

Relationship between psychological capital and nursing burnout: A systematic review and meta-analysis

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Abstract

Aim: This systematic review and meta-analysis aimed to analyze studies that examined the relationship between psychological capital and burnout in registered nurses.

Background and introduction: Registered nurses are subject to high rates of burnout, with negative consequences on health, well-being, and quality of care. Psychological capital could be an important element in preventing or reducing this condition.

Methods: This research is based on the Joanna Briggs Institute Guidelines and Preferred Reporting Items for systematic reviews and meta-analysis. A total of 180 studies on psychological capital and burnout were retrieved from Web of Science, Scopus, PubMed, Medline, and PsycINFO. The articles were written in English, Spanish, French, and Portuguese. Then, 23 studies were included in several meta-analyses (random-effects models) performed with the R statistical program.

Results: Analysis of the 23 studies revealed that psychological capital and burnout are significantly correlated. The Psychological Capital Questionnaire (PCQ) and the Maslach Burnout Inventory (MBI) were the most used scales to measure psychological capital and burnout, respectively. The meta-analyses showed an inverse correlation between psychological capital and burnout ($r = -0.44$, 95% CI $[-0.51, -0.36]$, $n = 6092$), and emotional exhaustion ($r = -0.32$, 95% CI $[-0.42, -0.21]$, $n = 3349$).

Conclusion: This review provides evidence of the negative relationship between psychological capital and burnout in registered nurses. Therefore, enhancing psychological capital is an effective strategy to prevent and reduce burnout in nurses.

Implications for nursing and health policy: Psychological capital is a personal resource open to development over time and susceptible to interventions aimed at promoting optimism, efficacy, hope, and resilience. In that sense, training aimed at improving psychological capital, as a protective mechanism to prevent and reduce burnout and emotional exhaustion, should be considered together with organizational measures to promote nurses' health and well-being.

KEYWORDS

Burnout, meta-analysis, nurses, psychological capital, systematic review

INTRODUCTION

Registered nurses (RNs) are one of the pillars of health-care systems and are considered essential elements for the

functioning of social and healthcare organizations (e.g., hospitals and primary care centers), especially because of their role in the quality of care and patient/user care (Sassen, 2023). Despite its importance in the healthcare context, the

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characteristics of nursing work (e.g., frequent interactions with patients and families, exposure to illness and death) and the high psychosocial demands in the workplace (e.g., excessive workload, time pressure, and high emotional demands) make this professionals group one of the most vulnerable to experiencing burnout (Castillo-González et al., 2024; Sassen, 2023). For example, the meta-analysis carried out by Ge et al. (2023), which included 94 studies reporting the prevalence of nursing burnout, showed that this syndrome has tended to increase gradually over the last 10 years, highlighting that more attention is urgently needed to the prevalence of burnout in nursing.

Burnout is defined as a psychological syndrome that involves a prolonged response to chronic interpersonal stressors at work (Maslach, 2009; Maslach & Jackson, 1986). This response presents three key dimensions: overwhelming emotional exhaustion, feelings of cynicism and detachment from the job, and a sense of ineffectiveness and lack of accomplishment. Of these three dimensions, the emotional exhaustion symptom represents the basic individual stress component of burnout (Maslach, 2009). According to the International Classification of Diseases (ICD-11), burnout is a syndrome resulting from chronic stress in the workplace that has not been successfully managed (WHO, 2019), with serious consequences for individuals' health, the performance of healthcare organizations, and healthcare systems. Several studies have shown that burnout is a predictor of cardiovascular problems, chronic pain, depression, and anxiety, among other issues (e.g., Chemali et al., 2019; Chen & Meier, 2021; Dall'Ora et al., 2020; Maslach, 2009).

Given the serious consequences and the increasing prevalence of this syndrome, great interest arises in the study of the factors that can prevent and/or mitigate burnout in nurses. According to the Job Demands-Resources Theory (Bakker & Demerouti, 2017; Bakker et al., 2023), employees' health and well-being can be compromised when they are exposed to high demands over time (i.e., job characteristics that require sustained effort and are therefore with both physiological and psychological costs) and lack of opportunities to recovery. Such a health impairment process can lead to experience chronic emotional exhaustion and burnout. However, personal resources (e.g., self-efficacy, proactivity, and optimism) are linked to improved job resources (i.e., job characteristics that have a motivational and regulating potential) and have therefore a buffering effect on the negative impact of job demands on employees' health and well-being.

In this context, psychological capital (Luthans et al., 2007) is a particularly valuable personal resource for the promotion of subjective well-being and mental health in the nursing context (Yuan et al., 2023). Indeed, data from several studies have identified the vital role of psychological capital in the prevention and management of mental health and psychosocial risks at work (Dello Mubarak et al., 2021; Russo & Stoykova, 2015).

Psychological capital arises within the positive psychology movement and is defined as a higher-order construct comprising hope, efficacy, optimism, and resilience (Luthans et al., 2007), which has attracted more and more attention from both

academics and practitioners. Efficacy refers to confidence in one's ability to successfully perform tasks. Hope refers to positive subjective appraisals of goal-related capabilities. Resilience relates to positive coping and bouncing back from adversity. Finally, optimism is defined as a mental attitude to interpret situations and events positively. Luthans et al. (2007) developed the Psychological Capital Scale (PCQ-24), which consists of 24 items distributed in the four above-mentioned dimensions.

Following the Job Demands-Resources Theory (Bakker & Demerouti, 2017), previous evidence has revealed that high levels of psychological capital mitigate the negative effects of compassion fatigue and burnout, as well as the turnover of nursing professionals (Guo et al., 2021; Xiao et al., 2022). Thus, psychological capital can be considered a personal resource that allows one to cope with negative and stressful experiences at work (i.e., job demands), becoming a key personal element in mental health and psychological well-being (Adriaenssens et al., 2015). The personal resources associated with psychological capital allow individuals to address emotionally, cognitively, and motivationally the negative affective aspects of the work environment, thus reducing perceived stress and, as a result, the probability of experiencing burnout.

Given the role of psychological capital in mental health and psychological well-being at work, it is worthwhile to consider examining the relationship between psychological capital and burnout specifically in nurses, who are particularly vulnerable to the occurrence of this syndrome. There have been several reviews on psychological capital in nursing (e.g., Flinkman et al., 2023; Yuan et al., 2023). However, to the authors' best knowledge, none of such reviews have focused specifically on synthesizing the empirical evidence on the association between psychological capital and burnout. Therefore, this review and meta-analysis tries to move forward the field by synthesizing the findings of previous studies on the relationship between psychological capital and burnout in RN. Our results may have interesting implications for healthcare policies and practices related to workforce development, retention, and well-being, including the mitigation of emotional exhaustion and burnout through interventions aimed at improving nurses' psychological capital.

METHODS

Design

A systematic review and meta-analysis was conducted according to the recommendations and guidelines of the Joanna Briggs Institute (The Joanna Briggs Institute, 2014) and Preferred Items for Systematic Review and Meta-Analysis (PRISMA) (Page et al., 2021). This review aims to synthesize the results obtained in previous studies for a better understanding of the relationship between psychological capital and burnout in RN. In addition, by using the meta-analysis method, it is possible to combine, summarize, and interpret all available evidence pertaining to inclusion and exclusion

criteria to select comparable studies for pooling (Harrer et al., 2021).

Search strategy

The study was registered in the International Prospective Register of Systematic Reviews (PROSPERO) before the start of the systematic review, with the registration number CRD42024548459. Five databases (Web of Science, Scopus, PubMed, Medline, and PsycINFO) were accessed to obtain relevant studies on the research question between January and March 2024. The search terms included “psychological capital,” “psycap,” “burnout,” and “nurs,*” using Boolean operators (AND, OR) to combine them into search equations for each database. We also searched for additional studies from references in the full-text articles retrieved.

Inclusion and exclusion criteria

We selected studies that met the following inclusion criteria: (1) articles published as full-text articles in peer-reviewed scientific journals in English, Spanish, French, and Portuguese; (2) studies that included a sample of working RN; (3) studies that measured a total score of psychological capital and burnout levels; and (4) studies that reported a total score of psychological capital and burnout. Therefore, studies reporting results from samples of nursing students or other nursing professionals, observational studies, qualitative studies, editorials, letters to the editor, systematic reviews, and meta-analyses were excluded.

Study selection

The search of the five databases resulted in a total of 180 registers. The registers were imported into the Rayyan web application (Ouzzani et al., 2016) to, subsequently, use the automatic Locate and Remove Duplicate tool, reducing the records to a total of 100. Using the same web application, two of the researchers screened the titles and abstracts of the studies, deleting a total of 70 records because the articles did not meet the inclusion criteria. In case of doubt or conflict, a third researcher participated in the final decision about the record. After obtaining the full texts of 29 articles, a second screening was carried out, which allowed the exclusion of 6 articles, resulting in a sample of 23 articles for the systematic review. Figure 1 shows the PRISMA flow diagram.

Quality of studies and risk of bias assessment

The quality analysis of the studies was carried out using the Q-SPP (Quality for Survey Studies in Psychology) instrument (Protogerou & Hagger, 2020). The Q-SPP was developed by Protegeoru and Hagger (2020) to assess the quality of

studies adopting survey designs in psychology. Because the variables psychological capital and burnout are assessed by self-report measures (e.g., questionnaires and scales) through survey research, we decided to use this specific tool to analyze this type of research.

The Q-SSP provides overall and domain-specific study quality scores. This tool consists of four criteria developed in 20 items: introduction (rationale and variables; 4 items; i.e., “Was the population under investigation defined, described, and justified?”), participants (sampling; 3 items; i.e., “Were participants inclusion criteria stated?”), data (collection, analysis, measures, discussion; 10 items; i.e., “Were the data analysis techniques justified?”), and ethics (3 items; i.e., “Were participants asked to provide (informed) consent or assent?”). This tool allows us to compute an overall study quality score expressed as a percentage by dividing Yes (Y) scores by the total (T) number of applicable items and multiplying by 100. If $Y/T < 70\%$ (or even $< 75\%$, depending on the number of applicable items), then it can be concluded that the study is of questionable quality (Protogerou & Hagger, 2020).

After the evaluation of the selected articles by the researchers, all studies were of acceptable quality (70% or more) for inclusion in the review (Protogerou & Hagger, 2020). Two of the researchers then followed a protocol and a designed form to extract data from the 23 studies. The following information was extracted from each study: authors, year, country, design, sample, aim(s), data collection, measurement scales, analysis, and main results.

Data analysis

Data analysis was performed with the R statistical program (R Core Team, 2024), using the meta and dmetar packages (Harrer et al., 2021) for the transformation of Fisher z correlations. The Pearson and Spearman coefficients reported in each study were used to calculate the effect size. In studies in which only regression coefficients (β) were reported, we followed Peterson and Brown’s recommendations (2005) for the transformation of beta coefficients into correlation coefficients according to the following formula: $r = \beta + 0.05(\lambda)$. The lambda coefficient (λ) assumes a value of 1 when beta is positive and a value of zero (0) when it is negative.

A random-effects model was used because some degree of between-study heterogeneity is to be expected given the diversity of the samples and the methodological aspects of each study (Harrer et al., 2021). The random-effect model assumes study populations vary and thus true effects differ from each other. In most cases, this model is more balanced than the fixed-effect model because the weight is dominated or trivialized by sample sizes. Generally, the random-effects model is the appropriate model in many fields, including medicine and the social sciences, as some degree of between-study heterogeneity can be anticipated (Harrer et al., 2021).

The following measures were used for heterogeneity analysis: Cochran’s Q and Tau^2 , I^2 statistics with confidence intervals, and prediction intervals (PIs). I^2 values higher

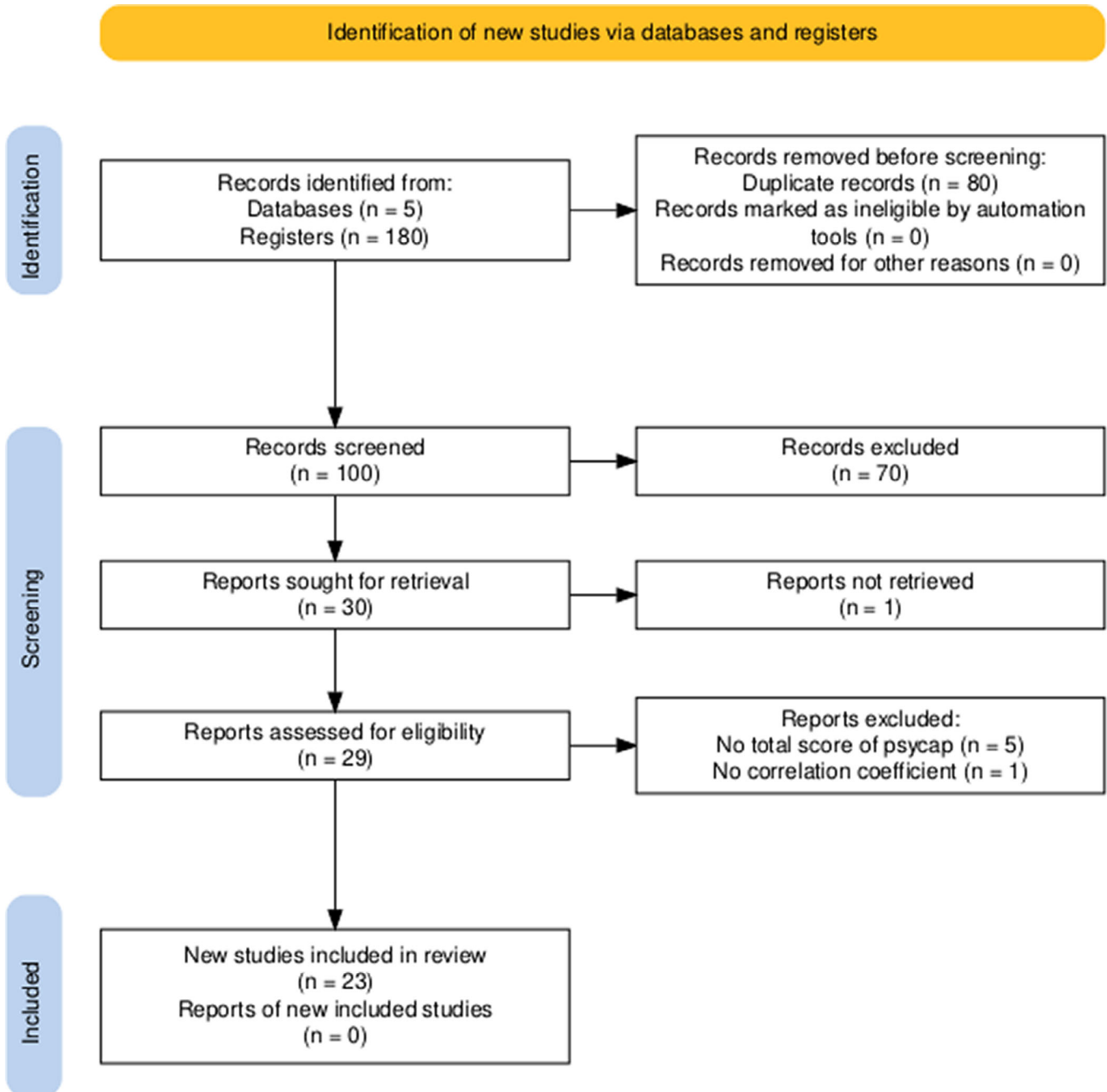


FIGURE 1 PRISMA flow diagram of study inclusion in the review.

than 50%–70% are indicative of moderate–high heterogeneity, being recommendable in these cases to check for outliers and influential cases. The effect (g) can be considered robust if the value 0 is not included in the calculated prediction interval (Harrer et al., 2021).

It is conventional to inspect small study effects through funnel plots to address publication bias in meta-analyses. A funnel plot is a scatter plot of the studies' observed effect sizes on the x-axis against a measure of their standard error on the y-axis. If there is no publication bias, the data points should

form a roughly symmetrical, upside-down funnel (Harrer et al., 2021). Consequently, we generated a funnel plot to examine small study effects to assess and control for publication bias, looking at the relationship between precision and observed effect size of studies (see Supporting Information Figure S1). In addition, Eggers' regression test was calculated to check the asymmetry of the funnel plot, obtaining a coefficient of -2.018 (95%CI: $-7.67, -3.64$), $t = -0.699$, $p = 0.49$. In this sense, Eggers' test does not indicate the presence of funnel plot asymmetry.

RESULTS

Study characteristics

Supporting Information Table S2 presents the characteristics of the studies included in this review. All studies used an analytical design: almost all were cross-sectional and only one with a two-wave design (Laschinger & Fida, 2014). The studies were published between 2012 and 2024.

The selected studies were conducted in several countries, including Korea (An et al., 2020; Bae et al., 2021; Kim & Kweon, 2020), Pakistan (Ali et al., 2019; Shahid & Aslam, 2018), Iran (Asheghi et al., 2020; Estiri et al., 2016), Canada (Laschinger & Fida, 2014; Laschinger & Grau, 2012), Malaysia (Bakri & Ali, 2015), the United States (Dwyer et al., 2019), Australia (Eley & Hassmen, 2023), Finland (Flinkman et al., 2023), and Turkey (Yıldırım et al., 2021). However, most studies were conducted with samples from China (Li et al., 2019; Liu et al., 2021, 2024; Peng et al., 2013; Tang et al., 2023; Wang et al., 2012; Xue et al., 2023; Zhou et al., 2018; Zhu et al., 2021).

All studies were conducted with RNs (Asheghi et al., 2020; Dwyer et al., 2019; Eley & Hassmen, 2023; Estiri et al., 2016; Flinkman et al., 2023; Liu et al., 2021, 2024; Wang et al., 2012; Yıldırım et al., 2021), although in 14 studies, the samples were specifically: female nurses (Bakri & Ali, 2015; Li et al., 2019; Peng et al., 2013; Zhou et al., 2018; Zhu et al., 2021), hospital nurses (Ali et al., 2019; An et al., 2020; Shahid & Aslam, 2018; Xue et al., 2023), new graduate nurses (Laschinger & Fida, 2014; Laschinger & Grau, 2012), and clinical nurses (Bae et al., 2021). Eighteen studies explored the relationship between psychological capital and emotional, while eight focused on analyzing the relationship between psychological capital and emotional exhaustion. Data analysis in the 24 studies adopted a variety of methods: structural equation modeling, path analysis, multiple linear regression, hierarchical regression, and Pearson and Spearman rank correlation analyses.

Measurement instruments for psychological capital and burnout

All studies used the Psychological Capital Questionnaire (PCQ) (Luthans et al., 2007) for the measurement of psychological capital, except three studies (Ali et al., 2019; Xue et al., 2023; Zhu et al., 2021). The reliability coefficients of the PCQ ranged from 0.76 to 0.96, showing adequate internal consistency. In two studies (Bakri & Ali, 2015; Dwyer et al., 2019), the reliability coefficients of the PCQ obtained were not reported.

Regarding the three studies that did not use the PCQ, one study (Ali et al., 2019) used the Compound Psychological Capital Questionnaire (CPC-12: Lorenz et al., 2016), consisting of 12 items grouped into four dimensions (3 items in each dimension): hope, resilience, optimism, and self-efficacy. Another study (Xue et al., 2023) used the Psychological Capital Scale revised (PCQ-R; Luo & He, 2010), consisting of 20 items distributed in the subscales self-efficacy (6 items),

hope (6 items), resilience (5 items), and optimism (3 items). Finally, Zhu et al. (2021) measured psychological capital using the Nurse Psychological Capital Scale, composed of 20 items and 4 dimensions with 5 items each (self-efficacy, optimism, hope, and resilience). In these three studies, the reliability coefficients, measured with Cronbach's alpha coefficient, were higher than 0.95.

Regarding the measurement of burnout, most studies (16) used the Maslach Burnout Inventory (MBI) (Maslach, 2009), composed of 22 items distributed in three dimensions: emotional exhaustion (9 items), lack of personal efficacy (8 items), and depersonalization or cynicism (5 items). The reliability of the overall scale showed a range of Cronbach's alpha values between 0.82 and 0.95, except in the study by Bakri and Ali (2015), where no internal consistency coefficient was indicated. In the studies where emotional exhaustion was assessed as an indicator of burnout (Dwyer et al., 2019; Eley & Hassmen, 2023; Laschinger & Fida, 2014; Laschinger & Grau, 2012; Li et al., 2019; Tang et al., 2023; Wang et al., 2012; Zhu et al., 2021), reliability measured with Cronbach's alpha coefficient ranged from 0.89 to 0.92, except in the study by Dwyer et al. (2019), where scale reliability was not reported.

In the other seven studies, the following instruments were used for measuring burnout: the Professional Quality-of-Life (ProQL) burnout scale (An et al., 2020; Yıldırım et al., 2021), the 9-item Job Burnout Scale (Ali et al., 2019), the Chinese Maslach Burnout Inventory revised (CMBI: Zhou et al., 2018), the Tedium Scale (Bae et al., 2021; Kim & Kweon, 2020), and the Scale of Work Engagement and Burnout (SWEBO; Flinkman et al., 2023). The reliability coefficients of the scales ranged from 0.78 to 0.96 (Cronbach's alpha).

Synthesis of results

The following sections show a descriptive analysis of the results of the studies included in the systematic review, followed by the meta-analyses performed. Two meta-analyses were conducted: (1) studies reporting the correlation between psychological capital and burnout; and (2) studies that reported the correlation between psychological capital and emotional exhaustion, considered the basic individual stress component of burnout (Maslach, 2009).

Meta-analysis of the correlation between psychological capital and burnout

Eighteen studies examined the relationship between psychological capital and burnout. Of these studies, six were conducted with exclusively female samples (Ali et al., 2019; Bakri & Ali, 2015; Li et al., 2019; Peng et al., 2013; Zhou et al., 2018; Zhu et al., 2021) and two with psychiatric nurses (Kim & Kweon, 2020; Tang et al., 2023). Most of the studies were carried out in Asia (eight studies in China, three in Korea, two in Iran, two in Pakistan, and one study in Malaysia) and only two in Europe (Finland and Turkey).

TABLE 1 Results of influence analyses.

Analyses Psycap—Burnout	<i>r</i> (<i>g</i>)	95% CI	<i>p</i>	95% PI	<i>I</i> ²	95% CI
Main	−0.45	−0.52, −0.37	0.001	−0.70, −0.09	92.6%	89.7%, 94.7%
Inf. cases excluded ^a	−0.44	−0.51, −0.36	0.001	−0.66, −0.15	87.7%	80.8%, 92.1%
Analyses psycap: E. exhaustion						
Main	−0.36	−0.48, −0.23	0.001	−0.67, 0.05	92.1%	86.9%, 95.3%
Inf. cases excluded ^b	−0.32	−0.42, −0.21	0.001	−0.56, −0.03	79.9%	59.0%, 90.2%

Note: Psycap = psychological capital.

Abbreviation: 95% PI, 95% Prediction Interval.

^aRemoved as outliers: Ali et al. (2019), Flinkman et al. (2023), Liu et al. (2024), Xue et al. (2023), Zhu et al. (2021).

^bRemoved as outlier: Zhu et al. (2021).

The meta-analysis showed that psychological capital and burnout are negatively and statistically significantly related ($g = -0.45, p < 0.001$; 95% CI: $-0.52, -0.37$). The total number of participants included in the meta-analysis was 8144 ($k = 18$). The *Q*-value was 229.58 ($p < 0.01$). The between-study heterogeneity variance was estimated at $\tau^2 = 0.03$ (95% CI: 0.017–0.08), with an I^2 value of 92.6% (95% CI: 89.7%–94.7%). The prediction interval ranged from $g = -0.70$ to -0.09 , indicating that a negative correlation may be expected for future studies.

The observed heterogeneity values suggested an analysis of outliers and influential cases. Outliers and influential cases may distort the pooled effect estimate, so it is recommended to detect these cases and reinspect the pooled effect after such outliers and influential cases have been removed from the analysis (Harrer et al., 2021). Following the graphic display of heterogeneity (GOSH) analysis (Olkin et al., 2012) and the diagnosis of influential cases (Viechtbauer & Cheung, 2010) (see Supporting Information Figures S1 and S2), the studies by Ali et al. (2019), Flinkman et al. (2023), Liu et al. (2024), Xue et al. (2023), and Zhu et al. (2021) were classified as outlying and influential cases. A new meta-analysis ($k = 13, o = 6092$) was performed that excluded these five studies (see Table 1), showing a significant negative correlation ($p < 0.01$) between psychological capital and burnout, with a value of -0.44 (Figure 2). The *Q*-value and τ^2 values were 97.69 ($p < 0.01$) and 0.019, respectively. The range of expected effects of future studies (*PI*) ranged from -0.66 to -0.15 (see Figure 2).

Meta-analysis of the correlation between psychological capital and emotional exhaustion

Eight studies focused on analyzing the relationship between psychological capital and emotional exhaustion. Four studies were conducted in China, two in Canada, one in Australia, and one in the United States. Of the total studies, two samples were composed exclusively of women (Li et al., 2019; Zhu et al., 2021), one of psychiatric nurses (Tang et al., 2023), and one of newly graduated nurses with less than one-year working experience (Laschinger & Fida, 2014).

The meta-analysis showed a negative and significant relationship ($p < 0.01$) between psychological capital and emotional exhaustion ($r = -0.36$, 95% CI: $-0.48, -0.23$). The total number of participants included was 3375 ($k = 8$). The *Q*-value was 88.88 ($p < 0.01$), and the τ^2 coefficient was 0.03. Regarding the I^2 coefficient, its value was 92.1% (95% CI: 86.9%–95.3%). The interval of expected future effects (*PI*) ranged from -0.67 to 0.05.

After the analysis of outliers and influential cases following the recommendations of Harrer et al. (2021), the study by Zhu et al. (2021) was considered an outlier and excluded from further meta-analysis ($k = 7, o = 3349$) (see Table 1). A negative correlation was observed between psychological capital and emotional exhaustion ($g = -0.32, p < 0.01$). The *Q*-value and τ^2 coefficients were 29.87 ($p < 0.01$) and 0.02, respectively. The range of expected effects of future studies (*PI*) ranged from -0.67 to -0.17 (see Figure 2).

DISCUSSION

The present review identified a total of 23 studies that examined the relationship between psychological capital and burnout in RNs. All studies were of moderate or high quality. The most used scale to assess psychological capital in the studies was the PCQ or its adaptations, while in the case of burnout, the MBI scale was used in 16 of the 23 studies. Most of the participants included in these studies came from Asian countries (China and Korea) versus a smaller number of nurses from Western countries (the United States and Canada). The variability of sample types and participants (e.g., psychiatric nurses and clinical nurses), health systems, and countries may explain the differences observed in the effect size of the relationship between variables, as well as in the existence of outliers and influential cases detected. This last issue is reflected in the percentages of heterogeneity detected in the two meta-analyses performed and requires the development of further studies that should consider these variables in their analyses.

The two meta-analyses conducted showed a significant and negative relationship between both psychological capital and burnout, and between psychological capital and emotional

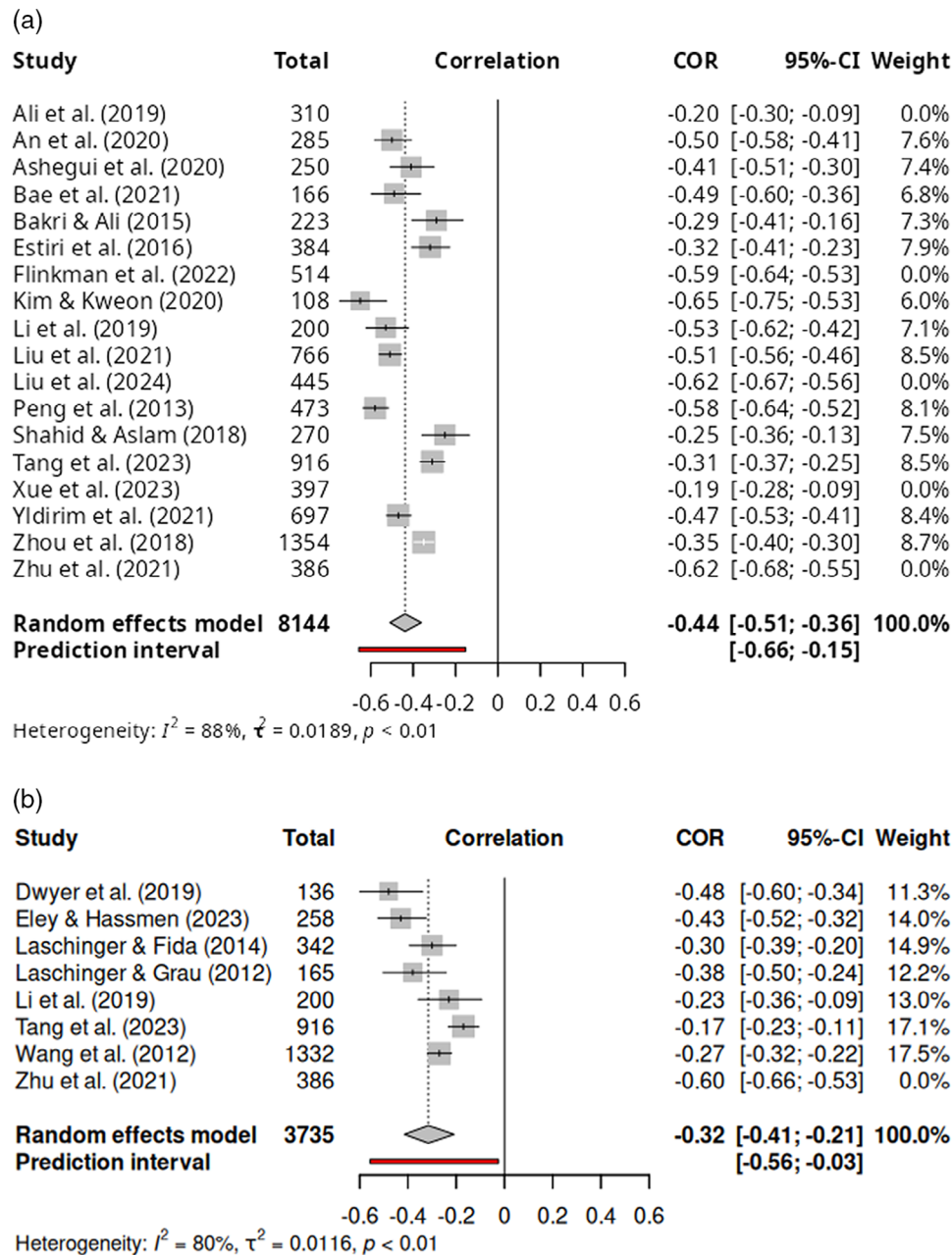


FIGURE 2 Forest plots of the correlation between psychological capital and burnout (a), and emotional exhaustion (b).

exhaustion, the basic individual component of burnout. The effect size was larger in the case of the psychological capital-burnout meta-analysis. In both cases, the results are consistent with the view of the Job Demands-Resources model (Bakker & Demerouti, 2017; Bakker et al., 2023), in which one of their basic assumptions is that personal resources, such as psychological capital, have a similar effect as job resources, buffering the effect of job demands on stress and thus reducing burnout levels experienced by RNs (Bakker & Demerouti, 2017; Bakker et al., 2023). Positive individual aspects such as optimism, resilience, hope, and efficacy enable effective coping with job demands (e.g., work overload and high emotional demands),

reducing the associated physical, psychological, and emotional costs. Psychological capital as a personal resource, in addition to reducing demands costs, fosters motivation and participation at work and inhibits burnout, depersonalization, and lack of professional efficacy experiences (Eley & Hassmen, 2023; Flinkman et al., 2023; Guo et al., 2021; Leon-Perez et al., 2016; Xiao et al., 2022).

The observed relationship between emotional exhaustion and psychological capital was weaker than that between burnout and psychological capital. This may be due to the components of psychological capital. The psychological components related to efficacy and resilience probably have a

stronger association with the depersonalization and lack of professional efficacy dimensions, so the correlation between burnout (all three components) and psychological capital is expected to be higher compared with the association between psychological capital and the core component of individual stress, that is, emotional exhaustion. However, it would be necessary to explore in more detail the relationships between psychological capital and each separate dimension of burnout syndrome to delve deeper into the processes underlying both constructs.

Limitations

The results of this study should be interpreted with caution. First, the observational and cross-sectional design of almost all the studies together with the variability in the measure of burnout (e.g., MBI and Tedium Scale) may affect both the generalizability of the study and the ability to estimate causation. Two concepts may be significantly correlated, but this does not mean that one causes the other. This disadvantage of the cross-sectional approach should be taken into account when interpreting the coefficients obtained. Second, a large proportion of the participants are from Asian countries and cultures, so there may be a bias in the measures of psychological capital and burnout that could affect the heterogeneity across studies (Yuan et al., 2023). Indeed, as mentioned above, the observed high heterogeneity values could be related to cultural aspects, samples, health systems, or other contextual variables. Finally, qualitative studies have not been included, which could provide relevant information on the mechanisms involved in the relationship between psychological capital and the experience of burnout.

Implications for nursing policy and future research

From a practical point of view, our findings suggest that implementing individual-level interventions aimed at improving personal resources may be effective in reducing stress and burnout levels. In that sense, our findings may assist managers and administrators in developing such interventions, because psychological capital, as the psychological resource of an individual, can indeed be developed and improved (Dello Russo & Stoykova, 2015). As Bakker et al. (2023) pointed out, it would be ideal to tailor the interventions to the burnout level of each participant. Furthermore, special attention should be paid to those nursing profiles that may suffer from low levels of psychological capital, either because of their recent incorporation into the organization (e.g., recently graduated nurses) or because of the unit in which they perform their daily work (e.g., intensive care, emergency, and pediatric oncology) (Yuan et al., 2023).

In addition, interventions aimed at improving personal resources should be complemented with interventions focused on the positive management of group climate (i.e.,

conflict management, mutual support, and collaborative teams), which foster and enhance the development of skills and social capital, through the experience of positive emotions, increased confidence in the abilities to effectively perform the job, and persistence and continuous effort in situations of high stress and healthcare demands (Leon-Perez et al., 2016). Moreover, administrators and managers should design training that allows nurses to experience success, either by showing models of perseverance and professional constancy or by using task and time management strategies (i.e., stepping method and job crafting). Nurses should also be trained in the management and acceptance of past mistakes, experiences, and failures, and be aware of the positive and present aspects of their work, as well as the perception of the future as opportunities for professional development and advancement. Further studies should assess the effectiveness of such interventions in preventing burnout in nurses.

Finally, considering that almost all the studies included in this meta-analysis were correlational and cross-sectional, except for Laschinger and Fida's (2014) two-wave design, further research should focus on the design and implementation of longitudinal research (e.g., longitudinal studies with multiple waves and diary studies) to deepen the relationships between psychological capital and burnout in different contexts and nursing units (e.g., intensive care and mental health). Likewise, new qualitative studies would be welcome to address and describe clarifying elements of the experience of efficacy, optimism, resilience, and hope, and how they act as "filters" to cope with the high demands of nursing work, allowing future qualitative systematic reviews (i.e., meta-ethnography) to complement the vision of the quantitative studies conducted.

CONCLUSIONS

This review provides evidence of the negative relationship between psychological capital and burnout in RNs. Given the heavy representation of studies from Asia focused on the relationship between psychological capital and burnout, new research should be performed in diverse cultural contexts. Psychological capital, as a personal/psychological resource open to development over time that plays a protective role in nurses' health and well-being, should be considered when introducing healthcare policies and practices related to workforce development, retention, and well-being.

AUTHOR CONTRIBUTIONS

Study design: Alejandro Orgambidez, Yolanda Borrego, and Jose M. León-Pérez. *Data collection:* Alejandro Orgambidez, Yolanda Borrego, and Francisco J. Cantero-Sánchez. *Data analysis:* Alejandro Orgambidez and Yolanda Borrego. *Study supervision:* Alejandro Orgambidez and Jose M. León-Pérez. *Manuscript writing:* Alejandro Orgambidez, Yolanda Borrego, and Jose M. León-Pérez. *Critical revisions for important intellectual content:* Alejandro Orgambidez, Yolanda Borrego, Francisco J. Cantero-Sánchez, and Jose M. León-Pérez.



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CONFLICT OF INTEREST STATEMENT

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

ETHICS STATEMENT

This research did not require IRB approval because of the design of the study.

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SUPPORTING INFORMATION

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