





INVESTIGATION ARTICLE

## Interventions to Foster Positive Psychological Capital in the Organizational Context: A Systematic Literature Review

Intervenções para Fomentar el Capital Psicológico Positivo en el Contexto Organizacional: Una Revisión Sistemática de la Literatura

Ana Paula Pinheiro Santana Ruiz<sup>1\*</sup> , João Nuno Ribeiro Viseu<sup>2</sup> , Cristian David Cifuentes-Tinjaca<sup>3</sup> , Saúl Neves De Jesus<sup>1</sup> 

<sup>1</sup> Universidade do Algarve, Portugal.

<sup>2</sup> Universidade de Évora, Portugal.

<sup>3</sup> Universidad Manuela Beltrán, Colombia.

\*Corresponding author.

**How to cite:** Ruiz, A.P.P.S., Viseu, J.N.R., Cifuentes-Tinjaca, C.D., & Jesus, S. N. (2026). Interventions to Foster Positive Psychological Capital in the Organizational Context: A Systematic Literature Review. *Rev. CES Psico*, 19(2), 7927. <https://doi.org/10.21615/cesp.7927>

### Abstract

**Introduction:** Psychological capital is a significant concept in organizational literature, known for improving work outcomes and workers' mental health, thus offering organizations a competitive edge. **Objective:** This review aimed to identify instruments, types of intervention and results associated with the promotion of Psychological Capital in organizations. **Method:** This research covered articles published from 2004-2023, involving working adults over 18, and in Portuguese, English, or Spanish. Using databases PubMed, Scopus, EBSCOhost, and Web of Science, 3.240 articles were identified, with 11 selected through the PRISMA methodology. **Results:** The primary studies involved an average of 189 workers ( $SD=202$ ), mainly using the Psychological Capital Questionnaire-24 for data collection, with ANOVA as the most frequent statistical method (63.63%). **Conclusion:** This review highlights the benefits of PsyCap interventions and synthesizes how they have been applied, revealing a key gap: the lack of replicable models due to insufficient methodological detail. The findings emphasize the need for a structured, evidence-based PsyCap program to guide future research and practice. The study was limited to the work context, which may have restricted the scope and excluded interventions from other settings.

**Keywords:** Positive Psychological Capital; PsyCap; Positive Organizational Psychology; Organizational Interventions; Workplace Well-being; Human Resource Development.

### Resumen

**Introducción:** el capital psicológico es un concepto significativo en la literatura organizacional, conocido por mejorar los resultados laborales y la salud mental de los trabajadores, ofreciendo así a las organizaciones una ventaja competitiva. **Objetivo:** esta revisión tuvo como objetivo identificar instrumentos, tipos de intervención e resultados asociados con a promoção do capital psicológico nas organizações. **Métodos:** esta investigación abarcó artículos publicados entre 2004 y 2023, involucrando a adultos trabajadores mayores de 18 años, y en portugués, inglés o español. Utilizando las bases de datos PubMed, Scopus, EBSCOhost y Web of Science, se identificaron 3.240 artículos, de los cuales 11 fueron seleccionados mediante la metodología PRISMA. **Resultados:** los estudios primarios involucraron un promedio de 189,18 trabajadores ( $DE=201,87$ ), utilizando principalmente el Cuestionario de Capital Psicológico-24 para la recolección de datos, siendo ANOVA el método estadístico más frecuente (63,63%). **Conclusão:** independientemente del tipo de intervención, fueron eficaces para los empleados y las organizaciones, contribuyendo a un ambiente de trabajo más saludable y sostenible. Aunque el estudio destacó los beneficios de las intervenciones de PsyCap, estuvo limitado por sus criterios de selección restrictivos y no abordó el posible sesgo de publicación.

Date of correspondence:

Received: May 2025.

Accepted: February 2026.

DOI: 10.21615/cesp.7927

ISSN: 2011-3080

<https://revistas.ces.edu.co/index.php/psicologia>



**Palabras clave:** Capital Psicológico Positivo; PsyCap; Psicología Organizacional Positiva; Intervenciones Organizacionales; Bienestar Laboral; Desarrollo de Recursos Humanos.

## Introduction

Exposure to unfavorable psychosocial conditions at work, such as high workloads, lack of autonomy, role conflicts, and situations of violence or aggression, is widely associated with occupational stress, anxiety, strain, and burnout, and is considered a public health issue (Direção-Geral da Saúde; DGS 2021; Secosan et al., 2021). Silvaggi and Miraglia (2017) point out that the workplace can worsen pre-existing psychological conditions or contribute to the emergence of new disorders due to continuous exposure to excessive stressors. This relationship is bidirectional, since workers' mental and physical health also influences their job performance (Silvaggi & Miraglia, 2017; Schulte et al., 2024). The European Agency for Safety and Health at Work (2022) reports that 27% of European workers state that their job has caused or aggravated symptoms of anxiety, stress, or depression, highlighting the scale of the problem in the work context. Similarly, the World Health Organization (WHO, 2024) estimates that, globally, around 12 billion workdays are lost each year due to depression and anxiety, representing an annual cost of about one trillion dollars in lost productivity. Considering this scenario, it becomes essential to identify factors capable of protecting workers from psychological deterioration, a need also emphasized by Perniciotti et al. (2020), who underline the importance of measures aimed at reducing occupational stress and preventing emotional exhaustion and depersonalization.

The literature shows that personal resources play an important role in how individuals interpret and cope with occupational stressors, influencing both emotional adjustment and professional performance (Bakker & Demerouti, 2017). These resources are part of the Job Demands–Resources (JD-R) Model, one of the most widely used theoretical frameworks for analyzing job characteristics. The model stands out for its flexibility and its ability to explain both the adverse effect of job demands and the positive effects of job resources on well-being, motivation, and performance (Bakker & Demerouti, 2017). Within the JD-R framework, the development of individual resources is seen as an element that promotes engagement and strengthens job resources, and positive psychological states have been repeatedly recognized as essential for workers (Bakker et al., 2023; Bakker & Demerouti, 2018).

Beyond the JD-R model, the central role of individual and psychological resources is also emphasized in other contemporary approaches to well-being at work. One of the most influential frameworks is the PERMA model (Positive Emotions, Engagement, Relationships, Meaning, Accomplishment), which describes key components of human flourishing in occupational contexts (Seligman, 2011). Similarly, Self-Determination Theory highlights the importance of basic psychological needs for motivation and optimal functioning, underscoring how internal psychological resources contribute to sustained well-being and performance at work (Deci & Ryan, 2000). Together, these perspectives converge on the idea that positive psychological resources are foundational mechanisms for optimal functioning, providing a conceptual basis for the development and study of Positive Psychological Capital in organizational settings.

Among the individual resources most valued in recent literature is Positive Psychological Capital (PsyCap), formally developed and introduced by Luthans et al. (2004), which represents a positive psychological state grounded in a stronger focus on individuals' positive attributes. This emphasis aligned with a broader movement in psychology that, in the late 1990s, gained formal expression with the emergence of Positive Psychology, proposed by Seligman and Csikszentmihalyi (2000). This approach marked a turning point in the field by reinforcing the importance of studying and promoting human strengths. As it expanded, these principles were gradually integrated into the organizational context and contributed to the development of Positive Organizational Behavior, oriented toward psychological strengths and capacities that can be measured, trained, and managed to enhance work performance (Luthans & Youssef-Morgan, 2004). Within this framework, four positive psychological resources that meet these criteria were identified, hope, self-efficacy,

resilience, and optimism, which together form the acronym HERO and constitute PsyCap, conceptualized as a second-order resource (Luthans, 2002; Luthans et al., 2004; Luthans & Youssef-Morgan, 2004; Luthans & Youssef-Morgan, 2017).

The components of PsyCap operate in an integrated and synergistic way, generating benefits for both individual and organizational performance (Luthans et al., 2015). The conceptualization of PsyCap as a second-order construct stems from the interconnectedness of these factors, a connection that reinforces the motivation needed to carry out tasks and achieve goals (Luthans et al., 2007). High levels of PsyCap reflect a state of confidence that enables individuals to face and overcome challenges, linked to self-efficacy; an optimistic outlook on present and future success, linked to optimism; a goal-oriented mindset paired with the ability to adjust efforts to achieve those goals, linked to hope; and the capacity to withstand, recover, and persist in the face of adversity until successful outcomes are reached, linked to resilience (Luthans et al., 2015).

Because it is a psychological state, PsyCap can be developed through intervention training. Zeng et al. (2023) describe several intervention models that may be internal, external, direct, or indirect, each with its own advantages and challenges. Internal interventions tend to be more flexible and accessible, allowing for broad application, while external interventions, although more demanding and dependent on specialized knowledge, are often considered more reliable and adaptable to different contexts. Since its introduction, various interventions have been created to promote PsyCap. The first structured intervention was the PsyCap Intervention (PCI), developed by Luthans et al. (2006), which became a benchmark in the field. Zeng et al. (2023) emphasize that direct interventions aimed at developing PsyCap generally draw on the PCI model, which consistently shows impact on the four dimensions of this psychological resource.

Luthans et al. (2006) conducted a pilot study, followed by a main study in 2010, which showed that developing PsyCap is an effective strategy for improving workers' performance in the workplace. Russo and Stoykova (2015) replicated these studies in different conditions and found a significant increase in PsyCap over time, an effect that remained one month after the training, except for resilience, whose improvement only became evident at follow-up. This suggests that practical experiences tend to gradually strengthen the ability to overcome adversity. The success of the PCI led to the emergence of new methods and PsyCap development sessions applied across different contexts and populations, and subsequent studies confirmed its effects. Rew et al. (2017) found increases in PsyCap and health indicators among homeless mothers; Song et al. (2019) observed higher levels of PsyCap accompanied by reduced depressive symptoms in patients; Asadollahi et al. (2022) reported improvements among matriarchal women; and Finch et al. (2023) found increases in PsyCap among high school students, associated with better academic performance and socio-emotional skills.

An integrative review conducted by Salanova and Ortega-Maldonado (2019) analyzed the body of PsyCap interventions available up to that point and concluded that, overall, these interventions tend to increase PsyCap and improve indicators such as performance, work attitudes, and well-being, with effects that may last for several weeks or months. The authors also identified recurring limitations in the interventions described in the literature, such as methodological inconsistencies, wide variability in follow-up periods, and the need for studies with more robust designs, and they highlighted that most research has been carried out in Western countries.

Despite these limitations, the literature shows that promoting PsyCap offers several benefits, such as improving mental health and appropriate work behavior (Sabot et al., 2020), increasing psychological well-being and job satisfaction (Luthans & Youssef-Morgan, 2017), and alleviating depressive symptoms, anxiety, stress, and post-traumatic stress disorder (Luthans & Broad, 2022). It also helps reduce workplace stress, prevent emotional exhaustion, and improve workers' well-being and performance (Ruiz et al., 2024; Luthans et al., 2005). Ruiz et al. (2024) emphasize that organizations that foster this resource have a direct positive impact on organizational outcomes such as work engagement, well-being, team cohesion, return on investment (ROI), intention to remain in the workplace, and positive coping, contributing to a healthier environment that is crucial for

organizational survival.

In addition to interventions specifically aimed at developing PsyCap, workplace psychological health promotion programs have shown substantial returns, with preventive measures capable of reducing productivity losses by more than 30%, resulting in significant annual savings for organizations (OPP, 2023). Moreover, these interventions are considered essential for organizational effectiveness and success (Halliday et al., 2024), especially because organizational sustainability depends on work environments capable of assessing, preventing, and addressing psychosocial risks (OPP, 2023). The very hierarchy of these interventions—spanning primary, secondary, and tertiary levels, shows that caring for mental health is strategic at every stage, from prevention to rehabilitation (Schulte et al., 2024).

The relevance of these strategies makes it even more important to focus on positive psychological resources such as PsyCap, which is widely associated with greater adaptation, performance, and resilience. This need is reinforced by evidence of a concerning decline in PsyCap levels among workers since 2019, identified in meta-analyses conducted in highly demanding sectors such as healthcare (Yuan et al., 2023). This decrease has been linked to accumulated crises over the past decade, particularly the COVID-19 pandemic, and arises in a context marked by retention difficulties and workforce shortages across several sectors (Buchan et al., 2022). Thus, strengthening PsyCap has become an organizational priority to restore and reinforce the psychological resources that support workers' well-being and performance.

Despite the consistent evidence on the positive effects of PsyCap interventions, the literature still lacks a systematized description of how these interventions have been operationalized in practice. To address this gap, the present study conducted a systematic review with the aim of identifying the procedures used in the interventions (participants and instruments), characterizing the experimental designs adopted, and synthesizing the empirical results obtained in adult workers between 2004 and 2023. By following a careful and transparent methodological protocol, this review provides an updated and comparable synthesis of the PsyCap interventions available in the literature, contributing to the scientific guidance needed for the implementation of effective programs in the workplace.

In the literature, several key criteria are cited to guide the effectiveness of interventions designed to develop PsyCap. These criteria, defined by Youssef-Morgan and Sundermann (2014), are frequently used as a reference to evaluate the quality of such interventions and suggest that programs should produce concrete outcomes attributable to the intervention itself, target individual, group, or organizational characteristics that can be modified, add value beyond what conventional programs offer, and present benefits that justify the investment made. Regarding the time required for behavioral changes to consolidate, some studies indicate that roughly 21 days may be sufficient (Eckelkamp, 2016), while others point to an average of 66 days (Lally et al., 2010). Considering these contributions, this review also aims to identify whether the interventions examined meet the criteria proposed by Youssef-Morgan and Sundermann (2014) and whether they account for the time needed for the consolidation of behavioral changes as described in the literature.

Although there is a relevant integrative review on PsyCap interventions (Salanova & Ortega-Maldonado, 2019), the focus and methodology of that work differ substantially from the approach adopted in the present study. The integrative review gathered PsyCap development programs from various scientific and professional sources (including articles, books, book chapters, theses, and conference communications), with particular emphasis on cultural differences associated with the construct. In contrast, the present review focuses exclusively on primary studies with experimental designs, published in scientific articles and covering a broader time span, up to 2023. In addition, this review makes it possible to assess the extent to which the interventions meet the theoretical effectiveness criteria proposed by Youssef-Morgan and Sundermann (2014), and whether they consider the time necessary for the consolidation of behavioral changes described in the literature. This approach offers updated evidence specifically oriented toward characterizing interventions carried out in workplace settings, providing an additional contribution to clarifying how these interventions have been

implemented in practice and strengthening theoretical understanding of the developable nature of PsyCap.

## Method

This systematic review was conducted following the PRISMA 2020 guidelines (Page et al., 2023) and using the SPIDER typology, namely: (S) Sample: adult workers; (PI) Phenomenon of Interest: PsyCap interventions; (D) Design: experimental or quasi-experimental studies; (E) Evaluation: empirical results on the effectiveness of the interventions; (R) Research type: primary studies.

The following inclusion and exclusion criteria were defined: (1) studies published between 2004 and 2023; (2) studies published in peer-reviewed journals; (3) studies containing the expression “positive psychological capital intervention,” “psychological capital intervention,” or “PsyCap intervention” in the title or keywords; (4) samples composed of adult workers (over 18 years old); (5) studies published in Portuguese, English, or Spanish; and (6) cross-sectional, longitudinal, or other types of studies, as long as they incorporated an experimental design for a PsyCap intervention program grounded in PsyCap theory and explicitly targeting its core components, even when PsyCap was not directly measured, provided that results on intervention effectiveness were reported. The exclusion criteria were: (1) studies addressing interventions not related to the development of PsyCap; (2) studies that do not present empirical data or are exclusively theoretical (e.g., secondary studies); (3) studies evaluating interventions without reporting results from their intervention programs; (4) studies that combine PsyCap with other psychological interventions without a clear distinction of PsyCap-specific effects; (5) studies involving samples of other age groups or individuals not belonging to the active workforce (e.g., students, retirees, or clinical populations); (6) studies that did not specify the composition of their sample.

In this literature review, the following databases were used: PubMed (Medline), Web of Science, Scopus, EBSCOhost – Research Databases: CINAHL Complete, MEDLINE Complete, Nursing & Allied Health Collection: Comprehensive, Cochrane Central Register of Controlled Trials, Cochrane Database of Systematic Reviews, Cochrane Methodology Register, Library, Information Science & Technology Abstracts, MedicLatina, and Cochrane Clinical Answers. The search procedure involved multiple stages to allow for the maximum inclusion of potentially eligible studies, increasing the breadth and robustness of the literature identification process. The keywords were defined in alignment with the findings of existing literature and with the pre-established objective.

The primary search equation is ("psychological capital" OR "group intervention" OR "psychological capital intervention" OR "psychological capital development"). The secondary equation is ("positive psychological capital intervention" OR "psychological capital intervention") AND (2004:2023[pdat]). The primary and secondary equations were used from July 26 to November 11, 2023. The third equation is (positive psychological capital intervention) OR ("positive psychological capital intervention") OR ("psychological capital intervention"), used from November 8 to 15, 2023.

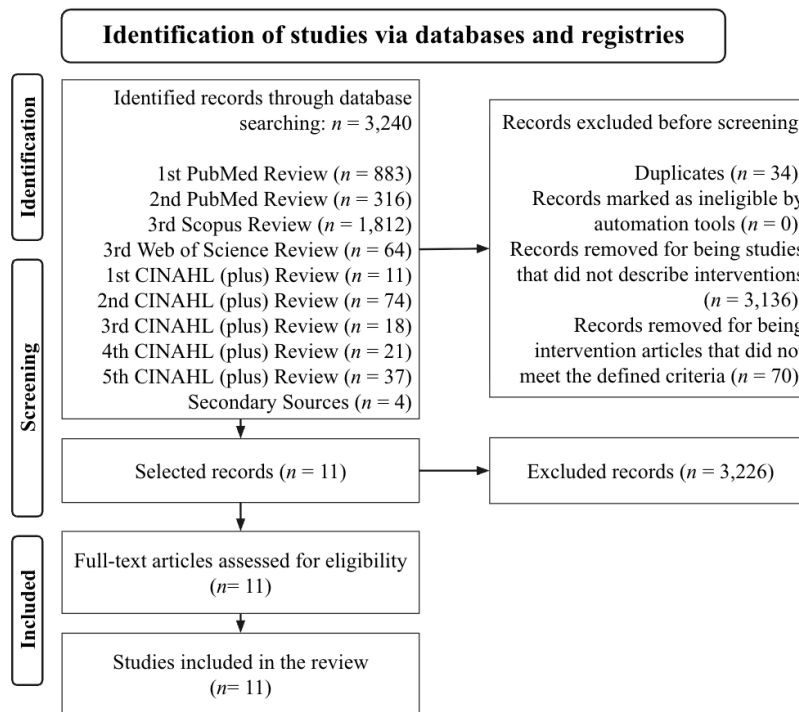
The removal of duplicates was performed manually, since the search was conducted in stages, allowing duplications to be checked at each phase and, at the end, enabling a combined review to ensure that no repeated study remained in the sample. The filtering process unfolded in three phases: (1) initial screening of titles and abstracts; (2) independent exclusion by two researchers, with consultation of a third in case of doubts; and (3) full-text reading of the eligible studies. Finally, the references of the included articles were also examined, allowing the identification of additional potential studies.

The information from the studies was synthesized using Microsoft Excel, extracting details such as study objectives, sample size, methodology, research design, measurement tools, and main results. After the integrated analysis, the included studies were assessed by one reviewer and verified by a second, using the Joanna Briggs Institute Critical Appraisal Checklist composed of nine methodological quality criteria (Moola et

al., 2020; Oliveira et al., 2022). Studies rated as low methodological quality according to the JBI were excluded from the final sample. As a result, all included studies met acceptable quality criteria, and no additional quality-based stratification was applied during the synthesis. Disagreements between reviewers were resolved through discussion until consensus was reached. To reduce potential publication bias, multiple databases were searched and the reference lists of included studies were manually screened.

## Results

The search was conducted across multiple databases, resulting in a total of 3,240 articles; however, only eleven met the inclusion and exclusion criteria (Figure 1).



Note: Prepared by the authors.

Figure 1. PRISMA of the PsyCap Intervention Literature Review.

## Evaluation of Study Quality

Regarding the methodological quality of the studies included in this review, 72.72% were rated as having reasonable quality, and no article needed to be excluded due to low quality (Table 1). Overall, the set of studies demonstrates acceptable methodological quality, allowing the results to be interpreted without compromising the overall robustness of the synthesis.

Table 1. Quality of Studies Included.

Studies	Questions about Quality									Point.	Interp.
	1	2	3	4	5	6	7	8	9		
Luthans et al. (2008)	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	H
Zhang et al. (2014)	Y	Y	Y	Y	Y	Y	Y	U	Y	88.88%	H
Akhoundi and Sheibani (2017)	N/A	Y	Y	Y	Y	U	U	Y	U	55.55%	F
Movahedi et al. (2018)	N/A	Y	Y	Y	Y	U	U	Y	U	55.55%	F

Sharp (2019)	N/A	Y	U	Y	Y	Y	Y	Y	S	77.77%	F
Stratman and Youssef-Morgan (2019)	Y	Y	Y	Y	Y	Y	Y	Y	S	100%	H
Da et al. (2020)	N/A	Y	U	Y	Y	Y	Y	Y	Y	77.77%	F
Carter and Youssef-Morgan (2022)	Y	Y	U	Y	Y	Y	Y	Y	U	77.77%	F
Gon et al. (2023)	N/A	Y	U	Y	Y	Y	Y	Y	U	66.66%	F
Zeng et al. (2023)	N/A	Y	U	Y	Y	Y	Y	Y	U	66.66%	F
Sulmarot et al. (2023)	Y	Y	Y	Y	Y	U	U	S	S	77.77%	F

**Note:** Based on the Joanna Briggs Institute (JBI) 2020 Critical Appraisal. The nine evaluation items used were: (1) Is the sample structure adequate to represent the target population?; (2) Were the study participants selected appropriately?; (3) Was the sample size adequate?; (4) Were the study subjects described in detail?; (5) Was data analysis performed on a sufficient portion of the identified sample?; (6) Were valid methods used to identify the disease?; (7) Was the condition studied measured in a standard and reliable way for all participants?; (8) Was there adequate statistical analysis?; (9) Was the response rate adequate? If the response rate was low, was it managed adequately? The questions were answered with the options "Y - Yes", "N - No", "U - Uncertain" or "N/A - Not Applicable". The percentage of "Yes" responses was calculated for each study, and the quality of each study was interpreted as a percentage as follows: High (H) = 80% to 100%; Fair (F) = 50% to 79%; and Low (L) = < 50% (Oliveira et al., 2022).

## Identified PsyCap Interventions

The search resulted in the identification of 11 studies, presented below in chronological order: Luthans et al. (2008) [1]; Zhang et al. (2014) [2]; Akhondi and Sheibani (2017) [3]; Movahedi et al. (2018) [4]; Sharp (2019) [5]; Stratman and Youssef-Morgan (2019) [6]; Da et al. (2020) [7]; Carter and Youssef-Morgan (2022) [8]; Gon et al. (2023) [9]; Zeng et al. (2023) [10]; and Sulmarot et al. (2023) [11]. To facilitate the presentation of the results, these studies will hereafter be referred to by the numbering assigned in brackets.

The interventions identified revealed broad heterogeneity, encompassing different countries, professional sectors and population profiles, which highlights the diversity of work contexts included in this review. Although they presented distinct content and strategies, all converged toward the same objective: strengthening workers' PsyCap. Despite this methodological variation, a common core focused on the development of positive psychological capacities was maintained. Overall, it was found that, in the period analyzed (2004–2023), relatively few interventions were implemented directly in workplace settings, suggesting that, despite the theoretical consolidation of the construct, its practical application in organizational contexts is still incipient. It is also noteworthy that the year 2023 concentrated the largest number of interventions ( $n=3$ ), representing 27.27% of the total sample. In addition to PsyCap, several studies evaluated other organizational outcomes, which also showed consistent positive effects (Table 2).

**Table 2.** Impacts/Results Obtained from the Interventions.

Results	Reference										
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
PsyCap	+	+			+	+	+	+	+	+	
Job satisfaction							+		+		
Occupational Benefits									+		
Turnover Intention							-*				
Insertion into Work							+*				
Mental Wellbeing											+
Organizational Procrastination				-							
Engagement at work				+							
Motivation at Work			+								
Work Efficiency			+								
Goal Achievement								+			
Work performance		+									

Cynicism	-
Unsafe Behavior	-

**Note:** (+) had an increase in levels; (-) had a reduction in levels; (+\*) had an increase in the concrete moment. Recommendation of longitudinal studies.

As summarized in [Table 2](#), all interventions resulted in improvement in at least one outcome indicator (e.g., mental well-being, engagement, performance, satisfaction, and reduction of dysfunctional behaviors), with no adverse effects reported. Details regarding participants, assessment instruments, and implementation formats are presented in the following sections.

### *Participants in the Interventions*

The study with the smallest sample included 49 full-time educators (Sharp, 2019), while the largest sample comprised 720 tourism workers (Sulmarot et al., 2023). On average, the studies collected had 189.18 participants ( $M= 189.18$ ;  $SD= 201.87$ ;  $Mdn= 104$ ) (Tables 3 and 4). The face-to-face intervention studies also differed in participant profiles. Zhang et al. (2014) worked with employees from various organizations in China; Sharp (2019) with full-time educators in the United States; and Gon et al. (2023) with a Chinese nursing team. Akhoundi and Sheibani (2017) included skilled workers from a large organization in Iran, whereas Movahedi et al. (2018) focused on hospital nursing professionals in Iran. Finally, Stratman and Youssef-Morgan (2019) examined operations and maintenance workers in the United States.

The online intervention studies involved distinct population profiles: U.S. workers (Luthans et al., 2008), full-time workers in China (Da et al., 2020), high-risk entrepreneurs in China (Zeng et al., 2023), and tourism workers in Thailand (Sulmarot et al., 2023). This variation in contexts and professional profiles broadens the potential generalizability of the findings, while also introducing heterogeneity that must be considered when interpreting intervention effects.

### *Instruments Used to Assess Intervention Effectiveness*

In the analyzed articles, 72.72% ( $n= 8$ ) used instruments to assess Psychological Capital (PsyCap). Of these, 87.5% ( $n= 7$ ) employed the 24-item PsyCap Questionnaire (PCQ-24), developed by Luthans et al. (2007). The predominance of the PCQ-24 reflects its theoretical suitability for simultaneously measuring the four components of PsyCap, which enhances consistency and comparability across studies. The study by Zeng et al. (2023) was the only one that used a reduced version, the PCQ-12 (Avey et al., 2011), which remains appropriate as it assesses the four dimensions of the construct and may reflect the need for a quicker application. Additionally, 37.5% ( $n= 3$ ) assessed PsyCap exclusively (Luthans et al., 2008; Sharp, 2019; Zeng et al., 2023), while 62.5% of studies ( $n= 5$ ) measured other variables related to cognitive aspects and the work context (Carter & Youssef-Morgan, 2022; Da et al., 2020; Gon et al., 2023; Stratman & Youssef-Morgan, 2019; Zhang et al., 2014). The studies that did not directly measure PsyCap accounted for 27.27% ( $n= 3$ ) of the sample, focusing solely on organizational outcomes. Although they did not assess the construct directly, they were included because they used PsyCap interventions, meeting the defined criteria. This decision increases coverage of workplace outcomes associated with PsyCap-based programs, but it also limits construct-level comparability across studies and should be considered when interpreting the coherence of the synthesis.

Overall, the studies presented Cronbach's alpha values ranging from adequate to excellent, indicating good internal consistency of the instruments used. The PCQ-24, widely employed to measure PsyCap, demonstrated high reliability in all studies that applied it, reinforcing its suitability for assessing the four dimensions of the construct. The PCQ-12 also showed acceptable reliability, constituting a valid alternative for shorter assessments. The other complementary scales likewise exhibited good levels of internal consistency, although some studies did not report all coefficients. Taken together, the instruments used showed solid psychometric quality ([Table 3](#)).

**Table 3.** Evaluation of the Internal Consistency of Assessment Instruments.

Ref.	Instrument	Cronbach's Alpha
[1]	<b>PsyCap Questionnaire (PCQ-24)</b>	.93
	<b>PCQ-24</b>	.88
[2]	Contextual Performance Questionnaire (Van Scotter & Motowidlo, 1996)	.89
[3]	Organizational Procrastination Measurement Scale (Saffarinia & Amirkhanirazlighi, 2012)	.892
[4]	Utrecht Work Engagement Scale (UWES-17; Schaufeli & Bakker, 2003)	.88
[5]	<b>PCQ-24</b>	-
	<b>PCQ-24</b>	T1 .926; T2 .940
[6]	Cynicism Scale (Turner & Valentine, 2001).	T1 .805; T2 .872
	Unsafe Behavior Scale (Garcia et al., 2004).	T1 .847; T2 .831
	<b>PCQ-24</b>	T1 .89; T2 .91; T3 .93
[7]	Overall Job Satisfaction	T1 .83; T2 .89; T3 .90
	Turnover intention (five items from Bluedom's research)	T1 .94; T2 .93; T3 .96
	Global measure of employment insertion (7 items)	T1 .81; T2 .87; T3 .83
[8]	<b>PCQ-24</b>	Study 1: T1; T2; T3 .905 Study 2: T1; T2; T3 .926
	<b>PCQ-24</b>	.923
[9]	The nurses' occupational benefits questionnaire (edited by Hu Jing)	.958
	The nurses' job satisfaction questionnaire (NJSQ; Li Xiaomei & Liu Yanjun)	.94
[10]	<b>PCQ-12</b>	.873
[11]	Thai Mental Wellbeing Scale developed by Pimthong et al. (2022)	.91

**Note:** Based on the Interpretation of Santiago (2021) where the reference values are: < .70 (Limited Applicability), between .70 and .79 (Adequate), between .80 and .89 (Good) and finally, .90 or > .90 (Excellent). T1 corresponds to the pre-test questionnaire; T2 refers to the post-test; and T3 corresponds to the follow-up.

### *Method of Application of the Interventions*

The interventions did not follow a standardized format, suggesting that PsyCap can be developed through multiple approaches that are adaptable to the needs and characteristics of each organization. We divided the delivery methods into three categories: (1) Face-to-face (in which participants and facilitators interact directly), (2) Online (delivered virtually), and (3) Online, face-to-face, and microlearning (a combination of methods enhanced by the delivery of content in small units). This taxonomy was developed by the author of the study to categorize the types of interventions identified in the analyzed articles according to their delivery methodologies. Articles with similar approaches were grouped to facilitate understanding and analysis of the various methods used.

### *In-Person Intervention Application*

The studies that used the in-person method were those by Zhang et al. (2014), Akhoundi and Sheibani (2017), Movahedi et al. (2018), Sharp (2019), Stratman and Youssef-Morgan (2019), and Gon et al. (2023), representing 54.54% ( $n=6$ ) of the total sample of included studies.

These studies generally employed experimental designs and random selection of participants to assess the effectiveness of the interventions. However, the study by Movahedi et al. (2018) presents a slight variation, as

it initially used a convenience sampling technique before randomly allocating participants to the experimental groups. All studies ( $n= 6$ ) included both experimental and control groups, applied the protocol before and after the interventions, and 42.85% ( $n= 3$ ) conducted a follow-up: Akhoundi and Sheibani (2017) and Movahedi et al. (2018) two months after the intervention, and Zhang et al. (2014) three months after.

Regarding the theoretical model adopted, 71.42% ( $n= 5$ ) of the studies used the PCI intervention model by Luthans et al. (2006). Additionally, Zhang et al. (2014) incorporated Social Learning Theory by Bandura (1977) into their approach, and Stratman and Youssef-Morgan (2019) also incorporated Social Cognitive Theory (Bandura, 2001). However, 28.57% ( $n= 2$ ) did not specify the theoretical model underlying PsyCap, stating only that they used the theory as described in Positive Psychology (Sharp, 2019; Stratman & Youssef-Morgan, 2019).

The studies differed in their instructional strategies: some focused on specific aspects of PsyCap per session (Akhoundi & Sheibani, 2017; Zhang et al., 2014), while others addressed multiple dimensions in each meeting (Movahedi et al., 2018; Sharp, 2019) or emphasized practical group application (Gon et al., 2023). They also varied in transparency with participants; Zhang et al. (2014) revealed the intervention objectives only at the end. Akhoundi and Sheibani (2017) were the only ones to highlight the sustainability of long-term effects. Additional details can be found in [Table 4](#).

Overall, face-to-face interventions tend to be more intensive, with a greater number of sessions and more frequent follow-ups, which may foster more sustained change; however, they require greater logistical and time investment from organizations.

**Table 4.** Descriptive Information on In-Person Application Interventions.

Ref.	Design	n	Assessments	Structure	Content
[2]	Experimental (quantitative)	$n= 234$ (C: $n= 129$ ; E: $n= 105$ )	Pre-, post-test and follow-up (three months later)	1 session (30 min)	Micro-intervention with structured reading materials.
[3]	Quasi-experimental	$n= 60$ (C: $n= 30$ ; E: $n= 30$ )	Pre-, post-test and follow-up (two months later)	Weekly for 2h (total of 10 weeks*)	Positive feedback technique, goal attainment, reinforcement and direct substitution strategies, and event techniques.
[4]	Semi-experimental	$n= 64$ (C: $n= 32$ ; E: $n= 32$ )	Pre-, post-test and follow-up (two months later)	2 weekly sessions of 2h (total of 5 weeks*)	Presentations (PowerPoint), photographs, and videos. Mental imagery techniques and positive feedback. Goal attainment.
[5]	Mixed methods	$n= 49$ (C: $n= 32$ ; E: $n= 17$ )	Pre- and post-test	3 sessions of 2h each for 2 weeks (total 6 weeks)	Lectures, group discussions, guest specialists, and practical activities.
[6]	Quasi-experimental	$n= 130$ (C: $n= 67$ ; E: $n=63$ )	Pre- and post-test	2 months (90-min sessions)	Triple strategy (goal setting, generating pathways, and overcoming obstacles). Definition of individual and group-specific, measurable goals.

[9]	Experimental (prospective and randomized)	<i>n</i> = 54 (C: <i>n</i> = 27; E: <i>n</i> = 27)	Pre- and post-test	Once every two weeks, 30-min sessions (total of 12 weeks)	Group exercise.
-----	---	--	--------------------	---	-----------------

Note: (\*) approximate information. C = Control Group; E = Experimental Group.

## Application of the Online Intervention

The studies that used the online method were those by Luthans et al. (2008), Da et al. (2020), Zeng et al. (2023) and Sulmarot et al. (2023), representing 36.36% of the sample (*n*= 4). In the same way as in the face-to-face studies, all studies (*n*= 4) adopted the PCI model by Luthans et al. (2006) as their theoretical foundation. However, 50% of the studies (*n*= 2) introduced specific adaptations: Da et al. (2020) expanded the model using the Journal Metaphor, and Zeng et al. (2023) incorporated an Eastern mindfulness perspective grounded in Buddhist principles.

The recruitment process was conducted entirely through digital means (100%, *n*= 4), ranging from distributing a direct link to participants (Luthans et al., 2008), to selection via the WeChat social network (Da et al., 2020), random selection of entrepreneurs (Zeng et al., 2023), and random selection of 600 tourism workers by province (Sulmarot et al., 2023). The remaining intervention details are provided in [Table 5](#).

Online interventions tended to be shorter and focused on self-guided materials, which increased scalability and reach, though in some cases with less depth of individual follow-up.

**Table 5.** Descriptive Information on Online Application Interventions.

Ref	Design	<i>n</i>	Assessments	Structure	Content
[1]	Experimental (quantitative)	<i>n</i> = 364 (C: <i>n</i> = 177; E: <i>n</i> = 187)	Pre- and post-test	2 sessions of 45 min	Self-reflection exercises and educational PowerPoint material with Flash animations.
[7]	Experimental (quantitative)	<i>n</i> = 104 (E: <i>n</i> = 38; P: <i>n</i> = 31; C: <i>n</i> = 35)	Pre-, post-test and follow-up (1 week later)	5 sessions of 20 min (total 5 days)	Daily link delivery with readings and practical activities.
[10]	“Online experience”	<i>n</i> = 83 (C: <i>n</i> = 27; E: <i>n</i> = 55)	Pre- and post-test	4 sessions of 30 min (4 weeks*)	Structured Reading Materials and Mindfulness (audio).
[11]	Mixed methods	<i>n</i> = 720	Pre- and post-test (after one month)	6 self-guided activities	Self-reflection activities, videos, and infographics.

Note: Prepared by the authors. It is highlighted that the experimental group in Zeng et al. (2023) [10] was conducted with two methods: structured materials *n*= 28 and mindfulness *n*= 27. The experimental group in Sulmarot et al. (2023) [11] was divided into two phases: Phase 1, which includes interviews with 20 participants and the first implementation of the protocol with 100 participants; and Phase 2, which includes the second implementation with 600 participants. (\*) approximate information.

## Application of the Online, In-Person, and Microlearning Intervention

Carter and Youssef-Morgan (2022) compared the in-person PCI intervention with the online format and, additionally, the online format with a microlearning version. The study was guided by the PCI Intervention Model proposed by Luthans et al. (2006), Luthans et al. (2015), and Luthans and Youssef-Morgan (2017). Three PCI formats were implemented: in-person, online, and microlearning. This investigation generated two studies: the first compared the in-person and online interventions, and the second compared the online intervention with microlearning (a format in which content is delivered in smaller units over a longer period). In Study 1, the

sample was divided into two experimental groups: the first, with 60 participants, received the in-person intervention; the second, with 58 participants, received the online intervention. In Study 2, the sample was again divided into two experimental groups: the first, with 51 participants, received the microlearning intervention; the second, with 50 participants, received the online intervention once more.

During the intervention, participants were initially asked to identify a recent adverse situation they had experienced, which served as the basis for the first two exercises focused on improving their ability to analyze events accurately. Participants then created a list of their current goals, set priorities, and selected one goal to work on throughout the course. Each module introduced a new concept and allowed practical application through targeted exercises. Importantly, the content delivered in the in-person, online, and microlearning interventions was identical, ensuring consistency in the knowledge provided across formats.

This study suggests that hybrid and microlearning formats can preserve the integrity of the PCI content while adapting delivery to workers' routines, potentially increasing adherence and implementation flexibility.

## Discussion

Interventions to foster PsyCap have consolidated over the past two decades as a promising strategy to strengthen psychological resources, improve performance, and promote well-being at work (Bakker et al., 2023). This review confirms that trend by synthesizing, between 2004 and 2023, the formats used, the modes of application, and the empirical evidence obtained in adults in workplace contexts. Despite the diversity of methodologies, populations, and contexts, all studies identified positive organizational outcomes associated with the development of PsyCap. However, only 11 interventions met the inclusion criteria, a small number for twenty years of scientific production, revealing a significant gap and an opportunity to expand and deepen the implementation of PsyCap programs in organizations.

Although online interventions have gained prominence due to lower resource demands, logistical ease, and greater scalability, this review shows that most applications still occur in person (54.54%). Nonetheless, temporal evolution reveals a significant shift: three of the four online interventions were published between 2020 and 2023, indicating a clear expansion of digital formats. This trend aligns with the growing need to promote positive psychological resources in an accessible way, especially given the decline in PsyCap observed since 2019 (Yuan et al., 2023). Moreover, seven of the eleven included interventions were published between 2019 and 2023, demonstrating that interest in PsyCap programs has intensified broadly. The peak observed in 2023 suggests a direct response from the scientific community and organizations to the increased instability and psychological strain in recent work contexts.

The analysis of the studies shows that, despite methodological and cultural adaptations, 81.81% of the interventions relied on the PCI model by Luthans et al. (2006) as their central framework (Akhoundi & Sheibani, 2017; Carter & Youssef-Morgan, 2022; Da et al., 2020; Gon et al., 2023; Luthans et al., 2008; Movahedi et al., 2018; Sharp, 2019; Stratman & Youssef-Morgan, 2019; Zeng et al., 2023; Zhang et al., 2014), confirming its conceptual robustness for developing the four positive psychological capacities. Even when combined with other theoretical references, such as social learning, narrative metaphors or mindfulness, the PCI kept the interventions aligned with the core principles of Positive Psychology, which conceptualizes hope, self-efficacy, optimism and resilience as developable resources. This predominance aligns with Zeng et al. (2023), who identified the PCI as the most frequently adopted model in PsyCap programs, reinforcing its suitability for integrating this construct with contemporary Organizational Psychology frameworks, such as JD-R, PERMA, and Self-Determination Theory.

Regarding assessment practices, the included studies adopted consistent procedures: all conducted pre and post-tests, ensuring the minimum measurement of immediate effects, and 36.36% added a follow-up between one week and three months, indicating some attention to the temporal stability of PsyCap, although still

underexplored. Interventions ranged from one day to twelve weeks, with sessions lasting 20 to 120 minutes, aligning with the average timeframe needed for sustained behavioral change (Eckelkam, 2016). Group organization also showed robust patterns: 72.72% structured both experimental and control groups, enabling rigorous comparisons, while 9.09% used only an experimental group and another 9.09% incorporated a placebo group. This overview shows that, despite the predominance of comparative designs, there is room for greater methodological diversity in future interventions.

The group sizes and the professional and sociocultural contexts also varied widely; nevertheless, the studies assembled adequately sized samples for intervention purposes, which is particularly relevant given the well-known difficulty of recruiting and retaining participants, often constrained by resistance to changes in routine, time demands, or low perceived utility (Axén et al., 2021). The fact that the studies were still able to form stable groups demonstrates that PsyCap can be developed both in small teams, which are operationally easier to mobilize, and in large and more representative samples, whose engagement tends to be more challenging, without compromising the effectiveness of the interventions.

The diversity of professional profiles and contexts reinforces this conclusion: workers from Chinese organizations (Zhang et al., 2014), U.S. full-time educators (Sharp, 2019), Chinese and Iranian nursing teams (Gon et al., 2023; Movahedi et al., 2018), skilled Iranian workers (Akhoundi & Sheibani, 2017), and U.S. operations and maintenance professionals (Stratman & Youssef-Morgan, 2019) all participated. This geographical and occupational heterogeneity highlights the high generalization potential of PsyCap, showing that its positive effects emerge across different sectors and cultures. However, it also reveals that the ways of applying and developing PsyCap remain strongly conditioned by local specificities, reinforcing the importance of future studies testing more standardized models that can assess whether effectiveness is maintained when the same protocol is implemented across countries and work contexts. Across studies, contextual factors such as cultural background, occupational setting, and type of work emerged as relevant sources of variation in how PsyCap interventions were implemented, suggesting their potential role as moderating variables. This apparent generalization potential should therefore be understood as contextual robustness rather than evidence of uniform effectiveness across settings.

The evidence from this review reinforces a consistent pattern: PsyCap is developable, as proposed by Luthans et al. (2006), and interventions designed for this purpose tend to generate relevant psychological and organizational gains. The structural studies by Luthans et al. (2006, 2010) had already demonstrated that brief and strategically oriented interventions can increase PsyCap, and the findings of this review extend that conclusion by revealing that such effectiveness is maintained even when the model is adapted to different formats, durations, and organizational cultures. This adaptability, evident across the eleven studies included, reinforces the notion widely discussed in the literature (Bonner, 2016; Kim & Yoo, 2018; Luthans et al., 2007; Luthans et al., 2015; Ruiz et al., 2024) that investing in PsyCap development helps improve the work climate, strengthen coping mechanisms, and enhance employee performance.

One of the most relevant aspects of this review concerns the diversity of formats identified. Luthans et al. (2008) showed that brief online interventions can significantly increase PsyCap, indicating that digital formats are effective and economical alternatives. However, more recent studies, such as Sharp (2019), suggest that longer programs (with at least six weeks) produce more robust gains and team-level synergies. In turn, Carter and Youssef-Morgan (2022) add that the modality itself does not determine the outcomes, as in-person, online, and microlearning interventions showed similar impacts; still, microlearning generated more immediate effects, likely because it allows gradual integration of content. Taken together, these results suggest that the decisive element is not the format but the quality of reflective practices and the level of participant engagement.

The relevance of active participant engagement becomes evident in the results of Zeng et al. (2023), who compared structured reading and mindfulness. Although both approaches were effective, structured reading

produced more consistent effects, likely because it demands greater cognitive participation and stimulates active reflection—factors that appear to enhance the development of PsyCap. This pattern is reinforced by Zhang et al. (2014), who also found significant improvements when using structured reading as the basis of the intervention. Taken together, these results suggest that methods combining comprehension, reflection, and the re-signification of experiences tend to generate more uniform gains across the four dimensions of PsyCap.

The theoretical evidence on the role of positive psychological resources in the JD-R model (Bakker et al., 2023), and on PsyCap specifically, demonstrates that these resources influence well-being, motivation, and performance at work (Luthans et al., 2004; Luthans et al., 2007; Luthans et al., 2015; Seligman & Csikszentmihalyi, 2000). The results of this review clearly support this framework, as—regardless of the format—all interventions increased PsyCap levels (Carter & Youssef-Morgan, 2022; Da et al., 2020; Gon et al., 2023; Luthans et al., 2008; Sharp, 2019; Stratman & Youssef-Morgan, 2019; Zeng et al., 2023; Zhang et al., 2014) and produced consistent effects on work-related variables such as performance (Zhang et al., 2014), engagement (Movahedi et al., 2018), satisfaction (Da et al., 2020; Gon et al., 2023), well-being (Sulmarot et al., 2023), goal attainment (Carter & Youssef-Morgan, 2022), and other psychological gains including individual awareness, emotional support, immersive experiences, and positive thinking patterns (Zeng et al., 2023). There were also reductions in negative indicators such as procrastination (Akhoundi & Sheibani, 2017), turnover intention (Da et al., 2020), cynicism, and unsafe behaviors (Stratman & Youssef-Morgan, 2019). These results corroborate what the literature has widely evidenced, demonstrating that PsyCap is a developable psychological resource (Luthans et al., 2017) and, at the same time, that it generates measurable benefits across different professions and cultural contexts (Salanova & Ortega-Maldonado, 2019; Sabot et al., 2020; Luthans & Broad, 2022; Ruiz et al., 2024).

Some studies also add important nuances regarding how PsyCap develops in different contexts. Da et al. (2020) observed increases in PsyCap and job satisfaction that, although not statistically significant at all time points, revealed consistent positive trends, particularly in turnover intention. Gon et al. (2023) identified specific gains in hope, resilience, perceived occupational benefits, and stress management, suggesting that different PsyCap dimensions may respond differently depending on the professional profile. Zeng et al. (2023) found that mindfulness had a limited impact on optimism, possibly due to high initial levels and the short duration of the intervention; moreover, it was the least preferred approach among participants, requiring more time and practice, which highlights the role of adherence in the effectiveness of the methods. Stratman and Youssef-Morgan (2019) recorded reductions in cynicism and punctual improvements in behavioral safety, indicating that certain effects may emerge in a more localized manner depending on the demands of the work context. These nuances show that although PsyCap tends to increase consistently, the magnitude and type of impact vary according to the intervention, the professional context, and the psychological dimension strengthened.

Taken together, these findings allow a more integrative interpretation of how PsyCap interventions have been structured and how they operate across organizational contexts. The reviewed studies suggest that PsyCap development programs can be conceptually organized into a limited number of approaches. Most rely on structured, skills-based training targeting the HERO dimensions, whereas others combine cognitive–reflective practices (e.g., guided reflection, narrative exercises, or mindfulness) with applied workplace activities. Regardless of format, these interventions appear to operate through shared mechanisms of change, particularly by strengthening goal-directed motivation, perceived personal control, and adaptive coping strategies in response to work demands. This integrative framework contributes to the literature by systematizing how PsyCap interventions have been implemented and operationalized across diverse organizational settings.

Despite the overall consistency of positive findings, the heterogeneity of research designs, intervention durations, outcome measures, and follow-up periods limits direct comparability across studies and constrains stronger inferences regarding relative effectiveness. These factors should be considered when interpreting the transferability of results across organizational, cultural, and occupational contexts with distinct demands and

resources. At the same time, restricting the sample to peer-reviewed articles strengthens methodological rigor, although it may reduce the visibility of null findings typically reported outside indexed journals.

In addition, the evaluation of the four criteria for effective PsyCap interventions defined by Youssef-Morgan and Sundermann (2014) revealed important limitations. While the first two criteria were met—indicating that PsyCap is developable and associated with measurable positive effects—it was not possible to assess the remaining criteria related to comparisons with traditional programs and cost–benefit, as none of the studies provided sufficient data on these dimensions. The lack of information on ROI and relative advantages thus represents a relevant limitation, given the importance of such indicators for organizational decision-making (Donaldson et al., 2020; Luthans et al., 2006; Luthans et al., 2015; Luthans & Youssef-Morgan, 2017)

The included studies acknowledged limitations and indicated important directions for future research, especially the need for larger and more diverse samples, multiple measures, and longer follow-ups. Some recommendations were more specific, such as the repetition of interventions within the same organization (Da et al., 2020), replication in other sectors (Carter & Youssef-Morgan, 2022), and the use of hybrid models and multicultural longitudinal studies (Zeng et al., 2023). Future investigations should also systematically explore moderating variables, such as profession type, intensity of stressors, and intervention configuration, as well as mediating variables, such as engagement in the program and the cognitive changes that occur throughout the process.

From an applied perspective, the results allow the establishment of clear guidelines for designing PsyCap programs in the workplace: (1) include, at minimum, pre- and post-test assessments, ideally with a 1-month follow-up; (2) center the content on the four HERO dimensions, integrating guided reflection, cognitive reappraisal, and goal setting; (3) adopt face-to-face, online, or microlearning formats, as long as they provide continuous practice and feedback; and (4) describe the protocol in detail, specifying sessions, exercises, and implementation criteria, in order to ensure replicability and intercultural adaptation.

This review presents limitations that should be considered when interpreting its findings. In particular, the relatively small number of included studies restricts the scope of comparative conclusions regarding the effectiveness of PsyCap interventions across different formats, contexts, and professional profiles. At the same time, this finding represents an important result of the review itself, as it highlights that, despite the growing theoretical interest in PsyCap, empirical intervention studies systematically developed and evaluated in organizational settings remain scarce.

Accordingly, although the available evidence does not yet allow definitive conclusions about the relative superiority of different intervention formats, the body of studies analyzed confirms that PsyCap is a developable resource associated with consistent benefits for workers' psychological and organizational functioning. Important gaps nonetheless persist, particularly regarding the sustainability of effects over the medium and long term and the lack of sufficient methodological detail to enable rigorous replication—limitations also highlighted by Salanova and Ortega-Maldonado (2019). Despite these constraints, this review provides a structured and practice-oriented synthesis of existing PsyCap interventions, while underscoring the need for future research to prioritize longitudinal designs, systematic cost–benefit and return-on-investment evaluations, and analyses of the sustainability of intervention effects over time. Such advances are essential to strengthen the empirical foundation of PsyCap interventions and support their informed and scalable implementation across organizational contexts.

#### **Declaration of Conflicting Interests**

The authors declare no potential conflicts of interest regarding the research, authorship and/or publication of this article.

## Contributors

Conceptualization, Investigation, Methodology, Writing, review and editing of the original draft, Ruiz A.P.P.S.; Project Administration, review of the final version of the manuscript, Cifuentes-Tinjaca C. D; Validation and Supervision; Viseu J. N.R. and Jesus S.N.

## References

- Akhoundi, N., & Sheibani, K. A. (2017). Effectiveness of the psychological capital intervention model on organizational procrastination of skill workers in Iran Khodro Diesel Company, Iran. *International Journal of High Risk Behaviors and Addiction*, 6(4). <https://doi.org/10.5812/ijhrba.63206>
- Asadollahi, A., Karimpoor, L., Kaveh, M. H., & Ghahremani, L. (2022). Effectiveness of resilience training intervention on psychological capital of the underprivileged widowed women of Fasa City, Iran. *BMC Women's Health*, 22(1), 302. <https://doi.org/10.1186/s12905-022-01886-9>
- Avey, J. B., Reichard, R. J., Luthans, F., & Mhatre, K. H. (2011). Meta-analysis of the impact of positive psychological capital on employee attitudes, behaviors, and performance. *Human Resource Development Quarterly*, 22(2), 127-152. <https://doi.org/10.1002/hrdq.20070>
- Bakker, A. B., & Demerouti, E. (2017). Job demands–resources theory: Taking stock and looking forward. *Journal of occupational health psychology*, 22(3), 273. <https://doi.org/10.1037/ocp0000056>
- Bakker, A. B., & Demerouti, E. (2018). Multiple levels in job demands-resources theory: Implications for employee well-being and performance. In E. Diener, S. Oishi, & L. Tay (Eds.), *Handbook of well-being* (pp. 1–13). [https://www.isonderhouden.nl/doc/pdf/arnoldbakker/articles/articles\\_arnold\\_bakker\\_460.pdf](https://www.isonderhouden.nl/doc/pdf/arnoldbakker/articles/articles_arnold_bakker_460.pdf)
- Bakker, A. B., Demerouti, E., & Sanz-Vergel, A. (2023). Job demands–resources theory: Ten years later. *Annual review of organizational psychology and organizational behavior*, 10(1), 25-53. <https://doi.org/10.1146/annurev-orgpsych-120920-053933>
- Bandura, A. (1977). *Social learning theory*. General Learning Press.
- Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual review of psychology*, 52(1), 1-26. <https://doi.org/10.1146/annurev.psych.52.1.1>
- Bonner, L. (2016). A survey of work engagement and psychological capital levels. *British Journal of Nursing*, 25(15), 865-871. <https://doi.org/10.12968/bjon.2016.25.15.865>
- Buchan, J., Catton, H., & Shaffer, F. A. (2022). *Sustain and retain in 2022 and beyond: The global nursing workforce and the COVID-19 pandemic*. International Council of Nurses. <https://www.intlnursemigration.org/wp-content/uploads/2022/01/Sustain-and-Retain-in-2022-and-Beyond-The-global-nursing-workforce-and-the-COVID-19-pandemic.pdf>
- Carter, J. W., & Youssef-Morgan, C. (2022). Psychological capital development effectiveness of face-to-face, online, and micro-learning interventions. *Education and Information Technologies*, 27(5), 6553-6575. <https://doi.org/10.1007/s10639-021-10824-5>
- Da, S., He, Y., & Zhang, X. (2020). Effectiveness of psychological capital intervention and its influence on work-related attitudes: Daily online self-learning method and randomized controlled trial design. *International Journal of Environmental Research and Public Health*, 17(23), 8754. <https://doi.org/10.3390/ijerph17238754>
- Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological inquiry*, 11(4), 227-268. [https://doi.org/10.1207/S15327965PLI1104\\_01](https://doi.org/10.1207/S15327965PLI1104_01)
- Direção-Geral da Saúde (2021). *Guia Técnico nº 3: Vigilância da saúde dos trabalhadores expostos a fatores de risco psicossocial no local de trabalho*. [https://www.dgs.pt/ficheiros-de-upload-2013/pnso\\_guia3-pdf.aspx](https://www.dgs.pt/ficheiros-de-upload-2013/pnso_guia3-pdf.aspx)
- Donaldson, S. I., Chan, L. B., Villalobos, J., & Chen, C. L. (2020). The generalizability of HERO across 15 nations: Positive psychological capital (PsyCap) beyond the US and other WEIRD countries. *International journal of environmental research and public health*, 17(24), 9432. <https://doi.org/10.3390/ijerph17249432>
- Eckelkamp, S. (2016). Take control of your eating & never diet again. *Prevention*, 68(1), 115–123. <https://jessicalevinson.com/wp-content/uploads/2011/06/Prevention-Jan-2016-2.pdf>
- European Agency for Safety and Health at Work (2022). *OSH Pulse - Occupational safety and health in post-pandemic workplaces*. [https://osha.europa.eu/sites/default/files/Eurobarometer-OSH-in-post-pandemic-workplaces\\_en.pdf](https://osha.europa.eu/sites/default/files/Eurobarometer-OSH-in-post-pandemic-workplaces_en.pdf)
- Finch, J., Waters, A. M., & Farrell, L. J. (2023). Developing the HERO within: Evaluation of a brief intervention for increasing Psychological Capital (PsyCap) in Australian female students during the final year of

- school in the first year of COVID-19. *Journal of Affective Disorders*, 324, 616-623. <https://doi.org/10.1016/j.jad.2022.12.169>
- García, A. M., Boix, P., & Canosa, C. (2004). Why do workers behave unsafely at work? Determinants of safe work practices in industrial workers. *Occupational and Environmental Medicine*, 61(3), 239-246. <http://www.jstor.org/stable/27732201>
- Gon, R., Wu, Y., Liu, Y., Yang, R., Zhang, Y., & Xing, L. (2023). Influence of group training based on psychological capital theory on nursing staff's occupational benefits and job satisfaction in an infusion preparation center. *Altern Ther Health Med*, 29(3), 186-92. <http://alternative-therapies.com/oa/index.html?fid=7523>
- Halliday, B., Van der Laan, L., & Raineri, A. (2024). Prioritizing work health, safety, and wellbeing in corporate strategies: an indicative framework. *Safety*, 10(1), 18. <https://doi.org/10.3390/safety10010018>
- Kim, K. J., & Yoo, M. S. (2018). The influence of psychological capital and work engagement on intention to remain of new graduate nurses. *JONA: The Journal of Nursing Administration*, 48(9), 459-465. <https://doi.org/10.1097/NNA.0000000000000649>
- Lally, P., Van Jaarsveld, C. H., Potts, H. W., & Wardle, J. (2010). How are habits formed: Modelling habit formation in the real world. *European journal of social psychology*, 40(6), 998-1009. <https://doi.org/10.1002/ejsp.674>
- Luthans, F. (2002). The need for and meaning of positive organizational behavior. *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior*, 23(6), 695-706. <https://doi.org/10.1002/job.165>
- Luthans, F., & Youssef-Morgan, C. (2004). Human, social, and now positive psychological capital management: Investing in people for competitive advantage. *Organizational Dynamics*, 33(2), 143-160. <https://doi.org/10.1016/j.orgdyn.2004.01.003>
- Luthans, F., Luthans, K. W., & Luthans, B. C. (2004). Positive psychological capital: Beyond human and social capital. *Business Horizons*, 47, 45-50. <https://doi.org/10.1016/j.bushor.2003.11.007>
- Luthans, F., Avolio, B., Walumbwa, F., & Li, W. (2005). The psychological capital of Chinese workers: exploring the relationship with performance. *Management and Organization Review*, 1(2), 247-269. <https://doi.org/10.1111/j.1740-8784.2005.00011.x>
- Luthans, F., Avey, J. B., Avolio, B. J., Norman, S. M., & Combs, G. M. (2006). Psychological capital development: toward a micro-intervention. *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior*, 27(3), 387-393. <https://doi.org/10.1002/job.373>
- Luthans, F., Avolio, B. J., Avey, J. B., & Norman, S. M. (2007). Positive psychological capital: Measurement and relationship with performance and satisfaction. *Personnel psychology*, 60(3), 541-572. <https://doi.org/10.1111/j.1744-6570.2007.00083.x>
- Luthans, F., Avey, J. B., & Patera, J. L. (2008). Experimental analysis of a web-based training intervention to develop positive psychological capital. *Academy of Management Learning & Education*, 7(2), 209-221. <https://doi.org/10.5465/amle.2008.32712618>
- Luthans, F., Avey, J. B., Avolio, B. J., & Peterson, S. J. (2010). The development and resulting performance impact of positive psychological capital. *Human Resource Development Quarterly*, 21(1), 41-67. <https://doi.org/10.1002/hrdq.20034>
- Luthans, F., Youssef-Morgan, C. M., & Avolio, B. J. (2015). *Psychological capital and beyond*. Oxford University Press.
- Luthans, F., & Youssef-Morgan, C. M. (2017). Psychological capital: An evidence-based positive approach. *Annual review of organizational psychology and organizational behavior*, 4, 339-366. <https://doi.org/10.1146/annurev-orgpsych-032516-113324>
- Luthans, F., & Broad, J. D. (2022). Positive psychological capital to help combat the mental health fallout from the pandemic and VUCA environment. *Organizational dynamics*, 51(2), 100817. <https://doi.org/10.1016/j.orgdyn.2020.100817>
- Moola, S., Munn, Z., Tufanaru, C., Aromataris, E., Sears, K., Sfetcu, R., Currie, M., Lisy, K., Qureshi, R., Mattis, P., & Mu, P. (2020). Chapter 7: Systematic reviews of etiology and risk. In E. Aromataris & Z. Munn (Eds.), *JBI manual for evidence synthesis*. Joanna Briggs Institute. <https://doi.org/10.46658/JBIMES-20-08>
- Movahedi, D., Oudi, D., & Rad, G. H. M. (2018). Effectiveness of the Luthans's psychological program on job engagement of nursing staff. *Modern Care Journal*, 15(3). <https://doi.org/10.5812/modernc.83227>
- Oliveira, J. M. D., Pereira, R. P. L., Massignan, C., Stefani, C. M., & Canto, G. D. L. (2022). *Capítulo 12. Análise da qualidade metodológica de estudos de prevalência com a ferramenta do Joanna Briggs Institute (JBI)*. Universidade Federal de Santa Catarina. <https://guiariscodiviescobe.paginas.ufsc.br/capitulo-12-analise-da-qualidade-metodologica-de-estudos-de-prevalencia-com-a-ferramenta-do->

- [joanna-briggs-institute-ibi/](http://joanna-briggs-institute-ibi/)
- Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., McGuinness, L. A., Stewart, L. A., Thomas, J., Tricco, A. C., Welch, V. A., Whiting, P., & Moher, D. (2023). A declaração PRISMA 2020: Diretriz atualizada para relatar revisões sistemáticas. *Revista Panamericana de Salud Pública*, 46, e112. <https://doi.org/10.26633/RPSP.2022.112>
- Perniciotti, P., Serrano Júnior, C. V., Guarita, R. V., Morales, R. J., & Romano, B. W. (2020). Síndrome de Burnout nos profissionais de saúde: atualização sobre definições, fatores de risco e estratégias de prevenção. *Revista da SBPH*, 23(1), 35-52. [http://pepsic.bvsalud.org/scielo.php?pid=S1516-08582020000100005&script=sci\\_arttext](http://pepsic.bvsalud.org/scielo.php?pid=S1516-08582020000100005&script=sci_arttext)
- Pimthong, S., Suwanwong, C., Surakarn, A., Chiangkhong, A., Sumalrot, T., & Khunakorncharatphong, A. (2022). Development and validation of the Thai mental well-being scale. *Heliyon*, 8(4). <https://doi.org/10.1016/j.heliyon.2022.e09296>
- Rew, L., Powell, T., Brown, A., Becker, H., & Slesnick, N. (2017). An intervention to enhance psychological capital and health outcomes in homeless female youths. *Western journal of nursing research*, 39(3), 356-373. <https://doi.org/10.1177/0193945916658861>
- Ruiz, A. P. P. S., Viseu, J. N. R., Cifuentes-Tinjaca, C. D., & Jesus, S. N. (2024). Positive psychological capital in health professionals: A systematic literature review. *Revista Latinoamericana de Psicología*, 56, 164-179. <https://doi.org/10.14349/rlp.2024.v56.17>
- Russo, S. D., & Stoykova, P. (2015). Psychological capital intervention (PCI): A replication and extension. *Human Resource Development Quarterly*, 26(3), 329-347. <https://doi.org/10.1002/hrdq.21212>
- Sabot, D. L., & Hicks, R. E. (2020). Does psychological capital mediate the impact of dysfunctional sleep beliefs on well-being?. *Heliyon*, 6(6). <https://doi.org/10.1016/j.heliyon.2020.e04314>
- Saffarinia M, & AnirkhaniRazlighi Z. (2012). Analyzing the relationship of organizational procrastination with cognitive arousal and job burnout in governmental employees of Tehran. *Research in Organizational Resources Management*, 2(4), 111–131.
- Salanova, M., & Ortega-Maldonado, A. (2019). Psychological capital development in organizations: An integrative review of evidence-based intervention programs. *Positive psychological intervention design and protocols for multi-cultural contexts*, 81-102. [https://doi.org/10.1007/978-3-030-20020-6\\_4](https://doi.org/10.1007/978-3-030-20020-6_4)
- Santiago, J. M. (2021). *Deteção de risco psicótico em universitários: validação preliminar portuguesa da CAPE-42* [Master's thesis, Universidade do Algarve]. Repositório do Algarve. <http://hdl.handle.net/10400.1/18119>
- Schaufeli, W. B., & Bakker, A. B. (2003). Utrecht work engagement scale: Preliminary manual (version 1). *Occupational Health Psychology Unit, Utrecht University, Utrecht*, 26(1), 64-100. [https://www.isonderhouden.nl/doc/pdf/arnoldbakker/articles/articles\\_arnold\\_bakker\\_87.pdf](https://www.isonderhouden.nl/doc/pdf/arnoldbakker/articles/articles_arnold_bakker_87.pdf)
- Schulte, P. A., Sauter, S. L., Pandalai, S. P., Tiesman, H. M., Chosewood, L. C., Cunningham, T. R., Wurzelbacher, S. J., Pana-Cryan, R., Swanson, N. G., Chang, C.-C., Nigam, J. A. S., Reissman, D. B., Ray, T. K., & Howard, J. (2024). An urgent call to address work-related psychosocial hazards and improve worker well-being. *American journal of industrial medicine*, 67(6), 499-514. <https://doi.org/10.1002/ajim.23583>
- Secosan, I., Virga, D., Crainiceanu, Z. P., Bratu, L. M., & Bratu, T. (2021). The moderating role of personal resources between demands and Ill-Being of romanian healthcare professionals in the COVID-19 Pandemic. *Frontiers in public health*, 9, 2148. <https://doi.org/10.3389/fpubh.2021.736099>
- Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist*, 55(1), 5-14. <https://doi.org/10.1037/0003-066X.55.1.5>
- Seligman, M. E. P. (2011). *Flourish: A visionary new understanding of happiness and well-being*. Simon & Schuster.
- Sharp, R. (2019). Career crescendo: An experimental analysis of a 6-week work-site intervention to determine the developmental capacity of psychological capital. *Journal of Management Development*, 38(9), 719-732. <https://doi.org/10.1108/JMD-10-2018-0295>
- Silvaggi, F., & Miraglia, M. (2017). Mental health at work: A review of interventions in organizations. *E-Journal of International and Comparative Labour Studies*, 6(1), 34-58. [http://ejcls.adapt.it/index.php/ejcls\\_adapt/article/view/443](http://ejcls.adapt.it/index.php/ejcls_adapt/article/view/443)
- Song, R., Sun, N., & Song, X. (2019). The efficacy of psychological capital intervention (PCI) for depression from the perspective of positive psychology: a pilot study. *Frontiers in psychology*, 10, 1816. <https://doi.org/10.3389/fpsyg.2019.01816>
- Stratman, J. L., & Youssef-Morgan, C. M. (2019). Can positivity promote safety? Psychological capital development combats cynicism and unsafe behavior. *Safety science*, 116, 13-25.

- <https://doi.org/10.1016/j.ssci.2019.02.031>
- Sumalrot, T., Suwanwong, C., Pimthong, S., Surakarn, A., Chiangkhong, A., & Khunakorncharatphong, A. (2023). The development and effectiveness of web-based psychological capital intervention on the mental well-being of tourism workers during the COVID-19 pandemic. *BMC psychology*, *11*(1), 138. <https://doi.org/10.1186/s40359-023-01189-0>
- Turner, J. H., & Valentine, S. R. (2001). Cynicism as a fundamental dimension of moral decision-making: A scale development. *Journal of Business Ethics*, *34*(2), 123-136. <https://doi.org/10.1023/A:1012268705059>
- Van Scotter, J. R., & Motowidlo, S. J. (1996). Interpersonal facilitation and job dedication as separate facets of contextual performance. *Journal of applied psychology*, *81*(5), 525. <https://doi.org/10.1037/0021-9010.81.5.525>
- World Health Organization (2024, September 2). *Mental health at work*. <https://www.who.int/news-room/fact-sheets/detail/mental-health-at-work>
- Youssef-Morgan, C. M., & Sundermann, D. A. (2014). Positive interventions: From prevention to amplification. In M. C. W. Peeters, J. de Jonge, & T. W. Taris (Eds.), *An introduction to contemporary work psychology* (pp. 458–480). <https://doi.org/10.1002/9781394259564.ch19>
- Yuan, Z., Zhang, X., Wang, F., Jin, M., Teng, M., He, H., & Wang, J. (2023). Levels of psychological capital among nurses: A systematic review and meta-analysis. *International Nursing Review*, *70*(1), 89-96. <https://doi.org/10.1111/inr.12803>
- Zeng, N., Zhang, M., Fu, S., Xiao, Q., & Javed, T. (2023). Online experimental research on the psychological capital development of new venture entrepreneur under the COVID-19 pneumonia epidemic. *Frontiers in Psychology*, *13*, 963439. <https://doi.org/10.3389/fpsyg.2022.963439>
- Zhang, X., Li, Y. L., Ma, S., Hu, J., & Jiang, L. (2014). A structured reading materials-based intervention program to develop the psychological capital of Chinese employees. *Social Behavior and Personality: an international journal*, *42*(3), 503-515. <https://doi.org/10.2224/sbp.2014.42.3.503>
- Zhou, H., Zhu, Y., Zhang, X., Peng, J., Li, Q., Wang, X., Wang, L., Cai, X., & Lan, L. (2018). Psychological capital and perceived professional benefits: Testing the mediating role of perceived nursing work environment among Chinese nurses. *Journal of Psychosocial Nursing and Mental Health Services*, *56*(4), 38-47. <https://doi.org/10.3928/02793695-20171128-01>