




# Social challenge stressors and work engagement: the moderating role of political skill

Estrés del desafío social y engagement en el trabajo: el papel moderador de la habilidad política

Estresse de desafio social no trabalho: o papel moderador da habilidade política

 Romulo Matos de Moraes<sup>1</sup>  
 Valtair Afonso Miranda<sup>2</sup>  
 Rosalee Santos Crespo Istoe<sup>3</sup>

<sup>1</sup> Instituto Federal do Espírito Santo

<sup>2</sup> Faculdade Batista do Rio de Janeiro

<sup>3</sup> Universidade Estadual do Norte Fluminense

Received: 07/04/2023

Accepted: 05/17/2024

## Correspondence:

Romulo Matos de Moraes,  
romulomoraes@hotmail.com

## How to cite:

De Moraes, R. M., Miranda, V. A., & Istoe, R. S. C. (2024). Social challenge stressors and work engagement: the moderating role of political skill. *Ciencias Psicológicas*, 18(1), e-3511. <https://doi.org/10.22235/cp.v18i1.3511>

**Data availability:** The dataset supporting the results of this study is not available.



**Abstract:** This study offers a counterpoint to the generalization of positive and linear effects resulting from challenge stressors in the workplace. The guiding objective was to verify whether social challenge stress impacts individuals' work engagement positively or negatively, according to the political skill degree available by professionals. We used moderation analysis and hierarchical regression to assess these relationships. The sample comes from civil servants of a Brazilian federal institution ( $N = 606$ ). The results indicate that political skill moderates the relationship between social stress and engagement positively, except in cases where such skill is low, a situation in which the interaction becomes negative. The evidence also reveals that a positive curvilinear association better explains the association between social stress and work engagement. The findings suggest that the Challenge-Hindrance Stress Framework (CHF) has an application conditioned by the possible abilities that a given stressor demands to be evaluated as an obstacle or a challenge. We intended to extend the theory on stressors and contribute to the human resource management practice by elucidating conditions or portions of professionals in which the CHF does not apply or lacks contextualization.

**Keywords:** social stress; work stressors; political skill; engagement; curvilinear relationship

**Resumen:** Este estudio ofrece una contraparte a la generalización de los efectos positivos y lineales resultantes de los estresores desafiantes en el lugar de trabajo. El objetivo principal fue verificar si el estrés del desafío social afecta positiva o negativamente el *engagement* en el trabajo de las personas según el grado de habilidad política disponible en los profesionales. Se utilizaron el análisis de moderación y la regresión jerárquica para evaluar estas relaciones. La muestra consiste en funcionarios públicos de una institución federal brasileña ( $N = 606$ ). Los resultados indican que la habilidad política modera positivamente la relación entre el estrés social y el *engagement*, excepto en los casos en que dicha habilidad es baja, momento en el cual la interacción se vuelve negativa. Además, la evidencia revela que una asociación curvilínea positiva explica mejor la relación entre el estrés social y el *engagement*. Los hallazgos sugieren que el Modelo de Estrés-Desafío-Obstáculo (MDO) tiene una aplicación condicionada por las habilidades requeridas para evaluar un determinado estresor como un obstáculo o un desafío. El objetivo era ampliar la teoría sobre los estresores y contribuir a la práctica de la gestión de recursos humanos aclarando las condiciones o situaciones en las que el MDO no se aplica o carece de contextualización.

**Palabras clave:** estrés social; estrés laboral; habilidad política; engagement; relación curvilínea

**Resumo:** Este estudo oferece um contraponto à generalização dos efeitos positivos e lineares resultantes de estressores desafiadores no ambiente de trabalho. O objetivo norteador foi verificar se o estresse do desafio social impacta positivamente ou negativamente o engajamento no trabalho dos indivíduos, de acordo com o grau de habilidade política disponível pelos profissionais. Usamos análise de moderação e regressão hierárquica para avaliar essas relações. A amostra é de servidores públicos de uma instituição federal brasileira (N = 606). Os resultados indicam que a habilidade política modera positivamente a relação entre estresse social e engajamento, exceto nos casos em que tal habilidade é baixa, situação em que a interação se torna negativa. As evidências revelam que uma associação curvilínea positiva explica melhor a associação entre estresse social e Engajamento no trabalho. Os achados sugerem que o Modelo de Estresse Desafio-Obstáculo (MDO) tem aplicação condicionada pelas possíveis habilidades que determinado estressor demanda para ser avaliado como obstáculo ou desafio. Pretendemos ampliar a teoria sobre estressores e contribuir para a prática da gestão de pessoas, elucidando condições ou parcelas de profissionais em que o MDO não se aplica ou carece de contextualização.

**Palavras-chave:** estresse social; estresse laboral; habilidade política; engajamento; relação curvilínea

Just over 20 years ago, Cavanaugh et al. (2000) introduced the Challenge-Hindrance Stressor Framework (CHF) into organizational research and proposed two distinct categorizations: challenge stressors and hindrance stressors. While the former is associated with positive emotions, the latter tends to reduce motivation and limit or impair job performance. A key distinguishing feature of the CHF was to present a broader view of work stressors with the so-called challenge stressors (Cavanaugh et al., 2000; LePine et al., 2005; Mazzola & Disselhorst, 2019). This category includes "work-related demands or circumstances that, while potentially stressful, have associated potential gains for individuals" (Cavanaugh et al., 2000, p. 68). Some examples of stressors classified as challenging are the complexity of the activity and the scope of responsibilities.

From this perspective, most scientific papers have presented positive relationships between challenging stressors and classical concepts such as job satisfaction, engagement, organizational commitment, and performance (e.g., Colquitt et al., 2017; Crawford et al., 2010; Kern et al., 2021; N. P. Podsakoff et al., 2007). Moreover, since its inception, academic audiences and practical applications have widely accepted the CHF (Mazzola & Disselhorst, 2019), positioning it as an emerging concept in organizational studies and producing valuable literature on its implications in various contexts; however, it has also raised criticism regarding its generalizability (De Moraes et al., 2022a; Kubicek et al., 2023; Rosen et al., 2020), inciting new debates about the scope of the CHF and the application of its structure.

There are still unresolved questions, such as those regarding the assessment that different individuals may make when characterizing a stressor as a challenge or not. Additionally, there are uncertainties about the adverse indirect effects on employee performance and well-being (O'Brien & Beehr, 2019; Rosen et al., 2020). Studies that have examined the positive behavior resulting from exposure to a challenge-stressor but lacked robust empirical support have also shed light on these gaps. This suggests the need for further exploration of research avenues that incorporate stressor dynamics and explore alternative models and approaches (Clarke, 2012; Liu et al., 2013; Mazzola & Disselhorst, 2019). In this study, we hope to contribute to elucidate conditions and groups of professionals to which the CHF does not apply or lacks contextualization, thus avoiding possible adverse effects resulting from undifferentiated interpretations.

We present an alternative perspective to the prevailing linear focus in scientific discourse, which predominantly emphasizes the positive outcomes associated with challenge-stressors. Our thesis argues that the relationship between a challenging stressor and individual behavior may exhibit a curvilinear pattern, influenced by the interaction between stress and an individual's ability to cope with their work environment. The paradigm shift in our research stems from the recognition that evaluations of challenges and obstacles may not necessarily be mutually exclusive, but rather linked to the resources that support such assessments. Our proposition posits that individuals' resources act as moderators of the effects of challenge-stressors, resulting in the expected motivational processes, as well as negative associations commonly observed with hindrance-stressors.

This proposal will incorporate the concept of social challenge stressor, a recent addition to the organizational literature (Egglı et al., 2021; Jannesari & Sullivan, 2021; Kern et al., 2021; Kern & Zapf, 2021), along with two well-established concepts, in order to develop our perspective and address existing gaps in the research. Specifically, we will draw upon the concept of work engagement (Bakker

et al., 2008; Saks, 2019), which represents positive behavior affected by stress, and political skill (Ferris et al., 2012), which represents individual resources that moderate this relationship. The selection of these constructs stems from prior observations that have demonstrated significant associations with other typical factors in organizational psychology, such as resilience, organizational identification, and organizational commitment (e.g., Basit, 2020; Sanhokwe & Chinyamurindi, 2023). This selection allows for their incorporation into the hypotheses regarding the dynamics of social stress at work, which will be elaborated upon in the following section.

The objective of this study is to investigate the significance and magnitude of the relationships between the aforementioned concepts, with a specific focus on understanding the conditions under which social stress affects individual engagement positively or negatively. Moreover, we aim to explore how political skill moderates these relationships. Through this analysis, we anticipate unveiling a curvilinear association between these variables, shedding light on their complex dynamics.

### **Theoretical background and hypothesis development**

The inclusion of social interaction in the list of challenge stressors occurred with the introduction of the concept of Social Challenge Stressors (SCS) by Kern et al. (2021), which sought to identify situations perceived as complex or unclear and requiring some social behavior to ensure the work process. In the rationale for the new construct, the authors argued that existing concepts of social stress, such as unfairness and incivility, did not consider the frequent demands of group work. Thus, a social stressor at work would be related to psychological strain and personal growth or development by meeting basic human needs for competence and belonging.

Work engagement is a positive and intense state that involves feelings of inspiration, well-being, and authentic pleasure (Bakker et al., 2014). It is a multidimensional psychological state that represents the communion of physical (vigor), emotional (dedication), and cognitive (absorption) energies engaged by the individual in his work function, which enables him to perform better (Bakker et al., 2008; Saks, 2019). In this way, considering that one spends a large part of the day in a work routine, the better the perception of the meaning of work for the individual, the greater his or her engagement.

In work environments, political attitudes also permeate social interactions. This study intends to integrate organizational politics as a factor adjacent to the challenge of dealing socially with the organization's demands. Thus, to represent the individual's resources, we will use the concept of political skill: a characteristic linked to social competence to influence and pursue results based on the ability to effectively understand employees at work and use this knowledge to enthruse others to act in ways that enhance their personal and organizational goals (Ferris et al., 2012; Harris et al., 2016).

Political skill offers a valuable lens through which to comprehend the intricate dynamics of social stressors in the workplace and their subsequent impact on employee engagement (Kim et al., 2019; Meisler, 2014). These skills encompass not only emotional management but also relationship-building capabilities. This multifaceted skill set fosters a more comprehensive understanding of social stress and its influence on employee well-being. Political skill provides individuals with effective emotional regulation strategies, enabling them to navigate stressful situations without succumbing to their detrimental effects. This emotional resilience shields employees from the negative influence of social stressors, thereby protecting their engagement (Kim et al., 2019; Meisler, 2014). Furthermore, political skill facilitates the development of strong and consistent relationships with colleagues, supervisors, and other stakeholders. These positive connections serve as a buffer against social stress, providing a supportive network that can mitigate its negative impacts on engagement (Rutner et al., 2015; Sanhokwe & Chinyamurindi, 2023).

Considering that political behavior is a phenomenon adjacent to organizational relationships (Allen et al., 2016; De Moraes & Teixeira, 2020), possessing political skill provides resources to address work demands, thus becoming a controlling factor in stress (Hessels et al., 2017; Perrewé et al., 2004). This feature allows the development of the hypothesis that political skill may be a variable capable of interacting with SCS and moderating the strength and direction of the relationship between social stress and work engagement.

**Hypothesis 1 (H<sub>1</sub>):** political skill moderates the relationship between SCS and work engagement.

We will test three conditional effects to explain the dynamics of such moderation: low, intermediate, and high. Initially, we argued that with low political skill, the pressures of social interaction at work would be an obstacle as the lack of resources to deal with conflict or interpersonal factors would be detrimental (De Lange et al., 2003; Gabel-Shemueli et al., 2012; Hessels et al., 2017; Lesener et al., 2019; Perrewé et al., 2004) to the point that SCS, acts as a stressor-obstacle and reduces individuals' engagement.

**Hypothesis 2 (H<sub>2</sub>):** when political skill levels are low, the relationship between SCS and work engagement is negative.

Considering that political skill is a tool to navigate the social fabric of the institution (Ferris et al., 2012; Maher et al., 2021), we expect that in the presence of intermediate levels of this skill, the relationship between SCS and work engagement would convert to positive. In this configuration, the stressor-challenge would act in its original design, evoking positive emotions (Kern et al., 2021; N. P. Podsakoff et al., 2007).

**Hypothesis 3 (H<sub>3</sub>):** when political skill levels are intermediate, the relationship between SCS and work engagement is positive.

In the next step, considering studies in which greater ownership and ability to cope with the demands of the work environment act as important psychological resources that precede engagement (Barreiro & Treglown, 2020; Lesener et al., 2019; Mauno et al., 2007; Parker et al., 2010), it is proposed that the presence of a high political skill may bring to individuals with such a profile a situational control capable of leading them to a strong connection and understanding of their environment, allowing them to treat SCS features as opportunities and thus boost with greater magnitude the work engagement levels.

**Hypothesis 4 (H<sub>4</sub>):** when political skill levels are high, the magnitude of the positive relationship between SCS and work engagement is greater.

Finally, as a result of H<sub>2</sub>, H<sub>3</sub>, and H<sub>4</sub>, it is possible to postulate a curvilinear relationship that spans two paths supported by such hypotheses and by the literature: on the one hand, a traditional negative association between stress and productive factors (Bedi & Schat, 2013; Clarke, 2012; Hessels et al., 2017); on the other hand, the constructive characteristic of stressors-challenge and its expected positive association with engagement (Colquitt et al., 2017; Kern et al., 2021). Such a reversal of meaning would stem from the ability of the politically adept to navigate the social web and converting obstacles into opportunities (Crawford et al., 2010; De Moraes, 2017; Kane-Frieder et al., 2014; Maher et al., 2021), thus creating an inflection point in the recurrent linearity reported when addressing the stress-result relationship. Bringing these oppositions together fills gaps left by linear approaches. These arguments allow us to hypothesize a more appropriate model to demonstrate the overall relationship between the SCS and work engagement constructs:

**Hypothesis 5 (H<sub>5</sub>):** a positive quadratic curvilinear relationship best explains the relationship between SCS and work engagement.

## Method

### Participants

The study counted on a non-probabilistic sample of public servants, professors, and administrative technicians, from a federal educational institution in southeastern Brazil with 23 campuses. The participants play diversified roles linked to teaching, research, and extension, as well as administrative activities ranging from pedagogical support to financial and project management. The collection occurred electronically via institutional e-mail. We observed the specific ethical procedures for research with human beings in approaches to the human and social sciences. The project was approved by a Committee for Ethics in Research with Human Beings, linked to the National Commission for Ethics in Research (NCER) of the Brazilian Ministry of Health (Conselho Nacional de Saúde, 2022). This study is registered at NCER under the Certificate of Presentation of Ethical Appreciation number 52852321.2.0000.5072.

Following the screening for outliers and missing data, a sample consisting of 606 respondents was acquired. Most respondents are female (57.26 %), over 40 years old, and with more than ten years of job tenure. The questionnaire incorporated a section for identifying alternative gender identities.

However, no responses were received in this category. As for education, all of them have a college degree, and the vast majority have a post-graduate degree. The participation was relatively evenly distributed among the teaching and technical-administrative career segments. Notably, approximately 30 % of the respondents reported holding leadership positions, such as sector head or coordinator.

### Analysis Strategy

As recommended by P. M. Podsakoff et al. (2012), as a safeguard against the risk of common method bias (CMB), we employed *a priori* and *post hoc* approaches. For the *a priori* procedure, the invitation screen, despite clarifying the overall objective, does not easily allow for anticipating how the variables would be related, the data collection presented a random organization of the items, and it was ensured that responses would be kept anonymous. For the *post hoc* analysis, Harman's single factor test was utilized to assess the presence of common method bias (CMB) in the data. The findings indicated that a single factor accounted for only 36.50 % of the total variance, which fell below the recommended threshold value of 50 % (Fuller et al., 2016). We tested multicollinearity between the variables studied using the variance inflation factor (VIF), the most prominent being 1.85 - well below the problematic limit of 10 or even the more stringent threshold value of 5 or 2.5 (Dormann et al., 2013).

Initially, to verify the plausibility of the measurement instruments, we employed a Confirmatory Factor Analysis (CFA) using the JASP software (Version 0.17.1). For hypothesis testing, we utilized the IBM SPSS software (Version 22) with the Process 4.2 macro by Hayes (2022). For testing hypotheses H<sub>1</sub>, H<sub>2</sub>, H<sub>3</sub>, and H<sub>4</sub>, we opted for a Moderation Analysis, a technique that focuses on interactions (Hayes, 2022) to verify the extent to which a third variable (political skill) influences the strength or direction of the relationship between an independent variable (SCS) and a dependent one (work engagement). In addition, we adopted the following procedures to make the results more robust and interpretable: 5000 bootstrap samples to generate the 95 % confidence intervals (Efron & Narasimhan, 2020; Hayes, 2022); centralization of the focus variables before creating the interaction (Cohen et al., 2014; Hayes, 2022); robust (HC3) regression methods (Cribari-Neto & Lima, 2014; Hayes & Cai, 2007; Lawrence, 2019). Finally, to test H<sub>5</sub>, we employed hierarchical regression to assess whether the relationship between social stress and engagement is better explained by a positive quadratic non-linear association and to generate an estimation curve.

### Measures

*Social Challenge Stressors Scale (SCSS)*: version adapted and validated to Portuguese by De Moraes et al. (2023a) from the original by Kern et al. (2021). It has eight items and a range of 1 (*never*) to 5 (*daily*). Example item: "How often are you required to make unpleasant decisions essential for continued work?". The underlying content of the scale items focuses on situational characteristics at work that require task-related action and social interactions simultaneously.

*Work Engagement Scale (WES)*: a nine-item version of the Utrecht Work Engagement Scale (UWES-9) developed by Schaufeli et al. (2006) and validated for Portuguese by Agnst et al. (2009). The scale has seven points with a range from 1 (*never/never*) to 7 (*always/every day*). Examples of items are: "I am immersed in my work" and "I am proud of the work I do".

*Political Skill Inventory (PSI)*: short eight-item version of the PSI (Ferris et al., 2005; Vigoda-Gadot & Meisler, 2010), adapted and validated to Portuguese by De Moraes et al. (2023b). Examples of items: "I spend a lot of time and effort at work networking with others" and "It is easy for me to develop a good rapport with most people". Range from 1 (*strongly disagree*) to 7 (*strongly agree*). The latent variable represents aspects of interpersonal influence, social astuteness, networking skills, and genuine sincerity.

*Control variables*: job tenure in the current organization (in years), age (in years), gender (0-male; 1-female), and leadership (0-does not act; 1-acts) will be used to control the analyses because they represented typical information from the organizational world with the ability to influence the results given the possible covariations with the constructs focused on in this study and due to previous research suggesting this possibility (Cifre et al., 2013; De Moraes et al., 2022b; Kane-Frieder et al., 2014).

## Results

Initially, employing CFA, the psychometric properties of the three measurement instruments of the study were verified to assess whether the plausibility of the models remains in the evaluated context (Table 1). Then, we used the Robust Diagonally Weighted Least Squares estimator, recommended for ordinal categorical data. In the process, we evaluate the principal model fit indices:  $\chi^2/df$ : chi-square per degree of freedom; Tucker-Lewis Index (TLI); Comparative Fit Index (CFI); Goodness of fit index (GFI); Root Mean Square Error of Approximation (RMSEA); Standardized root mean square residual (SRMR).

**Table 1**  
*Fit indices of the measurement instruments*

Indices	Adequate value <sup>a</sup>	SCSS	PSI	WES
$\chi^2/df$	< 3.00	1.185	2.244	1.950
TLI	> .90	.999	.993	.997
CFI	> .90	.999	.995	.998
GFI	> .95	.998	.998	.999
RMSEA	< .08	.017 CI [.000, .041]	.045 CI [.028, .063]	.040 CI [.023; .055]
SRMR	< .08	.027	.045	.044

Notes. <sup>a</sup>Brown (2015); Kline (2015). CI: 90 % confidence interval.

The reported fit indices indicate an excellent proportion of explained variance-covariance (GFI). The TLI and CFI values indicate independence between the measured variables. The RMSEA value indicates an excellent fit of the model to the population and a variation in the confidence interval of less than .10 (Brown, 2015). As for the discrepancies obtained from the standardized mean of the residuals, the SRMR also showed good results.

The results in Table 2 show that the independent variables relate to 57.3 % of the variance of engagement, which characterizes a good coefficient of determination, since the existence of other antecedents of work engagement, such as job design and organizational support, is recognized (Saks, 2019). The effect size ( $f^2$ ) reported indicates a good practical significance of the regression outcome. The control variables influenced the model fit by 2.80 %.

A 14.40 % increase in the model's explanatory power is noteworthy, including the interaction between social stress and political skill ( $\Delta R^2=.144$ ). This interaction showed a significant and positive beta coefficient ( $\beta = .40$ ;  $p < .001$ ), indicating the presence of moderation and supporting the first hypothesis: *H<sub>1</sub> – Political skill moderates the relationship between SCS and Work Engagement.*

In order to obtain a better understanding of the moderating effect, the moderating variable was divided into three segments, using cutoff points based on the percentiles proposed by Hayes (2022): the 16th percentile (lower), the 50th percentile (intermediate), and the 84th percentile (higher). Table 3 shows that when the levels of political skill were low), the relationship between SCS and work engagement was negative and significant ( $-.49$ ;  $p < .001$ ). However, for intermediate levels of political skill, the relationship becomes positive and statistically significant ( $.48$ ;  $p < .001$ ), becoming even stronger for higher levels of political skill ( $.87$ ;  $p < .001$ ). These effects support hypotheses H<sub>2</sub>, H<sub>3</sub>, and H<sub>4</sub> (H<sub>2</sub> - when political skill levels are low, the relationship between SCS and work engagement is negative; H<sub>3</sub> - when political skill levels are intermediate, the relationship between SCS and work engagement is positive; H<sub>4</sub> - when political skill levels are high, the magnitude of the positive relationship between SCS and work engagement is greater).

**Table 2**  
*Moderation analysis*

Model Summaries						
Models (steps)	R <sup>2</sup>	F (HC3)	df1	df2	ΔR <sup>2</sup>	Effect size (f <sup>2</sup> )
Main effects	.401	202.19***	2	603		.67
(+) Control variables	.429	75.15***	6	599	.028	.73
(+) Interaction	.573	138.63***	7	598	<b>.144</b>	1.28
Coefficients (final model)						
	β	standard error (HC3)	t	LLCI	B	ULCI
<b>Main effects:</b>						
Social Challenge Stressor (SCS)	.21	.06	4.47***	.16	.26	.37
Political Skill (PS)	.47	.03	10.99***	.29	.35	.41
<b>Control variables:</b>						
Job tenure	-.10	.01	-2.79***	-.03	-.02	-.01
Age	.07	.00	2.10**	.00	.01	.02
Gender	-.04	.06	-1.47 <sup>ns</sup>	-.20	-.09	.03
Leadership	.10	.07	3.26***	.09	.22	.36
<b>Interaction:</b>						
SCS x OS	<b>.40</b>	.03	11.68***	.33	.39	.45

Notes. Dependent variable: Work Engagement. Ns: non-significant; LLCI/ULCI: lower and upper limit of the confidence interval (95 %); β: standardized coefficients; B: unstandardized coefficients. \*\**p* < .05 \*\*\**p* < .001

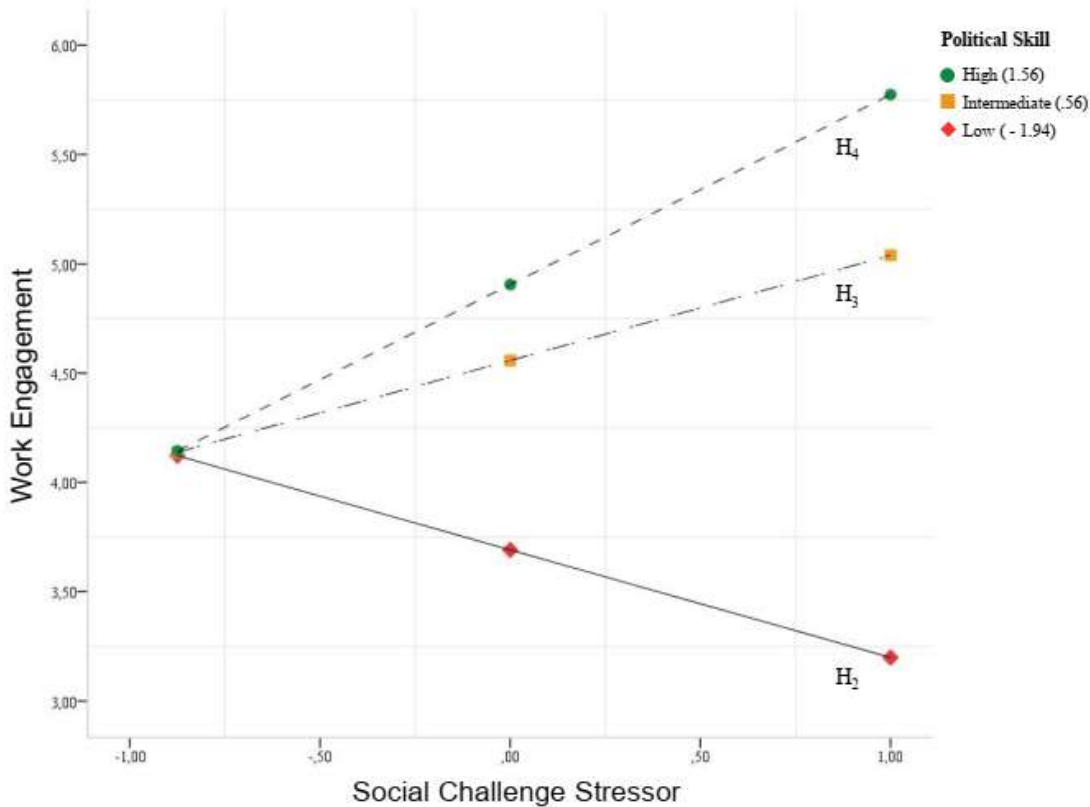
**Table 3**  
*Conditional effects SCS on work engagement*

Political skill	Effects	Standard error (HC3)	t	LLCI	ULCI	
-1.94	Low (H <sub>2</sub> )	-.49***	.08	-6.32	-.65	-.34
.56	Intermediate (H <sub>3</sub> )	.48***	.07	7.392	.35	.61
1.56	High (H <sub>4</sub> )	.87***	.09	10.13	.70	1.04

\*\*\**p* < .001

The graphical representation of these results through the slopes of the straight lines (Figure 1) illustrates how the hypotheses found support in the analyzed data. In H<sub>2</sub>, we can observe that when PS latent traits are low, the SCS does not produce on work engagement the positive effect predicted in the stressor-challenge definition (Colquitt et al., 2017; Crawford et al., 2010; De Moraes et al., 2023a Kern; et al., 2021). This finding adds to other studies that question the generalizability of the CHF (e.g., Bakker & Sanz-Vergel, 2013; O'Brien & Beehr, 2019; Rosen et al., 2020). Although characterized as a relevant counterpoint, this confirmation should be analyzed with parsimony because the results confirmed the positive effect of SCS on work engagement when political skill scores were intermediate (H<sub>3</sub>) and the increase of its magnitude accompanying the growth of ability (H<sub>4</sub>).

**Figure 1**  
Analysis of simple slopes



The results of the interactive effects found in the three cutoffs by political skill level provide the initial rationale to verify if a curvilinear relationship best explains the relationship between SCS and work engagement. For this demonstration, we followed the hierarchical regression estimation procedures suggested by Cohen et al. (2014), with the insertion of the quadratic component (SCS<sup>2</sup>) in the second step of the final model (Table 4).

**Table 4**  
Hierarchical regression

Model	Variables	$\beta$	Standard error (HC3)	t	LLCI	B	ULCI	R <sup>2</sup>	$\Delta R^2$	f <sup>2</sup>
1. Linear	SCS	<b>.54***</b>	.05	12.81	.58	.69	.79	.29		.42
2. Quadratic	SCS	<b>-2.06***</b>	.30	-8.78	-3.18	-2.61	-2.04	.45	<b>.15</b>	.81
	SCS <sup>2</sup>	<b>2.64***</b>	.04	10.82	.40	.48	.57			

Notes. Dependent variable: Work Engagement; LLCI/ULCI: lower and upper limit of the confidence interval (95 %);  $\beta$ : standardized coefficients; B: non-standard coefficients; SCS: Social challenge stress. The results of this table support H5: a positive quadratic curvilinear relationship best explains the relationship between SCS and work engagement. \*\*\* $p < .001$

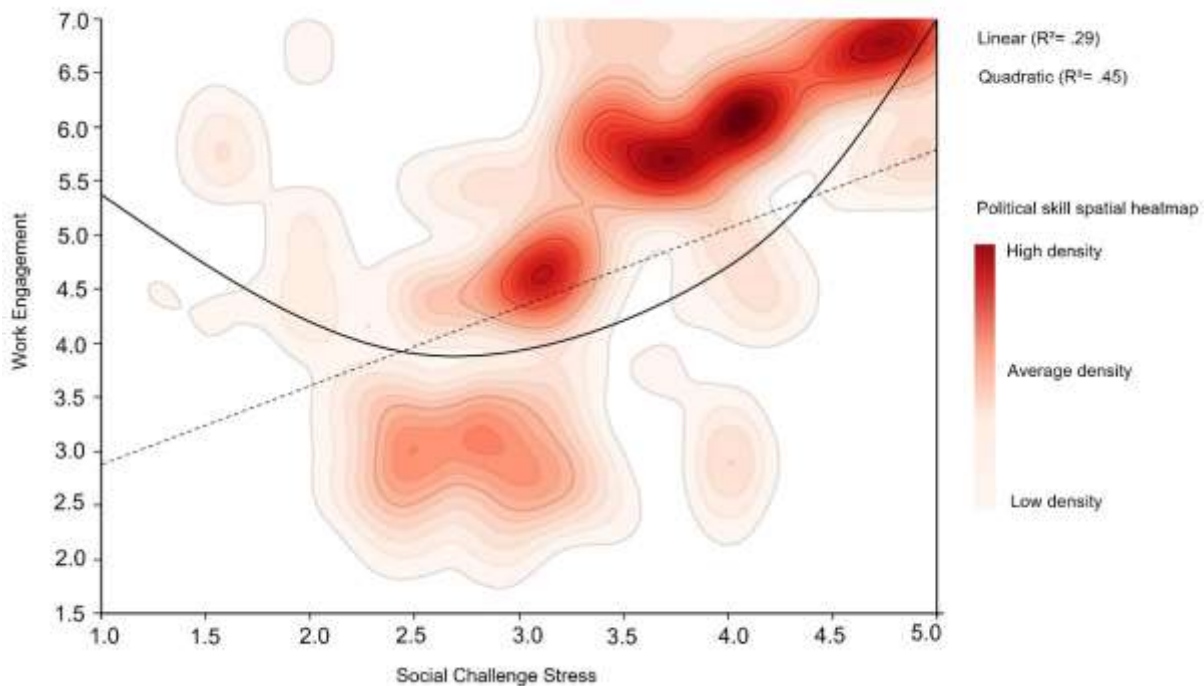
In the linear model, the  $\beta$  coefficient is positive and significant (.54;  $p < .001$ ), while in the quadratic model, besides the betas assuming opposite poles (-2.06; 2.64;  $p < .001$ ), there was an increase in the coefficient of determination of 15 % ( $\Delta R^2 = .15$ ), confirming that the association between SCS and Work Engagement is better explained by a positive quadratic curvilinear relationship (H5). This relationship is illustrated in Figure 2 using the regression estimation curve added to the heatmap of the political skill levels: in the downward section of the curve, social stress negatively impacts engagement,



and the presence of political skill is discrete, but in the upward section, the influence is positive, a phenomenon partly explained by the moderation exerted by PS, initially less dense, but highly concentrated in the higher levels of SCS and work engagement.

**Figure 2**

*Work Engagement vs. SCS estimation curve and heatmap of Political Skill*



## Discussion

This article aimed to broaden the theory and research on challenge stressors by confronting the assumptions about their positive effects with a non-linear approach between Social Challenge Stressors and Work Engagement, postulating that political skill acts as a moderator between the two concepts, flexing a relationship that previously has been treated as linear. The hypotheses tested confirmed in the context studied that social stress impacts individuals' engagement, either positively or negatively, depending on the level of political skill that professionals have to handle organizational interactions, resulting in a positive curvilinear association between the two concepts (U-shaped form). Furthermore, the findings suggest that the Challenge-Hindrance Framework has an application conditional on the skills required to evaluate a stressor as an obstacle or a challenge.

The detection of a positive moderating effect for the set of observations provides evidence of the importance of the underlying role of political skill in building desirable outcomes, corroborating studies on its effects on other variables in the organizational world in different contexts, such as extroversion and increased productivity (Blickle et al., 2010), proactive personality (Sun & van Emmerik, 2015), engagement and work performance (Kim et al., 2019). In addition, this finding provides evidence of how the ability to articulate, influence, and network enhances a challenge-stressor's positive characteristics, resulting in engagement gains.

We found that the social stressor acted predominantly in its original conception, evoking positive emotions (Kern et al., 2021), allowing, on the one hand, the recognition of the assertiveness of the CHF view for many cases, and on the other hand, a criticism to its generalization. Thus, the counterpoint offered in this study turns to the portion of professionals to whom the model did not apply in the theorized way. In these cases, challenge stress was detrimental to engagement, partly because of the lack of positive moderation exercised by the political skill. Thus, exposure to this stressor requires careful interpretation because there are boundaries beyond which the challenge effect may not meet

organizational goals of increasing motivation. The findings of this study add to previous research that demonstrated that challenging stressors do not always result in positive outcomes at work or that they do not act in the same way for all occupations and individuals (e.g., Bakker & Sanz-Vergel, 2013; Kubicek et al., 2023; S. H. Lin et al., 2014).

The finding of a curvilinear relationship between SCS and engagement highlight that a solely linear treatment for the impacts of stressor-challenge would ignore a significant portion of its relationship with engagement. In line with previous studies (e.g., De Moraes & Teixeira, 2020; Giorgi et al., 2015; O'Brien & Beehr, 2019; Rosen et al., 2020), the risk of homogeneous characterizations is reaffirmed when dealing with questions regarding organizational behavior variables, since, as in the present research, the linear approach overestimates the positive effects of SCS.

Besides contributing theoretically to the theme, this article brings up an important point for people management: since situations of challenging stress are inherent to the daily routine of organizations and, most of the time, motivate and revert to more engagement, it is necessary to evaluate, in a contextualized way, which abilities are passive to be developed so that this beneficial relationship occurs, or which professional profiles require actions aimed at minimizing the cases in which the impact of this type of stress is harmful. Thus, development policies aimed at expanding the positive aspects of political skill can result in well-being and improved organizational results. Furthermore, these suggestions aim to avoid intervention efforts coming from generalizations with recommendations to increase challenge stressors to foster performance and expand employee performance (Colquitt et al., 2017; Levy, 2009; W. Lin et al., 2015).

It is imperative to acknowledge that the findings of this study are contextualized within the framework of public education institutions, which often experience social and work conditions that differ significantly from those of private enterprises (De Moraes, 2017; Duarte et al., 2020). This distinction necessitates careful consideration when interpreting and applying the study's conclusions.

One of the study's limitations is the need for other proxies that are known to affect work engagement variations, such as job design and organizational support (Saks, 2019). Future research can explore such absence with multiple moderations. Cross-cultural studies are other possible avenues of investigation because, in the Brazilian case, organizational politics has a strong presence (De Moraes & Teixeira, 2020; Schroder & Silva, 2020), which may have potentiated its importance. Furthermore, as the sample covered only civil servants, analyses focused on the private sector could provide new perspectives on the phenomenon presented. The results of this study raise questions for the future development of the investigated topic: can interventions designed to develop political skills be effective in improving employee psychological well-being and engagement in challenging situations? Which specific elements of political skills (e.g., negotiation, influence tactics) are most critical for managing SCS and boosting engagement?

## References

- Agnst, R., Benevides-Pereira, A. M. T., & Porto-Martins, P. C. (2009). *UWES Utrecht Work Engagement Scale: Escala de Engajamento no Trabalho de Utrecht*. [http://www.wilmarschaufeli.nl/publications/Schaufeli/Test%20Manuals/Test\\_manual\\_UWES\\_Brazil.pdf](http://www.wilmarschaufeli.nl/publications/Schaufeli/Test%20Manuals/Test_manual_UWES_Brazil.pdf)
- Allen, R. W., Porter, L. W., & Angle, H. L. (2016). *Organizational influence processes*. Routledge. <https://doi.org/10.4324/9781315290614>
- Bakker, A. B., & Sanz-Vergel, A. I. (2013). Weekly work engagement and flourishing: The role of hindrance and challenge job demands. *Journal of Vocational Behavior, 83*(3), 397-409. <https://doi.org/10.1016/j.jvb.2013.06.008>
- Bakker, A. B., Demerouti, E., & Sanz-Vergel, A. I. (2014). Burnout and work engagement: The JD-R approach. *Annual Review of Organizational Psychology and Organizational Behavior, 1*(1), 389-411. <https://doi.org/10.1146/annurev-orgpsych-031413-091235>
- Bakker, A. B., Schaufeli, W. B., Leiter, M. P., & Taris, T. W. (2008). Work engagement: An emerging concept in occupational health psychology. *Work & Stress, 22*(3), 187-200. <https://doi.org/10.1080/02678370802393649>
- Barreiro, C. A., & Treglown, L. (2020). What makes an engaged employee? A facet-level approach to trait emotional intelligence as a predictor of employee engagement. *Personality and Individual Differences, 159*, 109892. <https://doi.org/10.1016/j.paid.2020.109892>

- Basit, A. A. (2020). How does political skill lead to job and organization engagement? Role of self-evaluations. *Journal of Management Development*, 39(7/8), 895-910. <https://doi.org/10.1108/JMD-05-2019-0164>
- Bedi, A., & Schat, A. C. H. (2013). Perceptions of organizational politics: A meta-analysis of its attitudinal, health, and behavioural consequences. *Canadian Psychology / Psychologie Canadienne*, 54(4), 246-259. <http://dx.doi.org/10.1037/a0034549>
- Blickle, G., Wendel, S., & Ferris, G. R. (2010). Political skill as moderator of personality–job performance relationships in socioanalytic theory: Test of the getting ahead motive in automobile sales. *Journal of Vocational Behavior*, 76(2), 326-335. <https://doi.org/10.1016/j.jvb.2009.10.005>
- Brown, T. A. (2015). *Confirmatory factor analysis for applied research* (5<sup>th</sup> ed.). Guilford.
- Cavanaugh, M. A., Boswell, W. R., Roehling, M. V., & Boudreau, J. W. (2000). An empirical examination of self-reported work stress among US managers. *Journal of Applied Psychology*, 85(1), 65. <https://doi.org/10.1037/0021-9010.85.1.65>
- Cifre, E., Vera, M., Rodríguez-Sánchez, A. M., & Pastor, M. C. (2013). Job-person fit and well-being from a gender perspective. *Revista de Psicología del Trabajo y de las Organizaciones*, 29(3), 161-168. <https://doi.org/10.5093/tr2013a22>
- Clarke, S. (2012). The effect of challenge and hindrance stressors on safety behavior and safety outcomes: a meta-analysis. *Journal of Occupational Health Psychology*, 17(4), 387-397. <https://doi.org/10.1037/a0029817>
- Cohen, P., West, S. G., & Aiken, L. S. (2014). *Applied multiple regression/correlation analysis for the behavioral sciences* (2<sup>nd</sup> ed.). Psychology Press.
- Colquitt, J. A., LePine, J. A., & Wesson, M. J. (2017). *Organizational behavior: Improving performance and commitment in the workplace* (5<sup>th</sup> ed.). McGraw Hill Irwin.
- Conselho Nacional de Saúde. Brazil. (2022). *Conselho Nacional de Ética em Pesquisa*. <http://conselho.saude.gov.br/comissoes-cns/conep/>
- Crawford, E. R., LePine, J. A., & Rich, B. L. (2010). Linking job demands and resources to employee engagement and burnout: a theoretical extension and meta-analytic test. *Journal of Applied Psychology*, 95(5), 834. <https://doi.org/10.1037/a0019364>
- Cribari-Neto, F., & Lima, M. da G. A. (2014). New heteroskedasticity-robust standard errors for the linear regression model. *Brazilian Journal of Probability and Statistics*, 28(1). <https://doi.org/10.1214/12-bjps196>
- De Lange, A. H., Taris, T. W., Kompier, M. A., Houtman, I. L., & Bongers, P. M. (2003). "The very best of the millennium": longitudinal research and the demand-control-(support) model. *Journal of Occupational Health Psychology*, 8(4), 282. <https://doi.org/10.1037/1076-8998.8.4.282>
- De Moraes, R. M. (2017). Escala de percepção de política na organização: Adaptação e validação para o contexto brasileiro. *Revista Eletrônica de Ciência Administrativa*, 16(3), 197-212. <https://doi.org/10.21529/RECADM.2017012>
- De Moraes, R. M., & Teixeira, A. J. C. (2020). Managers, engagement and political behaviors: A nonlinear relationship. *Revista de Administração Contemporânea*, 24, 218-231. <https://doi.org/10.1590/1982-7849rac2020180255>
- De Moraes, R. M., Istoe, R. S. C., & Miranda, V. A. (2022a). Panorama bibliométrico do modelo de estresse desafio-obstáculo: evolução e tendências. *InterSciencePlace*, 17(5), 275-294.
- De Moraes, R. M., Istoe, R. S. C., & Miranda, V. A. (2022b). Estresse e gênero no local de trabalho. *Open Science Research* (3), 2412-2420. <https://dx.doi.org/10.37885/220308197>
- De Moraes, R. M., Istoe, R. S. C., & Miranda, V. A. (2023a). Escala de Estressores de Desafio Social no Trabalho: Validação Psicométrica e Aplicação no Contexto Brasileiro. *Revista Psicologia: Organizações e Trabalho*, 23(2), 2454-2460. <https://doi.org/10.5935/rpot/2023.2.24256>
- De Moraes, R. M., Istoe, R. S. C., & Miranda, V. A. (2023b). How political skill and work engagement differ by hierarchical level: Evidence from Brazil. *Revista Brasileira de Gestão de Negócios*, 25, 533-550. <https://doi.org/10.7819/rbgn.v25i4.4242>

- Dormann, C. F., Elith, J., Bacher, S., Buchmann, C., Carl, G., Carré, G., Marquéz, J. R. G., Gruber, B., Lafourcade, B., Leitão, P. J., Münkemüller, T., McClean, C., Osborne, P. E., Reineking, B., Schröder, B., Skidmore, A. K., Zurell, D., & Lautenbach, S. (2013). Collinearity: a review of methods to deal with it and a simulation study evaluating their performance. *Ecography*, *36*(1), 27-46. <https://doi.org/10.1111/j.1600-0587.2012.07348.x>
- Duarte, J., Berthelsen, H., & Owen, M. (2020). Not all emotional demands are the same: Emotional demands from clients' or co-workers' relations have different associations with well-being in service workers. *International Journal of Environmental Research and Public Health*, *17*(21), 7738. <https://doi.org/10.3390/ijerph17217738>
- Efron, B., & Narasimhan, B. (2020). The automatic construction of bootstrap confidence intervals. *Journal of Computational and Graphical Statistics*, *29*(3), 608-619. <https://doi.org/10.1080/10618600.2020.1714633>
- Eggl, A., Romano-Pereira, D., & Elfering, A. (2021). Short-term effects of social stressors at work on rumination and physical symptoms in social workers. *Industrial Health*, *59*(4), 220-228. <https://doi.org/10.2486/indhealth.2020-0192>
- Ferris, G. R., Treadway, D. C., Brouer, R. L., & Munyon, T. P. (2012). Political skill in the organizational sciences. In G. R. Ferris & D. C. Treadway (Eds.), *Politics in organizations: Theory and research considerations* (pp. 487-528). Routledge/Taylor & Francis Group.
- Ferris, G. R., Treadway, D. C., Kolodinsky, R. W., Hochwarter, W. A., Kacmar, C. J., Douglas, C., & Frink, D. D. (2005). Development and validation of the political skill inventory. *Journal of Management* *31*(1), 126-152. <https://doi.org/10.1177/0149206304271386>
- Fuller, C. M., Simmering, M. J., Atinc, G., Atinc, Y., & Babin, B. J. (2016). Common methods variance detection in business research. *Journal of Business Research*, *69*(8), 3192-3198. <https://doi.org/10.1016/j.jbusres.2015.12.008>
- Gabel-Shemueli, R., Rondan, V. P., Lozano, R. A. P., & Huarcaya, G. A. (2012). Estrés laboral: relaciones con inteligencia emocional, factores demográficos y ocupacionales. *Revista Venezolana de Gerencia*, *17*(58), 271-290.
- Giorgi, G., Leon-Perez, J. M., & Arenas, A. (2015). Are bullying behaviors tolerated in some cultures? Evidence for a curvilinear relationship between workplace bullying and job satisfaction among Italian workers. *Journal of Business Ethics*, *131*, 227-237. <https://doi.org/10.1007/s10551-014-2266-9>
- Harris, J. N., Ferris, G. R., Summers, J. K., & Munyon, T. P. (2016). The role of political skill in relationship development, work and social networks, and work effectiveness. *Human Resource Management Theory and Research on New Employment Relationships*, 47-75.
- Hayes, A. F. (2022). *Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach* (3<sup>rd</sup> ed.). Guilford.
- Hayes, A. F., & Cai, L. (2007). Using heteroskedasticity-consistent standard error estimators in OLS regression: An introduction and software implementation. *Behavior Research Methods*, *39*, 709-722. <https://doi.org/10.3758/BF03192961>
- Hessels, J., Rietveld, C. A., & van der Zwan, P. (2017). Self-employment and work-related stress: The mediating role of job control and job demand. *Journal of Business Venturing*, *32*(2), 178-196. <https://doi.org/10.1016/j.jbusvent.2016.10.007>
- Jannesari, M. T., & Sullivan, S. E. (2021). Leaving on a jet plane? The effect of challenge-hindrance stressors, emotional resilience and cultural novelty on self-initiated expatriates' decision to exit China. *Personnel Review*, *51*(1), 118-136. <https://doi.org/10.1108/PR-05-2020-0362>
- Kane-Frieder, R. E., Hochwarter, W. A., & Ferris, G. R. (2014). Terms of engagement: Political boundaries of work engagement-work outcomes relationships. *Human Relations*, *67*(3), 357-382. <https://doi.org/10.1177/0018726713495068>
- Kern, M., & Zapf, D. (2021). Ready for change? A longitudinal examination of challenge stressors in the context of organizational change. *Journal of Occupational Health Psychology*, *26*(3), 204. <https://doi.org/10.1037/ocp0000214>
- Kern, M., Heissler, C., & Zapf, D. (2021). Social job stressors can foster employee well-being: Introducing the concept of social challenge stressors. *Journal of Business and Psychology*, *36*, 771-792. <https://doi.org/10.1007/s10869-020-09702-7>

- Kim, T. T., Karatepe, O. M., & Chung, U. Y. (2019). Got political skill? The direct and moderating impact of political skill on stress, tension and outcomes in restaurants. *International Journal of Contemporary Hospitality Management*, 31(3), 1367-1389. <https://doi.org/10.1108/IJCHM-01-2018-0014>
- Kline, R. B. (2015). *Principles and practice of structural equation modeling*. Guilford publications.
- Kubicek, B., Uhlig, L., Hülshager, U. R., Korunka, C., & Prem, R. (2023). Are all challenge stressors beneficial for learning? A meta-Analytical assessment of differential effects of workload and cognitive demands. *Work & Stress*, 37(3), 269-298. <https://doi.org/10.1080/02678373.2022.2142986>
- Lawrence, K. D. (2019). *Robust regression: analysis and applications*. Routledge.
- LePine, J. A., Podsakoff, N. P., & LePine, M. A. (2005). A meta-analytic test of the challenge stressor-hindrance stressor framework: An explanation for inconsistent relationships among stressors and performance. *Academy of Management Journal*, 48(5), 764-775. <https://doi.org/10.5465/amj.2005.18803921>
- Lesener, T., Gusy, B., & Wolter, C. (2019). The job demands-resources model: A meta-analytic review of longitudinal studies. *Work & Stress*, 33(1), 76-103. <https://doi.org/10.1080/02678373.2018.1529065>
- Levy, P. E. (2010). *Industrial/organizational psychology: Understanding the workplace* (3<sup>rd</sup> ed.). Worth Publishers.
- Lin, S. H., Wu, C. H., Chen, M. Y., & Chen, L. H. (2014). Why employees with higher challenging appraisals style are more affectively engaged at work? The role of challenging stressors: A moderated mediation model. *International Journal of Psychology*, 49(5), 390-396. <https://doi.org/10.1002/ijop.12064>
- Lin, W., Ma, J., Wang, L., & Wang, M. O. (2015). A double-edged sword: The moderating role of conscientiousness in the relationships between work stressors, psychological strain, and job performance. *Journal of Organizational Behavior*, 36(1), 94-111. <https://doi.org/10.1002/job.1949>
- Liu, C., Liu, Y., Mills, M. J., & Fan, J. (2013). Job stressors, job performance, job dedication, and the moderating effect of conscientiousness: A mixed-method approach. *International Journal of Stress Management*, 20(4), 336-363. <https://doi.org/10.1037/a0034841>
- Maher, L. P., Ejaz, A., Nguyen, C. L., & Ferris, G. R. (2021). Forty years of political skill and will in organizations: a review, meta-theoretical framework and directions for future research. *Career Development International*, 27(1), 5-35. <https://doi.org/10.1108/CDI-07-2021-0191>
- Mauno, S., Kinnunen, U., & Ruokolainen, M. (2007). Job demands and resources as antecedents of work engagement: A longitudinal study. *Journal of Vocational Behavior*, 70(1), 149-171. <https://doi.org/10.1016/j.jvb.2006.09.002>
- Mazzola, J. J., & Disselhorst, R. (2019). Should we be “challenging” employees?: A critical review and meta-analysis of the challenge-hindrance model of stress. *Journal of Organizational Behavior*, 40(8), 949-961. <https://doi.org/10.1002/job.2412>
- Meisler, G. (2014). Exploring emotional intelligence, political skill, and job satisfaction. *Employee Relations*, 36(3), 280-293. <https://doi.org/10.1108/ER-02-2013-0021>
- O'Brien, K. E., & Beehr, T. A. (2019). So far, so good: Up to now, the challenge-hindrance framework describes a practical and accurate distinction. *Journal of Organizational Behavior*, 40(8), 962-972. <https://doi.org/10.1002/job.2405>
- Parker, S. L., Jimmieson, N. L., & Amiot, C. E. (2010). Self-determination as a moderator of demands and control: Implications for employee strain and engagement. *Journal of Vocational Behavior*, 76(1), 52-67. <https://doi.org/10.1016/j.jvb.2009.06.010>
- Perrewé, P. L., Zellars, K. L., Ferris, G. R., Rossi, A. M., Kacmar, C. J., & Ralston, D. A. (2004). Neutralizing job stressors: Political skill as an antidote to the dysfunctional consequences of role conflict. *Academy of Management Journal*, 47(1), 141-152. <https://doi.org/10.5465/20159566>
- Podsakoff, N. P., LePine, J. A., & LePine, M. A. (2007). Differential challenge stressor-hindrance stressor relationships with job attitudes, turnover intentions, turnover, and withdrawal behavior: a meta-analysis. *Journal of Applied Psychology*, 92(2), 438. <https://doi.org/10.1037/0021-9010.92.2.438>

- Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology*, *63*, 539-569. <https://doi.org/10.1146/annurev-psych-120710-100452>
- Rosen, C. C., Dimotakis, N., Cole, M. S., Taylor, S. G., Simon, L. S., Smith, T. A., & Reina, C. S. (2020). When challenges hinder: An investigation of when and how challenge stressors impact employee outcomes. *Journal of Applied Psychology*, *105*(10), 1181. <https://doi.org/10.1037/apl0000483>
- Rutner, P. S., Irani Williams, F., Campbell, C., & Riemenschneider, C. K. (2015). The politics of emotion: Exploring emotional labor and political skill across job types within the it/is profession. *ACM SIGMIS Database: the DATABASE for Advances in Information Systems*, *46*(3), 52-73. <https://doi.org/10.1145/2804075.2804079>
- Saks, A. M. (2019). Antecedents and consequences of employee engagement revisited. *Journal of Organizational Effectiveness: People and Performance*, *6*(1), 19-38. <https://doi.org/10.1108/JOEPP-06-2018-0034>
- Sanhokwe, H., & Chinyamurindi, W. (2023). Work engagement and resilience at work: The moderating role of political skill. *SA Journal of Industrial Psychology*, *49*. <https://doi.org/10.4102/sajip.v49i0.2017>
- Schaufeli, W. B., Bakker, A. B., & Salanova, M. (2006). The measurement of work engagement with a short questionnaire: A cross-national study. *Educational and psychological measurement*, *66*(4), 701-716. <https://doi.org/10.1177/0013164405282471>
- Schroder, U. A., & Silva, R. C. (2020). O 'jeitinho brasileiro' a partir de uma perspectiva cognitivo-interacional (The 'Brazilian jeitinho' from a cognitive-interactional perspective). *Estudos da Língua (gem)*, *18*(2), 117-134. <https://doi.org/10.22481/el.v18i2.6287>
- Sun, S., & van Emmerik, H. I. (2015). Are proactive personalities always beneficial? Political skill as a moderator. *Journal of Applied Psychology*, *100*(3), 966. <https://psycnet.apa.org/doi/10.1037/a0037833>
- Vigoda-Gadot, E., & Meisler, G. (2010). Emotions in management and the management of emotions: The impact of emotional intelligence and organizational politics on public sector employees. *Public Administration Review*, *70*(1), 72-86. <https://doi.org/10.1111/j.1540-6210.2009.02112.x>

---

**Authors' contribution (CRediT Taxonomy):** 1. Conceptualization; 2. Data curation; 3. Formal Analysis; 4. Funding acquisition; 5. Investigation; 6. Methodology; 7. Project administration; 8. Resources; 9. Software; 10. Supervision; 11. Validation; 12. Visualization; 13. Writing: original draft; 14. Writing: review & editing.

R. M. M. has contributed in 1, 2, 3, 5, 6, 8, 9, 11, 12, 13, 14; V. A. M. in 1, 3, 4, 5, 6, 7, 10, 11, 13, 14; R. S. C. I. in 1, 3, 5, 6, 10, 11, 13.

**Scientific editor in charge:** Dra. Cecilia Cracco.