

# THE MODERATING ROLE OF PSYCHOLOGICAL CAPITAL AND ORGANIZATIONAL SUPPORT IN WORK-FAMILY CONFLICT AND THE WELL-BEING OF NURSES

EL ROL MODERADOR DEL CAPITAL PSICOLÓGICO Y EL APOYO ORGANIZACIONAL EN EL CONFLICTO TRABAJO-FAMILIA Y EL BIENESTAR DE LAS ENFERMERAS

O PAPEL MODERADOR DO CAPITAL PSICOLÓGICO E DO APOIO ORGANIZACIONAL NO CONFLITO TRABALHO-FAMÍLIA E NO BEM-ESTAR DE ENFERMEIRAS

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## ABSTRACT

**Objective:** Based on the Theory of Job Demands-Resources, this study examined whether individual work resources (positive psychological capital) and organizational resources (perceived organizational support) moderate the relationship between work demands (work-family conflict) and the desired work outcome (psychological well-being). **Materials and Methods:** Descriptive, comparative, correlational, and confirmatory cross-sectional study was conducted using non-probabilistic convenience sampling that included 40 primary care nurses from Portugal with data collected by EuSurvey between July and September 2024. Six culturally validated and adapted instruments with adequate reliability levels were used for data collection: 1) Sociodemographic questionnaire to identify general characteristics, professional and family context; 2) Work-Family Scale by Carlson et al. to assess work-family conflict; 3) Scale adapted by Santos and Gonçalves to measure perceived organizational support; 4) Utrecht Work Engagement Scale (UWES-9) by Schaufeli and Bakker to measure work engagement; 5) Compound PsyCap Scale (CPC-12) by Lorenz et al. to measure psychological capital; and 6) Ryff Scale to assess psychological well-being. **Results:** Most participants were women over 51 years of age, in a relationship, with children, working full-time, and 50% of participants had a support network. Psychological capital was the only factor that moderated the

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relationship between work-family conflict and psychological well-being. Conclusions: Nurses without a support network reported higher levels of work-family conflict, while those with social support showed higher levels of psychological well-being and perceived organizational support. These results highlight the importance of implementing organizational interventions that promote the development of psychological capital, such as programs that strengthen self-efficacy, resilience, optimism, and hope.

## RESUMEN

**Objetivo:** Con base en la Teoría de Demandas y Recursos Laborales, se buscó comprender si los recursos individuales del trabajo (capital psicológico positivo) y los recursos organizacionales (apoyo organizacional percibido) moderan la relación entre las demandas laborales (conflicto trabajo-familia) y el resultado laboral deseado (bienestar psicológico). **Material y Método:** Estudio transversal descriptivo, comparativo, correlacional y confirmatorio con muestreo no probabilístico por conveniencia que incluyó a 40 enfermeras de atención primaria de Portugal con datos recopilados por EuSurvey entre julio y septiembre de 2024. Para la recolección de datos se utilizaron 6 instrumentos culturalmente validados y adaptados con niveles adecuados de confiabilidad: 1) Cuestionario sociodemográfico para identificar las características generales, contexto profesional y familiar; 2) Escala Trabajo-Familia de Carlson et al. para evaluar el conflicto trabajo-familia; 3) Escala adaptada por Santos y Gonçalves para medir el apoyo organizacional percibido; 4) Escala de Compromiso Laboral de Utrecht (UWES-9) de Schaufeli y Bakker para medir el compromiso laboral; 5) Escala Compuesta PsyCap (CPC-12) de Lorenz et al. para medir el capital psicológico y finalmente 6) Escala de Ryff para evaluar el bienestar psicológico. **Resultados:** en su mayoría eran mujeres mayores de 51 años, en una relación de pareja, con hijos, trabajando a tiempo completo y el 50 % contaba con una red de apoyo. Solo el capital psicológico moderó la relación entre el conflicto trabajo-familia y el bienestar psicológico. **Conclusiones:** Las enfermeras sin red de apoyo reportaron niveles más altos de conflicto trabajo-familia, mientras que aquellas con apoyo social mostraron mayores niveles de bienestar psicológico y de apoyo organizacional percibido. Estos resultados subrayan la necesidad crítica de implementar intervenciones organizacionales que fomenten el desarrollo del capital psicológico, como programas dirigidos al fortalecimiento de la autoeficacia, la resiliencia, el optimismo y la esperanza.

## RESUMO

**Objetivo:** Com base na Teoria das Demandas e Recursos de Trabalho, este estudo examinou se os recursos individuais de trabalho (capital psicológico positivo) e os recursos organizacionais (suporte organizacional percebido) moderam a relação entre as demandas de trabalho (conflito trabalho-família) e o resultado desejado no trabalho (bem-estar psicológico). **Material e Método:** Estudo transversal, descritivo, comparativo, correlacional e confirmatório, com amostragem de conveniência não probabilística, incluindo 40 enfermeiras de cuidados primários de Portugal. Os dados foram coletados meio do EuSurvey entre julho e setembro de 2024. Para a coleta de dado, foram utilizados seis instrumentos culturalmente validados e adaptados, com níveis adequados de confiabilidade: 1) questionário sociodemográfico para identificar características gerais, contexto profissional e familiar; 2) Escala de Conflito Trabalho-Família de Carlson et al.; 3) Escala adaptada por Santos e Gonçalves para medir o suporte organizacional percebido; 4) Escala de engajamento no trabalho de Utrecht (UWES-9) de Schaufeli e Bakker; 5) Escala Compound PsyCap (CPC-12) de Lorenz et al. para medir o capital psicológico; e 6) Escala Ryff para avaliar o bem-estar psicológico. **Resultados:** A maioria dos participantes foram mulheres com mais de 51 anos, em um relacionamento, com filhos, que trabalhavam de tempo integral, e das quais 50% possuíam rede de apoio. Apenas o capital psicológico moderou a relação entre o conflito trabalho-família e o bem-estar psicológico. **Conclusões:** Enfermeiras sem rede de apoio relataram níveis mais altos de conflito trabalho-família, enquanto aquelas com apoio social apresentaram maiores níveis de bem-estar psicológico e suporte organizacional percebido. Esses resultados evidenciam a necessidade crítica de implementar intervenções organizacionais que promovam o desenvolvimento do capital psicológico, como programas voltados ao fortalecimento da autoeficácia, resiliência, otimismo e esperança.

## INTRODUCTION

Nurses in primary healthcare are crucial for healthcare quality, yet their well-being is often challenged by work-family conflict (WFC), exacerbated by workload, night shifts, full-time work, stress, work overload, temporary contracts and organizational pressures<sup>(1)</sup>. WFC reduces psychological resources such as Psychological capital (PsyCap), whereas balancing work and family roles promotes PsyCap and work engagement, which are crucial for motivation<sup>(2)</sup>. Furthermore, organizational support, particularly managerial support, mitigates the negative effects of WFC<sup>(2)</sup>.

Given the current crises of the pandemic, war, and migration, understanding work-family relationships is essential for the well-being of organizations and society. Balancing these roles remains a challenge, requiring further research on factors influencing WFC and its effects<sup>(3)</sup>. This study also addresses the limitations by Jiménez et al.<sup>(4)</sup>, who highlighted the need to study primary healthcare nurses, as well as by Chen et al.<sup>(3)</sup>, who noted that research on the impact of individual characteristics on healthcare professionals' well-being remains limited. This study contributes to scientific knowledge and provides insights for creating policies and interventions by identifying whether PsyCap or Perceived organizational support (POS) act as job resources that moderate WFC, thereby improving professional's job outcome Psychological Well-being (PWB) in the studied context.

The Job Demands-Resources Theory (JD-R Theory) presents a central proposition: different job demands and resources determine occupational health and well-being<sup>(5)</sup>. Initially structured with six premises until 2014, with three added in 2023<sup>(6)</sup>. The JD-R model surpasses earlier stress models, including Two-Factor Theory (1966), Job Characteristics Model (1980), Demand-Control Model (1979), and Effort-Reward Imbalance Model (1996), by addressing job demands and well-being resources. It is applicable across professions to enhance well-being and performance<sup>(6)</sup>. In this study also incorporates the Conservation of Resources Theory<sup>(7)</sup>, the Broaden-and-Build Theory<sup>(8)</sup>, Self-Determination Theory<sup>(9)</sup>, Self-Enhancement The-

ory<sup>(10)</sup> and Role Theory<sup>(11)</sup>.

This study addresses PWB from a eudaimonic perspective due to the pandemic's stress, which continues to impact workers' performance and motivation<sup>(12)</sup>. PWB involves six dimensions: self-acceptance, positive relationships, life goals, environmental mastery, autonomy, and personal growth<sup>(13)</sup>, linked to quality of life and mental health. Insufficient personal (e.g. PsyCap) or social resources can worsen PWB outcomes, especially under stress from job demands like work-family interference<sup>(14)</sup>. Such demands cause tension and exhaustion, leading to physical and psychological costs<sup>(6)</sup>.

Bakker et al.<sup>(15)</sup> identify WFC as a key work demand, where incompatible work and family demands cause dissatisfaction, reduced PWB, and emotional exhaustion<sup>(16)</sup>. WFC includes time, tension, and behavior conflicts, explained by Role Theory as unmanageable role expectations<sup>(11)</sup>, finding that higher WFC is related to lower PWB and satisfaction. This informs the proposed hypothesis: H1: The WFC (job demands) is negatively associated with PWB.

WFC negatively impacts performance, but PsyCap, as a personal resource, mitigates job demands, enhancing engagement, well-being, and work quality<sup>(17)</sup>. High PsyCap levels boost confidence (efficacy), positive outlook (optimism), goal persistence (hope), and recovery from adversity (resilience), fostering positive attitudes, satisfaction, and performance while reducing harmful behaviors like absenteeism and turnover<sup>(18)</sup>. These insights support the proposed hypotheses: H2: PsyCap (personal resource) is positively associated with PWB; H3: PsyCap moderates the interaction between WFC and PWB.

Job resources also mitigate the negative effects of job demands by shaping perceptions, modulating responses, and reducing health impacts<sup>(6)</sup>. Support from colleagues and managers is crucial, as its absence contributes to 48% of WFC cases<sup>(19)</sup>, while its presence improves satisfaction and mental health<sup>(1, 2)</sup>. Strong supervisor relationships and peer support reduce conflict and enhance work-family integration<sup>(20)</sup>. POS fosters appreciation and well-being, where PsyCap, POS, and well-being are positively

linked<sup>(21)</sup>, with managerial support reducing WFC and promoting work-family balance. These insights inform the proposed hypotheses: H4: POS (job resource) is positively associated with PWB; H5: The POS moderates the interaction between the WFC and the PWB.

The mobilization of job resources, supported by work engagement, creates a gain cycle through proactive behaviors like job crafting, enhancing resources and optimizing demands<sup>(6)</sup>. Work engagement, defined as vigor, dedication, and absorption<sup>(22)</sup>, improves individual health and organizational performance. While work-life balance positively influences engagement, WFC reduces energy and focus, especially for parents with young children<sup>(16)</sup>. However, family support positively impacts the work-family interface and commitment<sup>(23)</sup>, mitigating workplace challenges.

The present study aimed to understand how individual resources (PsyCap) and job resources (POS) moderate the relationship between job demands (WFC) and job result (PWB) within the Job Demands-Resources (JD-R) Theory.

## MATERIAL AND METHOD

**Type of study:** This quantitative cross-sectional study utilized descriptive, comparative, correlational, and confirmatory approaches based on JD-R theory. A non-probabilistic convenience sampling method was employed, with data collected from July to September 2024 within a public health care organization in Portugal.

**Unit of analysis and location:** The inclusion criteria for participation in this study were defined as: being a primary health care nurse, performing duties at unit primary health care. In turn, the exclusion criteria were not practicing as a nurse at the time of the study.

**Population and sample**

G\*Power 3.1.9.4 software indicated that to see a large effect size ( $f^2 = .80$ ), with  $\alpha = .05$  for Type I error and  $1-\beta = .80$  for Type II error, a minimum total sample of 101 participants would be required. However, despite constant contacts being made with the various functional primary health care units, the final sample consisted of 40 participants, chosen for its accessibility for data collection, allowing for obtaining representative

information on working conditions and psychological well-being in this specific context, representing 39.6% of the expected sample.

**Data collection:** The data collection protocol was developed and implemented using EUSurvey (link access: <https://ec.europa.eu/eusurvey/runner/BEPITFECS>) with an average completion time of 15 minutes. For data collection, various culturally validated and adapted measuring instruments with adequate levels of reliability were used. A sociodemographic questionnaire consisting of 21 items was applied to identify general characteristics, as well as the professional and family context of the participants. To assess work-family conflict, the Work-Family Scale by Carlson et al.<sup>(24)</sup> was used, which includes the dimensions of energy, strain, time, and behavior, comprising a total of 9 items with a Cronbach's alpha ( $\alpha_C$ ) of .94. Perceived Organizational Support was measured using the scale adapted by Santos and Gonçalves<sup>(25)</sup>, composed of 8 items distributed across affective and cognitive dimensions ( $\alpha_C = .82$ ). Work engagement was assessed using the short version of the Utrecht Work Engagement Scale (UWES-9) by Schaufeli & Bakker<sup>(26)</sup>, which includes the dimensions of vigor, dedication, and absorption, with 9 items and an  $\alpha_C$  of .89. Psychological Capital was measured using the Compound PsyCap Scale (CPC-12) by Lorenz et al.<sup>(27)</sup>, which evaluates hope, optimism, resilience, and self-efficacy through 12 items ( $\alpha_C = .83$ ). Finally, psychological well-being was assessed using the reduced version of Ryff's scale<sup>(13)</sup>, which includes six dimensions: autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance, totaling 18 items with an  $\alpha_C$  of .917.

**Data quality control:** Internal consistency of each instrument was evaluated using Cronbach's alpha, where  $\alpha \geq .90$  is considered very good;  $.70 \leq \alpha < .90$  is good;  $.60 \leq \alpha < .70$  is reasonable;  $.50 \leq \alpha < .60$  is weak; and  $\alpha < .50$  is unacceptable. Assumptions for parametric tests were checked with Shapiro-Wilk and Levene's test before conducting the analyses.

**Data analysis:** The analysis, conducted in SPSS 28 with  $\alpha = .05$ , included descriptive statistics. Differences were measured using the t-test and

Cohen's  $d$  ( $<.20$ : irrelevant;  $.20 \leq d < .50$ : small;  $.50 \leq d < .80$ : medium; and  $\geq .80$ : large), while Pearson's  $r$  evaluated correlations while Pearson's  $r$  was used to assess correlations, assuming the correlation values, regardless of the sign (+ or -), if  $r \leq .19$ : very weak correlation;  $.20 \leq r \leq .39$ : weak correlation;  $.40 \leq r \leq .69$ : moderate correlation;  $.70 \leq r \leq .89$ : strong correlation; and  $.90 \leq r \leq 1.0$ : very strong correlation. For moderation analysis, the interaction between the predictor and moderator variables must be significant; otherwise, no moderation effect occurs. Two moderation models were tested: Model 1 examined whether PsyCap moderated the effect of WFC on PWB, and Model 2 tested POS as a moderator. Confirmatory Factor Analysis (CFA) refined constructs, assessing consistency, convergent validity, and discriminant validity using CR, AVE, and the Fornell-Larcker criterion, where  $HR < 0.60$  indicates inconsistency;  $0.60 \leq HR < 0.70$  is acceptable;  $0.70 \leq HR < 0.95$  is good; and  $HR \geq 0.95$  is problematic. Average Variance Extracted (AVE) values  $\geq 0.5$  are considered adequate, as they indicate that the construct explains at least 50% of the variance in the associated items. Model fit was improved via AMOS indices and evaluated using absolute ( $\chi^2/df$ , GFI), relative (NFI, RFI, TLI, CFI), parsimony (PRATIO, PNFI, PCFI), and population discrepancy (RMSEA) indices, along with model comparison metrics (AIC, BIC, MECVI).

**Ethical aspects:** The research was approved by the Ethics Committee of the Institute of Intercultural and Transdisciplinary Studies and by the Ethics Committee of ULSBA (EDOC /2024/24730), following the principles of the Declaration of Helsinki. The consent form was presented at the beginning of the protocol, informing that completing it implies authorization for the use of the information provided.

## RESULTS

**Sociodemographic characterization of nursing professionals:** 87.5% were female and 12.5% male; the predominant age group was over 51 years (47.5%). Regarding marital status, 75% were married or in a de facto union, 15% were divorced/separated, and 10% were single.

Most participants had children (92.5%). Half (50%) reported having a social support network available in case they needed to stay longer at work. Concerning professional status, 95% held full-time positions and 5% had temporary jobs.

**Psychometric properties and descriptive characterization of variables:** The results showed that the CFT scale ( $\alpha = .91$ ), POS ( $\alpha = .93$ ), Work Engagement (ENG) ( $\alpha = .90$ ), and PWB ( $\alpha = .90$ ) demonstrated very good internal consistency. The PsyCap scale presented good internal consistency, with  $\alpha = .85$ .

Work-family conflict showed moderate levels, with higher scores in the energy and strain dimensions. Perceived organizational support was moderate, with slightly higher cognitive than affective perceptions. Work engagement also showed moderate levels, with dedication and vigor presenting the highest scores. Psychological capital was moderate, with hope and self-efficacy standing out. Psychological well-being was moderate, with life goals and personal growth presenting the highest scores.

**Effect of Having a Social Support on WFC, POS, ENG, PsyCap, and PWB:** The presence of social support influenced several outcomes. In work-family conflict, not having a social support network was associated with higher conflict levels, as the group without support showed a higher mean ( $M = 2.18$ ) than the group with support ( $M = 1.57$ ), a difference that was statistically significant and presented a large effect size ( $t = 3.826$ ,  $p < .001$ ,  $|d| = 1.207$ ). Social support also had a positive impact on perceived organizational support, with higher values in the group with a support network ( $M = 4.21$ ) compared to the group without ( $M = 3.09$ ), again with a significant difference and a large effect size ( $t = -3.167$ ;  $p = .003$ ,  $|d| = 1.001$ ). Psychological well-being followed the same pattern, showing higher scores in the group with support ( $M = 4.74$ ) than in the group without ( $M = 4.31$ ), with a significant difference and a moderate effect size ( $t = -2.072$ ,  $p = .045$ ,  $|d| = .667$ ). Finally, social support did not appear to influence work engagement ( $p = .430$ ) or psychological capital ( $p = .194$ ), as no significant differences were found between groups.



**Relationships between WFC, POS, ENG, PsyCap, and PWB:** Work–family conflict tended to move in the opposite direction of the other variables, showing negative correlations of weak magnitude with PWB ( $r = -.318$ ;  $p < .01$ ), engagement ( $r = -.232$ ;  $p = < .05$ ), and PsyCap ( $r = -.213$ ,  $p = < .05$ ), while its correlation with POS ( $r = -.446$ ,  $p = < .01$ ) reflected a moderate effect. In contrast, POS was associated with more positive outcomes, showing correlations ranging from weak to moderate, including its links with engagement ( $r = .543$ ;  $p = < .01$ ), PsyCap ( $r = .337$ ;  $p = < .05$ ), and well-being ( $r = .225$ ;  $p = < .05$ ). Engagement aligned with stronger psychological resources, demonstrating moderate significant correlations with PsyCap ( $r = .632$ ;  $p = < .01$ ) and PWB ( $r = .441$ ;  $p = < .01$ ). PsyCap was also positively related to psychological well-being ( $r = .597$ ;  $p = < .01$ ), again with moderate strength. Overall, correlations varied between weak and moderate, with the strongest observed between engagement and PsyCap.

**Evaluation of hypotheses of the study:** Table 1 summarizes the hypothesis testing conducted in the study, presenting the predictive paths examined prior to the moderation analyses. The results highlight which direct effects reached

statistical significance and which did not, indicating the model configurations that met the conditions for moderation testing. Only the predictive path in Model 1 met the significance criteria required for the moderation procedure, whereas Model 2 did not show a significant effect.

**Integrated Model of Psychological Capital Moderation: Structure, Relationships, and Effects:** Table 2 summarizes the standardized and unstandardized coefficients that describe the relationships between the latent constructs of Model 1 and their respective indicators. The values reflect the strength and significance of the item loadings for work–family conflict, psychological capital, and psychological well-being, along with reliability and validity indices that support the adequacy of the measurement model prior to the structural analysis.

Work–Family Conflict (WFC) had a significant negative effect on Psychological Well-Being (PWB) ( $\beta = -.980$ ;  $p = .012$ ). Psychological Capital (PsyCap) showed a significant positive effect on PWB ( $\beta = .742$ ;  $p = .002$ ). The interaction term WFC\*PsyCap also presented a significant positive effect on PWB ( $\beta = .191$ ;  $p = .030$ ).

**Table 1.** Results of the hypotheses proposed for the proposed models in nursing professionals based on work-family conflict, perceived organizational support, psychological capital, commitment, and psychological well-being, Beja, Portugal, 2024 (n= 40).

Hipotesis	Direct effect			$\beta$	SE	Z	p	Corroborated?
H <sub>1</sub>	WFC	® (–)	PWB	-.980	.391	-2.508	.012	Yes (Mod.1)
H <sub>1</sub>	WFC	® (–)	PWB	-1.061	1.410	-.753	.452	No (Mod.2)
H <sub>2</sub>	PsyCap	® (+)	PWB	.742	.235	3.156	.002	Yes
H <sub>3</sub>	WFC*PsyCap	® (+)	PWB	.191	.088	2.164	.030	Yes
H <sub>4</sub>	POS	® (+)	PWB	-.389	.849	-.458	.647	No
H <sub>5</sub>	WFC*POS	® (+)	PWB	.204	.393	.518	.604	No

$\beta$ = regression coefficient; SE= standard error; Z= test statistic;  $p < .05$  indicates statistical significance.

**Table 2.** Standardized ( $\lambda$ ) and unstandardized ( $\beta$ ) coefficients between latent constructs and manifest variables in Model 1 among in nursing professionals, Beja, Portugal, 2024 (n = 40).

Trajectories			$\lambda$	$\beta$	SE	Z	p	$a_c$	FC	VEM
<b>Work-Family Conflict</b>								.895	.901	.604
WFC	→	WFC1	.786	1.000	---	---	---			
WFC	→	WFC2	.824	1.069	.168	6.358	$p<.001$			
WFC	→	WFC4	.770	1.219	.207	5.887	$p<.001$			
WFC	→	WFC5	.784	.914	.154	5.944	$p<.001$			
WFC	→	WFC6	.778	.936	.156	6.003	$p<.001$			
WFC	→	WFC9	.713	.945	.173	5.471	$p<.001$			
<b>Positive Psychological Capital</b>								.776	.783	.546
PsyCap	→	PsyCap1	.750	1.000	---	---	---			
PsyCap	→	PsyCap5	.739	.897	.170	5.282	$p<.001$			
PsyCap	→	PsyCap8	.727	.721	.140	5.139	$p<.001$			
<b>Psychological Well-Being</b>								.874	.874	.537
PWB	→	PWB4	.767	1.000	---	---	---			
PWB	→	PWB5	.799	1.038	.210	4.952	$p<.001$			
PWB	→	PWB6	.715	.731	.167	4.382	$p<.001$			
PWB	→	PWB15	.637	.850	.222	3.826	$p<.001$			
PWB	→	PWB17	.731	.803	.206	3.900	$p<.001$			
PWB	→	PWB18	.739	.958	.213	4.495	$p<.001$			

$\lambda$ = standardized loading;  $\beta$ = unstandardized loading; SE= standard error; Z= test statistic;  $a_c$ = internal consistency (Cronbach's alpha); FC= composite reliability; VEM= average variance extracted (AVE);  $p < .05$  indicates statistical significance.

Table 3 presents the coefficients of determination and effect sizes for the manifest variables included in Model 1. These values reflect the proportion of variance explained by each indicator and the magnitude of their individual contributions within the model. The results show predominantly large effect sizes across items, indicating strong contributions of the observed variables to their respective latent constructs.

Table 4 presents the correlations and significance levels between the constructs included in the model, as well as between selected random errors. The results indicate which associations among latent variables and measurement errors reached statistical relevance within Model 1.

Model 1 showed good fit indices: Ratio  $\chi^2/df$  (1.375) and PRATIO (.808) were rated very good;

TLI (.903) and PNFI (.624) were classified as good; GFI (.834), NFI (.872), RMSEA (.098), RFI (.818), CFI (.922), and PCFI (.745) were acceptable.

The standardized model diagram for Model 1 is displayed in Figure 1, which presents the moderation model estimated in the study, showing the associations between work-family conflict, psychological capital, and psychological well-being. The model indicates that psychological capital moderates the relationship between work-family conflict and psychological well-being, with higher levels of psychological capital reducing the negative impact of work-family conflict on well-being. The figure summarizes the standardized paths among the constructs, highlighting the significant effects incorporated in Model 1.

**Table 3.** The manifest variables present in Model 1 among in nursing professionals, Beja, Portugal, 2024 (n = 40).

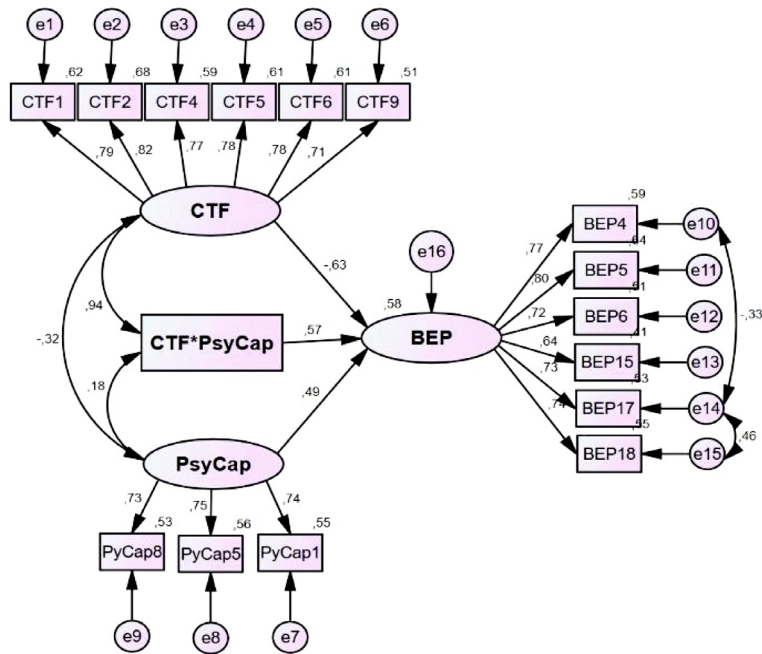
Items	Coefficients of determination (R <sup>2</sup> )	Effect size (f <sup>2</sup> )	
PWB4	.588	1.43	
PWB5	.638	1.76	
PWB6	.512	1.05	
PWB15	.406	.68	
PWB17	.535	1.15	
PWB18	.545	1.20	
PyCap1	.547	1.21	
PyCap5	.562	1.28	Big effect
PyCap8	.529	1.12	
WFC1	.618	1.62	
WFC2	.679	2.12	
WFC4	.593	1.46	
WFC5	.615	1.60	
WFC6	.605	1.53	
WFC9	.508	1.03	

**Table 4.** Constructs and random errors in nursing professionals, Beja, Portugal, 2024 (n= 40).

Correlation		Manifest variables	r	p
WFC	↔	WFC*PsyCap	---	.945
WFC*PsyCap	↔	PsyCap	---	<.001
WFC	↔	PsyCap	---	.180
e14	↔	e15	---	.332
e10	↔	e14	---	.114
		PWB17 ↔ PWB18	.456	.054
		PWB4 ↔ PWB17	-.326	.064

e= random error term; r= correlation coefficient; p= < .05 indicates statistical significance.





**Figure 1.** Moderation model with standardized estimates of work-family conflict with psychological capital on psychological well-being in nursing professionals, Beja, Portugal, 2024 (n= 40).

## DISCUSSION

The objective of this study was to understand how the moderation mechanisms of PsyCap and POS intervene in the relationship between WFC and PWB, based on the JD-R Theory. The results partially corroborated the proposed hypotheses, showing the direct influence of WFC on PWB and the moderating role of PsyCap in this relationship (H1, model 1). It was observed that higher levels of WFC were associated with reduced well-being, while PsyCap acted as a protective resource, attenuating the negative effects of conflict. This finding is consistent with studies showing that work-family imbalance negatively impacts psychological well-being, with PsyCap being a factor of resilience and self-regulation that favors adaptation to high-demand contexts<sup>(16)</sup>. The interaction between WFC and PsyCap also had a positive impact on PWB (H3), reinforcing that PsyCap can function as a buffer against the deleterious effects of job demands on well-being<sup>(17)</sup>. The positive relationship between PsyCap and PWB (H2) was also confirmed<sup>(18)</sup>, supporting the applicability of

the JD-R model<sup>(6)</sup> and reaffirming that personal resources are central in emotional regulation and coping with occupational stress.

These results highlight the relevance of the interaction between demands and personal resources in the nursing context, partially confirming the theoretical assumption of the JD-R model that individual and job resources can moderate the impact of job demands on well-being. However, only personal resources demonstrated this capacity in this professional group, suggesting that, in contexts of structural overload, such as healthcare services, organizational resources may not be sufficiently accessible or perceived<sup>(6)</sup>. In fact, the relationship between WFC and PWB was not significant when POS acted as a moderator (model 2), which indicates that perceived organizational support plays a less effective role than PsyCap in promoting well-being. This finding corroborates studies indicating that institutional support, when perceived as moderate or inconsistent, is not sufficient to counterbalance the emotional and cognitive demands of nursing practice<sup>(21)</sup>.

This result is consistent with the Effort–Reward Imbalance Model<sup>(28)</sup>, which postulates that effort without adequate recognition compromises workers' psychosocial balance.

This absence of a significant effect of POS may also reflect the organizational context of nursing, characterized by high demands, long working hours, and a lack of effective institutional support, which weakens the perception of support and reduces its capacity to act as a protective resource. This interpretation gains relevance considering studies that associate occupational stress in healthcare professionals with physical and psychosocial risks, including increased likelihood of cardiovascular diseases and emotional distress<sup>(17, 29)</sup>. Therefore, the findings reinforce the need for organizational policies aimed at strengthening support practices, recognition, and psychological safety at work.

The descriptive analysis revealed moderate levels of engagement, PsyCap, POS, and PWB, indicating that nurses experience only partially the positive potential of these dimensions, without reaching high levels of satisfaction or professional fulfillment. WFC showed higher means in the energy dimension, while POS and PsyCap reached their highest values in Supportive Cognitive Perception and hope, respectively. PWB stood out in life goals, demonstrating a sense of meaning and purpose, although limited by working conditions.

Energy stood out as the most impaired factor, partially corroborating Yang et al.<sup>(14)</sup> regarding energy exhaustion. When combined with time overload, this condition compromises nurses' identification with their profession and their overall well-being. These findings align with the JD-R model<sup>(6)</sup>, which explains that excessive demands lead to resource depletion and reduced performance. Continuous energy depletion can evolve into emotional exhaustion, anxiety, and depressive symptoms, promoting dysfunctional strategies and self-undermining behaviors that amplify stress<sup>(6)</sup>. This study adds empirical evidence that the balance between demands and resources is essential to sustain well-being and professional effectiveness, reinforcing the role of PsyCap as a psychological resource for protection and recovery in the face

of occupational stress, especially in high-pressure contexts such as nursing.

The sample revealed that most nurses have children and only half have a social support network, which, according to the literature, increases vulnerability to WFC<sup>(16, 30, 31)</sup>. The presence of a support network is fundamental for balancing work and personal life demands<sup>(7, 23, 32)</sup>. Full-time work, combined with family responsibilities, further intensifies WFC, affecting autonomy, social relationships, and environmental mastery<sup>(1)</sup>.

The comparison between nurses with and without a support network confirmed the importance of social support, showing significant differences: professionals without support had higher levels of WFC and greater difficulties in balancing work and family, in line with the Demand–Control Model<sup>(33)</sup> and previous studies<sup>(7, 23, 32)</sup>. On the other hand, those with a support network reported higher perceived organizational support and psychological well-being. This reinforces the importance of social support as a mechanism for emotional regulation and demand balance, functioning as a contextual resource that can enhance the effectiveness of personal resources. These findings are aligned with the JD-R model<sup>(6)</sup>, emphasizing that the integration of individual and collective resources generates a gain cycle capable of reducing stress and promoting well-being. Therefore, the expansion of support networks emerges as an essential strategy for emotional and professional sustainability in nursing.

WFC correlated negatively with POS, PWB, PsyCap, and work engagement, while the other variables showed positive correlations<sup>(6, 16, 17, 21, 30)</sup>. These results reinforce the interdependent nature of personal and organizational resources in creating a gain cycle that fosters proactive behaviors such as Job Crafting<sup>(6)</sup>. Thus, this study contributes empirically to literature by demonstrating that PsyCap not only mitigates the impact of demands but also enhances the development of new resources in the work environment, expanding the capacity for adaptation and professional growth.

This study presented limitations, including the small sample size, despite extended data collection. Although PsyCap demonstrated good

internal consistency, its resilience dimension was weaker, in line with previous findings ( $\alpha_C = .31$ )<sup>(34)</sup>. Nevertheless, the overall consistency of the measures and the empirical support for the main effects observed reinforce the validity of the findings. Future studies should adopt longitudinal designs and larger samples, allowing for the exploration of the temporal dynamics between demands, resources, and well-being. In addition, it is recommended to develop integrative models that simultaneously analyze multiple mediation and moderation effects to consolidate the role of PsyCap as a key variable in regulating stress and performance among healthcare professionals.

## CONCLUSIONS

The study revealed that PsyCap is more effective than POS in mitigating work-family conflict among nurses, as it is an individual resource under workers' control. Implementing the PsyCap Promotion Intervention Program for primary healthcare nurses is recommended. By increasing PsyCap, the program fosters resource mobilization, engagement, and job crafting, which consequently reduces exhaustion, enhance engagement, and improve performance. Strengthening organizational support via leadership training and better communication is also crucial for reducing stress and promoting well-being in healthcare settings.

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## Authors' Contributions:

**Ana Santana-Ruiz:** Conception and design of the work, data collection/obtention, analysis and interpretation of results, manuscript writing and approval of its final version.

**João Ribeiro-Viseu:** Statistical advice, technical and methodological advice.

**Cristian Cifuentes-Tinjaca:** Methodological supervision and formatting responsibilities, critical review of the manuscript,

**António Esteves-Rosinha:** Statistical advice, technical and methodological advice.

## Statement on the use of artificial intelligence

**(AI):** In the preparation of this manuscript, AI ChatGPT was used as a supporting tool to improve writing style, translate content, and synthesize information. All outputs were reviewed, verified, and approved by the authors.

## REFERENCES

1. Zhang Y, Rasheed MI, Luqman A. Work-family conflict and turnover intentions among Chinese nurses: the combined role of job and life satisfaction and perceived supervisor support. *Pers Rev* [Internet]. 2020 [cited 2025 jul 12 2025]; 49(5): 1140-56. Available from: <https://doi.org/10.1108/PR-01-2019-0017>
2. Barnett MD, Martin KJ, Garza CJ. Satisfaction with work-family balance mediates the relationship between workplace social support and depression among hospice nurses. *J Nurs Scholarsh* [Internet]. 2019 [cited 2025 jul 12]; 51(2): 187-94. Available from: <https://doi.org/10.1111/jnu.12451>
3. Chen Q, Liang M, Li Y, Guo J, Fei D, Wang L, et al. Mental health care for medical staff in China during the COVID-19 outbreak. *Lancet Psychiatry* [Internet]. 2020 [cited 2025 jul 12]; 7(4): e15-6. Available from: [https://doi.org/10.1016/S2215-0366\(20\)30078-X](https://doi.org/10.1016/S2215-0366(20)30078-X)
4. Jimenez CL, Montanes IC, Carol M, Guix-Comellas EM, Fabrellas N. Quality of professional life of primary healthcare nurses: a systematic review. *J Clin Nurs* [Internet]. 2022 [cited 2025 jul 12]; 31(9-10): 1097-112. Available from: <https://doi.org/10.1111/jocn.16015>
5. Hakanen JJ, Bakker AB, Turunen J. The relative importance of various job resources for work engagement: a concurrent and follow-up dominance analysis. *BRQ Bus Res Q* [Internet]. 2024 [cited 2025 jul 12]; 27(3): 227-43. Available from: <https://doi.org/10.1177/23409444211012419>
6. Bakker AB, Demerouti E, Sanz-Vergel A, Rodríguez-Muñoz A. La teoría de las demandas y recursos laborales: nuevos desarrollos en la última década. *Rev Psicol Trab Organ* [Internet]. 2023 [cited 2025 jul 12]; 39(3): 157-67. Available from: <https://doi.org/10.5093/jwop2023a17>
7. Hobfoll SE. Conservation of resources: a new attempt at conceptualizing stress. *Am Psychol* [Internet]. 1989 [cited 2025 jul 12]; 44(3): 513-24. Available from: <https://doi.org/10.1037/0003-066X.44.3.513>
8. Fredrickson BL. The role of positive emotions in positive psychology: the broaden-and-build theory of positive emotions. *Am Psychol* [Internet]. 2001 [cited 2025 jul 12]; 56(3): 218-26. Available from: <https://doi.org/10.1037/0003-066X.56.3.218>

9. Deci EL, Ryan RM. Curiosity and self-directed learning: the role of motivation in education. En: Katz L, editor. *Current Topics in Early Childhood Education*. Vol. IV. Washington, DC: ERIC [Internet]; 1981 [cited 2025 jul 12]. Available from: <https://eric.ed.gov/?id=ED206377>
10. Jones SC. Self-and interpersonal evaluations: esteem theories versus consistency theories. *Psychol Bull* [Internet]. 1973 [cited 2025 jul 12]; 79(3): 185-99. Available from: <https://doi.org/10.1037/h0033957>
11. Rothbard NP, Edwards JR. Investment in work and family roles: a test of identity and utilitarian motives. *Pers Psychol* [Internet]. 2003 [cited 2025 jul 12]; 56(3): 699-729. Available from: <https://doi.org/10.1111/j.1744-6570.2003.tb00755.x>
12. Pires LM, Monteiro MJ, Vasconcelos-Raposo JJ. Sofrimento nos enfermeiros em cuidados de saúde primários. *Rev Enferm Referência* [Internet]. 2020 [cited 2025 jul 12]; (5): 1-9. Available from: <https://doi.org/10.12707/RIV19096>
13. Ryff CD. Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *J Pers Soc Psychol* [Internet]. 1989 [cited 2025 jul 12]; 57(6): 1069-81. Available from: <https://doi.org/10.1037/0022-3514.57.6.1069>
14. Yang C, Chen A, Sheng N. Work-family conflict, organizational identification, and professional identification among Chinese nurses from a resource perspective. *J Nurs Res* [Internet]. 2022 [cited 2025 jul 12]; 30(5): 1-11. Available from: <https://doi.org/10.1097/jnr.0000000000000516>
15. Bakker AB, Demerouti E, Euwema MC. Job resources buffer the impact of job demands on burnout. *J Occup Health Psychol* [Internet]. 2005 [cited 2025 jul 12]; 10(2): 170-80. Available from: <https://doi.org/10.1037/1076-8998.10.2.170>
16. Greenhaus JH, Beutell NJ. Sources of conflict between work and family roles. *Acad Manage Rev* [Internet]. 1985 [cited 2025 jul 12]; 10(1): 76-88. Available from: <https://doi.org/10.5465/amr.1985.4277352>
17. Bakker AB, Demerouti E, Sanz-Vergel AI. Burnout and work engagement: the JD-R approach. *Annu Rev Organ Psychol Organ Behav* [Internet]. 2014 [cited 2025 jul 12]; 1: 389-411. Available from: <https://doi.org/10.1146/annurev-orgpsych-031413-091235>
18. Avey JB, Avolio BJ, Luthans F. Experimentally analyzing the impact of leader positivity on follower positivity and performance. *Leadersh Q* [Internet]. 2011 [cited 2025 jul 12]; 22(2): 282-94. Available from: <https://doi.org/10.1016/j.leaqua.2011.02.004>
19. Ekici D, Cerit K, Mert T. Factors that influence nurses' work-family conflict, job satisfaction, and intention to leave in a private hospital in Turkey. *Hosp Pract Res* [Internet]. 2017 [cited 2025 jul 12]; 2(4): 102-8. Available from: <https://doi.org/10.15171/hpr.2017.25>
20. Tummers LG, Bronkhorst BAC. The impact of leader-member exchange (LMX) on work-family interference and work-family facilitation. *Pers Rev* [Internet]. 2014 [cited 2025 jul 12]; 43(4): 573-91. Available from: <https://doi.org/10.1108/PR-05-2013-0080>
21. Souza WS, Siqueira MMM, Martins MDCF. Análise da interdependência do capital psicológico, percepções de suporte e bem-estar no trabalho. *Rev Adm Diálogo* [Internet]. 2015 [cited 2025 jul 12]; 17(2). Available from: <https://doi.org/10.20946/rad.v17i2.18334>
22. Schaufeli WB, Salanova M, González-Romá V, Bakker AB. The measurement of engagement and burnout: a two sample confirmatory factor analytic approach. *J Happiness Stud* [Internet]. 2002 [cited 2025 jul 12]; 3: 71-92. Available from: <https://doi.org/10.1023/A:1015630930326>
23. Zhou S, Li X, Gao B. Family/friends support, work-family conflict, organizational commitment, and turnover intention in young preschool teachers in China: a serial mediation model. *Child Youth Serv Rev* [Internet]. 2020 [cited 2025 jul 12]; 113: 104997. Available from: <https://doi.org/10.1016/j.childyouth.2020.104997>
24. Carlson DS, Kacmar KM, Williams LJ. Construction and initial validation of a multidimensional measure of work-family conflict. *J Vocat Behav* [Internet]. 2000 [cited 2025 jul 12]; 56(2): 249-76. Available from: <https://doi.org/10.1006/jvbe.1999.1713>
25. Santos JV, Gonçalves G. Contribuição para a adaptação portuguesa da escala de Percepção de Suporte Organizacional de Eisenberger, Huntington, Hutchison e Sowa (1986). *Lab Psicol* [Internet]. 2010 [cited 2025 jul 12]; 8(2): 213-23. Available from: <https://doi.org/10.14417/lp.642>
26. Schaufeli WB, Bakker AB. UWES – Utrecht Work Engagement Scale: Test manual. Utrecht: Utrecht University, Department of Psychology [Internet]. 2003 [cited 2025 jul 12]. Available from: [https://www.wilmarschaufeli.nl/publications/Schaufeli/Test%20Manuals/Test\\_manual\\_UWES\\_English.pdf](https://www.wilmarschaufeli.nl/publications/Schaufeli/Test%20Manuals/Test_manual_UWES_English.pdf)
27. Lorenz T, Beer C, Pütz J, Heinitz K. Measuring psychological capital: construction and validation of the Compound PsyCap Scale (CPC-12). *PLoS One* [Internet]. 2016 [cited 2025 jul 12]; 11(4): e0152892. Available from: <https://doi.org/10.1371/journal.pone.0152892>
28. Siegrist J. Adverse health effects of high-effort/low-reward conditions. *J Occup Health Psychol*

- [Internet]. 1996 [cited 2025 jul 12]; 1(1): 27-41. Available from: <https://doi.org/10.1037/1076-8998.1.1.27>
29. Mazzoleni M, Gomez VA, Rodrigues CML, Nunes C, Lima FS, Nascimento TG, et al. Percepção de Suporte Organizacional na Segurança Pública: uma revisão integrativa. *Rev Psicol Organ Trab* [Internet]. 2022 [cited 2025 jul 12]; 22(4). Available from: <http://hdl.handle.net/10400.5/30336>
  30. Tesi A. A dual path model of work-related well-being in healthcare and social work settings: The interweaving between trait emotional intelligence, end-user job demands, coworkers related job resources, burnout, and work engagement. *Front Psychol* [Internet]. 2021 [cited 2025 jul 12]; 12: 660035. Available from: <https://doi.org/10.3389/fpsyg.2021.660035>
  31. Lemos AHDC, Barbosa ADO, Monzato PP. Mulheres em home office durante a pandemia da covid-19 e as configurações do conflito trabalho-família. *Rev Adm Empres* [Internet]. 2021 [cited 2025 jul 12]; 60: 388-99. Available from: <https://doi.org/10.1590/S0034-759020200603>
  32. Azim MT, Islam MM. Social support, religious endorsement, and career commitment: A study on Saudi nurses. *Behav Sci* [Internet]. 2018 [cited 2025 jul 12]; 8(1): 8. Available from: <https://doi.org/10.3390/bs8010008>
  33. Karasek RA. Job demands, job decision latitude, and mental strain: Implications for job redesign. *Adm Sci Q* [Internet]. 1979 [cited 2025 jul 12]; 24(2): 285-308. Available from: <https://doi.org/10.2307/2392498>
  34. Lorenz T, Hagitte L, Prasath PR. Validation of the revised Compound PsyCap Scale (CPC-12R) and its measurement invariance across the US and Germany. *Front Psychol* [Internet]. 2022 [cited 2025 jul 12]; 13: 1075031. <https://doi.org/10.3389/fpsyg.2022.1075031>

