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To cite this article: Israel Sánchez-Cardona, Lili M. Sardiñas, Eric A. Rivera-Colón, Camille Vélez Alamo, Brian A. Moore & Marizada Sánchez-Cesareo (06 Nov 2024): The effects of mindfulness and psychological capital on reducing worker stress and promoting health, Journal of Workplace Behavioral Health, DOI: [10.1080/15555240.2024.2425431](https://doi.org/10.1080/15555240.2024.2425431)

To link to this article: <https://doi.org/10.1080/15555240.2024.2425431>



Published online: 06 Nov 2024.



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The effects of mindfulness and psychological capital on reducing worker stress and promoting health

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ABSTRACT

This cross-sectional study aims to test the combined effect of mindfulness and psychological capital on reducing stress and burnout and improving the perception of health (physical and psychological). The sample consisted of 398 workers (94.5% female) from a public organization in Puerto Rico dedicated to providing services to families and their children in their early formative stages. The results from moderated regressions showed that the interaction between mindfulness and psychological capital was significant, indicating that individuals with high levels of mindfulness and psychological capital showed lower burnout and stress and a higher perception of psychological health. These results suggest that mindfulness provides the conditions to foster the mobilization of personal resources (i.e., psychological capital) to deal with stressful situations and take actions toward greater well-being. Future intervention strategies should consider combining various personal resources to increase their effectiveness in reducing stress and promoting well-being.



ARTICLE HISTORY

Received 13 April 2023
Accepted 31 October 2024

KEYWORDS

Personal resources;
psychological capital;
mindfulness; stress;
burnout; perception of
health

Health promotion and prevention of stress are critical aspects of occupational health and safety strategies (Tamers et al., 2020). It has been well established that workers enter a loss spiral of strain and health when they experience high and persistent job demands as well and are unable to implement adaptive self-regulation strategies; this ultimately causes job burnout (Bakker & de Vries, 2021; Demerouti et al., 2019). While many interventions aim to reduce stress and burnout by focusing on improving job characteristics (i.e., role conflict, role clarity, workload, time pressure) or promoting job resources (i.e., colleagues and leadership support, autonomy), research indicates that improving personal resources and self-

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regulation strategies (i.e., psychological capital, mindfulness) are key elements to cope with challenging demands in the workplace and to promote health and well-being among workers (Christensen et al., 2017; Grover et al., 2017).

Personal resources (i.e., positive self-evaluations, hope, optimism, and self-efficacy) are linked to resiliency and enable individuals to feel positive control and impact on their environment (Hobfoll et al., 2003; Xanthopoulou et al., 2007). Enhancing personal resources contributes to goal achievement and stress protection while stimulating personal growth, health, and well-being (Hobfoll, 2001; Xanthopoulou et al., 2009).

This is well aligned with the Job Demands Resource Model (JD-R), which highlights the dynamic influences of limited organizational resources combined with few personal resources on health and well-being (Bakker & de Vries, 2021, p. 6). In order to reduce adverse health outcomes (e.g., burnout), maintain adaptive coping mechanisms, and develop a healthier and resilient workforce, it is imperative that organizations focus on the development of worker's personal resources (e.g., efficacy beliefs, resilience, optimism) (Christensen et al., 2017; Gomes et al., 2022; Luthans & Youssef-Morgan, 2017; Nielsen & Christensen, 2021).

This study aims to test the combined effect of mindfulness and psychological capital (PsyCap) on reducing stress and burnout and improving the perception of health (psychological and physical). While developing PsyCap has shown effectiveness for workers, some evidence suggests that its effect on positive health and well-being outcomes may be stronger if PsyCap is combined with self-regulatory resource strategies, such as mindfulness (Roche & Haar, 2019). Based on the JD-R model assumption of personal resources as a key aspect to preventing stress and promoting health through the mobilization of resources (Bakker & de Vries, 2021), and drawing on the Conservation of Resources (COR) theory elements of "resources caravans," we consider mindfulness a condition for resources sustenance, buffers the relationship between PsyCap and stress and burnout, and enhances the effect on the perceptions of health. Previous evidence shows that there are some inconsistencies in the job demands x job resources interaction to explain workers' outcomes (González-Mulé et al., 2021).

For example, Nylén et al. (2019) found no support for any moderating effects of any of the personal resources on the associations between job demands and health-related outcomes. However, other research has found that personal resources (e.g., self-efficacy, optimism) moderated the relationship between specific demands (e.g., challenging vs. hindrance) and not others, leading to higher work engagement (Bakker & Sanz-Vergel, 2013; Searle & Lee, 2015). This calls for further research to explore a variety of ways personal resources can be incorporated into the JD-R model

(Galanakis & Tsitouri, 2022). Following the COR theory, we move further, suggesting that personal resources' combination or multiplicative effect plays an important role.

For instance, mindfulness equips individuals with a healthy cognitive process and emotional regulatory strategies that allow individuals to remain resilient (Tomlinson et al., 2018). Therefore, we argue that mindfulness is a crucial resource to understanding the effect of PsyCap in reducing negative health outcomes and improving positive health outcomes. We hypothesized that individuals with higher levels of PsyCap and mindfulness would show reduced stress and burnout and enhanced perception of health.

Psychological capital

Psychological capital (PsyCap) is one such malleable factor that has been extensively studied and found to be useful in teaching workers to address challenging situations (Luthans & Youssef-Morgan, 2017). Broadly, PsyCap refers to a positive psychological state characterized by efficacy, hope, optimism, and resilience (Luthans et al., 2007). When examined together, these four personal resources show a greater effect on well-being and performance above and beyond the examination of the individual components (Luthans et al., 2007). Each construct has been shown to interact synergistically and "travel" together as "resource caravans" to produce differentiated effects (COR) (Hobfoll et al., 2018; Luthans & Youssef-Morgan, 2017).

Focusing on the development of PsyCap is imperative to high-stress organizations as individuals with high PsyCap are "more likely to engage in opportunities to sustain and improve health and more likely to persist in efforts to achieve health-related goals" (Harms et al., 2017, p. 81). Indeed, the evidence supports a positive relationship with job satisfaction, work engagement, self-perception of health, well-being, and performance (Avey et al., 2011; Diržytė & Perminas, 2021; Hernández-Varas et al., 2019) and a negative association between psychological capital and stress, burnout, and anxiety (Avey et al., 2011; Wu & Nguyen, 2019).

Additionally, individuals with high levels of psychological capital have shown fewer physical (e.g., fewer cardiovascular diseases, nervous system diseases, autoimmune diseases, vision disorders) and mental health complaints (e.g., anxiety, depression, substance abuse; Diržytė & Perminas, 2021; Rew et al., 2017) than their peers. Interventions to improve psychological capital as a personal resource increase positive well-being and work-related outcomes (Salanova & Ortega-Maldonado, 2019). Furthermore, after PsyCap training, workers have reported being more aware of their emotions and confident to self-regulate their emotions in their workplace (Brunetto et al., 2020).

Mindfulness as a moderator

While building psychological capital has shown effectiveness for workers, some evidence suggests that its effect on positive health and well-being outcomes may be stronger if PsyCap is combined with resources that work as self-regulatory strategies, such as mindfulness (Roche & Haar, 2019). Mindfulness is defined as the intentional self-regulation of attention to and awareness of current experience or present reality (Brown & Ryan, 2003) and facilitates adaptive management of health and well-being (Bergin & Pakenham, 2016; Brown et al., 2012; Eby et al., 2019; Gilbert et al., 2018; Grover et al., 2017). These self-regulation strategies of awareness and attention help to maintain and enhance psychological functioning (Brown et al., 2007) by increasing awareness and receptivity to inner experiences (Brown & Ryan, 2003). Therefore, mindfulness combined with PsyCap may allow individuals to focus on available resources while promoting healthier coping mechanisms that enhance resilience under stressful situations (Kotzé, 2018; Malinowski & Lim, 2015; Tomlinson et al., 2018).

In particular, studies conducted in the workplace have demonstrated that mindfulness positively influences attention, cognition, behavior, psychological reactions, relationships, and well-being (Good et al., 2016). Additionally, mindfulness has been related to reduced stress and burnout (Janssen et al., 2018; Liu & Du, 2024; Zhao et al., 2019) as well as increased psychological capital (Malinowski & Lim, 2015; Roche et al., 2014), resilience (Good et al., 2016), work satisfaction, work engagement, and general physical health (Lomas et al., 2017).

A recent systematic review found that mindfulness interacts with the propensity to engage in negative thinking patterns (i.e., rumination) and is associated with better emotional processing and regulation (Tomlinson et al., 2018). According to the authors, these results "should be used within a proactive approach to boost dispositional mindfulness to promote well-being, resilience, and self-management of psychological health within the general population" (p. 40).

Although empirical evidence has been accumulated on the buffering effect of mindfulness on stressful events and in the promotion of more adaptive responses (Bullis et al., 2014; Laurent et al., 2015), the combined effect of psychological capital and mindfulness on reducing stress, burnout and improved perception of health remain understudied (i.e., Roche et al., 2014; Roche & Haar, 2019). Evidence suggests a combined effect between mindfulness and psychological capital on improving mental health (Zhao et al., 2024).

Within the context of the JD-R model, mindfulness has been demonstrated to buffer the relationship between job demands and stress (Grover et al., 2017). However, less is known about the interacting effect of

mindfulness and other personal resources (e.g., psychological capital). Evidence indicates that mindfulness training boosts psychological capital (Choi et al., 2024). Following the Conservation of Resources theory, resources exist in ecological conditions that foster and nurture (or block) resource creation and sustenance (Hobfoll et al., 2018). Maintaining a state of attention and awareness may be necessary to mobilize personal resources to respond to challenging situations. Mindfulness equips individuals with a healthy cognitive process and emotional regulatory strategies that allow individuals to remain resilient (Tomlinson et al., 2018). Therefore, we argue that mindfulness is a key resource to understanding the effect of psychological capital in reducing negative health outcomes and improving positive health outcomes (i.e., Zhao et al., 2024).

Based on the JD-R model assumption of personal resources as a key aspect to preventing stress and promoting health through the mobilization of resources (Bakker & de Vries, 2021), and drawing on the COR theory elements of “resources caravans,” we hypothesize that mindfulness, acting as a condition for resources sustenance, buffers the relationship between psychological capital and stress and burnout, and enhances the effect of psychological capital on the perceptions of health and well-being. We hypothesized that individuals with higher levels of psychological capital and mindfulness would show reduced stress and burnout and improved perception of health (physical and psychological; Figure 1). In summary, the study hypothesized the following:

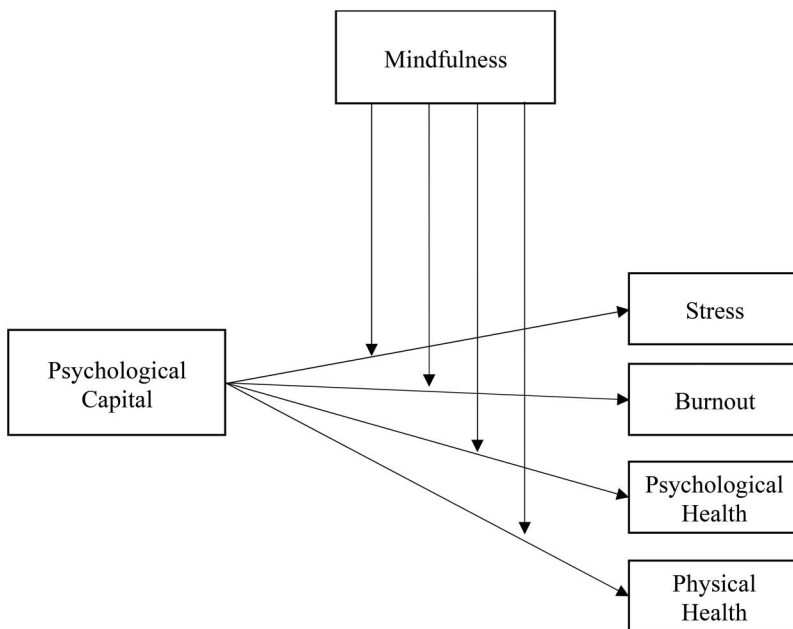


Figure 1. Hypothesized model.

Hypothesis 1: Mindfulness moderates the relationship between psychological capital and stress.

Hypothesis 2: Mindfulness moderates the relationship between psychological capital and burnout.

Hypothesis 3: Mindfulness moderates the relationship between psychological capital and perception of psychological health.

Hypothesis 4: Mindfulness moderates the relationship between psychological capital and physical health.

Method

Sample

The sample consisted of 398 workers from a public organization in Puerto Rico dedicated to providing services to children in their early formative stages and their families (61% response rate). The sample was collected purposively as part of an organizational health assessment. Most participants were female (94.5%), with ages ranging from 24 to 86 years old ($M = 44.29$, $SD = 11.07$). Regarding education level, 47.5% had a high school diploma or less, 5.3% went to college but did not graduate, 11.3% had an associate or technical degree, 29.4% completed a bachelor's degree, and 6.5% had completed graduate studies (master's or doctoral degrees). Most participants worked in an administrative position (40.20%), 25.88% were part of the academic staff, 13.57% were in a supervisory position, and 10.30% were part of the food service staff (10% did not inform). More than half of the sample (55.1%) have worked for more than 11 years with the organization.

Procedure

We collected the data as part of an occupational health assessment for a public organization in Puerto Rico. A total of 652 employees were invited to participate. We had a 61% response rate ($n = 398$). The project aimed to assess the organization's socio-emotional well-being, stress, coping strategies, and work-related well-being indicators. Regional directors were invited to an orientation meeting where the research team presented the project's objective, answered questions, and collected input to refine the process for the online distribution of the assessment. The research team distributed the assessment to the workforce *via* e-mail. All individuals employed by the organization were eligible to complete the questionnaire. The e-mail included a brief presentation of the project and the research team and a link to the online consent form with access to the questionnaire. The consent form summarized the purpose of the questionnaire and

the limits of participation, including voluntariness and confidentiality of the data collected. The questionnaire was available for four consecutive weeks; participants received weekly reminders to complete the assessment. Participants received an incentive of \$30 in a gift card to complete the questionnaire. This study was approved by the Institutional Review Board (IRB) of the institution of the research team [20-028-447PR]. The research was conducted in Spanish.

Measures

Psychological capital

We used a Spanish translation of the Compound Psychological Capital (CPC) developed by Lorenz et al. (2016). This is a non-domain-specific measure of psychological capital with 12 items divided into four sub-scales (3 items each): hope, optimism, resilience, and self-efficacy. Participants responded using a 6-point Likert scale (1= totally disagree; 6= totally agree). A back-translation process was used to translate the measure into Spanish (Rullán Ferrer, 2019). Additionally, a confirmatory factor analysis (CFA) with a sample from Puerto Rico showed a good fit for the second-order model, validating psychological capital as a higher-order latent construct derived from the combination of the four psychological resources. The internal consistency (α) of the scale was .90 (Sánchez-Cardona et al., 2024). Cronbach's alpha (α) of the scale in the present study was .91.

Mindful attention awareness scale (MAAS)

We used a Spanish translation of the MAAS to evaluate dispositional mindfulness, that is, the individual's receptive awareness of and attention to what is taking place in the present (Barajas & Garra, 2014; Brown & Ryan, 2003). The MAAS consists of 15 items (e.g., "I could be experiencing some emotion and not be conscious of it until sometime later"; "I rush through activities without being really attentive to them"). Respondents answer how frequently they have experienced each situation using a 6-point Likert scale (1= almost always; 6= almost never). Higher scores indicate greater mindfulness. The psychometric properties of the Spanish translation of the MAAS have been evaluated with a sample of the general population in Spain, showing good internal consistency ($\alpha = .88$) and negative correlations with anxiety, cognitive-behavioral avoidance, and experiential avoidance (Barajas & Garra, 2014). Cronbach's alpha (α) of the MASS in the present study was .94.

Stress

We used four items from the Copenhagen Psychosocial Inventory-II in Spanish to measure stress (Moncada et al., 2014). Stress is defined as a

combination of tension and displeasure (Burr et al., 2019). Sample items include: “How often have you had problems relaxing?,” “How often have you been tense?.” Participants responded using a 5-point Likert scale ranging from 1 (never) to 5 (always). Cronbach’s alpha (α) of the stress scale in the present study was .90.

Burnout

We used four items from the Copenhagen Psychosocial Inventory-II in Spanish (Moncada et al., 2014) to measure burnout. Burnout is defined as the degree of physical and mental fatigue/exhaustion of the individual (Burr et al., 2019). An example item is “Is your work emotionally exhausting?.” Participants responded on a 5-point Likert scale ranging from 1 (never) to 5 (always). Cronbach’s alpha (α) of the burnout scale in the present study was .91.

Physical and psychological health

We used two items developed by Moreno-Velázquez et al. (2009) to measure the self-reported physical and psychological health (“In general, how would you consider your physical health” and “In general, how would you consider your psychological health”) ($r = .676, p < .001$). Both items were scored on a 5-point Likert scale, ranging from 1 (poor) to 6 (excellent).

Data analysis

Statistical analyses were performed using the IBM SPSS v. 27. We performed the single-factor Harman test (Podsakoff et al., 2003) to examine the common variance since all measures were self-reported. Additionally, we calculated descriptive analyses and correlations among the variables under study. To test the proposed hypotheses, we performed a series of moderated regressions using PROCESS (Hayes, 2018) with SPSS v. 27 (Model 1). All predictors were grand mean centered on creating the interaction terms. We computed 95% bias-corrected confidence intervals using bootstrap 5,000 samples to examine significance along with p-values. We performed a simple slope analysis at $+1/-1$ SD of the moderators to further analyze significant interaction effects (Aiken & West, 1991).

Results

Preliminary and descriptive analysis

The results of Harman’s single-factor test show that a single factor explains 30.15% of the variance (less than 50%), suggesting that common method

bias is not a concern in this study. Table 1 shows descriptive analyses with means, standard deviations, and correlations of variables included in the study. Internal consistency with Cronbach’s alpha met the criteria in all cases (greater than .70), and correlations are all significant and in the expected direction.

Hypothesis testing

We conducted several regression models to test the proposed hypothesis with interaction effects for each dependent variable. As shown in Table 2, the overall regression model was significant [$R^2 = .177$, $F(3,394) = 21.103$, $p < .001$]. Mindfulness was negatively and significantly related to stress ($b = -.587$, $p < .001$). Although PsyCap was not significantly associated with stress ($b = -.132$, $p = .074$), the interaction between PsyCap and mindfulness was significant ($b = -.0259$, $p = .016$) (H1 supported). Simple slope analysis shows that individuals with a high level of mindfulness and PsyCap show lower levels of stress ($b = -.0283$, $SE = .086$, $p = .030$, 95%BaCI [-0.452, -0.113]) compared to those who present low levels of mindfulness ($b = -.0043$, $SE = .109$, $p = .692$, 95%BaCI [-0.171, -0.258]).

A similar pattern was found for burnout. The overall regression model with burnout as a dependent variable was significant [$R^2 = .153$, $F(3,394) = 20.028$, $p < .001$] PsyCap was not statistically related to burnout ($b = -.063$, $p = .353$), while mindfulness was negatively related to burnout ($b = -.539$, $p < .001$). The interaction effect between PsyCap and mindfulness was statistically

Table 1. Means, standard deviations, and correlations of the study variables ($N = 398$).

	<i>M</i>	<i>SD</i>	α	1	2	3	4	5
1. Psychological Capital	4.03	.70	.91					
2. Mindfulness	4.42	.67	.94	.351**				
3. Stress	2.65	.84	.90	-.187**	-.348**			
4. Burnout	2.65	.84	.91	-.150*	-.353**	.710**		
5. Psychological health	3.61	.96	-	.466**	.457**	-.365**	-.278**	.
6. Physical health	3.37	.96	-	.305**	.318**	-.233**	-.181**	.687**

Note: * $p < .01$; ** $p < .001$; For the correlations with Psychological and physical health, we used Spearman’s rho.

Table 2. Regression coefficients.

Predictor	Outcome variable							
	Stress				Burnout			
	<i>b</i>	<i>SE</i>	<i>p</i>	95%[BaCI]	<i>b</i>	<i>SE</i>	<i>p</i>	95%[BaCI]
Constant	2.499	.043			2.686	.041		
Psychological Capital (PsyCap)	-.132	.074	.074	[-0.278, .012]	-.063	.068	.353	[-0.197, .070]
Mindfulness	-.587	.094	.000	[-0.772, -0.401]	-.539	.084	.000	[-0.705, -0.374]
PsyCap x Mindfulness	-.0259	.101	.016	[-0.458, -0.061]	-.184	.074	.013	[-0.330, -0.037]
R^2	.177		.000		.153		.000	
ΔR^2 (interaction)	.048		.011		.026		.014	

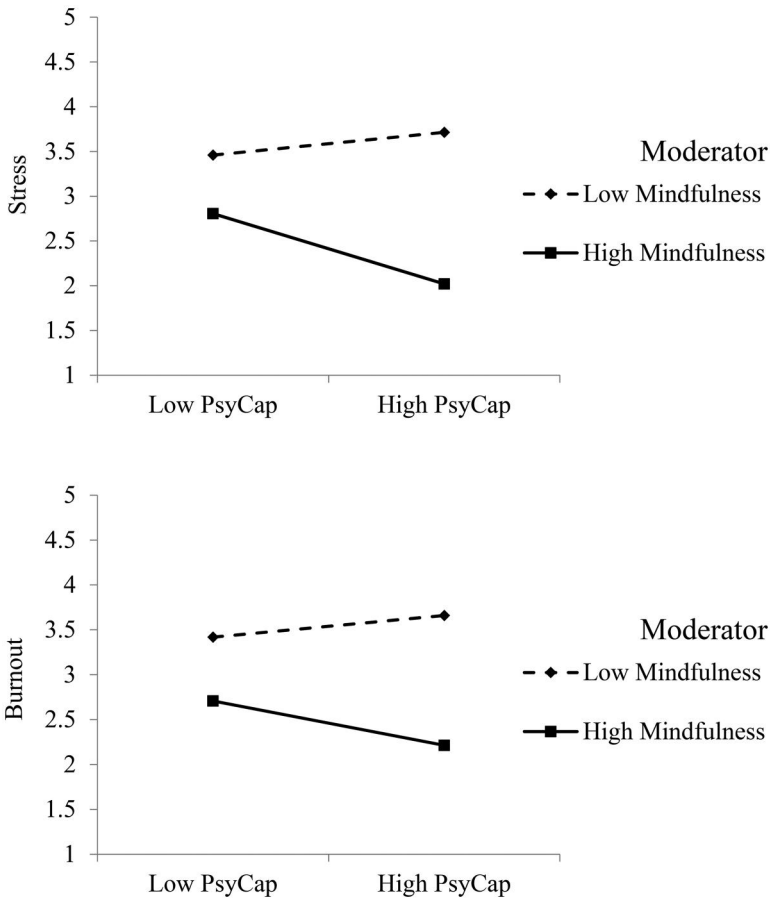


Figure 2. Interactions plots of psychological capital and mindfulness on stress and burnout.

significant ($b = -.184$, $p = .013$) (H2 supported). The simple slope analysis indicated that individuals with a high level of mindfulness and PsyCap show lower levels of burnout ($b = -.169$, $SE = .078$, $p = .030$, 95%BaCI [-0.323, -0.016]) compared to those who present low levels of mindfulness ($b = .061$, $SE = .087$, $p = .481$, 95%BaCI [-0.110, .233]; Figure 2).

Finally, we examined the self-perception of psychological and physical health as outcome variables (Table 3). When considering psychological health as the dependent variable, the overall regression model was significant [$R^2 = .259$, $F(3,394) = 16.14.103$, $p < .001$]. Psychological capital ($b = .324$, $p = .001$) and mindfulness ($b = .624$, $p < .001$) were positively and significantly related to psychological health. The interaction effect was also significant ($b = .226$, $p = .003$), indicating that individuals with a high level of mindfulness and PsyCap show a higher perception of psychological health ($b = .473$, $SE = .121$, $p = .0001$, 95%BaCI [.235, .711]) compared to those with low levels of mindfulness ($b = .188$, $SE = .098$, $p = .056$, 95%BaCI [-0.005, .382]) (H3 supported).

Table 3. Regression coefficients.

Predictor	Outcome Variable							
	Psychological Health				Physical Health			
	<i>b</i>	<i>SE</i>	<i>p</i>	95%[<i>BaCI</i>]	<i>b</i>	<i>SE</i>	<i>p</i>	95%[<i>BaCI</i>]
Constant	3.569	.045			3.344	.0485		
Psychological Capital (PsyCap)	.342	.100	.001	[.146, .538]	.199	.092	.032	[.016, .382]
Mindfulness	.624	.078	.000	[.470, .779]	.445	.089	.000	[.270, .620]
PsyCap x Mindfulness	.226	.077	.003	[.074, .379]	.152	.078	.051	[-0.001, .306]
<i>R</i> ²	.259		.000		.117		.000	
$\Delta R^2(\text{interaction})$.032		.003		.014		.051	

When considering physical health as an outcome variable, the overall regression model was significant [$R^2 = .116$, $F(3,394) = 16.140$, $p < .001$]. Results show that PsyCap ($b = .199$, $p = .032$) and mindfulness ($b = .445$, $p < .001$) were positively and significantly related to physical health. The interaction effect was not significant ($b = .152$, $p = .051$) (H4 not supported). Although the *p*-value and confidence intervals do not show a statistically significant result, the simple slope analysis shows that high levels of mindfulness and PsyCap ($b = .287$, $SE = .111$, $p = .010$, 95%BaCI [.068, .506]) improve the perception of physical health compared to low levels of mindfulness ($b = .096$, $SE = .096$, $p = .322$, 95%BaCI [-0.094, .286]; Figure 3).

Discussion

In this study, we aimed to test how mindfulness and psychological capital relate to stress, burnout, and perceptions of health. Results indicate that psychological capital was not directly related to stress or burnout but was significantly associated with physical and psychological health perceptions. Although personal resources are key elements in dealing with challenges (Hobfoll et al., 2018; Luthans et al., 2007), their effect on positive outcomes may depend on mechanisms that promote their usage and development to achieve the desired health and well-being outcomes.

On the other hand, mindfulness showed a negative relationship with stress and burnout. This is aligned with the broader literature showing that mindfulness is negatively related to perceived stress (MacDonald & Minahan, 2018; Zimmaro et al., 2016) and promotes faster recovery to baseline levels (Arch & Craske, 2010; Brown et al., 2012). Likewise, in the present study, mindfulness showed a significant relationship with perceptions of physical and psychological health. This is consistent with previous research, which indicated that mindfulness is related to physical health (i.e., heart rate variability) and psychological health (i.e., flourishing, existential well-being, negative affect, and social well-being) (Prazak et al., 2012). It has been suggested that mindfulness decreases stress, which, in turn, helps perceptions of better physical health (Ballantyne et al., 2021).

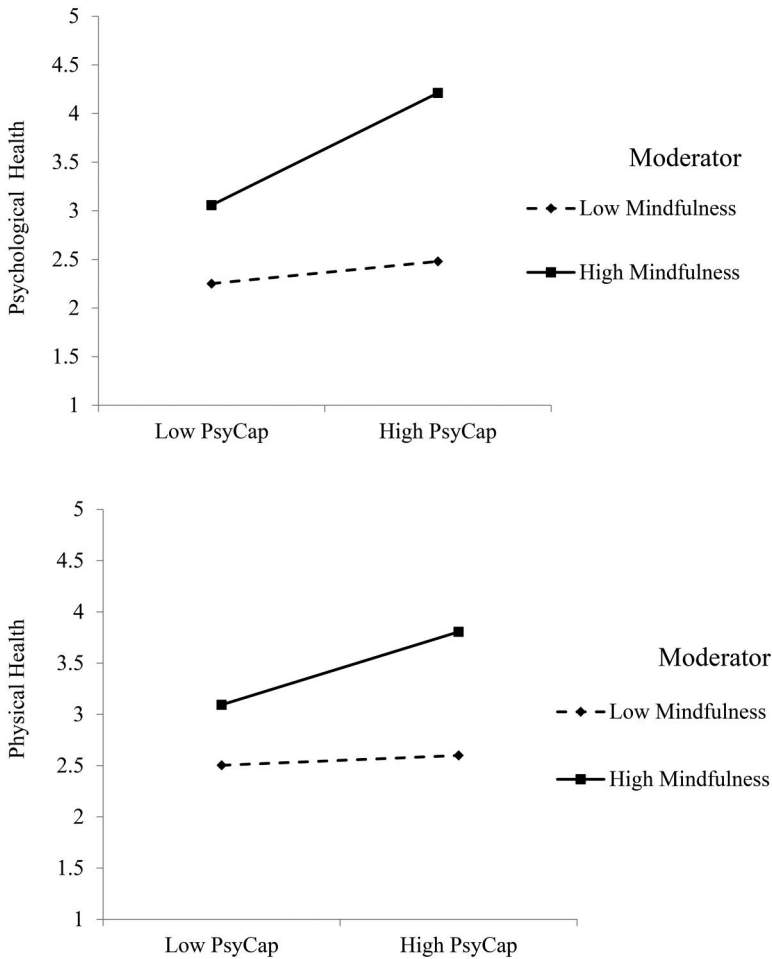


Figure 3. Interactions plots of psychological capital and mindfulness perception health (physical and psychological).

The present findings also extend the current literature by examining the moderating effect of mindfulness on the relationship between psychological capital and well-being indicators considered in the study. As expected, higher mindfulness and psychological capital levels were related to less stress and burnout and greater perceptions of psychological health. Consistent with the COR theory, mindfulness seems to promote a positive resources spiral of personal resources that leads to greater perceptions of health. The results suggest that mindfulness provides self-regulatory mechanisms to think, behave, and act, which may provide the conditions to foster the mobilization of other personal resources (i.e., psychological capital) that enable individuals to deal with stressful situations while taking actions toward greater well-being. For example, studies indicate that mindfulness enhances the capacity to self-regulate tendencies for procrastination in the

digital realm, which often stems from work-related stress, thereby promoting sustainable technology use (Mishra & Tageja, 2022).

Finally, we did not find a significant interaction effect on physical health. However, there is evidence of the impact of psychological capital and mindfulness on physical health (Diržytė & Perminas, 2021; Lomas et al., 2017; Rew et al., 2017). Therefore, additional research is needed to understand how their interaction influences the perception of physical health.

Theoretical and practical implications

These findings provide key theoretical and practical implications. From a theoretical perspective, this study addresses the interaction effect of personal resources on predicting well-being. The current literature on the JD-R model suggests that personal resources either interact with job resources or directly predict well-being outcomes (Bakker & Demerouti, 2017). Previous literature supports the idea that the interaction effect of multiple job demands (Geisler et al., 2019; Jimmieson et al., 2017; van Woerkom et al., 2016) or with job resources have a differentiated effect on workers' outcomes (Bakker & Demerouti, 2017). However, there are some inconsistencies in the interaction between job demands and job resources to explain workers' outcomes (González-Mulé et al., 2021). We move further on the consideration of the job demands and resource interaction, suggesting that the combination of personal resources plays an important role. As stated by González-Mulé et al. (2021), it might be the case that individual characteristics such as self-efficacy and optimism moderate the relationship between job demands, resources, and strain. This study provides empirical evidence of how the multiplicative effect of various personal resources (i.e., psychological capital, mindfulness) relates differently to stress and health, above and beyond the direct effect of each personal resource.

From a practical perspective, it has been shown that psychological capital and mindfulness interventions are effective in work settings (Quaglia et al., 2016; Salanova & Ortega-Maldonado, 2019). Psychological capital interventions, typically group workshops with structured activities designed to develop each resource (self-efficacy, hope, resilience, and optimism) through several cognitive and affective strategies (Luthans et al., 2007), have shown effectiveness in increasing psychological capital, well-being, and reducing negative outcomes (e.g., stress, depression) (i.e., Lupşa et al., 2020; Salanova & Ortega-Maldonado, 2019; Song et al., 2019). Similarly, meta-analytical evidence has shown the effectiveness of mindfulness intervention and training in improving mental and physical health (e.g., anxiety, stress) (Hofmann et al., 2010; Khoury et al., 2015; Quaglia et al., 2016). However, their combined effects have not been tested. Future intervention

strategies should consider incorporating both types of interventions to address their effectiveness in reducing stress and promoting well-being.

Overall, this study enhances the field of workplace behavioral health by demonstrating that the interplay between mindfulness and psychological capital significantly reduces stress and burnout while improving both physical and psychological health perceptions among employees. This suggests that integrating mindfulness practices with the development of psychological resources can create a more effective approach to fostering well-being in high-stress environments. Future interventions could benefit from combining these strategies to maximize their impact on employee health.

Limitations and future research

Besides the contributions of this paper, some limitations should be considered. The study was conducted in one organization with a limited sample size and with most participants being females, thereby limiting our ability to generalize on the interactions of mindfulness and PsyCap in male workers or other occupational groups. Although our sample reflects the early childhood education workforce in terms of gender, studies with larger, more heterogeneous, and more diverse sample sizes are needed in the future to test the relationship within the variables and test the proposed interaction. Another potential limitation is the use of cross-sectional and self-reported design, which can raise concerns about the common method bias (Podsakoff et al., 2003). However, it is worth noting that some authors have demonstrated that self-reported measures provide useful evidence for relationships among variables, especially among constructs that require the perception of participants (Spector, 2019). Considering this potential limitation, we used methodological strategies to try to identify any severe deficiency related to common method bias. For instance, a single-factor Harman's test was performed, and the results show that a single factor explains less than 50% of the variance, suggesting that common method bias is not a concern in this study. Future studies should consider longitudinal designs to avoid common method bias and establish causality.

Other limitations to consider are the use of covariates (i.e., gender and age) and their influences on the results. We were not able to include this in our analysis due to a lack of information or range restriction in the responses. As suggested by one of the reviewers, future studies should use measures that have been validated using modern tests and item response theory (e.g., Rasch Scaling). Future studies should also consider conditional models testing the role of psychological capital and mindfulness as mediators and moderators in the relationship between predictors (e.g., job resources) and outcomes (e.g., health, well-being, work-related outcomes).

Finally, although research shows that the effect of mindfulness and psychological capital has been similar across different cultures, more research must be conducted with larger samples from different cultural contexts to generalize the current results. Despite these limitations, this study highlights that while psychological capital is linked to perceptions of health, mindfulness directly reduces stress and burnout and enhances health perceptions, suggesting that mindfulness may serve as a self-regulatory mechanism that facilitates the effective use of personal resources, thereby promoting overall well-being.

Informed consent

Informed consent was obtained from all individual participants included in the study.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This work was supported by the Puerto Rico Administration for Integral Development of Childhood – Region 2, Head Start Regional Office [02TD000126-01-00].

Data availability statement

The dataset generated during and/or analyzed during the current study is available from the corresponding author upon reasonable request.

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