

Systematic Review and Meta-Analysis of Positive Psychology Interventions in Workplace Settings

Kevin Martínez-Martínez ¹, Valeria Cruz-Ortiz ^{1,*}, Susana Llorens ¹, Marisa Salanova ¹
and Marcelo Leiva-Bianchi ²

¹ WANT Research Team, Department of Social Psychology, Universitat Jaume I, 12071 Castellón, Spain; kemartin@uji.es (K.M.-M.); llogum@uji.es (S.L.); salanova@uji.es (M.S.)

² Laboratory of Methodology, Behavioural Sciences and Neuroscience, Faculty of Psychology, Universidad de Talca, Talca 3460000, Chile; marcleiva@utalca.cl

* Correspondence: valeria.cruz@uji.es

Abstract

Job stress and burnout are major challenges in today's workplaces. While most interventions adopt a clinical or deficit-based approach, this meta-analysis takes a positive perspective by examining the effectiveness of Positive Psychological Interventions (PPIs). A total of 24 studies conducted in workplace settings were analyzed to assess the impact of PPIs on psychological well-being, subjective well-being, and job performance. The results showed significant and sustained improvements across all three outcomes, with moderate effect sizes: subjective well-being ($g = 0.50$, 95% CI [0.18, 0.81]), psychological well-being ($g = 0.46$, 95% CI [0.15, 0.78]), and performance ($g = 0.42$, 95% CI [0.21, 0.62]). Higher effects were found for in-person interventions and those conducted in Western contexts. No significant moderation was observed for structural factors (e.g., implementation level: Individual, Group, Leader, or Organization [IGLO]) or sample characteristics (e.g., gender), among other variables examined. These findings highlight the relevance of PPIs for promoting well-being and sustaining performance, which may reflect the preservation of personal resources in the face of occupational stressors. Regardless of type, well-designed interventions may be key to fostering healthier workplace environments—especially when delivered face-to-face.

Keywords: workplace stress; burnout; positive interventions; well-being; performance; workplace



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1. Introduction

Job stress and burnout have emerged as central challenges in today's evolving work environments. Drawing on Keyes' (2002) dual-continuum model, mental health exists on two separate but related dimensions: the presence or absence of mental illness, and the presence or absence of positive mental health. This framework identifies four mental health states: languishing, struggling, symptomatic but content, and flourishing—with flourishing representing the ideal state of well-being. This concept of flourishing is increasingly viewed as synonymous with “optimal functioning” in workplace psychology (Tay et al. 2023). While most interventions addressing these issues adopt a deficit-based or clinical lens, this meta-analysis takes a positive-oriented approach, examining the use of Positive Psychological Interventions (PPIs) aimed at enhancing well-being through the cultivation of positive emotions, behaviors, and cognitions (Lyubomirsky and Layous 2013; Parks

and Biswas-Diener 2013; Sheldon and King 2001). Positive Psychological Interventions (PPIs) are defined as intentional activities or structured programs aimed at cultivating positive feelings, behaviors, or cognitions, consistent with the theoretical foundations of positive psychology (Donaldson et al. 2019). In workplace settings, PPIs are designed to enhance individual and organizational functioning by fostering strengths, meaning, optimism, and psychological resources, aligning with the Positive Work and Organizations (PWO) framework.

There are generally understood to be two dimensions of well-being. Hedonic well-being refers to the pursuit of pleasure and the avoidance of discomfort, emphasizing short-term affective states and life satisfaction. Eudaimonic well-being, by contrast, is associated with meaning, purpose, and personal growth—reflecting longer-term fulfillment and actualization (Ryff and Keyes 1995; Koydemir et al. 2021). The former is typically operationalized through subjective well-being (SWB), while the latter aligns with psychological well-being (PWB). Distinguishing between SWB and PWB is critical in meta-analytic research on workplace interventions, since different PPIs may differentially impact emotional states compared to deeper psychological constructs such as self-realization or resilience. A number of recent meta-analyses have examined to what degree PPIs improve psychological and subjective well-being (e.g., Hendriks et al. 2020; Koydemir et al. 2021). However, to what degree they influence job performance is less researched, despite job performance being a practical behavioral outcome of optimal psychological functioning. Most previous reviews have been focused on clinical or general well-being measures, without providing much insight into implications regarding workplace functioning (e.g., Bolier et al. 2013; Chakhssi et al. 2018; Geerling et al. 2020; Sin and Lyubomirsky 2009). Carolan et al. (2017) explored psychological interventions in workplace settings; however, their review was limited in nature because it only considered digital interventions and it was not specifically aimed at Positive Psychological Interventions (PPIs). For their part, Donaldson et al. (2019) published the first meta-analysis specifically targeting PPIs in work contexts, reporting moderate reductions in undesirable outcomes ($g = -0.34$) and small gains in desirable ones ($g = 0.25$). This contrast highlights an imbalance: whereas numerous meta-analyses have examined PPIs in abstract and clinical contexts—which have enabled in-depth examination of various well-being frameworks, methodologies, and moderators—studies on workplace PPIs are relatively scarce. This meta-analysis aims to help to bridge this gap through an examination of PPI effectiveness in work contexts specifically, focusing on the two dimensions of well-being and performance outcomes. In contrast to Donaldson et al. (2019), we adopt a finer-grained approach by distinguishing SWB and PWB as separate outcome domains (Hendriks et al. 2020; Koydemir et al. 2021), allowing for more targeted insights into intervention impact. Prior to this paper, previous meta-analyses (Bolier et al. 2013; Chakhssi et al. 2018; Donaldson et al. 2019; Geerling et al. 2020; Hendriks et al. 2020; Koydemir et al. 2021; Sin and Lyubomirsky 2009) have looked at overall types of PPI rather than individual types of interventions. Furthermore, several of these meta-analyses have examined positive psychological constructs specifically—for example, interventions to establish character strengths (Schutte and Malouff 2019; Vásquez-Pailaqueo et al. 2025), forgiveness (Akhtar and Barlow 2018; Baskin and Enright 2004), compassion (San Román-Niaves et al. 2024), optimism (Bastounis et al. 2016; Carrillo et al. 2019), and gratitude (Dickens 2017; Renshaw and Olinger Steeves 2016). Additionally, some interventions combine these positive psychology constructs with mindfulness (e.g., mindfulness-based strengths training; Kulandaiammal and Neelakantan 2024). The effect sizes reported post-intervention between these individual areas vary widely—from -0.24 for compassion-focused interventions (San Román-Niaves et al. 2024) to 1.42 for forgiveness-focused interventions (Baskin and Enright 2004). For our own meta-analysis,

we examined any PPI whose main purpose was to affect one of these positive constructs (i.e., strengths, gratitude, optimism). Our conceptualization is compatible with the mechanisms described by [Lyubomirsky and Layous \(2013\)](#), while formally following the definition of [Donaldson et al. \(2019\)](#), which frames PPIs as intentional activities aimed at enhancing positive feelings, behaviors, or cognitions.

[Carr et al. \(2023\)](#) conducted a large-scale mega-analysis recently to consolidate results of general and targeted PPI studies. One of the problems they noted was a lack of long-term follow-up data. Some evidence indicates lasting effects, but limited extended assessments prevent us from drawing definitive conclusions regarding sustainability. [Carr et al. \(2023\)](#) employed a broader operational definition of PPIs, which included interventions based not only on positive psychology but also on mindfulness, body–mind practices, and physical activity. This broader scope reflects the nature of their meta-analysis rather than a conceptual refinement of PPIs. These findings also outlined several effectiveness moderators, such as program factors (e.g., format, type), methodology factors (e.g., control group type, quality of studies), and participant factors (e.g., age, gender, clinical vs. non-clinical). Longer and face-to-face interventions tended to be more effective. Participant age showed mixed results: PPIs were less effective in improving Quality of Life (QoL) in older adults but more effective at enhancing overall well-being in these groups. Demographic moderators have been less frequently studied in this respect. [Carr et al. \(2020, 2023\)](#), although they did not find gender to significantly moderate the effects of PPIs, observed that cultural setting more frequently emerged as a significant moderating variable. For example, [Koydemir et al. \(2021\)](#) noted stronger gains in non-Western samples. To address these gaps in the literature, our meta-analysis systematically examines all the above moderators within working populations. We also look at the IGLO framework put forward by [Nielsen et al. \(2017\)](#), in which resources are classified according to implementation level (Individual, Group, Leader, Organization). While very applicable, IGLO level has never been used in PPI meta-analyses as a moderator. In this work, we address these gaps. We compare each intervention in terms of its IGLO level and delivery mode (face-to-face vs. remote), giving a wider perspective of how PPIs operate in different organizational settings. This broad perspective is meant to heighten insights into how PPIs can be applied to enhance psychological and subjective well-being along with job performance in a range of workplace settings.

Aim of This Research

In light of the above, four major gaps have been identified in research on PPIs: (1) the lack of meta-analyses in workplace settings that separately examine the impact of PPIs on psychological well-being and subjective well-being; (2) the absence of studies evaluating the impact of PPIs on workplace performance; (3) the lack of analysis of moderating variables that have received no attention in workplace PPI studies (e.g., gender or culture) or in any context (e.g., IGLO level); and (4) the lack of evidence on the persistence of PPI effects over time (follow-up effects). Therefore, the primary objective of this systematic review and meta-analysis is to contribute to a deeper understanding by addressing the following research questions: (1) What is the impact of PPIs on employees' psychological well-being and subjective well-being?; (2) What is the impact of PPIs on performance?; (3) What variables moderate the effects of PPIs on subjective well-being, psychological well-being and performance in working populations?; (4) Do the effects of PPIs persist over time?

2. Material and Method

The planning and implementation of the meta-analysis adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines ([Moher et al. 2009](#)). Additionally, this review was registered on 16 July 2024, in PROS-

PERO (CRD42024544060), an international prospective register for systematic reviews. Data extraction and study selection were conducted by the first author with help from a research assistant, who checked the results independently and made use of an AI-based software (DeepSeek 2024) as a supporting resource. Specifically, DeepSeek was utilized by the assistant to provide further help with assigning interventions as multi- or single-component. During this process, the assistant requested the same definitions of operations that appear in Section 2.3 from the AI. Any discrepancies were discussed and resolved through consultation with the two co-authors.

2.1. Search Strategy

A systematic literature search was conducted in three databases—Web of Science, Scopus, and PsycArticles—from 1998 (the start of the positive psychology movement) to October 2024. The search was updated on 25 June 2025. Search terms were inspired by previous meta-analyses, such as that of Donaldson et al. (2019) for workplace-related terms, and by Hendriks et al. (2018, 2019, 2020) and Koydemir et al. (2021) for constructs related to subjective and psychological well-being. The search string consisted of terms referring to positive psychology constructs, work contexts, performance, and well-being. The following Boolean search strategy was used to identify eligible studies across databases, focusing on terms appearing in the title, abstract, or keywords (according to the indexing capabilities of each database): (“Positive psych*”) OR (“Positive intervention”) OR (“Positive psychological intervention”) AND (“Work”) OR (“Job”) OR (“Workplace”) AND (“Productivity”) OR (“Performance”) OR (“Work performance”) OR (“In-role performance”) OR (“Extra-role performance”) AND (“psychological health”) OR (“psychological well-being”) OR (“mental health”) OR (“emotional well-being”) OR (“affective well-being”) OR (“subjective well-being”) OR (“hedonic wellbeing”) OR (“eudaimonic wellbeing”) OR (“engagement”) OR (“positive affect”) OR (“positive emotions”) OR (“self-efficacy”) OR (“self-determination”) OR (“flourishing”) OR (“meaning”) OR (“resilience”) OR (“happiness”) OR (“happy”) OR (“overall health”) OR (“well-being”) OR (“wellbeing”) OR (“satisfaction with life”) OR (“life satisfaction”) OR (“optimism”) OR (“gratitude”) OR (“strengths”) OR (“forgiveness”) OR (“compassion”).

2.2. Selection of Studies

Experimental and quasi-experimental studies conducted in workplace settings (with employees as participants) were included if they met one or more of the following criteria: (1) the intervention was explicitly identified as a positive psychology intervention (PPI); (2) the intervention was based on positive psychology principles; (3) the study reported pre- and post-intervention measures of well-being and/or performance to evaluate the intervention’s efficacy; (4) the study reported having a control group. To explore the potential benefits that PPIs can produce at all IGLO levels, studies without a control group at the organizational level were not excluded (all individual- and group-level interventions did include control groups). Studies were excluded if they (1) were not published in peer-reviewed journals; (2) did not report the percentage of female participants (gender composition was planned as a moderator in the analysis); (3) were book chapters, dissertations, or other forms of gray literature; or (4) were published in a language other than English, Spanish, or Chinese. The systematic search initially identified 1305 articles (Web of Science: 805; Scopus: 415; Pubmed: 73; PsycArticles: 12). After removing duplicates and screening titles and abstracts, 80 potentially eligible papers remained for full-text review. Full-text evaluation against the inclusion criteria yielded a final sample of 22 articles and 24 studies. Figure 1 illustrates the study selection process.

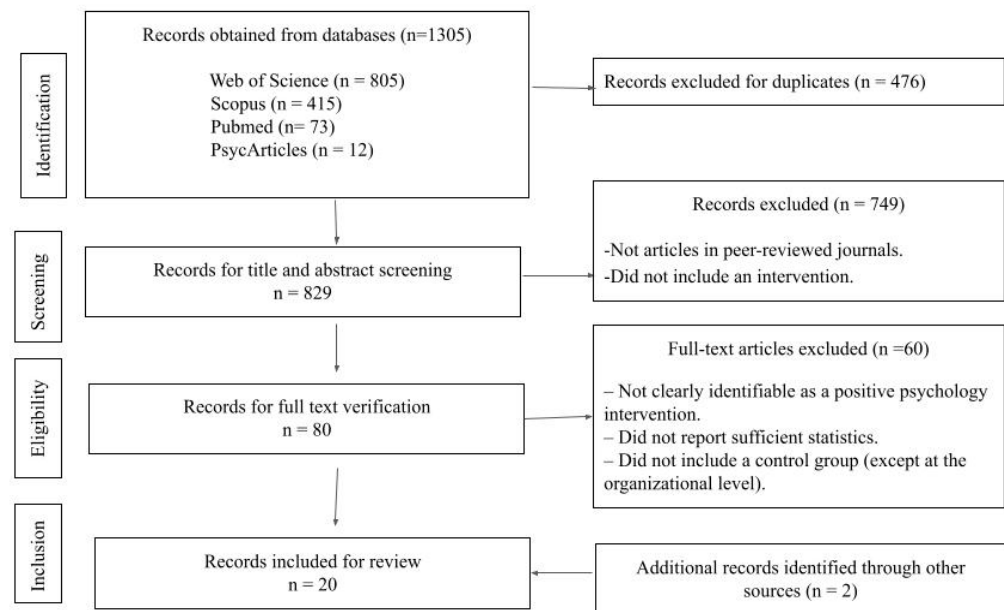


Figure 1. A flow diagram of the systematic review.

2.3. Data Extraction

The extracted data included the country of origin, study quality (randomized controlled trial or non-randomized study), delivery mode (in-person or remote), duration of the intervention (in weeks and/or hours), length of the intervention (eight or more sessions vs. fewer than eight sessions), type of control group (no control, control group, alternative intervention, or waitlist), and cultural context (Western vs. non-Western). Furthermore, data collection encompassed the type of intervention, including its structure (single or multiple components) and IGLO level (Nielsen et al. 2017). Following Hendriks et al. (2020), single-component interventions were defined as those targeting specific well-being components through activities such as gratitude exercises. In contrast, multi-component positive psychology interventions integrated multiple evidence-based exercises aimed at both hedonic and eudaimonic well-being (e.g., the PERMA model by Seligman 2018). Additionally, data on outcome measures and the instruments used were collected, including the percentage of female participants and the mean and standard deviation of participants' age, as well as pre-test and post-test means and standard deviations for the dependent variables. The same information was extracted for control and follow-up groups when applicable. The outcome measures were classified based on whether they assessed well-being (psychological or subjective) or performance, as outlined in the following sections. The coding process was discussed regularly to ensure consistency and validity.

2.4. Well-Being Component

For well-being outcomes, indicators of subjective well-being (SWB) and psychological well-being (PWB) were coded following the categorization by Hendriks et al. (2020). This categorization, also used by Koydemir et al. (2021), updates the framework from the seminal meta-analysis by Bolier et al. (2013). For SWB, measures such as life satisfaction, positive affect, affect balance, subjective happiness, cheerfulness, and overall mood were considered. Conversely, for PWB, components such as personal growth, autonomy, life purpose, self-acceptance, positive relationships, environmental mastery, appreciation of the present moment, compassion for others, self-efficacy, resilience, flourishing, and engagement were examined. For PWB indicators, the most commonly used scale is the

Psychological Well-Being Scale (Ryff and Keyes 1995), and for SWB, it is the Positive and Negative Affect Schedule (PANAS).

2.5. Performance Component

Performance was conceptualized exclusively through subjective measures (self-reported performance) rather than objective ones. This decision was made due to the difficulty of comparing objective performance metrics across diverse studies, as variations in context, criteria, and measurement tools may affect the results (Bommer et al. 1995; Chen et al. 2020). For example, in summer, a travel agency worker might sell more, while a construction worker might lay fewer bricks due to the heat. Moreover, even without these context-related differences, including objective measures in a single meta-analysis forest plot would be challenging, making it difficult to isolate the true effect of the PPI. Previous researchers recommend using subjective measures to capture participants' perceptions and self-assessments of their performance, as these are more consistent and comparable across studies (Heaman et al. 2014; Cameron et al. 2004). The subjective performance measures included self-reported ratings of job contribution, task performance, interpersonal support, energy levels at work, and organizational virtues. These measures provide a somewhat holistic view of performance, encompassing both individual and organizational aspects, and allowing for more meaningful comparisons across studies.

2.6. Sensitivity Analysis and Study Quality Assessment

Outlier analyses were conducted descriptively using studentized residuals, following Jamovi's default method. These values were examined to identify potentially influential studies, which were considered when interpreting the findings but were not excluded from the primary analyses. No additional thresholds (e.g., $g > 2.5$) were applied, and sensitivity analyses excluding outliers were not systematically conducted, as the identified outliers did not meet the criteria for removal based on methodological concerns. The robustness of the findings was assessed by evaluating the methodological quality of all included studies. The 24 included studies were appraised using a seven-item scale adapted from Higgins et al. (2011) and Jadad et al. (1996). Carr et al. (2020) and Chakhssi et al. (2018) also adhered to this approach in their PPI studies. If any of the seven criteria was rated as "unclear", it was considered not met. Using predetermined cutoffs (good = 7/7 criteria; fair = 5–6/7; poor = 1–4/7), only 1 study (4.2%) was rated as good quality, 8 studies (33.3%) as fair quality, and 15 (62.5%) as poor quality. Detailed quality classifications are presented in Table 1. The mean quality score across studies was 4.0 out of 7 (SD = 1.6).

2.7. Meta-Analysis and Heterogeneity Assessment

Three between-group and three within-group meta-analyses were conducted using a random-effects model in The Jamovi Project (2022) 2.4 version. Random-effects models were chosen due to the anticipated heterogeneity across study designs and contexts, including variations in intervention type, duration, and quality (Riley et al. 2011). Effect sizes were computed using means and standard deviations, incorporating both between-group and within-group comparisons where applicable. Heterogeneity was assessed using the Q statistic and I^2 index, following Higgins and Thompson (2002). Substantial heterogeneity ($I^2 > 50\%$) was expected and observed in several outcomes. However, moderator analyses were preplanned and carried out systematically to examine possible sources of effect size variability, regardless of the exact I^2 values.

Table 1. Methodological quality of studies included in the meta-analysis.

Study	1	2	3	4	5	6	7	Score
Boniwell et al. (2023)	No	Yes	Yes	No	Yes	Yes	Yes	5
Bondre et al. (2025)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	7
Bratty and Dennis (2024)—Study 1	Yes	Yes	Yes	No	Yes	Yes	Yes	6
Bratty and Dennis (2024)—Study 2	Yes	Yes	Yes	No	Yes	Yes	Yes	6
Calcagni et al. (2021)	Unclear	No	Unclear	No	Yes	Yes	Yes	3
Corbu et al. (2021)	No	Yes	Yes	No	Yes	No	Yes	4
Guo et al. (2020)	Unclear	No	No	No	Yes	Yes	Unclear	2
Harty et al. (2016)	No	No	Yes	No	Yes	No	Yes	3
Heskiau and McCarthy (2020)	Yes	No	Yes	Yes	Yes	Yes	Yes	6
Kimura et al. (2015)	Yes	Yes	Yes	Yes	Yes	Yes	Unclear	6
Soares Marques et al. (2021)	No	No	No	No	Yes	No	Yes	2
Neumeier et al. (2017)	No	Yes	Yes	No	Yes	No	Yes	4
Peláez Zuberbuhler et al. (2020b)	No	Yes	Yes	No	Yes	Unclear	Yes	4
Peláez Zuberbuhler et al. (2020a)	No	Yes	Yes	No	Yes	No	Yes	4
Schwarz et al. (2023)—Study 1	Yes	No	Yes	No	Yes	Yes	Yes	5
Schwarz et al. (2023)—Study 2	No	No	Unclear	No	Yes	No	Yes	2
Sexton and Adair (2024)	Yes	Yes	Yes	Yes	Yes	Yes	Unclear	6
Shaghaghi et al. (2020)	Yes	No	Yes	No	Yes	Yes	Yes	5
Tonkin et al. (2018)	No	Yes	Yes	No	Yes	No	Yes	4
Tyne et al. (2024)	No	No	Yes	No	Unclear	No	Yes	2
Van Erp et al. (2018)	No	No	Yes	No	Yes	Yes	Yes	4
Virtanen et al. (2019)	No	No	Yes	No	Yes	Yes	Unclear	3
Williams et al. (2016)	No	No	Yes	No	No	No	Yes	2
Yuliatun and Karyani (2022)	Unclear	No	Yes	No	Unclear	No	Yes	2

Index. 1 = adequate allocation sequence; 2 = blinding of main outcome assessments; 3 = description of withdrawals/dropouts; 4 = intention-to-treat analysis (itt); 5 = baseline comparability; 6 = power analysis; 7 = professional assessment.

2.8. Moderator Analysis

For categorical moderators, subgroup analyses were performed using mixed-effects models. The significance of between-group differences was inferred from the Z-test associated with each moderator coefficient (statistically equivalent to a Q_{between} test when $df = 1$). The categorical moderators analyzed included study quality (RCT vs. non-RCT), delivery format (in-person vs. remote), PPI duration (eight sessions or more vs. fewer than eight sessions), intervention structure (single-component vs. multi-component), cultural context (Western vs. non-Western), type of control group (no control, control group, alternative intervention, waiting list), and IGLO intervention level (Individual, Group, Leader, or Organizational). For continuous moderators (age and gender), meta-regression analyses were conducted.

3. Results

3.1. Demographics and Study Characteristics

A total of $k = 24$ studies met the inclusion criteria. These studies were conducted across a variety of countries, most of them Western, and included working adult samples with mean ages ranging from approximately 28 to 50 years. Women constituted a substantial proportion of participants in most studies, with proportions ranging from 14% to 100%. This variability allowed for an exploratory analysis of gender as a potential moderator in PPI effectiveness, although female representation was not evenly distributed across all samples. Methodological designs varied. Roughly half of the studies were randomized controlled trials (RCTs), while the others followed quasi-experimental designs. One notable exception was an organizational-level study using a pre–post design without the possibility of including a control group. Most studies employed either a passive “no-intervention” or waitlist control condition; fewer used an active comparison intervention. About one-third

of the studies included follow-up assessments—typically several weeks or months post-intervention—whereas the rest reported only immediate post-test outcomes (see Table 2). As summarized in Table 3, the 30 different PPIs evaluated showed considerable variation in both format and content. Intervention durations ranged from as little as 2 days (e.g., brief intensive training) to up to 6 months, though most lasted between 4 and 8 weeks. The number of sessions varied widely, from single-session formats to programs comprising eight or more sessions. Most interventions were multi-component, integrating various psychological strategies, and were predominantly implemented at the individual level of the IGLO framework (with only two at group level, two at leadership level, and one at organizational level). Modes of delivery were mixed: around half of the interventions were conducted face-to-face, while the remainder were delivered remotely via online or other distance-based formats.

Table 2. Study characteristics.

Study	Country	% Female	Mean Age (SD)	Quality	Culture	Control Group	Follow-Up	Outcomes Included
Bondre et al. (2025)	India	100.00	38.1 (6.9)	RCT	NW	AC	No	AHI; OSES
Boniwell et al. (2023)	France	87.10	46.9 (10.80)	non-RCT	W	WL	No	PANAS; RS
Bratty and Dennis (2024)—Study 1	EEUU	50.70	41.20 (10.57)	RCT	W	AC	Yes	IRB; WPP
Bratty and Dennis (2024)—Study 2	EEUU	54.90	40.40 (9.66)	RCT	W	WL	No	IRB; UWES-9
Calcagni et al. (2021)—MPSM *	Spain	52.00	41.00 (6.92)	RCT	W	WL	Yes	HERO; SPWB
Calcagni et al. (2021)—MSCBI *	Spain	41.00	45.50 (7.25)	RCT	W	WL	Yes	HERO; SPWB
Corbu et al. (2021)	Spain	70.00	36.00 (7.50)	non-RCT	W	PC	No	PCQ
Guo et al. (2020)	Chinese Australia	100.00	27.82 (5.42)	RCT	NW	PC	No	JC-TP-IP; GSS
Harty et al. (2016)—Gratitude *	Sweden	81.08	-	non-RCT	W	PC	Yes	JSS; LOT-R
Harty et al. (2016)—Optimism *	Sweden	78.57	-	non-RCT	W	PC	Yes	JSS; GSE
Heskiau and McCarthy (2020)	Canada	82.00	43.16 (10.54)	RCT	W	PC	Yes	WFE
Kimura et al. (2015)	Japan	14.30	46.40 (13.60)	non-RCT	W	PC	No	WP
Soares Marques et al. (2021)	Portugal	28.00	37.00	RCT	W	PC	Yes	JSS
Neumeier et al. (2017)—Gratitude *	Australia, Germany	63.00	40.63 (13.53)	RCT	W	WL	No	SHS
Neumeier et al. (2017)—PERMA *	Australia, Germany	72.00	41.67 (12.57)	RCT	W	WL	No	SHS
Peláez Zuberbuhler et al. (2020b)	Spain	70.00	36.00	non-RCT	W	PC	No	HERO; UWES-9
Peláez Zuberbuhler et al. (2020a)	Spain	15.00	45.00 (9.30)	non-RCT	W	PC	No	HERO; UWES-9
Schwarz et al. (2023)—Both (Study 1)	Germany	65.67	35.00	RCT	W	AC	Yes	PANAS
Schwarz et al. (2023)—Strongest (Study 1)	Germany	65.67	35.00	RCT	W	AC	Yes	AoL
Schwarz et al. (2023)—Weakness (Study 1)	Germany	65.67	35.00	RCT	W	AC	Yes	SWLS
Schwarz et al. (2023)—Work Training (Study 2)	Germany	50.00	50.00	non-RCT	W	WL	No	AoL; FS
Sexton and Adair (2024)	EEUU	88.80	47.80 (18.50)	RCT	W	WL	No	EE-ER-R; WLI
Shaghghi et al. (2020)	Iran	100.00	28.80 (9.94)	RCT	NW	PC	No	QPCQ; OHQ; SPWB
Tonkin et al. (2018)	New Zealand	85.00	42.00 (11.40)	RCT	W	PC	No	BFSS; CD-RISC/EmpRes
Tyne et al. (2024)	England	63.00	38.70 (8.90)	non-RCT	W	NC	No	UWES-9; IWPQ
Van Erp et al. (2018)	Netherlands	24.70	42.22 (7.35)	RCT	W	AC	No	OE7; WLI
Virtanen et al. (2019)	Finland	85.00	44.75 (9.00)	non-RCT	W	PC	Yes	K10; PANAS

Table 2. *Cont.*

Study	Country	% Female	Mean Age (SD)	Quality	Culture	Control Group	Follow-Up	Outcomes Included
Williams et al. (2016)	Australia	24.00	-	non-RCT	W	PC	No	PCQ; OVS; UWES-9
Yuliatun and Karyani (2022)	Indonesia	53.00	40.00	RCT	NW	PC	No	SPWB

Note. * = Different IPPs from the same study Harty et al. (2016). EEUU = United States; SD = Standard deviation; RCT = Randomized Controlled Trial; non-RCT = Non-Randomized; W = Western (Europe, North America, Australia); NW = Non-Western (Asia, Africa, Latin America); NC = No Control; PC = Passive Control (no intervention); AC = Active Control (alternative intervention); WL = Waiting List; AHI = Authentic Happiness Inventory; OSES = Occupational Self-Efficacy Scale; PANAS = Positive and Negative Affect Schedule; RS = Resilience Scale; IRB = In-Role Behavior Work Performance Scale; WPP = Workplace PERMA Profiler; UWES-9 = Utrecht Work Engagement Scale; HERO = HEalthy and Resilient Organization; SPWB = Scales of Psychological Well-Being; PCQ = PsyCap Questionnaire; JC-TP-IP = Productivity scales combined; GSS = General Self-Efficacy Scale; JSS = Job Satisfaction Scale; LOT-R = Life Orientation Test—Revised; GSE = General Self-Efficacy Scale; WFE = Work-Family Enrichment; WP = Work Performance; SHS = Subjective Happiness Scale; SWLS = Satisfaction with Life Scale; AoL = Art of Living; FS = Flourishing Scale; EE-ER-R = Emotional state scales combined; WLI = Work Life Integration; QPCQ = Quality of Prenatal Care Questionnaire; OHQ = Oxford Happiness Questionnaire; BFSS = Brief Fatigue Syndrome Scale; CD-RISC/EmpRes = Connor–Davidson Resilience Scale/Employee Resilience; IWPQ = Individual Work Performance Questionnaire; OE7 = Effectiveness items; K10 = Kessler/10; OVS = Organizational Virtuousness Scale.

Table 3. Intervention characteristics.

Study	Intervention	Total Duration	PPI Sessions	Delivery Mode	Component	IGLO
Bondre et al. (2025)	Character-strengths-based coaching intervention for work-stress reduction	8 weeks	≥8 sessions	In-Person	Multi	Individual
Boniwell et al. (2023)	SPARK resilience programme	4 weeks and 12 h	≥8 sessions	Remote	Multi	Individual
Bratty and Dennis (2024)—Study 1	Three strengths-based approaches, top, bottom and mixed	2 weeks and 3.5 h	<8 sessions	Remote	Single	Individual
Bratty and Dennis (2024)—Study 2	Strengths Builder program developed by Niemiec and McGrath (2019)	4 weeks	<8 sessions	Remote	Single	Individual
Calcagni et al. (2021)—MPSM	Mindfulness and Positive Stress Management (MPSM).	3 weeks and 12 h	<8 sessions	In-Person	Multi	Individual
Calcagni et al. (2021)—MSCBI	Mindfulness and Self-Compassion Intervention (MSCBI)	6 weeks and 18 h	<8 sessions	In-Person	Multi	Individual
Corbu et al. (2021)	Strengths-based micro-coaching program	6 weeks and 5 h	<8 sessions	In-Person	Multi	Individual
Guo et al. (2020)	WeChat-based 3GT-positive psychotherapy.	6 months	<8 sessions	Remote	Single	Individual
Harty et al. (2016)—Gratitude	Gratitude-based intervention	10 weeks and 5 h	<8 sessions	In-Person	Multi	Group
Harty et al. (2016)—Optimism	Optimism-based intervention	10 weeks and 5 h	<8 sessions	In-Person	Multi	Group
Heskiau and McCarthy (2020)	Work-to-family resource transfer training	9 weeks and 0.66 h	≥8 sessions	Remote	Multi	Leadership
Kimura et al. (2015)	CBT (cognitive behavioral therapy)	3 weeks and 6 h	≥8 sessions	Remote	Multi	Individual
Soares Marques et al. (2021)	HERO micro-intervention	3 h	≥8 sessions	In-Person	Multi	Individual
Neumeier et al. (2017)—Gratitude	Gratitude intervention	2 weeks and 2 h	≥8 sessions	Remote	Single	Individual
Neumeier et al. (2017)—PERMA	PERMA online wellbeing program	2 weeks and 2 h	≥8 sessions	Remote	Multi	Individual

Table 3. Cont.

Study	Intervention	Total Duration	PPI Sessions	Delivery Mode	Component	IGLO
Peláez Zuberbuhler et al. (2020b)	Strengths-based micro-coaching	6 weeks and 5 h	<8 sessions	In-Person	Multi	Individual
Peláez Zuberbuhler et al. (2020a)	Coaching-based leadership intervention	3 months	≥8 sessions	In-Person	Multi	Leadership
Schwarz et al. (2023)—Both (Study 1)	Values and meaning of life art of living training (strengths and weakness)	2 weeks	<8 sessions	Remote	Multi	Individual
Schwarz et al. (2023)—Strongest (Study 1)	Mindfulness and self-regulation art (strongest)	2 weeks	<8 sessions	Remote	Multi	Individual
Schwarz et al. (2023)—Weakness (Study 1)	Emotional intelligence and positive relationships. Art of living training (weakness)	2 weeks	<8 sessions	Remote	Multi	Individual
Schwarz et al. (2023)—Work Training (Study 2)	Comprehensive and adaptation to work context Art of living at work training	2 weeks and 8 h	<8 sessions	In-Person	Multi	Individual
Sexton and Adair (2024)	Well-Being Essentials for Learning LifeBalance [WELL-B] intervention	5 h	<8 sessions	Remote	Multi	Individual
Shaghaghi et al. (2020)	Training based on PERMA model	8 weeks and 16 h	≥8 sessions	In-Person	Multi	Individual
Tonkin et al. (2018)	5 ways Wellbeing Game	1 months	≥8 sessions	Remote	Multi	Individual
Tyne et al. (2024)	Outdoor adventure	2 days and 8 h	≥8 sessions	In-Person	Multi	Organizational
Van Erp et al. (2018)	Bystander-conflict training intervention	1.5 weeks and 68 h	≥8 sessions	In-Person	Multi	Leadership
Virtanen et al. (2019)	DRAMMA Recovery daily training	5 weeks	≥8 sessions	Remote	Multi	Individual
Williams et al. (2016)	Psycap training	3 days	<8 sessions	In-Person	Multi	Individual
Yuliatun and Karyani (2022)	Islamic-based positive psychology training of D. K. Hapsari et al. (2021)	7 days	<8 sessions	In-Person	Multi	Individual

3.2. Between- and Within-Group Comparisons

After merging scales that assessed the same construct within the same study and grouping together two interventions that were methodologically identical, the final dataset included 30 distinct PPIs, allowing for a maximum of 30 effect size comparisons per outcome variable ($k = 30$). These yielded a total of 46 between-group comparisons (different effect sizes) and 51 within-group comparisons across the three outcome variables (PWB, SWB, and performance). The higher number of within-group comparisons is due to the exclusion of three studies from the between-group analysis: [Tyne et al. \(2024\)](#), which was retained despite the absence of a control group due to its organizational-level focus; and [Williams et al. \(2016\)](#) and [Yuliatun and Karyani \(2022\)](#), which lacked sufficient data on the control group to allow for valid comparisons. Between-group effect sizes were computed using standardized mean differences for independent groups, corrected for small sample bias ([Hedges and Olkin 1985](#)), as in [Bolier et al. \(2013\)](#), an approach supported by the fact that all studies with a control group reported adequate baseline comparability. For within-group comparisons, standardized mean change scores were calculated and similarly adjusted to produce Hedges' g values for repeated measures ([Morris and DeShon 2002](#)). As shown in Table 4, effect sizes from both approaches are reported separately by outcome. Within-group effects ranged from 0.38 to 0.39, while between-group effects ranged from 0.42 to 0.50, confirming that all observed effects were clearly significant. All analyses were

performed using a random-effects model. The subsequent results sections, which address the research questions, are based primarily on between-group comparisons, following the standard practice in most meta-analytic studies.

Table 4. Between- and within-group effects at post-intervention.

Outcome Measure	<i>k</i>	Hedge's <i>g</i>	95% CI	<i>Z</i>
Between-group effects post-intervention				
Performance	12	0.42	[0.21, 0.62]	3.98 **
Subjective well-being	16	0.50	[0.18; 0.81]	3.11 **
Psychological well-being	18	0.46	[0.15; 0.78]	2.89 **
Within-group effects post-intervention				
Performance	14	0.38	[0.25; 0.50]	6.03 **
Subjective well-being	18	0.39	[0.19; 0.59]	3.87 **
Psychological well-being	19	0.38	[0.24, 0.51]	5.39 **

Note. Values are Hedges' *g* for each group with corresponding 95% confidence intervals. *k* = number of effect sizes; CI = confidence interval; *Z* = test statistics for whether the mean effect size differs from zero; ** $p < 0.01$.

3.3. Effectiveness of PPIs on Subjective and Psychological Well-Being

To address the research question, "What is the impact of PPIs on subjective and psychological well-being of employees?", this meta-analysis pooled results from 12 studies—16 PPIs comparisons—assessing subjective well-being (SWB) and 16 studies—18 PPIs comparisons—assessing psychological well-being (PWB) in workers, as shown in Figures 2 and 3 (forest plot of each study's effect and the combined outcome). Overall, PPIs had a significant positive impact on both types of well-being. The pooled Hedges' *g* for SWB was 0.50 (95% CI: 0.18 to 0.81, $p = 0.002$), indicating a moderate improvement. Heterogeneity was high ($I^2 = 91\%$, $\tau^2 = 0.346$, $Q = 97.10$, $p < 0.001$; Figure 2). The pooled Hedges' *g* for PWB was 0.46 (95% CI: 0.15 to 0.78, $p = 0.004$), also indicating a moderate improvement, with similarly high heterogeneity ($I^2 = 91\%$, $\tau^2 = 0.395$, $Q = 91.13$, $p < 0.001$). Given the high heterogeneity, we investigated potential outliers. Shaghghi et al. (2020), the smallest study with an anomalously large effect size and high influence (studentized residual > 2.9), was identified as an outlier. Removing this outlier reduced the pooled effect sizes to 0.37 for SWB and 0.32 for PWB, with corresponding reductions in heterogeneity ($I^2 \approx 75\%$ for SWB and 72% for PWB). Even after these adjustments, effects remained statistically significant. We retained the outlier in the primary analyses due to insufficient quality concerns for exclusion (Shaghghi scores showed fair quality).

Publication bias analyses yielded mixed findings. For SWB, there were no signs of bias: Rosenthal's fail-safe *N* was 422 ($p < 0.001$) (Rosenthal 1979), and neither Begg and Mazumdar's test ($p = 0.350$) (Begg and Mazumdar 1994) nor Egger's regression ($p = 0.062$) (Egger et al. 1997) indicated funnel plot asymmetry; the trim-and-fill procedure (Duval and Tweedie 2000) did not impute any studies. However, for PWB, results suggested potential bias: Begg and Mazumdar's test ($p = 0.039$) and Egger's regression ($p = 0.004$) were significant, despite a substantial fail-safe *N* (360, $p < 0.001$) and no imputed studies. These findings warrant caution in interpreting the PWB effects, although the overall pattern still supports a positive impact of PPIs.

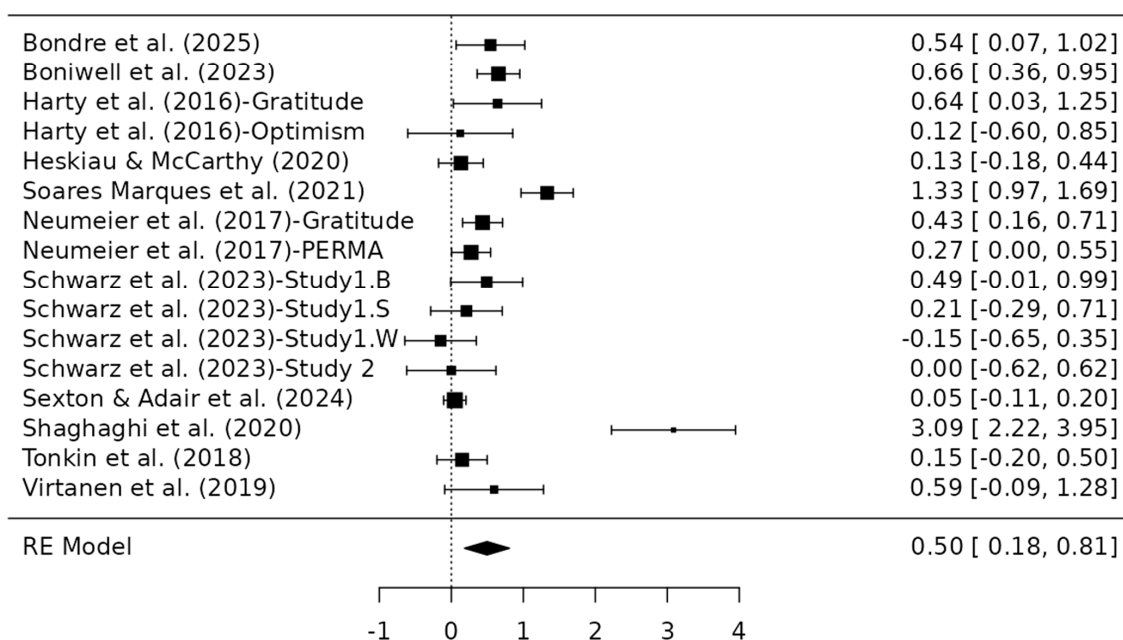


Figure 2. Forest plot of between-group effects of the subjective well-being of the included positive psychology interventions. **Note.** The forest plot includes studies conducted by: Bondre et al. (2025); Boniwell et al. (2023); Harty et al. (2016)—Gratitude, Optimism; Heskiau and McCarthy (2020); Soares Marques et al. (2021); Neumeier et al. (2017)—Gratitude, PERMA; Schwarz et al. (2023)—Study 1 (Both, Strongest, Weakness), Study 2; Sexton and Adair (2024); Shaghaghi et al. (2020); Tonkin et al. (2018); and Virtanen et al. (2019). Multiple entries from the same study reflect different interventions applied to different samples and were treated as separate comparisons.

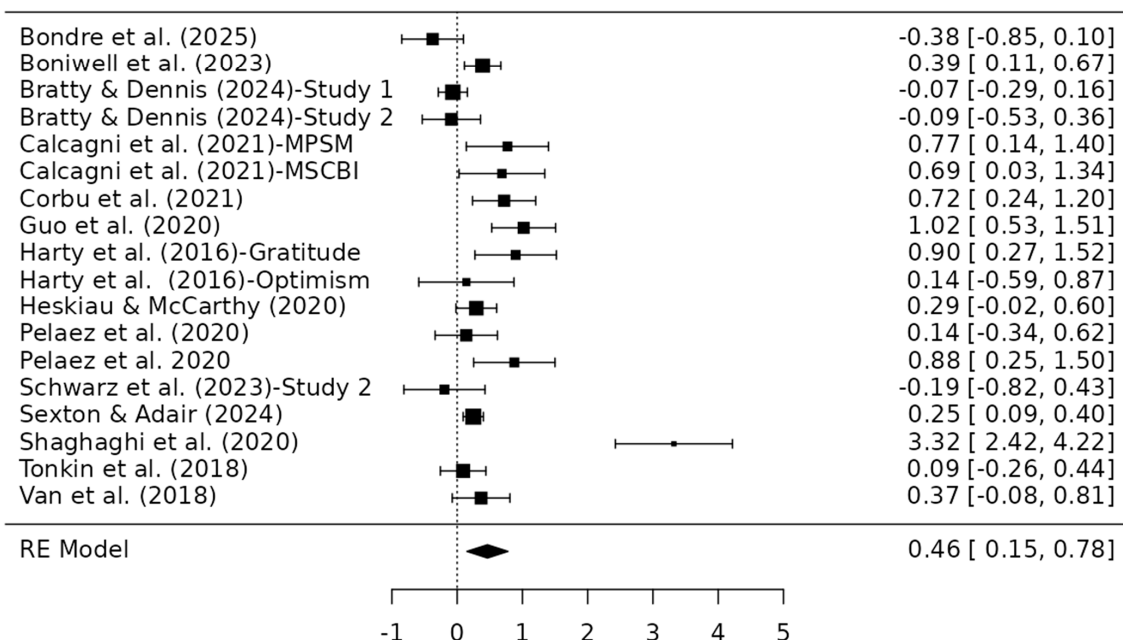


Figure 3. Forest plot of between-group effects of psychological well-being of the included positive psychology interventions. **Note.** The forest plot includes studies conducted by: Bondre et al. (2025); Boniwell et al. (2023); Bratty and Dennis (2024)—Study 1, Study 2; Calcagni et al. (2021)—MPSM, MSCBI; Corbu et al. (2021); Guo et al. (2020); Harty et al. (2016)—Gratitude, Optimism; Heskiau and McCarthy (2020); Peláez Zuberbuhler et al. (2020b, 2020a)—second sample; Schwarz et al. (2023)—Study 2; Sexton and Adair (2024); Shaghaghi et al. (2020); Tonkin et al. (2018); and Van Erp et al. (2018). Multiple entries from the same study reflect different interventions applied to different samples and were treated as separate comparisons.

3.4. Effectiveness of PPIs on Performance

This meta-analysis also examined whether PPIs improve employees' self-reported performance. The results indicated a significant positive effect. A random-effects model synthesizing $k = 11$ studies—12 PPIs comparisons—found an average Hedges' g of 0.419 (95% CI [0.213, 0.624], $p < 0.001$) in favor of PPI conditions. In practical terms, employees who participated in PPIs had performance levels about 0.42 standard deviations higher than those in control groups. As illustrated by the forest plot (Figure 4), all included studies reported positive effects (individual g 's ranging from ~ 0.02 to 1.42), though the magnitude of improvement varied considerably. There was evidence of moderate between-study heterogeneity ($Q(11) = 24.80$, $p = 0.010$; $I^2 = 58.5\%$; $\tau^2 = 0.073$), suggesting that the true effect of PPIs on performance differed somewhat across studies. Indeed, the 95% prediction interval ranged from -0.15 to 0.99 , indicating that while the average effect is positive, in some settings the true effect could be negligible or even slightly negative. An outlier analysis identified one study (Guo et al. 2020) with an unusually large effect size ($g \approx 1.42$) that was highly influential, likely contributing to the observed heterogeneity. Excluding this outlier in a sensitivity analysis left the overall effect still positive and significant, albeit slightly smaller. The revised meta-analysis of $k = 11$ studies yielded a mean Hedges' g of 0.331 (95% CI [0.200, 0.462], $p < 0.001$), confirming a meaningful beneficial impact of PPIs on performance. Notably, between-study inconsistency dropped to essentially zero without the outlier ($Q(10) = 8.58$, $p = 0.573$; $I^2 = 0\%$; $\tau^2 \approx 0$), indicating a highly consistent effect across the remaining studies. This suggests that heterogeneity in the full sample was driven largely by that single extreme study, and the true effect of PPIs on performance is relatively uniform when that influence is removed. Publication bias analyses for performance outcomes revealed no concerning asymmetry. Rosenthal's fail-safe N (Rosenthal 1979) was 84 ($p < 0.001$), implying 84 additional "file drawer" studies with null results would be required to nullify the effect. Neither Begg and Mazumdar's rank correlation (Begg and Mazumdar 1994) (Kendall's $\tau = -0.018$, $p = 1.000$) nor Egger's regression intercept (Egger et al. 1997) ($B = 0.214$, $p = 0.830$) indicated significant funnel plot asymmetry, and Duval and Tweedie's trim-and-fill procedure (Duval and Tweedie 2000) did not impute any studies. Together, these results indicate a robust positive effect of PPIs on employees' performance, with minimal evidence of publication bias.

3.5. Effectiveness of PPI on Moderating Variables

To address the question, "What variables moderate the effects of PPIs on subjective well-being (SWB), psychological well-being (PWB), and performance in working populations?", we conducted moderator analyses, the statistically significant results of which are summarized in Table 5. Regarding SWB outcomes, which showed substantial heterogeneity ($I^2 \approx 88\%$), significant moderation was observed for both delivery format and cultural context. In-person interventions produced significantly larger improvements in SWB ($g = 1.52$, 95% CI [0.51, 2.53]) than remote interventions ($g \approx 0.90$, 95% CI [-0.26 , 2.06]), as shown by $Q(1) \approx 4.37$, $p = 0.036$. To complement this analysis, separate meta-analyses were conducted for each format condition. The subgroup of in-person interventions ($k = 6$) yielded a mean effect size of $g = 0.93$, 95% CI [0.06, 1.80], with high heterogeneity ($I^2 = 92.9\%$). The remote subgroup ($k = 10$) showed a smaller but still significant effect, $g = 0.27$, 95% CI [0.11, 0.42], with moderate heterogeneity ($I^2 = 53.7\%$). Cultural context also emerged as a significant moderator, with interventions conducted in Western samples showing a positive effect ($g = 0.36$, 95% CI [-0.97 , 1.68]), while non-Western samples yielded a negative and nonsignificant effect ($g = -0.87$, 95% CI [-1.87 , 0.13]), $Q(1) \approx 7.62$, $p = 0.006$. However, Q (within) and I^2 could not be computed for the non-Western group due to the limited number of studies ($k < 3$). Notably, even after accounting for these moderators, consider-

able residual heterogeneity remained for SWB effects ($I^2 \approx 88\%$). None of the remaining moderators reached statistical significance. Notably, the most novel moderator—IGLO level—did not yield significant effects; nor did gender. Both showed p -values above 0.60 across all comparisons, including contrasts between individual-level interventions and other IGLO levels.

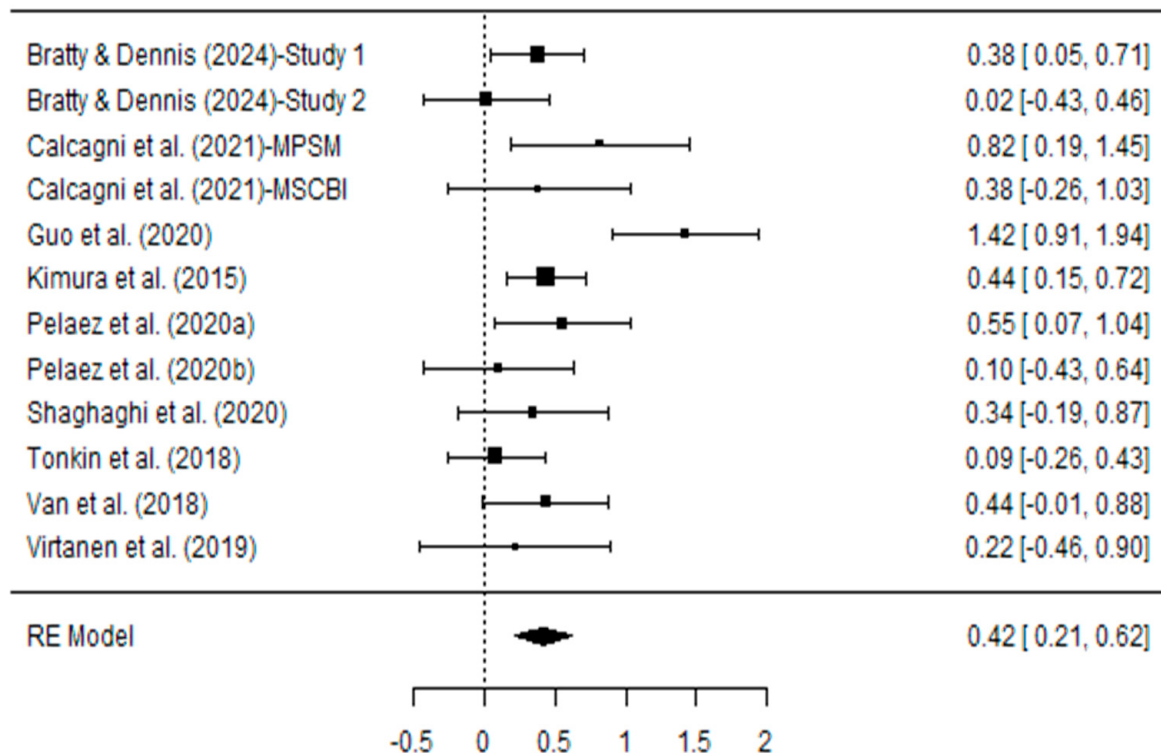


Figure 4. Forest plot of between-group effects on outcomes of performance of the included positive psychology interventions. **Note.** The forest plot includes studies conducted by: Bratty and Dennis (2024)-Study 1, Bratty and Dennis (2024)-Study 2; Calcagni et al. (2021)-MPSM, MSCBI; Guo et al. (2020); Kimura et al. (2015); Peláez Zuberbuhler et al. (2020b, 2020a); Shaghaghi et al. (2020); Tonkin et al. (2018); Van Erp et al. (2018); and Virtanen et al. (2019). Multiple entries from the same study reflect different interventions and participant samples, and were therefore treated as independent comparisons in the meta-analysis.

Table 5. Significant moderators of PPI effects on well-being and performance outcomes.

Outcome	Moderator	Group	k	g	95% CI	Q (Within)	I ²
Subjective Well-being	Culture	Western	14	0.36	[−0.97, 1.68]	35.76 **	88%
		Non-Western	2	−0.87	[−1.87, 0.13]	-	-
Subjective Well-being	Format	In-person	6	1.52	[0.51, 2.53]	45.4 **	93%
		Remote	10	0.90	[−0.26, 2.06]	20.3 **	54%

Note. Values are Hedges' g for each subgroup with corresponding 95% confidence intervals. k = number of effect sizes. Q = Cochran's Q statistic for within-subgroup heterogeneity; CI = confidence interval; I^2 = percentage of heterogeneity within subgroups. Asterisks indicate significance of Q . ** $p < 0.01$ Q (within) and I^2 reflect separate subgroup meta-analyses; values are not available for the non-Western group ($k < 3$).

3.6. Effectiveness of PPIs Follow-Up

To address the question, “Do the effects of PPIs persist over time?”, we examined follow-up effect sizes for each outcome (see Table 6). For each outcome (subjective well-being [SWB], psychological well-being [PWB], and performance), three types of comparisons were considered: (a) baseline vs. follow-up within the experimental group, (b) post-test vs. follow-up within the experimental group, and (c) experimental vs. control group at

follow-up. In comparison (a), significant improvements were observed from baseline to follow-up in PWB ($g = 0.37$, $p = 0.013$) and performance ($g = 0.50$, $p = 0.003$), while SWB showed an increase that did not reach statistical significance ($g = 0.42$, $p = 0.073$). In comparison (b), none of the post-test to follow-up changes were statistically significant, indicating that the gains observed at post-test were generally maintained at follow-up. In comparison (c), all between-group effects at follow-up were significant: SWB ($g = 0.43$, $p = 0.028$), PWB ($g = 0.51$, $p = 0.050$), and performance ($g = 0.43$, $p = 0.005$)—these between-group follow-up effects were comparable to or larger than the gains from baseline to follow-up. The heterogeneity of effect sizes varied across comparisons (I^2 range = 0–91%), yet the favorable effects for the experimental group remained consistent despite this variability.

Table 6. Between- and within-group effects at follow-up.

Outcome	Comparison Type	k	Hedges' g	95% CI	p	I ²
Subjective well-being	Baseline vs. Follow-up (Experimental)	9	0.42	[−0.04, 0.88]	0.073	91%
	Post-test vs. Follow-up (Experimental)	9	0.04	[−0.08, 0.17]	0.505	0%
	Experimental vs. Control (Follow-up)	9	0.43 *	[0.05, 0.80]	0.028	84%
Psychological well-being	Baseline vs. Follow-up (Experimental)	8	0.37 *	[0.08, 0.67]	0.013	73%
	Post-test vs. Follow-up (Experimental)	8	0.02	[−0.12, 0.16]	0.791	0%
	Experimental vs. Control (Follow-up)	5	0.51 *	[0.00, 1.02]	0.050	77%
Performance	Baseline vs. Follow-up (Experimental)	5	0.50 **	[0.16, 0.83]	0.003	71%
	Post-test vs. Follow-up (Experimental)	5	0.02	[−0.14, 0.18]	0.807	7%
	Experimental vs. Control (Follow-up)	3	0.43 **	[0.13, 0.73]	0.005	0%

Note. Values are Hedges' g for each group with corresponding 95% confidence intervals. k = number of effect sizes. CI = confidence interval; I^2 = percentage of heterogeneity. * $p < 0.05$, ** $p < 0.01$.

4. Discussion

This meta-analysis was conducted to address four major gaps previously identified in the literature on Positive Psychological Interventions (PPIs) in occupational settings. Specifically, it aimed to (1) assess the effects of PPIs on psychological versus subjective well-being in the workplace; (2) determine their impact on performance; (3) examine the role of understudied moderating variables; and (4) evaluate whether the effects of PPIs persist over time. The following discussion is organized around these four guiding research questions, which collectively reflect the central objectives of the present review.

What is the impact of PPIs on subjective and psychological well-being in employees? The current meta-analysis identified moderate improvements in well-being (Hedges' $g = 0.5$ for SWB; $g = 0.46$ for PWB), which were similar in magnitude to those reported in earlier meta-analyses. A large number of studies have explored the effect of PPIs on overall well-being (e.g., [Carr et al. 2020](#)), with significant effects extending beyond the work environment. This study confirms that these significant effects also apply within workplace contexts, in line with pioneering work such as that of [Donaldson et al. \(2019\)](#), who reported a combined

well-being effect of $g = 0.30$. However, Donaldson's measure combines subjective and psychological aspects of well-being.

In the present meta-analysis, the estimates are provided separately, allowing for more accurate comparisons. The benefit for SWB identified here is higher than that in most earlier reviews (for instance, [Sin and Lyubomirsky 2009](#), reported $r \approx 0.29$; [Bolier et al. 2013](#), $r \approx 0.17$; [White 2016](#), $r \approx 0.10$; [Koydemir et al. 2021](#), $d = 0.22$), positioning the current effect for SWB in the higher range of observed outcomes. This SWB effect is, however, consistent with recent estimates in the literature (e.g., [Hendriks et al. 2020](#), $g = 0.34$; [Carr et al. 2020](#), $g \approx 0.39$). For PWB, the effect observed in this analysis exceeds those reported in earlier meta-analyses that examined it separately (e.g., [Bolier et al. 2013](#), $r \approx 0.10$; [Carolan et al. 2017](#), $d = 0.25$; [Koydemir et al. 2021](#), $d = 0.08$). This value is consistent with the highest estimates in the literature, including [Carr et al. \(2020\)](#) ($g \approx 0.46$) and [Hendriks et al. \(2020\)](#) ($g = 0.39$). Importantly, this meta-analysis represents the first known effort to examine the effects of PPIs on both psychological and subjective well-being as distinct outcomes within workplace settings.

What is the impact of PPIs on performance? This meta-analysis yielded an overall Hedges' g of around 0.42, reflecting an overall improvement in self-reported performance. Importantly, comparatively few workplace studies examined the performance outcomes of PPIs. [Donaldson et al. \(2019\)](#) is the sole previous meta-analysis focusing specifically on PPIs within the workplace context; it distinguished between self-reported "effective performance" outcomes ($k = 9$) and "negative performance" outcomes ($k = 3$) and reported no significant improvements within either subset ($g \approx 0.25$ and $g \approx -0.34$, respectively). By contrast, [Carolan et al. \(2017\)](#) described a small but significant enhancement in work effectiveness ($g = 0.25$) within an occupation-wide review of workplace digital mental health interventions (not restricted to PPIs). These differences may be due to how "performance" was defined. The current meta-analysis focused on self-reported, subjective performance indicators—such as perceived contribution to one's work, in-role performance, interpersonal functioning, energy at work, and organizational virtues.

Performance metrics were highly varied between studies and were probably an important contributor to the observed heterogeneity. [Donaldson et al. \(2019\)](#) categories of self-reported performance included both positive and negative dimensions of functioning at the workplace—ranging from in-role and adaptive performance to counterproductive effects such as incivility or intentions to leave. By contrast, [Carolan et al. \(2017\)](#) broader "work effectiveness" construct included not just engagement, efficacy, and reduced rumination, but also dimensions more closely aligned with psychological well-being than with strictly "pure" performance.

Therefore, Carolan's work effectiveness measure conceptually overlaps with Donaldson's "desirable and undesirable work outcomes" ($g = 0.25$; $g = -0.34$) rather than measuring strictly task-specific performance indicators. Yet, there is emerging evidence that targeted interventions can improve specific dimensions of "pure" performance. For example, [Oprea et al.'s \(2019\)](#) job crafting intervention produced substantial improvements in contextual (extra-role) performance (Hedges' $g \approx 0.39$), although gains in core task performance were limited to certain subpopulations (e.g., healthcare workers). Overall, these results demonstrate the potential of PPIs to enhance perceived performance and indicate the need for further research to clarify and consolidate the performance construct within workplace-based PPI studies.

What variables moderate the effects of PPIs on psychological well-being, subjective well-being and performance in working populations? The current meta-analysis identified delivery format and cultural setting as significant moderators only for subjective well-being (SWB). Face-to-face PPIs produced greater improvements in SWB than remote interventions,

and interventions conducted in Western samples showed larger effects. However, this finding is not consistent with the results reported by [Koydemir et al. \(2021\)](#), although no firm conclusions can be drawn given that only 2 of the 14 SWB comparisons in our dataset were conducted in non-Western populations. [Carr et al.'s \(2023\)](#) mega-analysis found considerably stronger effects for face-to-face PPIs in promoting strengths, but these effects were not significant for well-being outcomes. It is notable that, in our analysis, delivery format was the weakest statistically significant moderator ($p = 0.036$). The apparently large effect size for face-to-face interventions ($g = 1.52$, 95% CI [0.51, 2.53]) compared to remote interventions ($g \approx 0.90$, 95% CI [−0.26, 2.06]) illustrates a typical challenge in meta-analytic research: confidence intervals may be inflated due to the disproportionate influence of a few small-sample studies. To examine this issue, we conducted separate subgroup analyses. The in-person subgroup ($k = 6$) yielded a smaller but still significant effect ($g = 0.93$, 95% CI [0.06, 1.80], $I^2 = 92.9\%$), while the remote subgroup ($k = 10$) produced a moderate and more consistent effect ($g = 0.27$, 95% CI [0.11, 0.42], $I^2 = 53.7\%$).

For psychological well-being (PWB) and performance outcomes, none of the moderators examined—including intervention duration, structure, participant age, gender, or control condition—reached statistical significance, in line with the findings reported by [Carr et al. \(2023\)](#). The only exception in their mega-analysis was that comparisons involving alternative intervention controls (as opposed to waitlist or no-treatment groups) yielded slightly attenuated effects; however, this trend could not be meaningfully examined in our analysis due to the limited number of studies using active controls. Moreover, intervention level (IGLO framework) was not a significant moderator, consistent with the findings from [Nielsen et al.'s \(2017\)](#) meta-analysis of workplace resources. While Nielsen et al. reported that only 26% of located resources operated at the individual level, 83% of PPIs in our sample were implemented at that level. All included meta-analyses had already accounted for intervention level (individual vs. higher). Similarly, [Donaldson et al. \(2019\)](#), who compared individual- and group-level interventions (using a broader definition of “group”), found no significant differences in effectiveness based on intervention level.

Do the effects of PPIs persist over time? Robust improvements in all three outcome areas—subjective well-being (SWB), psychological well-being (PWB), and self-reported performance—were found to persist in PPI groups as opposed to control groups in follow-up assessments. Between-group comparisons at follow-up yielded effect sizes of about $g = 0.43$ for SWB, $g = 0.51$ for PWB, and $g = 0.43$ for performance in favor of the PPI condition. Within-group comparisons (follow-up vs. baseline for the same participants) revealed a significant improvement in PWB ($g = 0.37$), performance ($g = 0.50$), as well as a positive trend for SWB ($g = 0.42$, $p = 0.073$), from baseline to follow-up. In contrast to the between-group effects, however, long-term within-group effects of PPIs have rarely been tested in the broader literature. One of the few examples is [Pan et al. \(2022\)](#), who found improved mental health follow-up vs. baseline (within-group effects), a result parallel to the current meta-analysis. Turning to between-group evidence, a recent mega-analysis by [Carr et al. \(2023\)](#) found small to moderate improvements in overall well-being following PPI immediately after administration and, importantly, these were partially sustained at an approximately 7-month follow-up, even in predominantly patient-oriented samples for symptom reduction. Regarding specific results for SWB, [Koydemir et al. \(2021\)](#) reported a moderate and significant follow-up benefit for SWB (between-group $d = 0.66$, $p < 0.01$; $k = 10$). Conversely, [Hendriks et al. \(2020\)](#) reported a smaller but still significant follow-up impact for SWB (Hedges' $g \approx 0.27$, $p < 0.01$; $k = 17$), which, even after the elimination of some outlier studies, was still significant (adjusted $g \approx 0.24$, $p < 0.05$). For PWB, [Hendriks et al. \(2020\)](#) found a small significant follow-up effect ($g \approx 0.32$, $p < 0.05$; $k = 5$), but [Koydemir et al. \(2021\)](#) found no significant follow-up effect for PWB ($p = 0.32$; $k = 7$).

Except for this discrepancy (plausibly due to the few studies and high heterogeneity), these results are in line with the current meta-analysis. Overall, the evidence establishes that the benefits of PPIs do persist after the end of the intervention phase but are of relatively small magnitude. Further, although the empirical data on long-term performance outcomes are relatively few (Donaldson et al. 2019), the results here demonstrate that the performance-based improvement also lasts. Follow-up performance effect sizes in our data (approximately $g = 0.43$ between groups; $g = 0.50$ within-group) were similar to those found for well-being. Such parallel improvements in well-being and performance favor a view of “optimal functioning” (Tay et al. 2023), which holds that improving individuals’ well-being will also enable better performance and overall thriving.

Limitations

In interpreting these results, certain limitations should be considered. The included studies were extremely heterogeneous in their design (from rigorous RCTs to quasi-experimental designs and even to pre-post designs without control groups), participants, and contextual factors, which generated large between-study variation in our analyses. In some cases, effect sizes had to be inferred from within-group changes when control-group data were unavailable, which could have overstated some of the estimates. Second, outcomes were mostly measured through the use of self-report measures, which introduces the possibility of response bias. This issue is particularly relevant for performance outcomes, since the lack of objective measures prevents comparability across different kinds of interventions and different occupationally defined populations. Future meta-analytic work might attempt to combine different kinds of objective indicators of performance to generate a more common estimate of their impacts. Third, since the evidence base mainly consists of working adult populations in specific cultural and organizational circumstances, the external validity of these results for other populations or settings is limited. Moreover, future studies are particularly needed at the group, leader, and organizational levels of the IGLO model since dominant evidence remains disproportionately individual-level interventions-based. The generalization of these results beyond individual-focused interventions and contributions to sustained organizational improvement from a positive psychology approach might be elucidated through extending the base of evidence to higher-level interventions.

5. Conclusions

This meta-analysis provides solid evidence that Positive Psychological Interventions (PPIs) can improve both employee well-being and workplace performance. Across a range of organizational settings, PPIs produced statistically significant gains in both subjective and psychological well-being, along with small-to-moderate improvements in self-reported performance. Importantly, these benefits appear to persist over time. Although follow-up data remain limited, the available findings suggest that effects are generally maintained, pointing to a degree of sustainability. The contrast between SWB and PWB accompanies practice implications of a special kind. SWB measures the emotional and the hedonic aspects of well-being—positive feeling and life satisfaction—whereas PWB measures deeper aspects of meaning, personal progression, and self-realization. It is possible that different PPIs will work differently in these areas: for instance, interventions that are gratitude-oriented might elevate the level of SWB, but work-oriented interventions that are meaningful might be more effective in enhancing PWB. This can help practitioners make interventions that are better suited to the outcome they want to produce. The format of the intervention also turned out to be a significant factor: in-person programs generated better results than programs that were carried out through remote interventions. In addition, the strength of

certain conclusions may be limited by data availability—for example, the predominance of individual-level interventions restricts meaningful comparisons across the IGLO framework, and the lack of aggregated data by gender limits conclusions about gender-specific impacts. Overall, these findings not only support the value of PPIs in enhancing well-being and job performance, but also suggest a paradigm shift in workplace mental health strategies. Unlike traditional approaches focused primarily on reducing distress, PPIs emphasize building personal capacities, fostering resilience, and creating healthier, more sustainable organizational environments. This proactive, growth-oriented lens marks a step forward in promoting flourishing rather than merely preventing harm, and positions PPIs as a promising tool for addressing stress and burnout in modern workplaces.

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