


## REVIEW

# Prevalence of burnout syndrome in oncology nursing: A meta-analytic study

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## Abstract

**Objective:** To determine the prevalence of high levels of emotional exhaustion and depersonalization and low personal accomplishment in nursing professionals in oncology services.

**Methods:** A meta-analytical study was performed. The search was carried out in March 2017 in Pubmed, CINAHL, Scopus, Scielo, Proquest, CUIDEN, and LILACS databases. Studies using Maslach Burnout Inventory for the assessment of burnout were included.

**Results:** The total sample of oncology nurses was  $n = 9959$ . The total number of included studies was  $n = 17$ , with  $n = 21$  samples for the meta-analysis of emotional exhaustion and  $n = 18$  for depersonalization and low personal accomplishment. The prevalence of emotional exhaustion and of depersonalization was 30% (95% CI = 26%–33%) and 15% (95% CI = 9%–23%), respectively, and that of low personal performance was 35% (95% CI = 27%–43%).

**Conclusions:** There are many oncology nurses with emotional exhaustion and low levels of personal accomplishment. The presence and the risk of burnout among these staff members are considerable.

## KEYWORDS

burnout, cancer, meta-analysis, nursing, occupational health, oncology, oncology nursing, prevalence

## 1 | BACKGROUND

The hospital setting is characterised by the presence of numerous psychosocial and work stressors related to patient and family care, co-workers, shiftwork, and the chemical and biological risks involved in this work,<sup>1,2</sup> such as radiation or contact with infectious diseases. The development of chronic stress in health care professionals, as a consequence of these factors, can provoke burnout,<sup>3</sup> a syndrome characterised by the presence of emotional exhaustion (EE), depersonalisation (DP) in dealings with patients, and low levels of personal accomplishment (PA).<sup>3</sup> Burnout is recognised as an occupational disease in countries such as Sweden and the Netherlands.<sup>4</sup>

Various negative effects of the syndrome's effect on health professionals have been described, including insomnia, irritability, and alcohol and drug consumption.<sup>5,6</sup> Adverse effects of burnout on health care institutions have also been identified, such as increased absenteeism

and sick leave, suboptimal patient care, and higher rates of treatment errors, all of which affect the attention provided to health care users.<sup>7–9</sup>

Within health care professions, the syndrome is especially prevalent among nurses.<sup>10</sup> Various studies have been undertaken to analyse the influence of factors such as age,<sup>11</sup> parenthood,<sup>12</sup> length of employment,<sup>13</sup> and shift work and workload<sup>14,15</sup> on the development of burnout in nurses. This influence must be differentiated according to the hospital service/unit in question, as there may be significant differences among them with regard to nurses' day-to-day work. Many researchers have examined the question of burnout among nurses according to the unit in which they work, such as A&E,<sup>16</sup> intensive care,<sup>17</sup> or primary care.<sup>18</sup>

Oncology units deserve special attention. Here, nurses care every day for people with pathologies likely to cause death and so must face up to the meaning of their own death,<sup>19</sup> cope with the suffering and grieving processes of patients and relatives, communicate bad news,<sup>20,21</sup> and make decisions in ethically complex situations.<sup>22</sup>

Although several recent studies have been carried out with regard to burnout syndrome among oncology nurses, together with reviews of its relationship with psychiatric morbidity,<sup>23</sup> job satisfaction,<sup>24</sup> or its risk factors,<sup>25</sup> to the best of our knowledge no meta-analytic study has been undertaken to analyse the prevalence of burnout syndrome in oncology nurses. Diverse prevalence rates have been reported. The 37.1% of 1 study sample was reported to present with EE.<sup>26</sup> In contrast to only 3% in another<sup>27</sup> and the 5.4% observed by Alacacioglu et al.<sup>28</sup> Similar discrepancies have been observed with respect to the dimensions of DP and PA. This disparity in the results obtained has been addressed in meta-analytic studies among accident and emergency and oncology physicians.<sup>29,30</sup>

Taking into account these considerations, the aim of the present study is to perform a meta-analysis of the prevalence of high levels of EE and DP and low PA among nursing professionals working in oncology units.

## 2 | METHODS

The meta-analysis was carried out in accordance with the PRISMA recommendations.<sup>31</sup>

### 2.1 | Data search and selection

The bibliographic search was performed in March 2017 using the search equation "burnout AND oncology nursing", and consulting the following databases: Pubmed, CINAHL, Scopus, Scielo, Proquest (Ebrary e-books, Medline, Proquest Deep Indexing: Health, Proquest Deep Indexing: Medical, Proquest Health and Medical Complete, PsycARTICLES, and PsycINFO), CUIDEN, and LILACS.

The research included in our meta-analysis was composed of quantitative primary studies with independent data on the prevalence of, at least, 1 of the 3 dimensions of burnout (EE, DP, and PA), measured using the Maslach Burnout Inventory (MBI) in oncology nurses, and published in English, Spanish, or Portuguese, with no restriction by date of publication.

The MBI has 22 items to measure 3 burnout dimensions (EE, D, and PA). The MBI was established as an inclusion criterion because it is the most widely accepted and used instrument for burnout measurement and other instruments do not assess the same dimensions and also use different punctuations.

The studies were selected by 2 team members, working independently. First, documents were selected after reading the title and abstract. In a subsequent screening, the full text was read for relevance, followed by a critical reading to evaluate the validity of the study. For each study finally included, a backward and forward search was conducted to locate further research related to the topic of interest. After the final study sample was selected, if there was any disagreement between the 2 team members, a third researcher was consulted, who was blind to others researchers' decisions and followed the same search criterion protocol.

### 2.2 | Critical reading

The methodological quality of the observational studies was evaluated according to items 2, 3, 4, 5, 6, 15, 16, 17, and 18 of the checklist

proposed by Ciapponi.<sup>32</sup> For quasi-experimental studies, items 3, 4, 6, 7, 8, 9, 10, and 11 of the checklist for non-randomised intervention studies were used.<sup>33</sup>

### 2.3 | Data coding

A data collection manual was used. For longitudinal or intervention studies that aim to know the effect of an intervention in reducing burnout, baseline data or those of the first measurement were obtained, because the meta-analysis was only focused on prevalence rates.

The following variables were extracted from each study: (1) first-named author, (2) year of publication, (3) language of publication (English-Spanish-Portuguese), (4) country of study, (5) type of study, (6) sampling method (random vs intentional), (7) MBI type (Human Services Survey vs General Survey), (8) total sample of oncology nurses, (9) sample with high EE, (10) sample with high DP, and (11) sample with low PA. The prevalence rates or the number of oncology nurses for each burnout dimension were directly obtained from each study.

The inter-researcher reliability of the data coding process was verified by calculating the intraclass coefficient of correlation, which produced an average value of 0.94 (minimum = 0.90, maximum = 1), and Cohen's kappa coefficient for the categorical variables, obtaining a value of 0.92 (minimum = 0.89, maximum = 1).

### 2.4 | Data analysis

Data analysis was performed using the StatsDirect meta-analysis software package.<sup>34</sup>

First, a sensitivity analysis was performed to assess whether the exclusion of any of the studies included produced significant changes in outcome. In addition, publication bias was assessed, using Egger's linear regression test.

Prevalence and confidence intervals were calculated by means of 3 meta-analyses of random effects, 1 for each dimension of burnout.

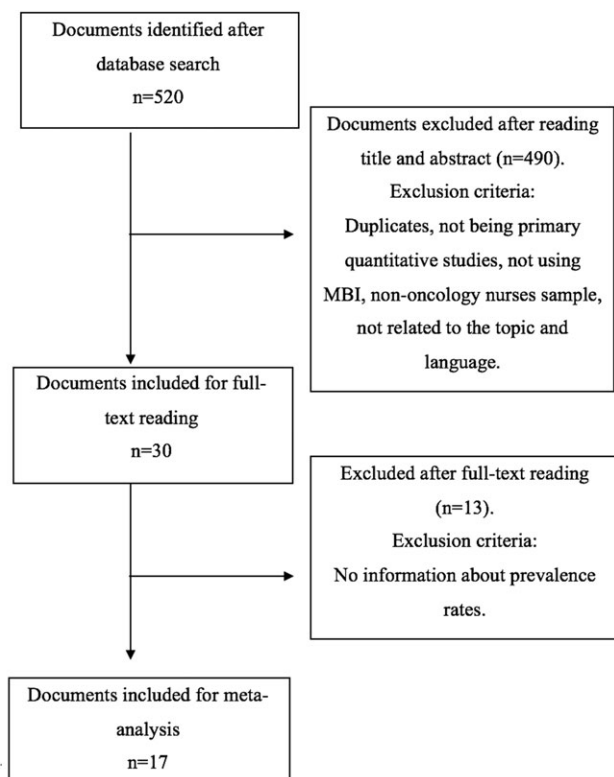
The heterogeneity of the sample was determined by Cochran's Q test and the  $I^2$  index.

## 3 | RESULTS

The literature search produced a total of 520 documents, which were reduced to 30 after reading the title and abstract. The final sample was composed of 17 studies, which provided information for 21 oncology nurses samples for the EE analysis and 18 each for D and PA. The search process is illustrated in Figure 1. In all, 9959 oncology nurses were included in the meta-analysis.

Of the studies included, 82.35% were transverse and descriptive. All used the Human Service Survey version of the MBI. Forty-one percent were conducted in the USA and 29.1% in Europe. Table 1 summarises the main features of the studies included.

The results obtained from Egger's linear regression test showed there was no statistically significant publication bias. The results obtained in this respect were 1.67 for EE ( $P = 0.13$ ), 5.12 for DP ( $P = 0.22$ ), and 0.28 for PA ( $P = 0.9$ ). In the sensitivity analysis, when each study in turn was excluded from the analysis, the prevalence values did not vary significantly.



**FIGURE 1** Search flow diagram

In the analyses of heterogeneity, Cochran's Q value was 146.19 ( $P < 0.001$ ) for EE, 792.98 ( $P < 0.001$ ) for DP, and 548.07 ( $P < 0.001$ ) for PA. The  $I^2$  index was 86.3% for EE, 97.2% for DP, and 96.9% for PA, reflecting a high degree of heterogeneity for all 3 dimensions of burnout.

The meta-analysis revealed prevalence values of 30% (95% CI: 26%–33%) for EE (Figure 2).

The prevalence of high levels of DP was 15% (95% CI: 9%–23%). The meta-analytic estimate of high DP is illustrated in Figure 3.

Finally, the prevalence of low PA was 35% (95% CI: 27%–43%). The forestplot for this parameter is shown in Figure 4.

## 4 | DISCUSSION

To our knowledge, no previous meta-analysis has been performed on the prevalence of burnout in oncology nursing, although this question has been examined with respect to A&E nurses and in oncologists.<sup>29,30</sup> Moreover, a larger number of studies are included in the present meta-analysis than in those cited earlier, and so the results obtained greatly enhance our understanding of burnout in oncology nurses. Burnout, as a stress-related condition, has been studied for many years, and its conceptualization as a 3-dimensional syndrome is the most widely accepted.<sup>4</sup> Workload and the demanding nature of oncology work have been identified as one of the main causes of burnout in oncology.<sup>49,50</sup>

The meta-analysis revealed a 30% to 35% prevalence of high EE and low PA in oncology nurses; high DP was less affected, with 15% prevalence. These high EE values are similar to those found among oncology physicians, which is logical because both professionals have to deal with patients' death, delivering bad news, the limits of the treatment, and the worry about their own death.<sup>51</sup> Other studies have

also informed that the emotional area is the most affected in oncology nurses.<sup>52</sup> The results for EE reflect the considerable emotional commitment required of oncology nurses in their habitual contact with patients diagnosed with cancer, their suffering and that of their relatives, the communication of bad news, and the need to take decisions in ethically complex situations.<sup>21,53</sup>

The prevalence of high DP is 19% lower in nurses than oncologist,<sup>29</sup> and the lower DP recorded in nurses may be due to the fact that they spend more time in contact with patients and their families, empathise more with them and their situation, and seek to treat them empathetically.<sup>54</sup>

Low PA is 10% higher in nurses<sup>29</sup> compared with oncologists, which may be because this same empathy and greater patient contact produces a negative effect when a patient dies, leading nurses to feel that their work is inadequate, and possibly even to contemplate their own death.<sup>55,56</sup> Although cancer survival rates have significantly increased in the last years,<sup>57</sup> cancer remains one of the biggest causes of premature adult death<sup>58</sup> and one of the leading causes of death in the world (8.2 millions deaths in 2012).<sup>59</sup>

A fruitful area for future research would be to evaluate the outcomes of interventions to reduce EE and to increase PA among oncology nurses, or to conduct a longitudinal study to determine which variables, such as personality factors,<sup>60</sup> most strongly affect the onset of the syndrome.

Comparing to other units, such as palliative care, working in oncology seems to be a greater risk for burnout development, as lower prevalence rates of EE, D, and low PA have been found in other studies.<sup>61</sup> By contrast, in comparison to nurses working in accident and emergency units,<sup>30,62</sup> EE and D are lower in oncology nurses. However, working in oncology units makes nurses feel higher PA than working in A&E units, with a 14% higher low PA prevalence rate in A&E nurses. Regarding burnout in primary care nurses,<sup>63</sup> it seems that working in an oncology unit predispose nurses to higher burnout, which may be due to the great difference in the treatment and control of people with chronic diseases in the community,<sup>18</sup> compared with the treatment of patients with cancer.

Future research should analyse variables that may be playing a key role in burnout development. For example, the differences between the practice of oncology and palliative units, because the levels of burnout in both units, a priori more similar, are very different.<sup>61</sup> The possible influence of the level of experience in these units or the support and supervision in the work environment could also be valuable, because it has already been seen that these variables can influence nursing burnout.<sup>13</sup>

### 4.1 | Study limitations

Although there are different instruments to measure burnout syndrome, only those studies using the MBI to assess oncology nurses' burnout were included because other instruments do not have the same dimensions or burnout level classifications. Other studies with oncology nurses using the Professional Quality of Life for burnout measurement found values of high risk for burnout in the 38% of the sample.<sup>64</sup>

The number of studies included, although greater than that found in similar meta-analyses focusing on these questions, is low, because although numerous studies have analysed the impact of burnout in oncology nurses, not all have reported the prevalence of this syndrome.

**TABLE 1** Characteristics of included studies (*n* = 17)

Author, Year, Country	Study Type; Sampling Method	Sample Size	Sample Characteristics	<i>n</i> with High EE	<i>n</i> with High D	<i>n</i> with Low PA
Alacacioglu et al, 2009. <sup>28</sup> Turkey	O; intentional	56	Female: 100% Mean age: 29.5 Married: 44.6% Work experience mean (years): 5.8	3	3	56
Barret et al, 2002. <sup>35</sup> Australia	O; intentional	243	Female: 88.9% More than 45% years: 20.6% Employed as an oncology nurse for more than 5 years: 48%	90	27	49
Bressi et al, 2008. <sup>36</sup> Italy	O; intentional	229	Female: 72.9% Mean age: 37.1 Married: 59.3% Years working in oncology (mean): 8.7	73	53	35
Cheng et al, 2015. <sup>37</sup> China	O; intentional	328	Female: 99.9% Married: 52.7% Less than 5 years as a nurse: 49.6%	151	0	37
Edmond et al, 2012. <sup>38</sup> a Canada	Quasi experimental; intentional	88 37	Female: 98.4% Work experience mean (years): 14.7	30 10	22 8	27 16
Friese, 2005. <sup>39</sup> United States	O; intentional	305	Female: 94% Mean age: 37.8 Married: 58.6% Work experience mean (years): 10.6 Oncology work experience mean (years): 5.5	88	-	-
Gallagher et al, 2009. <sup>40</sup> United States	O; intentional	30	Female: 100% Work experience mean (years): 5.2	8	1	5
Gallegos-Alvarado et al, 2009. <sup>27</sup> Spain	O; intentional	31	Female: 83.9% Mean age: 30.6 Married: 38.7%	1	0	4
Kash et al, 2000. <sup>41</sup> United States	O; intentional	83	Female: 95% Married: 26%	24		
Kravits et al, 2010. <sup>42</sup> United States	Quasi experimental; intentional	248	Female: 76% More than 30 years old: 84% More than 5 years as a nurse: 71%	94	32	112
Lagerlund et al, 2015. <sup>43</sup> a Sweden	O; intentional.	1140 5972	Female: 95% Mean age: 39.7 More than 2 years as a nurse: 81.4% Female: 93.7% Mean age: 40.3 More than 2 years as a nurse: 83.2%	462 1985	440 2240	530 1847
Molassiotis et al, 1996. <sup>44</sup> United States	O; intentional	40	Female: 85% Mean age: 39.4 Married: 72.5% Work experience mean (years): 9.9	4	4	9
Ostacoli et al, 2010. <sup>26</sup> a Italy	O; intentional	59 33	Female: 86.9% Mean age: 34.1 Work experience mean (years): 4.8 Female: 96% Mean age: 37.2 Work experience mean (years): 3.3	20 1	15 1	26 28
Papadatou et al, 1994. <sup>45</sup> Greece	O; intentional	214	Mean age: 32.7 Work experience mean (years): 11.1	69	69	79
Quattrin et al, 2006. <sup>46</sup> Italy	O; intentional	100	Female: 95% More than 30 years old: 87% Married: 54% More than 4 years as a nurse: 89%	35	17	11
Shang et al, 2013. <sup>47</sup> United States	O; intentional	708	Female: 96.6% Mean age: 43.2 Work experience mean (years): 13.7	261	-	-
Vazquez-Ortiz et al, 2012. <sup>48</sup> a United States	Quasi experimental; intentional	9 11	Female: 88.8% Mean age: 47.7 Female: 100% Mean age: 47.1	3 1	1 1	5 /0/

Note: D, Depersonalization; EE, Emotional exhaustion; HSS, Human Services Survey; MBI, Maslach Burnout Inventory; O, Observational; PA, Personal Accomplishment.

<sup>a</sup>Two samples.

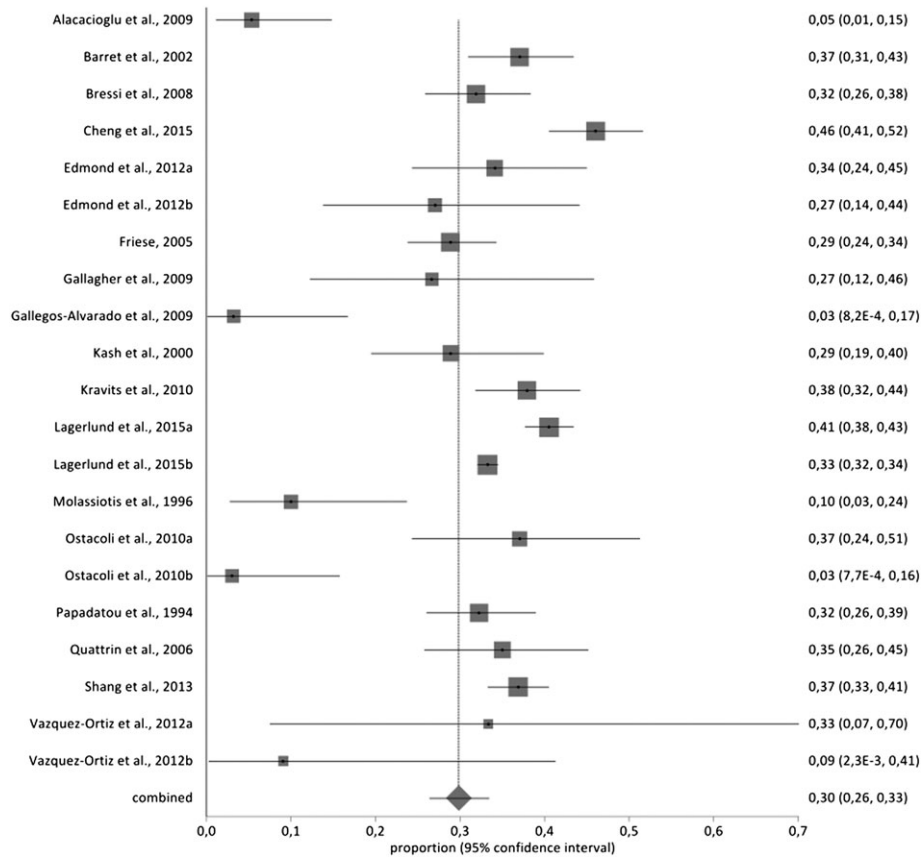


FIGURE 2 Forestplot of high EE

Although there have been several advances to oncology care in recent years, most of the studies included in the meta-analysis are from the last decade. Furthermore, older studies do not present

extremely positive or negative prevalence rates. Thus, the results and conclusions of the meta-analysis have not been influenced by the publication date of the studies. Finally, the level of evidence in these

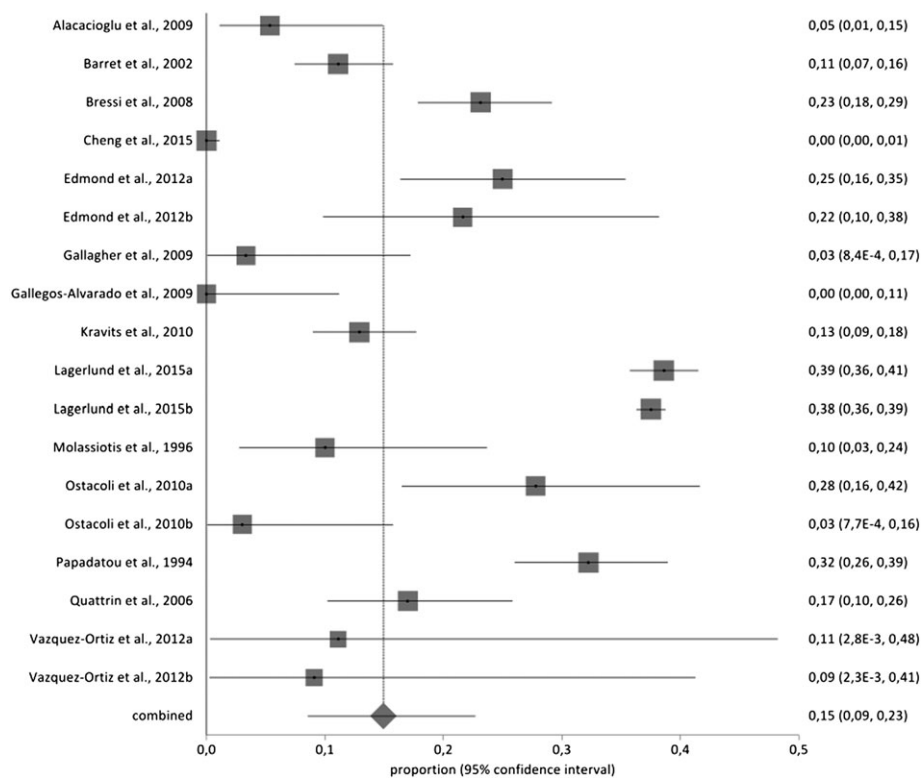
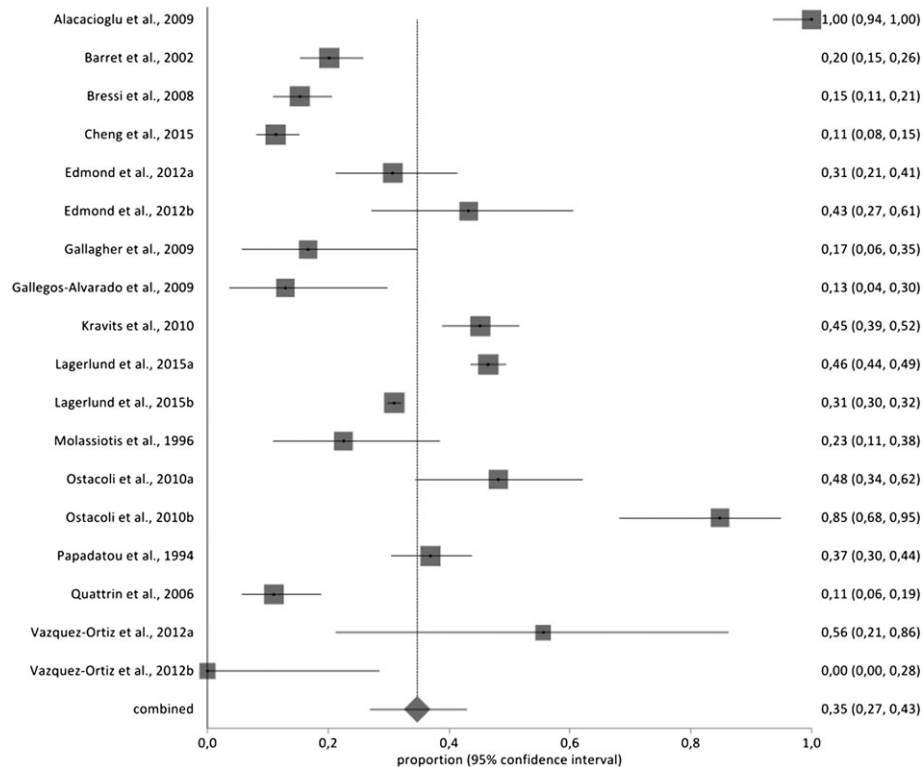


FIGURE 3 Forestplot of high DP



**FIGURE 4** Forestplot of low PA

studies is also low, mainly due to their descriptive design and the influence that the descriptive methodology has on evidence level; nevertheless, this outcome is logical, and it should not affect the reliability of the study, because such a study design is typically used to investigate prevalence values.

## 4.2 | Clinical implications

In view of the results obtained, nursing supervisors and oncology unit managers should be conscious of the influence that working in this unit can have in burnout development. To avoid, or to reduce, oncology nursing burnout, different interventions with positive results should be taken into account. For example, a brief psychological skills training for managing difficult encounters,<sup>65</sup> a 5-week program to educate oncology nurses in compassion fatigue resiliency<sup>66</sup> or a training and education in communication.<sup>67</sup> Other interventions, such as orientation programmes for newly recruited health professionals,<sup>68</sup> or facilitating the creation of group meetings to improve communication and support among professionals<sup>69</sup> have also shown positive results in reducing and preventing nursing burnout.

Ultimately, supervisors and managers should pay attention to burnout symptoms in their nursing team, such as headache, sleep disturbances, or poor concentration,<sup>70</sup> so they can provide a treatment for it, and avoid its negative health care effects such as diminishing patient safety.<sup>71</sup> Furthermore, supervisor and managers should effort in improving the psychosocial wellness in the workplace, the development of coping skills in oncology nurses' and enhancing the ability of staff nurses to support each other, which can increase oncology nurses wellbeing and retention.<sup>68</sup>

## 5 | CONCLUSIONS

Working in oncology units can produce emotional exhaustion and low personal accomplishment, which are the most prevalent problems in oncology nurses' burnout. Cynicism and negative thoughts towards patients and colleagues are less prevalent in this population. Oncology units can be considered high risk units for nursing burnout development.

## ACKNOWLEDGEMENTS

This work was funded by the Excellence Research Project P11HUM-7771 (Junta de Andalucía-Spain).

## CONFLICTS OF INTEREST STATEMENT

None declared.

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**How to cite this article:** Cañadas-De la Fuente GA, Gómez-Urquiza JL, Ortega-Campos EM, Cañadas GR, Albendín-García L, De la Fuente-Solana EI. Prevalence of burnout syndrome in oncology nursing: A meta-analytic study. *Psycho-Oncology*. 2018;27:1426-1433. <https://doi.org/10.1002/pon.4632>