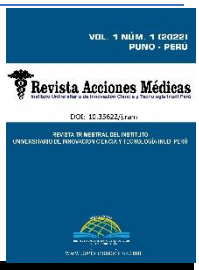
Rev. Acciones Méd. (2022). Vol. 2 No. 1 pp. 7-23

Revista Acciones Médicas

www.accionesmedicas.com

ISSN: 2955-8026 / ISSN-L: 2955-8026

Edited by:
Instituto Universitario de Innovación Ciencia y Tecnología Inudi Perú



REVIEW ARTICLE

Effectiveness of interventions on burnout syndrome in nurses: a systematic and meta-analytic review

Eficacia de las intervenciones sobre el síndrome de burnout en enfermeros: una revisión sistemática y metaanalítica

Eficácia das intervenções sobre a síndrome de burnout em enfermeiros: uma revisão sistemática e uma meta-análise

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DOI (Document Only in English): https://doi.org/10.35622/j.ram.2023.01.001

Received: 22/09/2022 Aceppted: 12/10/2022 Published: 24/10/2022

KEYWORDS

burnout, intervention, meta-analysis, nurses, systematic review.

ABSTRACT. The purpose of the present study is to analyze by means of a systematic and meta-analytic review the importance of nursing staff interventions on Burnout Syndrome and their influence on different psychological variables. After searching for scientific articles in the databases Web of Science, Scopus, PsycINFO and CINAHL Complete, a total of 782 studies were obtained which, after applying the methodological inclusion criteria, left a total of 13 studies for systematic review and meta-analysis. The meta-analytical results suggest that the different interventions for the reduction of Burnout Syndrome in nurses have a positive influence on the psychological health of the sick personnel, providing them with greater well-being and quality of life. In summary, the use of interventions in nursing personnel is a great benefit to be able to detect and treat possible psychological and physical consequences in this population.

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KEYWORDS

burnout, intervención, metaanálisis, enfermeros, revisión sistemática.

RESUMEN. El propósito del presente estudio consiste en analizar mediante una revisión sistemática y meta analítica la importancia que ejercen las intervenciones en el personal de enfermería sobre el Síndrome de *Burnout* y su influencia sobre distintas variables psicológicas. Tras realizar una búsqueda de artículos científicos en las bases de datos *Web of Science*, *Scopus*, *PsycINFO* y *CINAHL Complete*, se obtuvieron un total de 782 trabajos que, tras aplicar los criterios metodológicos de inclusión, quedaron un total de 13 estudios para revisión sistemática y metaanálisis. Los resultados meta analíticos sugieren indicar que las distintas intervenciones para la reducción del Síndrome de *Burnout* en enfermeros influyen positivamente sobre la salud psicológica del personal enfermo, brindándole un mayor bienestar y calidad de vida. En resumen, el uso de intervenciones en personal de enfermería es un gran beneficio para poder detectar y tratar posibles consecuencias a nivel psicológico y físico en esta población.

PALAVRAS-CHAVE

burnout, intervenção, meta-análise, enfermeiras, revisão sistemática.

RESUMO. O objetivo deste estudo é analisar a importância das intervenções do pessoal de enfermagem na Síndrome de Burnout e sua influência sobre diferentes variáveis psicológicas por meio de uma revisão sistemática e meta-analítica. Após a busca de artigos científicos nas bases de dados Web of Science, Scopus, PsycINFO e CINAHL Complete, foram obtidos um total de 782 trabalhos que, após a aplicação dos critérios metodológicos de inclusão, deixaram um total de 13 estudos para revisão sistemática e meta-análise. Os resultados meta-analíticos sugerem que as diferentes intervenções para a redução da Síndrome de Burnout em enfermeiros têm uma influência positiva na saúde psicológica do pessoal doente, proporcionando-lhes maior bem-estar e qualidade de vida. Em resumo, o uso de intervenções no pessoal de enfermagem é de grande benefício para detectar e tratar possíveis conseqüências psicológicas e físicas nesta população.

1. INTRODUCCIÓN

The World Health Organization has recently included Burnout Syndrome as one of the main public health problems in the working population (WHO, 2019). Said syndrome consists of an emotional disorder that appears as a response to continuous work stress, characterized by a state of emotional exhaustion and the presence of a cynical or distant attitude towards one's work (Membrive-Jiménez et al., 2022). Freudenberger (1974) pointed out that Burnout Syndrome occurs as a consequence of chronic job stress. From the beginning, research was focused on the study of the work performed by health professionals, and in 1981 the instrument that would allow the measurement of this construct, the so-called "Maslach Burnout Inventory" (MBI), designed by Maslach and Jackson (1986), was published. This gave the opportunity that today Burnout Syndrome is the subject of research in the field of health and social sciences (Clough et al., 2019; Jarzynkowski et al., 2022), to improve the quality of life of nurses (Pérez-Fuentes et al., 2019; Safiye et al., 2022).

Burnout or work burnout syndrome is generally considered as a chronic response of the professional to stressors generated by high workload, unfavorable and complex emotions, and interpersonal relationships (Moss & Wilson, 2015), manifesting mainly as emotional exhaustion, depersonalization (Yazici et al., 2021), and reduced professional efficacy (Luo et al., 2019). Nurses' interactions with patient and family members may include exposure to inordinate workloads, making them susceptible to burnout (Yoon & Sok, 2016). In this sense, the nurse when presenting high levels of burnout can lead to a reduction in their productivity, since their well-being is diminished, showing less empathy (Jüten et al., 2019). Likewise, it can manifest itself in behavior towards an increase in negative work attitudes such as, for example, absenteeism, turnover and poor quality of service provided with the patient (Rodrigues et al., 2018) or, even, in thoughts of suicidal ideation (Landa-Ramírez et al., 2017). On the other hand, low levels of burnout have been associated with higher self-efficacy (Martos et al., 2018), work engagement (Castellano et al., 2019; de Wijn et al., 2021) and higher Emotional Intelligence scores, as revealed by Pérez-Fuentes et al. (2018). In fact, all associated with a better quality of life (Cañero et

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al., 2019). Therefore, a first hypothesis is proposed, expecting that positive emotions are related to the reduction of burnout in nursing staff.

Otherwise, previous literature indicates that as a consequence of long-term stress appears Burnout Syndrome, presenting the professional with psychological, physical (Pérez-Fuentes et al., 2019) and emotional discomfort (Liébana-Presa et al., 2017), which can deteriorate their health (Soriano et al., 2019). In turn, health care professionals and, in particular, nurses, are those who seem to show a higher risk of experiencing physical and mental stress (Veiga et al., 2019), deriving such symptoms in severe chronic fatigue, anxiety and depression (Duarte & Pinto-Gouveia, 2016). Nurses are also known to report high rates of burnout (Kubota et al., 2016), due to chronic stress in long-term physical work, leading to emotional exhaustion and increased job disengagement and demotivation (Clari et al., 2022; Redhead et al., 2011). However, social support has been found to positively influence the prevalence of burnout (Molero et al., 2018). From the evidence reviewed, the second hypothesis arises, expecting that the meta-analysis will result in data in favor of the reduction of depressive symptomatology in nursing staff.

Among the objectives of organizational interventions in nurses are mainly to develop changes in the work environment and to increase personal resources. This aims to reduce workload, provide new opportunities for professional development and increase peer support (Ozbas & Tel, 2016), in addition to interacting and expanding knowledge (Gomes-Koban et al., 2019). Given the prevalence of stress-related problems in nurses (Acosta-Ramos et al., 2021), relaxation techniques have been increasingly applied in their management. Several researches have demonstrated the effectiveness of programs to reduce stress, such as the one conducted by Kersten et al. (2019). Among the different intervention programs are those based on mindfulness (Bartlett et al., 2019; González-Burboa et al., 2019; Montanari et al., 2019) and other types of programs, by way of active interventions that include classes for the development of communication skills and emotion control (Alexander et al., 2015; Wei et al., 2017).

In the previous direction, intervention programs can be used to carry out quantitative systematic review studies, i.e., meta-analyses (Soriano-Sánchez, 2022). In this way, the efficacy of the intervention programs on the variables evaluated in the various studies can be verified. Thus, from the statistical results, possible conclusive empirical evidence can be found (Soriano et al., 2020). In this way, it would be possible to intervene on the negative effects associated with Burnout Syndrome, since exposure to patient suffering suggests to be a mediating variable for the extent of secondary trauma (Flarity et al., 2013). In particular, between 40% and 85% of people in a helping profession may develop symptoms of secondary traumatic stress when observing the suffering of others, coming to experience, in parallel, the same emotional responses (Dreher et al., 2019). Therefore, a third hypothesis is proposed, expecting that nurses, after participation in the programs, will see reduced levels of stress.

The present study

Today, studies on systematic review have a great scope by showing a conclusion on a set of research (Soriano-Sánchez & Jiménez-Vázquez, 2022, 2023; Soriano-Sánchez & Sastre-Riba, 2022). Meta-analytic studies provide the opportunity to overcome the deficiencies and contradictions found in the existing literature, through the analysis of empirical evidence (Garcia et al., 2018). Thus, the objective of the present studies arises, which is to analyze through a systematic and meta-analytic review the effectiveness of interventions in nursing staff on Burnout Syndrome and its influence on different psychological variables. And as specific objectives: a) To relate

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the importance of emotions in the reduction of burnout levels in nurses; b) To verify the effectiveness of interventions on burnout to reduce depressive symptoms; c) To identify the effect of burnout interventions in reducing stress. As for the hypotheses, the following hypotheses are put forward:

H.1. Positive emotions are related to the reduction of burnout dimensions in nurses.

H.2. Burnout intervention programs reduce levels of depression.

H.3. Burnout reduction interventions mediate in favor of stress reduction.

2. METHOD

Search procedure and strategies

The present systematic review was conducted following the PRISMA recommendations (proposals for improving the publication of systematic reviews and meta-analyses), proposed by Moher et al. (2009). The first step was the search using the following electronic databases: Web of Science, Scopus, PsycINFO and CINAHL Complete. For this, the following search formulas were used: ((*burnout*) AND (*nurse*) AND (*nursing staff*) AND (*intervention*)). The search filters in the different databases were as follows: in PsycINFO (empirical study); in Scopus: subject area (nursing) and type of document (article); in Web of Science: Category (nursing) and type of document (article); and, finally, in CINAHL Complete: type of source (academic publications). The search was conducted during the month of December 2021.

Inclusion and exclusion criteria

The inclusion criteria for the selection of studies were: (a) empirical studies; (b) studies published in English or Spanish; (c) studies whose sample is composed of nursing personnel; (d) studies that provide data on the mean and standard deviation of the different variables analyzed; (e) studies that include burnout; (f) other studies that, in addition to including Burnout Syndrome, analyze other variables, such as depression or stress.

The exclusion criteria for the selection of studies were: (a) studies of other variables related to nursing personnel; (b) studies of cross-sectional design; (c) studies that did not show the results of the preintervention and postintervention; (d) review studies: systematic reviews and/or meta-analysis; (e) documentary studies (final degree, master's degree, thesis, etc.); (f) studies where the sample was nursing students; (g) Qualitative studies.

Subsequently, each of the papers was read and selected. Figure 1 shows the flow chart corresponding to the paper selection process. A total of 782 articles were located after the search. Subsequently, 154 were excluded for being duplicates and 3 for not allowing access to the full text, leaving 625 papers. Subsequently, a total of 588 studies were eliminated for various reasons: Documentary-type papers (k = 37); For lack of data in the results (pretest and/or posttest) a total of k = 5; Papers in languages other than English or Spanish (k = 18); Qualitative studies (k = 36); Papers of other variables evaluated in nursing personnel (k = 410); Cross-sectional design studies (k = 101); For jointly presenting the results of different professions (k = 1); For jointly including nursing assistants in the results or nurses and family members (k = 3). Finally, the sample was completed by a total of 13 studies.

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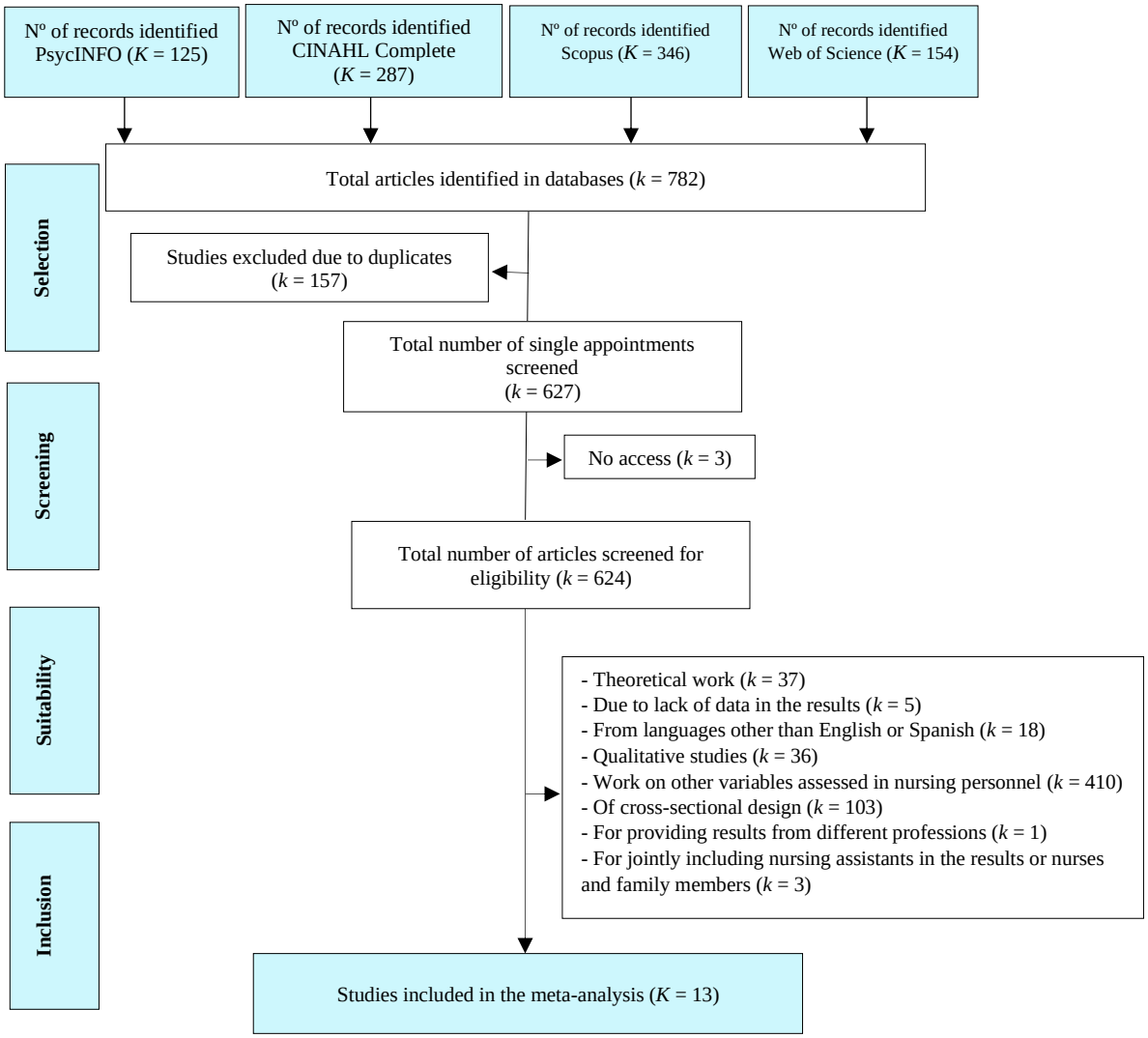
Figure 1

Flowchart (research selection)



Data Extraction and Synthesis

For the selection of the articles, first the title and abstract were reviewed to apply the first exclusion criterion. The two authors then carefully read the full text in order to apply the rest of the established conceptual and methodological criteria: (a) Mean (*M*), (b) Standard Deviation (*SD*) and (c) sample size (*N*). Finally, the characteristics of the research, participants and interventions were coded by the two authors (J.G.S. and D.J.V.).

Data Analysis: Meta-Analysis

The Cochrane Review Manager (RevMan) version 5.3 was used to test the heterogeneity of the studies included, effect size, data quality, etc. (Sánchez-Meca et al., 1989). For data analysis, the Intervention Review option (inverse variance) with random-effects standardized means was used to test intervention effectiveness, since the results of the interventions differed from each other. Interpretation of the effect-size estimate was in line with Cohen's guidelines (Cohen, 1992), where 0.2 was a small effect, 0.5 medium, and 0.8 large. The direction of the effect sizes was considered favorable if the result showed improvement during the intervention. Heterogeneity

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was considered substantial if $I^2 \geq 75\%$, moderate from 50% to 75%, and low when $I^2 \leq 25\%$ (Higgins et al., 2003).

Qualification of Risk of Bias

The Cochrane Collaborations risk-of-bias tool was used (Higgins et al., 2011). Individual studies were scored for risk (1: low risk, 2: high risk, and 3: unclear risk). The potential bias of the studies included was assessed by inspection of distribution of points on the meta-analysis plots. Two researchers evaluated the risk of bias independently, and disagreements were resolved by consensus in a meeting with the senior researcher.

3. RESULTS

Descriptive analysis of selected papers

A total of $K = 13$ studies were selected for analysis. The samples of the studies included nurses working in different countries, the majority being women. Regarding the age of the participants, in most of the papers comprised the ages from 20 to 50 years, except for the study by Dreher et al. (2019), which included nurses aged less than 20 years to over 60 years. Regarding the study design, eight papers included experimental and control group, while in five studies there was only experimental group. However, to obtain the results of the present study, the results obtained in the pre-interventions and post-interventions of the experimental groups were taken into account.

Regarding the country/state that presented the most studies, China and Portugal had a total of $K = 2$, respectively, followed by Portugal, Norway, Germany, Colorado CSprings, Japan, Colombia, United Kingdom, New York, Fort Worth and Georgia, where a total of $K = 1$ was found, respectively. On the other hand, to measure secondary traumatic stress, the ProQOL instrument was used in both studies, as shown in Table 1.

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Table 1

Overview of the papers included in the systematic and meta-analytical review

Study	Country/State	Design	Sample	Instrument	Data Mean (*SD*) Pretest	Data Mean (*SD*) Posttest	Intervention approach and results
Luo et al. (2019)	China	Quasi-experimental, composed of two groups (experimental and control)	Belonging to seven hospital departments (*N* = 41)	Maslach Burnout Inventory - Survey	Emotional exhaustion: 2.34 ± 1.20 Depersonalization: 1.86 ± 0.90 Low self-realization: 2.04 ± 1.12	Emotional exhaustion: 1.97 ± 0.77 Depersonalization: 1.92 ± 0.84 Low self-realization: 1.91 ± 1.09	The intervention was carried out for six months through the Wechat App. Its functionality is equivalent to Facebook and WhatsApp. Participants were asked to record three good things, without reflections, during the 6 months. The burnout score decreased significantly in those who recorded three good things on a weekly basis
Veiga et al. (2019)	Portugal	Controlled, consisting of two groups (experimental and control)	All participants are from the same hospital (*N* = 15)	Maslach's Burnout Inventory (MBI) y Profile of Mood States (POMS)	Emotional exhaustion: 3.40 ± 1.71 Depersonalization: 1.84 ± 1.47 Low self-realization: 4.65 ± 0.59	Emotional exhaustion: 2.78 ± 1.32 Depersonalization: 1.76 ± 1.23 Low self-realization: 4.28 ± 0.70	The intervention was carried out for 8 weeks (two twenty-minute sessions per week). The psychomotor relaxation program was implemented in a hospital. It consisted of body awareness, muscle tone regulation and breathing exercises. Participants showed a decrease in their levels of emotional exhaustion and depression
Isaksson-Rø et al. (2010)	Norway	Controlled, consisting of a group	Nurses from different specialties and work situations (*N* = 153)	Maslach's Burnout Inventory (MBI)	Emotional exhaustion: 2.87 ± 0.79 Depersonalization: 1.77 ± 0.59 Low self-realization: 2.29 ± 0.40	Emotional exhaustion: 2.52 ± 0.78 Depersonalization: 1.63 ± 0.51 Low self-realization: 2.35 ± 0.43	The intervention and counseling was carried out from 2004 to 2006. It consisted of mindfulness and other relaxation techniques. Participants were followed up with self-report assessments. The results evidenced a favorable reduction in emotional exhaustion
Duarte & Pinto-Gouveia (2016)	Portugal	Controlled, consisting of two groups (experimental and control)	Oncology staff (*N* = 29)	Professional Quality of Life (ProQOL-5) y DASS-21 (depresión y estrés)	Burnout: 26.57 ± 6.09 Depression: 2.83 ± 2.29	Burnout: 24.29 ± 5.09 Depression: 2.14 ± 2.07	They conducted a mindfulness intervention for 6 weeks. It was generally based on stress reduction principles and exercises. The results showed that mindfulness-based interventions can be effective in improving the overall well-being of nurses
Kersten et al. (2019)	Germany	Quasi-experimental, controlled, composed of two groups (experimental and control).	Dialysis nurses (*N* = 33)	Copenhagen Psychosocial Questionnaire (COPSOQ)	Burnout: 3.38 ± .71 Stress: 2.49 ± .82	Burnout: 3.24 ± .69 Stress: 2.40 ± .69	The program was conducted over ten months and involved stress management through healthy behavior, promoting health. Burnout improved significantly between pre- and post-tests

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Table 1

Overview of the papers included in the systematic and meta-analytical review (continued)

Study	Country/State	Design	Sample	Instrument	Data Mean (*SD*)		Intervention approach and results
					Pretest	Posttest	
Flarity et al. (2013)	Colorado CSprings	Controlled, consisting of a group	Emergency nurses (*N* = 59)	Professional Quality of Life (ProQOL)	Burnout: 23.9 ± 5.1 Secondary traumatic stress: 23.5 ± 5.3	Burnout: 20 ± 3.3 Secondary traumatic stress: 21.4 ± 4.6	The purpose of the study was to examine the effectiveness of an educational program in reducing various symptoms, including burnout. After its completion, the participants' symptoms were reduced
Kubota et al. (2016)	Japan	Controlled, consisting of two groups (experimental and control)	Oncology nurses (*N* = 50)	Maslach's Burnout Inventory (MBI)	Emotional exhaustion: 22.1 ± 8.6 Depersonalization: 2.9 ± 3.2 Low self-realization: 22.3 ± 7.7	Emotional exhaustion: 20.0 ± 9.8 Depersonalization: 2.7 ± 2.9 Low self-realization: 23.6 ± 8.3	The intervention group received a program for 3 months. Among its contents were to improve distress and suicidal thoughts. Significant effects were found after the intervention
Dreher et al. (2019)	Colombia	Single-group pre- and post-test design,mixed methods approach	Nurses working in nursing homes (*N* = 45 at pre-intervention and *N* = 35 at post-intervention)	Professional Quality of Life (ProQOL)	Burnout: 52.46 ± 9.29 Secondary traumatic stress: 52.50 ± 9.13	Burnout 49.81: ± 11.11 Secondary traumatic stress: 49.65 ± 11.13	A 90-minute interactive educational presentation was developed that included 12 YouTube video clips. The presentation addressed compassion fatigue awareness and 14 self-care skills, including stress awareness, stress management, breathing exercises, meditation, among others. The quality improvement project lasted three months and highlighted the need for further studies on holistic interventions such as workplace education programs that address self-care skills strategies
Redhead et al. (2011)	United Kingdom	Randomized controlled (experimental and control group)	Qualified nurses corresponding to the mental health unit (*N* = 12)	Maslach's Burnout Inventory (MBI)	Emotional exhaustion: 23.75 ± 15.46 Depersonalization: 6.33 ± 6.67	Emotional exhaustion: 21.16 ± 14.08 Depersonalization: 3.08 ± 2.90	The intervention evaluated the effect of attending positive attitude training on knowledge to improve attitudes and burnout levels. The program consisted of 16 half-day sessions (eight months). It was concluded that the program favored protection against burnout

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Table 1

Overview of the papers included in the systematic and meta-analytical review (continued)

Study	Country/State	Design	Sample	Instrument	Data Mean (SD)		Intervention approach and results
					Pretest	Posttest	
Montanari et al. (2019)	New York	Controlled, consisting of a single group	Nurses belong to an inpatient unit (N = 50 at pretest and N = 32 at posttest)	Maslach's Burnout Inventory (MBI)	Emotional exhaustion: 23.38 ± 8.71 Depersonalization: 8.02 ± 6.36 Low self-realization: 37.10 ± 5.67	Emotional exhaustion: 20.03 ± 9.10 Depersonalization: 7.28 ± 5.24 Low self-realization: 37.19 ± 6.11	A brief mindfulness intervention to reduce stress and burnout was performed for 6 weeks. Improvements in mean MBI scores were found, this result being a positive finding
Wei et al. (2017)	China	Controlled, consisting of two groups (experimental and control)	The nursing staff belonging to the emergency department (N = 51)	Maslach's Burnout Inventory-General Survey (MBI-GS)	Emotional exhaustion: 15.76 ± 4.67 Depersonalization: 11.63 ± 4.52 Low self-realization: 23.84 ± 4.50	Emotional exhaustion: 9.65 ± 3.27 Depersonalization: 6.92 ± 1.41 Low self-realization: 25.98 ± 5.21	The intervention was conducted to decrease burnout for 6 months. In the posttest the nurses showed a significant decrease in the dimensions emotional exhaustion and depersonalization
Alexander et al. (2015)	Fort Worth	Randomized controlled trial composed of two groups (experimental and control)	Oncology nurses (N = 20)	Maslach's Burnout Inventory (MBI)	Emotional exhaustion: 17.60 ± 10.36 Depersonalization: 4.05 ± 5.09 Low self-realization: 37.15 ± 8.53	Emotional exhaustion: 12.95 ± 8.76 Depersonalization: 2.50 ± 3.65 Low self-realization: 39.60 ± 8.90	The efficacy of yoga in improving self-care and reducing burnout among nurses. The intervention program had a duration of 8 weeks, with participants showing significant improvement in the three dimensions of burnout
Rodrigues et al. (2018)	Geòrgia	Controlled single-group trial	Nurses who work with young people with chronic pain (N = 33)	Maslach's Burnout Inventory (MBI)	Emotional exhaustion: 32.38 ± 11.29 Depersonalization: 11.34 ± 4.66	Emotional exhaustion: 29.47 ± 10.52 Depersonalization: 9.25 ± 3.23	Among the objectives of the intervention was the reduction of burnout. It was carried out for 90 minutes. At 3 months further follow-up measures were taken. The data suggest that it was beneficial

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The use of instruments to measure the different variables was as follows: for burnout, seven studies used the Maslach's Burnout Invetory (MBI); two used the Maslach's Burnout Invetory-General Survey (MBI-GS); three used the Professional Quality of Life (ProQOL); and one study used the Copenhagen Psychosocial Questionnaire (COPSOQ). Regarding the assessment of depression, one of them used the DASS-21 scale and the other the Profile of Mood States (POMS) instrument. For stress, the instruments were also different: on the one hand, one study used the ProQOL-5 and, on the other hand, the COPSOQ.

Meta-analytical results

The study sample for the meta-analysis of the dependent variable (burnout) was N = 13 papers, with a total sample of nursing staff of N = 591 in the pretest and N = 563 in the posttest. Regarding the use of questionnaires and the different variables, in the meta-analysis of the emotional exhaustion dimension, Egger's linear regression test showed no publication bias (p> 0.05). The result of the heterogeneity analysis I^2 was 67.3% (Z = 3.56; p = 0.0004). The meta-analytic estimate with a 95% confidence interval (CI) was 0.48 (0.21 to 0.75).

After obtaining high heterogeneity, two meta-analyses were performed again for the emotional exhaustion dimension, separating the studies that included high means and those that provided means with low scores. Thus, the studies that showed high scores (Alexander et al., 2015; Kubota et al., 2016; Montanari et al., 2019; Redheah et al., 2011; Rodrigues et al., 2018), after performing the meta-analysis, we obtained a heterogeneity of I^2= 0% (Z = 2.60; p = 0.0091), with a 95% CI of 0.29 (0.07 to 0.52). Regarding studies presenting means at low scores (Isaksson-Rø et al., 2010; Luo et al., 2019; Veiga et al., 2019), the heterogeneity was similarly I^2 = 0% (Z = 4.29; p = 0.0001) and the effect size at a 95% CI of 0.42 (0.23 to 0.61).

Regarding the depersonalization dimension of burnout, the heterogeneity of the meta-analysis for all included papers was I^2 = 74.3% (Z = 2.36; p = 0.01), the effect size with 95% CI was 0.36 (0.06 to 0.66). Egger's linear regression test showed no publication bias (p> 0.05). However, after separating studies showing high means (Montanari et al., 2019; Redheah et al., 2011; Rodrigues et al., 2018; Wei et al., 2017), the heterogeneity was I^2 = 82.4%, (Z = 2.11; p = 0.03) and the effect size with 95% CI was 0.66 (0.05 to 1.28). On the other hand, those papers that showed the low mean scores (Alexander et al., 2015; Isaksson-Rø et al., 2010; Kubota et al., 2016; Luo et al., 2019; Veiga et al., 2019), heterogeneity was I^2 = 0% (Z = 1.97; p = 0.04), with an effect size of 95% CI = 0.16 (0.001 to 0.33).

Regarding the low self-fulfillment dimension of burnout, for all articles included in the meta-analysis, the heterogeneity was I^2 = 7.9% (Z = -1.58; p = 0.11), with an effect size of -0.12 and a 95 % CI of (-0.27 to 0.02). Egger's linear regression test showed no publication bias (p> 0.05). After separation, as in the previous cases, those papers with the highest mean scores (Alexander et al., 2015; Kubota et al., 2016; Montanari et al., 2019; Redheah et al., 2011; Wei et al., 2017), the meta-analysis showed a heterogeneity of I^2 = 0% (Z= -2.11; p= 0.03) and an effect size -0.22 95% CI (-0.44 to -0.01). However, those papers that showed mean scores low (Isaksson-Rø et al., 2010; Luo et al., 2019; Veiga et al., 2019), the heterogeneity was 48.6% (Z = 0.30; p = 0.76) with an effect size 95% CI = 0.05 (-0.28 to 0.38).

In relation to those studies that used other instruments to measure the level of Burnout Syndrome in a general way, it presents a heterogeneity of I^2 = 57,7% (Z = 2.59; p = 0.009), with an effect size 95% CI = 0.46 (0.11 to 0.80). The Egger test indicated that there was no risk of publication bias (p> 0.05). In relation to the depression

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variable, the meta-analytic analysis indicated a heterogeneity of I^2 = 0% (Z = 2.10; p = 0.03), presenting an effect size 95% CI of 0.47 (0.03 to 0.90). In relation to the stress variable, the heterogeneity was I^2 = 0% (Z = 1.50; p = 0.13), with an effect size 95% CI = 0.27 (-0.08 to 0.62). Finally, the meta-analysis performed for the secondary stress disorder variable showed a heterogeneity of I^2 = 0% (Z = 2.53; p = 0.01), with an effect size 95% CI = 0.36 (0.08 to 0.64). The Egger test indicated that there was no risk of bias (p> 0.05) in any of the three variables: depression, stress and secondary stress disorder.

4. DISCUSSION

The aim of this study was to analyze by means of a systematic and meta-analytic review the effectiveness of interventions on Burnout Syndrome in nursing personnel and its influence on different psychological variables. Thirteen studies were identified for systematic and meta-analytic review. In this way, different forms of intervention were carried out to reduce the levels of Burnout Syndrome dimensions, as well as stress, secondary traumatic stress and depression. Specifically, use was made in some study, such as that of Montanari et al. (2019), of mindfulness practice. On the other hand, other techniques such as yoga (Alexander et al., 2015) or programs for stress management as, for example, the one conducted by Kersten et al. (2019) were also used. In any case, the common goal of the studies was to intervene on the reduction of Burnout Syndrome in order to try to promote the quality of life of nursing staff (Dreher et al., 2019). Therefore, the dynamics of emotions is present in human beings, helping them to maintain an adequate balance between negative and positive ones, being essential to achieve well-being and, decrease the occurrence of Burnout Syndrome (Moss & Wilson, 2015) and, with it, strengthen well-being (Jarzynkowski et al., 2022), so the first hypothesis raised in the study is accepted.

The meta-analytic results obtained suggest that intervention programs help nurses to reduce the perceived stress and emotional strain of their daily contact with patients who are in a delicate state of health. This type of interventions have shown that it can improve the health of nursing staff, reducing depressive states (Duarte & Pinto-Gouveia, 2016), affirming the second hypothesis of the research. On the other hand, when high symptoms of emotional exhaustion are present, studies suggest carrying out the combination of muscle tone regulation methods with mindfulness (Veiga et al., 2019). In this sense, interventions focused on nursing staff should include those techniques that allow them to cope with stress management, in their daily lives, as they suggest reducing their anxiety levels (Kersten et al., 2019), so the third hypothesis raised in the research is accepted.

In addition to the aforementioned programs, the use of technologies through cell phone APPs is a novel proposal. Its management, based on innovation and creativity offers advantages in reducing burnout (Luo et al., 2019). Therefore, it would be interesting to keep in mind that, when an intervention program is carried out, subsequent tests should be performed after a few months (Rodrigues et al., 2018), otherwise long-term improvements might not be observed (Flarity et al., 2013). In particular, it apparently suggests allowing more concise conclusions to be drawn (Isaksson-Rø et al., 2010).

This study presents some strengths to highlight different meta-analyses such as, for example, the one performed for the emotional exhaustion dimension, which has shown that when performed with the mean scores obtained in different studies and the same are presented differently (high and low) due to the scale used for their evaluation, they make the heterogeneity of the results high. On the other hand, after performing two meta-analyses again, separating these scores (high and low), the results obtained showed that the heterogeneity decreased or even did not occur. This means that the effects found are not underestimated (González-Burboa et

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al., 2019). In relation to the risk of bias, the Egger test confirmed that no such risk is present in any of the variables analyzed.

However, this study is not free of limitations. One of the limitations could be found in the selection of databases for the search of the studies, so it is possible that some studies published in other resources may have been omitted. On the other hand, there was a lack of studies that did not quantitatively report their results. This has not allowed their inclusion in the meta-analysis of the present research.

As a line of future research, it would be interesting to expand the knowledge about this topic by conducting new analyses that include other variables, such as EQ and resilience. In this sense, it has been found that high levels of EQ (Pérez-Fuentes et al., 2019) and resilience (Safiye et al., 2022) could be related to lower burnout scores and higher job satisfaction.

The public domain promise of intervention programs for organizational performance outcomes by nursing staff remains, to this day, a subject of research. In this regard, given the considerable expense of intervention training in that profession, the results found suggest that its practical applicability improves nurses' well-being (Bartlett et al., 2019), given the stress and burnout demands of this profession today (Membrive-Jiménez et al., 2022).

Meta-analytic data offer the possibility of being able to observe how different interventions, regardless of which one they are, have a positive impact on Burnout Syndrome. In addition, knowing the predictors associated with a subject is the first step towards the design and implementation of programs that prevent risk behaviors (Soriano-Sánchez, 2022).

In short, burnout syndrome is one of the main factors affecting nursing staff. Constant exposure to stressful situations at study is a relevant variable for the prevention and implementation of programs that will help to improve nurses' well-being.

5. CONCLUSIONS

The meta-analytic results found suggest that the use of interventions in nursing staff suggest a great potential for detecting and treating possible psychological and physical consequences in this population.

In summary, the application, monitoring and evaluation of an intervention program such as, for example, mindfulness, could help prevent, detect and/or lead to possible improvements in the physical and psychological well-being of nursing professionals.

Acknowledgments:

We express our gratitude to the faculty of the Doctoral Program in Education and Psychology of the University of La Rioja (Spain), as well as to the Psychology faculty of the University of Jaen (Spain).

Conflicto de intereses / Competing interests:

Los autores declaran que el presente proyecto no representa ningún conflicto de intereses.

Rol de los autores / Authors Roles:

José-Gabriel Soriano-Sánchez: Conceptualización, curación de datos, análisis formal, investigación, metodología, recursos, software, supervisión, validación, visualización, administración del proyecto, escritura-preparación del borrador original, escritura-revisar & amp; edición.

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David Jiménez-Vázquez: Conceptualización, análisis formal, investigación, metodología, administración del proyecto, escritura-preparación del borrador original, escritura -revisar & amp; edición.

Aspectos éticos/legales:

Los autores declaran no haber incurrido en aspectos antiéticos, ni haber omitido aspectos legales en la realización de la investigación.

Fuentes de financiamiento / Funding:

Las fuentes de financiación que dieron lugar a la investigación son de carácter personal y motivación profesional.

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