which is relevant to security-driven nature of prevention focus (Wallace et al., 2016). Perceiving the threat of being unemployed (i.e., job insecurity), prevention-focused employees who are security-driven (Wallace et al., 2016) may be more likely to cope actively with technostress to fulfill their duties effectively and achieve more chance of retaining the job. Prevention focus is reported to be more helpful for employees to cope with stress associated with job insecurity that involves employees' concerns about the continued existence of the job such as in face of the COVID-19 (Tu et al., 2020). The above argument also aligns with Woltin et al.'s (2018) finding in terms of the positive link between prevention focus and problem-focused coping under a crisis. From this line of discussions, we postulate that while technostress may accentuate the negative relationship between prevention focus and proactive coping for technostress, job insecurity may attenuate such a relationship:

H3. Technostress accentuates the negative link between prevention focus and proactive coping for technostress.

H4. Job insecurity attenuates the negative link between prevention focus and proactive coping for technostress.

2.2. Interactive effects of promotion focus with technostress and job insecurity

The COR perspective underlines the role of resources generally and personal resources particularly in buffering against or interacting with demands (Hobfoll et al., 2018). Moos and Holahan's (2003) integrative coping framework further indicates the interaction between personal resources and contextual factors in determining coping behaviors. It is thus likely that though promotion focus can translate into proactive coping for technostress, this translation may be contingent on contextual factors.

Both job insecurity and technostress function as demands that may deplete individuals' resource pool (Darvishmotevali & Ali, 2020; Farrish & Edwards, 2019). Thus, through the COR lens, promotion-focused employees who encounter a high technostress level and perceive their job insecure tend to act defensively to conserve their resource pool,

which is threatened by such demands. Thus, they are less inclined to engage in proactive behaviors such as proactive coping for technostress. Expressed differently, it is presumed that job insecurity and technostress may attenuate the positive link between promotion focus and proactive coping for technostress. We therefore postulate that:

H5. Technostress attenuates the positive link between promotion focus and proactive coping for technostress.

H6. Job insecurity attenuates the positive link between promotion focus and proactive coping for technostress.

Fig. 1 is the depiction of the construct relationships in our research model.

2.3. Research methods

2.3.1. Sampling

The first two COVID-19 cases in Vietnam were reported on January 23, 2020. Due to increasing confirmed cases, a complete 14-day national lockdown was enforced on April 1, 2020 (Vietnamplus, 2020). We conducted the data collection between mid-April and end-November 2020 when the lockdown was eased and social distancing with limited gathering sizes and obligatory face mask wearing was implemented in Hanoi, Vietnam (our research context). During these times, many firms enabled employees to switch to work part-time or from home using digital platforms (Ngo, 2020).

This study recruited participants from service companies. Upon obtaining the survey support from the managing director of each company, we approached its HR manager for the list of frontline employees. We sent employees the survey link, explained our academic objectives, and invited their voluntary participation with the warranty for participant anonymity and response confidentiality.

The three survey waves with a three-month time lag were implemented to build the dataset. The first wave measurement (T1) harvested the data on dispositional mindfulness, interpersonal mindfulness, and demographic attributes. The second wave measurement (T2) collected the data regarding promotion focus, prevention focus, job insecurity, and technostress from employees who participated in T1. In the third survey wave (T3), employees who partook in T2 were invited to provide the data on proactive coping for technostress.

The data from the companies in which there were under five participants were eliminated since with groups of five or more participants, biases in utilizing aggregate scores decrease (van Woerkom & Sanders, 2010). Participants who completed the three wave surveys comprised 714 employees (response rate: 57.2%) from 38 companies. Demographic attributes are depicted in Table 1, embracing employees' age, gender, educational level, organizational tenure, and organizational size.

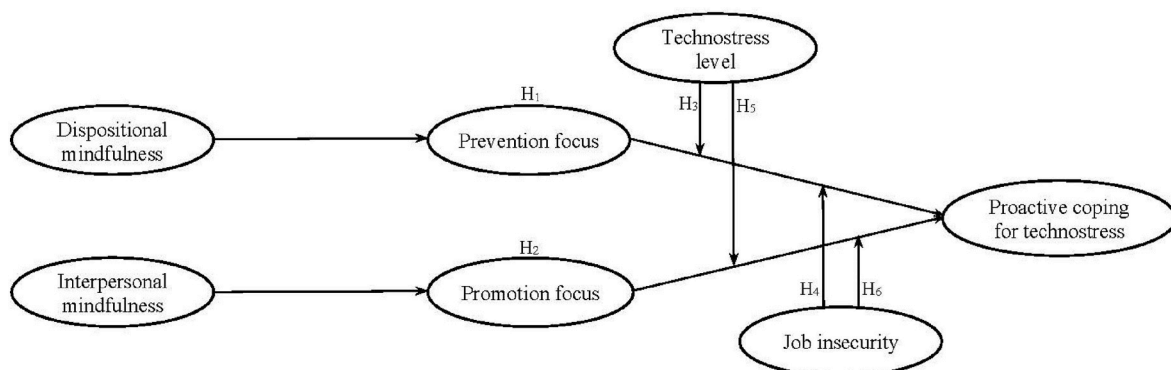


Fig. 1. Research model.

Table 1
Demographic attributes.

	Employees (N = 714)				Companies (N = 38)			
	Frequency	%	Mean	Standard deviation (SD)	Frequency	%	Mean	Standard deviation (SD)
Age			33.66	6.53				
18–25 years old	202	28.29						
26–35	237	33.19						
36–45	164	22.96						
46–55	68	9.52						
>55	43	6.02						
Gender			.47	.12				
Female	336	47.05						
Male	369	51.68						
Prefer not to say	9	1.26						
Educational level			1.64	.36				
High school degree or lower	263	36.83						
Bachelor's degree or equivalent	441	61.76						
Master's degree or higher	10	1.40						
Organizational tenure			5.12	1.65				
< 3 years	225	31.51						
3 – < 5 years	242	33.89						
5 – < 10 years	176	24.64						
10 years or over	71	9.94						
Organizational size ^a							4.95	.86
Under 100 employees					14	36.84		
100–200 employees					18	47.36		
Over 200 employees					6	15.78		

^a Value is the natural logarithm.

2.4. Measures

The questionnaire was first built in English and then translated into Vietnamese in light of Schaffer and Riordan's (2003) back-translation procedure. Measurement items are anchored on 1 = strongly disagree to 5 = strongly agree, unless otherwise stipulated. Dispositional mindfulness was measured through 39 items (1 = none, 5 = a lot) from Baer et al. (2006) (e.g., "I do jobs or tasks automatically, without being aware of what I'm doing" (reverse-coded)) (Cronbach's $\alpha = 0.83$). Interpersonal mindfulness was assessed using 27 items (1 = almost never, 5 = almost always) from Pratscher et al. (2019) (e.g., "When in a discussion, I accept others have opinions different from mine") (Cronbach's $\alpha = 0.87$). Promotion focus was measured through nine items (Cronbach's $\alpha = 0.86$) and prevention focus through nine items (Cronbach's $\alpha = 0.81$) from Neubert et al. (2008). Proactive coping for technostress was estimated utilizing nine items from Pirkkalainen et al. (2019) (e.g., "During the pandemic crisis, I try to see challenging situations with IT use at work in a different light to make them seem more positive") (Cronbach's $\alpha = 0.88$). Job insecurity was gauged via four items from De Witte (2000) (e.g., "I feel insecure regarding the future of my job") (Cronbach's $\alpha = 0.79$). Technostress was assessed through 18 items from Pirkkalainen et al. (2019) (e.g., "I have a higher workload because of increased IT complexity") (Cronbach's $\alpha = 0.84$).

2.5. Data analysis strategy

Structural equation modelling (SEM) was conducted since it partitions effects of one variable on another and assesses their strengths (Hair et al., 2019). It can separate multiple pathways of influence and view them as parts of a system (Hair et al., 2019). Interactive effects were tested by first centering the values of predictor variables, then multiplying them to form the indicators of interaction variables, and finally estimating the effects of interaction variables on outcome variables. Robust diagonally weighted least squares (robust DWLS) estimation was applied to SEM analysis. Prior research has indicated that DWLS estimation performs better when ordinal variables or both continuous and categorical variables are included in a model (Li, 2016).

Variance inflation factors (VIF), with 3.16 as the highest estimate, fell under Hair et al.'s (2019) 5.0 threshold, which indicated that

multi-collinearity was not a grave concern. Multi-collinearity issue was further addressed through tolerance above the 0.3 cutoff value (Hair et al., 2019) and the multiplication of the mean-centered values of the predictor variables to produce interaction terms (Kenny & Judd, 1984).

Item parcels were used to minimize the size of diagonally weighted matrix and hence make our model more parsimonious so as to estimate our parameters more efficiently (Hau & Marsh, 2004; Little et al., 2002). By virtue of its diminution of the sample-size-to-parameter ratio and reduction of random errors linked with items, parceling yields more stable latent estimates (Little et al., 2002). Dispositional mindfulness was modelled as a latent factor comprising four indicators (nonreactivity to inner experience, acting with awareness, describing with words, nonjudging of experience), interpersonal mindfulness comprising four indicators (presence, awareness of self and others, nonjudgmental acceptance, and nonreactivity to present moment emotions), promotion focus comprising three indicators (gains, achievement, ideals), prevention focus comprising three indicators (security, oughts, losses), proactive coping for technostress comprising three indicators (positive reinterpretation, perceived autonomy of IT control, perceived capability of IT control), and technostress comprising four indicators (techno-overload, techno-complexity, techno-insecurity, and techno-invasion).

3. Results

3.1. Measurement models

Confirmatory factor analyses (CFAs) demonstrated a good model-data fit ($\chi^2 = 627.28$, $df = 254$, $TLI = 0.96$, $IFI = 0.94$, $CFI = 0.95$, $SRMR_{within} = 0.054$, $SRMR_{between} = 0.096$; $RMSEA = 0.057$ [0.051, 0.069]). Robust DWLS estimation was applied to the chi-square indicator of model fit (Kline, 2011). Discriminant validity was confirmed because the heterotrait-monotrait ratios of correlations (HTMT) (Voorhees et al., 2016) ranged between 0.17 and 0.62, meeting Kline's (2011) 0.85 threshold, as well as each construct's correlations with the other constructs were exceeded by the square root of its average variance extracted (AVE) (Table 2).

Table 2
Correlation matrix.

Variable	Mean	SD	1	2	3	4	5	6	7	CCR	AVE
1 Dispositional mindfulness	3.41	.47	(.81)							.83	.65
2 Interpersonal mindfulness	3.54	.61	.19*	(.88)						.87	.77
3 Promotion focus	3.82	.58	.11	.34**	(.84)					.86	.70
4 Prevention focus	3.59	.53	.28**	.19*	.12	(.82)				.81	.67
5 Proactive coping for technostress	4.28	.64	.26**	.31**	.39***	-.30**	(.86)			.88	.73
6 Technostress	3.09	.42	-.14	-.16*	-.10	.14	-.19*	(.83)		.84	.68
7 Job insecurity	3.32	.45	-.17*	-.21*	-.16*	.18*	-.22*	.16*	(.80)	.79	.64

CCR = Composite construct reliability, AVE = Average variance extracted. Values in parentheses exhibit the square root of the average variance extracted. Standardized correlations reported * p < .05; **p < .01; ***p < .001.

3.2. Hypothesis testing

Hypothesis H1 postulates that prevention focus mediates the relationship between dispositional mindfulness and proactive coping for technostress. As presented in Table 3, the positive and significant association was first observed between dispositional mindfulness and proactive coping for technostress (B = .24, p = .018). A positive and significant coefficient was further found for the link between dispositional mindfulness and prevention focus (B = 0.27, p = .004). The negative link between employee prevention focus and proactive coping for technostress was detected through a negative and statistically significant coefficient (B = -0.29, p = .007). The indirect relationship between dispositional mindfulness and proactive coping for technostress through the mediating role of prevention focus was -.07 (SE = 0.03, p = .029). The Monte Carlo test finding demonstrated that 95% confidence interval (CI) for the coefficient distribution ranged between -0.26 and -0.04 without zero being straddled in the interval, which provided support for hypothesis H1.

Hypothesis H2 posits the role of promotion focus in mediating the link between interpersonal mindfulness and proactive coping for technostress. The positive and significant association was first observed between interpersonal mindfulness and proactive coping for technostress (B = 0.30, p = .006). A positive and significant coefficient was further found for the relationship between interpersonal mindfulness and promotion focus (B = .32, p = .002). The positive association between employee promotion focus and proactive coping for technostress was corroborated through a positive and statistically significant coefficient (B = 0.37, p = .000). Hypothesis H2 was evidenced by virtue of the significant indirect relationship between interpersonal mindfulness and proactive coping for technostress through promotion focus as a mediator and the existence of zero in the CI interval (.11 [0.06, 0.34], SE = 0.05, p = .003).

To seek further support for hypothesis H1 regarding the mediating role of prevention focus for the relationship between dispositional

mindfulness and proactive coping for technostress, we conducted a supplementary analysis to control for the mediating role of promotion focus for such a relationship. The supplementary analysis revealed a non-significant association between dispositional mindfulness and promotion focus (B = .09, p = .214). Therefore, promotion focus did not play a mediating role for the link between dispositional mindfulness and proactive coping for technostress. Likewise, to gain further endorsement for hypothesis H2 concerning the mediating role of promotion focus for the link between interpersonal mindfulness and proactive coping for technostress, we performed another supplementary analysis to control for the mediating role of prevention focus for such a link. Interpersonal mindfulness was found to be positively and significantly associated with prevention focus (B = 0.17, p = .042); yet, the non-significant indirect relationship was observed between interpersonal mindfulness and proactive coping for technostress via the mediating role of prevention focus (-.04 [-0.11, 0.02], SE = 0.03, p = .185). Hence, prevention focus did not serve as a mediator for the link between interpersonal mindfulness and proactive coping for technostress.

Hypothesis H3 was evidenced due to a positive and statistically significant term (B = 0.26, p = .009) for the interaction between employees' prevention focus and technostress in the equation of proactive coping for technostress. In addition, in pursuit of Aiken and West's (1991) view, to delve into the nature of the interaction pattern between a predictor (prevention focus) and a moderator (technostress), we plotted its form and calculated simple slopes of the association between the predictor and the outcome at high (one SD above the mean) and low (one SD below the mean) values of the moderator. The slope graph (Fig. 2) unveiled that employees' prevention focus was more negatively associated with proactive coping for technostress at high technostress levels (simple slope = -0.72, p = .005) than at its low levels (simple slope = -0.19, p = .046).

The term for the interactional relationship between employees' prevention focus and job insecurity in the equation of proactive coping for technostress (hypothesis H4) was negative and statistically

Table 3
Findings.

Hypothesis	Description of path	Path coefficient (Unstandardized)	P value	R ² value	Conclusion
H1	Dispositional mindfulness → proactive coping for technostress	.24* (.11)	p = .018	.22	Supported
	Dispositional mindfulness → prevention focus	.27** (.09)	p = .004	.29	Supported
	Prevention focus → proactive coping for technostress	-.29** (.08)	p = .007	.26	Supported
	Dispositional mindfulness → prevention focus → proactive coping for technostress	-.07* (.03)	p = .029		Supported
		95% CIs = [-.26, -.04]			
H2	Interpersonal mindfulness → proactive coping for technostress	.30** (.10)	p = .006	.32	Supported
	Interpersonal mindfulness → promotion focus	.32** (.07)	p = .002	.28	Supported
	Promotion focus → proactive coping for technostress	.37*** (.12)	p = .000	.39	Supported
	Interpersonal mindfulness → promotion focus → proactive coping for technostress	.11** (.05)	p = .003		Supported
		95% CIs = [.06, .34]			
H3	Prevention focus × Technostress → Proactive coping for technostress	.26** (.08)	p = .009	.25	Supported
H4	Prevention focus × Job insecurity → Proactive coping for technostress	-.17* (.10)	p = .037	.16	Supported
H5	Promotion focus × Technostress → Proactive coping for technostress	-.09 (.04)	p = .371	.07	Unsupported
H6	Promotion focus × Job insecurity → Proactive coping for technostress	-.21* (.07)	p = .028	.23	Supported

*p < .05; **p < .01; ***p < .001. Standard errors are displayed in parentheses.

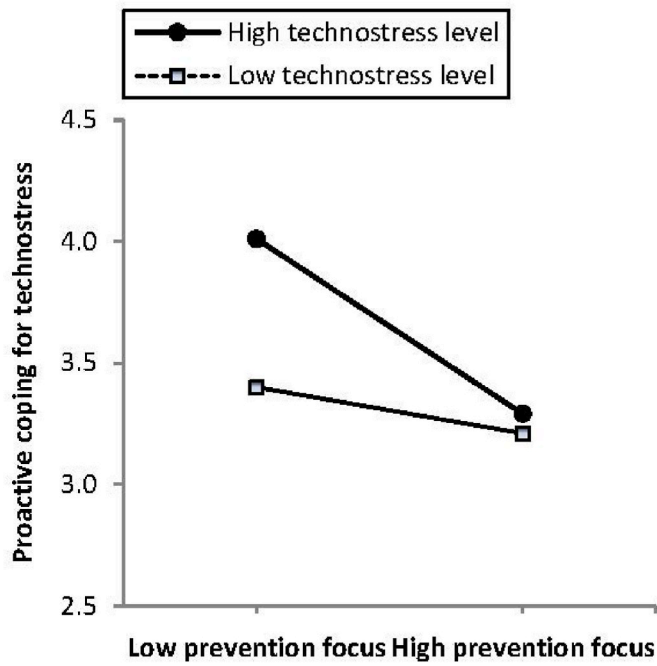


Fig. 2. The interactional effect of prevention focus with technostress.

significant ($B = -.17, p = .037$). The slope graph (Fig. 3) demonstrated that employees' prevention focus was less negatively associated with proactive coping for technostress at high levels of job insecurity (simple slope = $-0.28, p = .032$) than at its low levels (simple slope = $-0.63, p = .020$). These results provided endorsement for hypothesis H4.

The non-significant interaction term ($B = -0.09, p = .371$) provided no support for hypothesis H5 with reference to the attenuating effect of technostress on the positive association between employee promotion focus and proactive coping for technostress. The term for the interactional relationship between employees' promotion focus and job insecurity in the equation of proactive coping for technostress (hypothesis H6) was negative and statistically significant ($B = -.21, p = .028$). The

interactional graph, as presented in Fig. 4, indicated that employees' promotion focus was positively related to proactive coping for technostress to a lesser extent under conditions of high job insecurity (simple slope = $.25, p = .041$) than under conditions of low job insecurity (simple slope = $.57, p = .016$). These findings lent credence to hypothesis H6.

4. Discussions and conclusions

This study contributes to the literature in various respects. First, this study advances coping research by investigating mechanisms behind employees' proactive coping for technostress under the digitalization during a crisis such as the COVID-19. Our study distinguishes itself from prior coping research that has focused largely on proactive coping for generic stressors (Searle & Lee, 2015) rather than on proactive coping for technostress.

Second, while prior studies have predominantly centered around the relationship between mindfulness and resilience in general (Pidgeon & Keye, 2014; Sünbül & Güneri, 2019), our study further advances the literature by linking mindfulness as an individual antecedent to proactive coping for technostress. This also distinguishes the current study from research on proactive coping for generic stressors as well as for technostress, which has tended to examine the interactional effects of stressors or demands with proactive coping (Pirkkalainen et al., 2019; Searle & Lee, 2015) or the outcomes of proactive coping (Chang et al., 2020, p. 110508).

Moreover, since Pratscher et al. (2019) have recently proposed interpersonal mindfulness, separately from dispositional mindfulness, our study takes a step further to examine how these two forms of mindfulness influence proactive coping for technostress. The current study extends the stream of research on the mindfulness-proactive coping relationship by identifying that prevention focus mediates the link between dispositional mindfulness and proactive coping for technostress, whereas promotion focus functions as a mediator for the relationship between interpersonal mindfulness and proactive coping for technostress. This also distinguishes the present research from prior studies that have largely focused on emotion regulation (Sünbül & Güneri, 2019) or rumination (Lianchao & Tingting, 2020) as mediation mechanisms underlying the nexus between mindfulness and resilience.

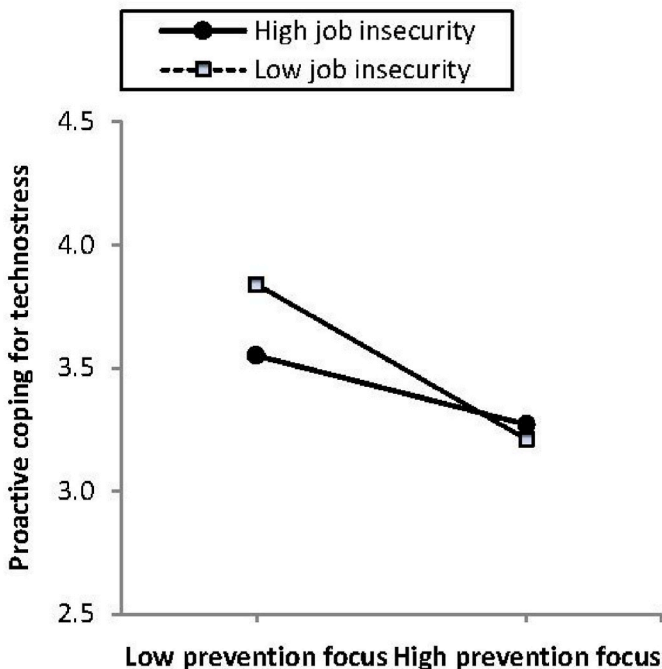


Fig. 3. The interactional effect of prevention focus with job insecurity.

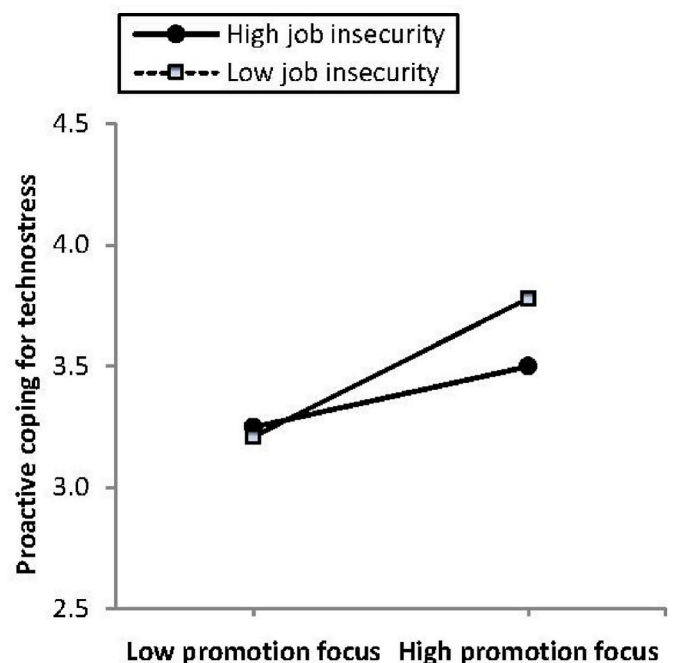


Fig. 4. The interactional effect of promotion focus with job insecurity.

Third, the findings lend credence to the contingency lens through which employee regulatory foci relate to their proactive coping for technostress. Our results demonstrate that when the job is perceived insecure, promotion focus is less positively linked with proactive coping for technostress while prevention focus is less negatively associated with it. Additionally, high technostress level further undermines the negative nexus between prevention focus and proactive coping for technostress. Our findings cast further insights into the COR theory by revealing that technostress and job insecurity function as demands that may deplete employee resource pool, which may affect the way promotion-focused and prevention-focused employees cope with technostress. Moreover, albeit personal resources are deemed to be part of the COR theory, the interplay between personal resources and demands has been less examined than the interaction between job resources and demands (Searle & Lee, 2015). Our study advances this theory by evidencing the interactive effects of personal resources (regulatory foci) and demands (technostress, job insecurity).

Furthermore, our study did not obtain evidence for the attenuating effect of technostress on the positive relationship between promotion focus and proactive coping for technostress. This is in line with Searle and Lee's (2015) observation of non-significant moderation effects of some stressors behind employee proactive coping and engagement.

Fourth, our study indicates a non-significant correlation ($r = .12, p > .10$) between promotion focus and prevention focus. This result is in line with prior studies that reported a non-significant correlation between these regulatory foci such as Johnson et al. (2011) ($r = 0.029, p > .10$) and Llewellyn et al. (2013) ($r = 0.03, p > .10$). It is also consistent with a weak association between these regulatory foci found in meta-analytical studies of regulatory foci such as Gorman et al. (2012) ($r = 0.09$) and Lanaj et al. (2012) ($r = 0.11$). According to Lanaj et al. (2012), such a small effect size indicates that promotion focus and prevention focus are comparatively orthogonal, which means that an individual may be predisposed to have high levels on both foci, just one focus, or neither focus.

Moreover, supplementary analyses indicate a non-significant link between dispositional mindfulness and promotion focus. While a significant and positive association is observed between interpersonal mindfulness and prevention focus, the indirect relationship is not established between interpersonal mindfulness and proactive coping for technostress via prevention focus. As earlier discussed, promotion focus, which frames around learning and advancement (Wallace et al., 2016), inclines to be fostered by relational forces (Zivnuska et al., 2017) such as interpersonal mindfulness. Nonetheless, awareness and acceptance of others in interpersonal mindfulness also emphasize social obligations, the pressure to maintain harmony, the expectation to give up one's own needs for the group goal, which may encourage individuals to develop a prevention orientation and fulfil duties and obligations (Kurman et al., 2015).

Our findings provide some practical implications for policy makers, organizations, and managers. In light of our results, when encouraging organizations to adopt digitalization during crises such as the COVID-19, policy makers should direct the attention of organizations to technostress as well as strategies to proactively address it. Policy makers should also launch supportive packages to organizations, with which organizations can maintain their operations, retain more employees, and to some extent reduce employees' feelings of job insecurity.

It is advisable that transitioning to digital platforms as a measure to contribute to social distancing during the pandemic outbreak, organizations draw attention to technostress among employees as well as promote their proactive coping for it. Organizations should provide mindfulness training (Vonderlin et al., 2020) to build both dispositional mindfulness and interpersonal mindfulness among employees. Training programs should further foster employee inclination towards growth and learning needs or a balance between their growth need (promotion focus) and security need (prevention focus). With an adequate level of promotion focus, employees are inclined to cope proactively with

technostress on the transition to digital platforms. Moreover, it is imperative for organizations to alleviate technostress level through timely and effective technical support as well as provide clear guidelines for redundancy in the face of the crisis.

In light of the trickle-down effects (Wo et al., 2019), managers should demonstrate dispositional and interpersonal mindfulness to shape these forms of mindfulness among employees, thereby further promoting their proactive coping for technostress. Likewise, due to regulatory focus trickle-down (Johnson et al., 2017), managers should influence employees to develop promotion focus by demonstrating their own promotion focus as well as encouraging employees to set and frame around growth and learning goals.

Our study is not without limitations. By virtue of the self-report dataset, the research results might be exposed to CMV bias (Podsakoff et al., 2012). This bias, nonetheless, was mitigated in our study by means of the three-wave measurements, the marker variable procedure, and the interactive effect testing. An extension to the current research model should be to explore further individual and contextual factors behind employee proactive coping for technostress. Further research should also examine outcomes of proactive coping for technostress such as work meaningfulness or career resilience.

In a nutshell, our research advances the current understanding of employee proactive coping for technostress during a pandemic crisis by unravelling dispositional and interpersonal mindfulness as personal antecedents to proactive coping for technostress, as well as different mediation mechanisms, namely prevention focus and promotion focus, for such relationships respectively. The present study further extends this stream of research by lending credence to the roles of technostress and job insecurity in moderating the nexuses between regulatory foci and proactive coping for technostress.

Credit author statement

Luu Trong Tuan (Tuan Luu) was responsible for Conceptualization, Methodology, Investigation, Data curation, Formal analysis, Validation, Visualization, Writing – original draft, and Writing - review & editing.

Declaration of competing interest

Authors declare that they have no conflict of interest.

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