Systematic review

Prevalence of burnout among physiotherapists: a systematic review and meta-analysis

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Abstract

Background Work-related burnout is a significant concern amongst healthcare professionals, including physiotherapists. It can negatively impact on both staff well-being and the quality of care delivered to patients.
Objectives To estimate the prevalence of burnout among physiotherapists.
Data sources PubMed, CINAHL, Web of Science, Embase, Scopus and PsycINFO, from inception to February 1st, 2022.
Study selection or eligibility criteria Studies reporting burnout prevalence among physiotherapists.
Data extraction and data synthesis Prevalence of burnout. Sub-analyses were performed grouping studies based on countries where surveys were conducted, classified as developed or developing countries. The risk of bias was assessed using a modified version of the Newcastle-Ottawa Scale.
Results 32 studies were included in the systematic review and 31 in the meta-analysis, enrolling a total of 5984 physiotherapists from 17 countries. Pooled prevalence (95% confidence interval) of burnout was 8% (4−15). Prevalence figures for Maslach Burnout Inventory dimensions were: (i) emotional exhaustion, 27% (21−34) (ii) depersonalization, 23% (15−32) (iii) low personal accomplishment, 25% (15−40). Both overall and single components prevalence was higher, although not significantly, in studies from developing than in developed countries.
Limitations Tools used to assess burnout and cut-off scores chosen to identify the burnout prevalence differed across studies.
Conclusion and implications of key findings Prevalence of burnout reported by physiotherapists appears high worldwide, in particular in developing countries, and compares with that reported by nurses and physicians. Substantial heterogeneity in the prevalence of burnout, in its definition and assessment methods across studies, and limited quality of most studies precludes drawing definitive conclusions.

Systematic review registration number PROSPERO CRD42022307876
Contribution of the paper

- This is the first systematic review on prevalence of burnout among physiotherapists worldwide. The pooled prevalence of burnout was 8%.
- Both overall and single components prevalence tended to be higher in developing than in developed countries.
- Substantial heterogeneity in the prevalence of burnout, in its definition and assessment methods across studies, and limited quality in most studies precludes drawing definitive conclusions.

Keywords: Professional burnout; Physiotherapy; Prevalence

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Introduction

The World Health Organization (WHO) recently declared burnout as an "occupational phenomenon" in the International Classification of Diseases 11th revision (ICD-11), recognizing it as a relevant health issue [1] leading to negative effects in workers' perspective and representing a concern for patient's safety, as it might negatively impact on work performance and quality [2].

Based on the work by Maslach et al., burnout is classically described as a combination of emotional exhaustion (EE), depersonalization (D), and low personal accomplishment (PA) [3]. Emotional exhaustion refers to workers' feeling of physical exertion and depletion of their emotional resources. Depersonalization is the development of negative feelings and perceptions directed to patients, often associated with a cynical attitude toward them. Finally, low personal accomplishment may derive from poor self-esteem workers may express of their dealing with patients or from work unsatisfaction [2].

A number of reviews [4–11] were conducted in order to investigate the prevalence of burnout across different healthcare professionals, including physicians, physician assistants, and nurses. Unfortunately, a high level of heterogeneity must be acknowledged across studies, in terms of burnout definitions, assessment methods, and study quality, to the point that a recent systematic review on the prevalence of burnout among physicians reported estimates varying from 0% to 81% [4] Recent meta-analyses conducted on medical residents found high levels of burnout overall, with substantial differences across specialties [5,6,8]. Low et al. [6] obtained a prevalence of 51% in medical and surgical residents, while Rogrigues et al. (2018) [5] reported an aggregate prevalence of 36%. In a systematic review on European physicians, prevalence figures varied markedly, from 8% to 43%, mostly because of different criteria applied in the detection of the problem [8]. Among nurses, a systematic review with meta-analysis reported an overall prevalence of burnout close to 11%, with differences across geographical regions [9].

Some systematic reviews specifically reported the prevalence of the three dimensions of burnout. A meta-analysis on nurses working with psychiatric patients reported a prevalence of 28% for emotional exhaustion, 25% for depersonalization, and 40% for reduced personal fulfillment [10], whereas prevalence figures were 25%, 15% and 31% in another study on nurses.[11] In the US, physicians seem to have higher risk for the condition than the general population, both for the overall burnout and each of its components [12] Similarly, burnout rates were higher among the healthcare workers than the general working population in the Swiss population [13].

Environmental, organizational, and general cultural factors may influence the rate of burnout among different countries and settings. Some studies, focusing on healthcare professionals operating in specific settings, reported that burnout prevalence was 35% in emergency departments [14] and 17% in palliative care services [15], whereas it ranged between 6% and 47% in the intensive care setting [16].

Burnout specifically affects professionals in a caring context [15], where physiotherapists spend a considerable amount of time in close relation with patients and their caregivers. Often this type of contact is maintained over extended periods of time, as in the case of interventions in long term care facilities or, in general, with patients with chronic diseases [17] when an intense and prolonged level of personal and emotional involvement is required. On the other hand, also physiotherapists working in acute care hospitals report symptoms of emotional exhaustion and depersonalization [18]. Other risk factors leading to burnout [4] have been recently categorized as structural/organizational, psychological/emotional, environmental, or socio-demographic [19].

As recently suggested [20], socio-economic, organization and cultural differences in the perception of burnout might be expected between developed and developing countries, consequently affecting the reported prevalence.

Although physiotherapists are particularly exposed to a risk of burnout, to our knowledge no previous systematic review has been conducted to estimate its prevalence among physiotherapists. Therefore, aim of this study was to perform a systematic review with meta-analysis on the prevalence of burnout, as well as of its components, when possible, in physiotherapists. Secondarily, we also explored differences in physiotherapists' burnout reports between developed and developing countries.

Methods

Protocol registration

The reporting of this systematic review follows the PRISMA guidelines, [21]. The protocol and details were registered into the International Prospective Register of Systematic Reviews - PROSPERO (https://www.crd.york.ac.uk/prospero/; register number CRD42022307876).

Studies identification and selection

Relevant electronic databases (PubMed, CINAHL, Web of Science, Embase, Scopus and PsycINFO) were searched, from inception to February 1, 2022, to retrieve complete original studies, reporting on burnout prevalence among physiotherapists. Full search strings for each database are reported in supplementary Appendix 1.

To ensure retrieval of all potentially relevant publications, reference lists of related articles were checked by two independent reviewers (E.V. and L.B.). Two independent reviewers (E.V. and L.B.) excluded non-pertinent articles after reading the title and the abstract, then retrieved and

assessed for inclusion the full text of eligible articles. Disagreement was resolved by a third reviewer (M.P.).

Studies were included when they: (1) investigated the prevalence of burnout among physiotherapists; studies involving different categories of healthcare professionals were considered only when they reported separately data specifically referring to physiotherapists; (2) were published in English, Spanish, Portuguese, Italian, French, or German. Studies on physiotherapy students, abstracts from conference proceedings, and qualitative studies were excluded.

When the method of assessment of burnout was not explicitly reported, it was inferred based on the articles or manuals cited in the study, when reported. When no diagnostic cutoff was explicitly reported, it was inferred based on the articles or manuals the studies cited, when available.

Risk of bias assessment

The risk of bias was assessed using a modified version of the Newcastle-Ottawa Scale [22] by two independent reviewers (E.V. and L.B.); disagreements were resolved by a third reviewer (M.P.).

Each item in the checklist was scored as "yes" or "no"; the global score, obtained by summation, represented methodological quality of each paper.

Statistical analysis

A generalized linear mixed model (GLMM), a random intercept logistic regression model for the meta-analysis of proportions, was used for the meta-analysis. Results were reported in forest plots of prevalence point estimates, together with their 95% confidence interval (CI); both fixed and random effects models were applied, depending on the level of heterogeneity.

Statistical heterogeneity was tested with Q statistics and its P-value, while it was quantified with the I^2 index. To reduce heterogeneity, subgroup analyses were performed, grouping studies based on countries where surveys were performed; to this purpose, countries were classified as either developed or developing, according to the International Statistical Institute (https://www.isi-web.org/resources/developing-countries).

Publication bias was assessed using the funnel-plot graph method and the statistic test proposed by Thompson and Sharp [23], based on a weighted linear regression of the effect on its standard error using the method of moments estimator for the additive between-study variance component.

In addition, to explore potential sources of heterogeneity, metaregressions were conducted taking into account potential moderators, such as year of publication and the risk of bias, as assessed from the Newcastle-Ottawa Scale scores.

The scores of the risk of bias assessment of studies conducted in developed and developing countries were compared using the Mann–Whitney test.

Descriptive and non-parametric statistics were calculated using SPSS software (Version 23 for Windows; SPSS Inc., Chicago, IL, USA). All other analyses were performed using the software R and the 'meta' package. Statistical significance was set at a P-value < 0.05 level.

Results

Characteristics of the studies included

Out of a total of 5984 titles retrieved, 32 articles fulfilled the selection criteria [24–55] (Fig. 1). These studies, whose main characteristics are reported in Table 1, were published between 1984 and 2021. The number of participants ranged between 5 and 919, with a mean (SD) of 187 (208) participants per study. Twenty-five and seven studies were included in the subgroups of developed [24–26,30–32, 34–36,38–40,42–51,53–55] and developing [27–29,33, 37,41,52] countries, respectively.

Methodological quality

The summary score for quality ranged from 1 to 4 points (median=3; interquartile range=2–3) for all the studies included (Table 2). In detail, eight studies (25%) failed to fulfill the criteria of adequate representativeness of the sample and none of the studies assessed comparability between subjects who did or did not participate. On the other hand, 87% of the studies (n = 28) used a valid measure to detect burnout and its components, although with different cut-offs across studies.

The quality score ranged between 2 and 4 (median=3; interquartile range=2–3) in studies conducted in developed countries, and between 1 and 4 (median=3; interquartile range= 1.5–3) in those from developing countries, a statistically non-significant difference at the Mann–Whitney test (p = .624).

Assessment tools

The most frequently used assessment tool was the Maslach Burnout Inventory (MBI), which was applied in 27 studies (84%), although in different versions. In particular, the original, full-length version of the tool, including 22 items and designed to measure burnout symptoms in individuals working in human services (Human Services Survey, MBI-HSS), was used in 25 studies (78%). Only
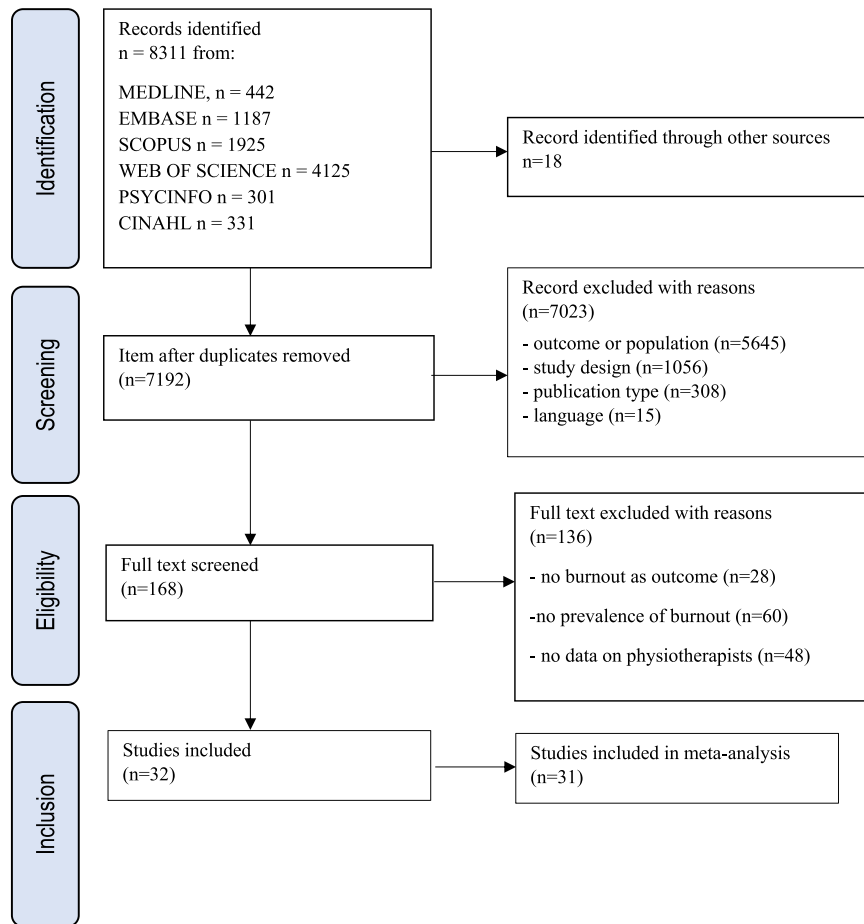
Fig. 1. Flow diagram of the literature search process according to PRISMA.

two studies (6%) used the 16-item MBI-General Survey, designed for detecting burnout in subjects not directly supporting persons.

The remaining five studies included in this review used a different instrument for the detection of burnout symptoms, such as the Copenhagen Burnout Inventory scale [59], the burnout subscale of the Professional Quality of Life Scale (ProQOL) [37], the Bergen Burnout Inventory (BBI) [39], and the Shirom-Melamed Burnout Measure (SMBM) [49]. Finally, Schuster et al. [47] used a qualitative questionnaire.

Studies using the MBI applied a wide range of cut-offs for the three dimensions of EE, D, and PA. Thirteen of the 25 (52%) studies using the MBI-HSS identified the presence of EE when a score of at least 27 was reached for this subscale, 4 studies (16%) with scores between 22 and 26, and 6 studies did not report the cut-off score. As far as the D dimension, 3 studies (12%) choose a cut-off of 14, 3 studies (12%) of 13, 2 studies (8%) of 12, other 2 (8%) of 11, and the remaining 15 used even lower cut-offs. PA was

detected for cut-off scores of equal to or less than 31 (5 studies, 20%) or 33 (5 studies, 20%).

Meta-analyses

Only thirty-one articles were included in the meta-analyses. The study by Jacome et al. [54] was excluded because it did not report the prevalence of overall burnout and used the Copenhagen Burnout Inventory scale, whose single dimensions are not comparable to the three dimensions of the MBI.

No significant publication bias was detected (Appendix).

Overall burnout

The overall burnout, reported by 17 studies, had a pooled prevalence (95% CI) of 8% (4–15) with substantial heterogeneity ($I^2 = 94\%$, $t^2 = 1.9277$, $p < 0.01$) (Fig. 2). The estimated pooled prevalence was lower in the studies from 12 developed countries than in those from developing

Table 1
Characteristics of included studies.

Source and country	Settings	No. physical therapists	Age	Female %	Burnout Assessment Instrument	Overall Burnout definition	Burnout dimension definitions	Overall Burnout Prevalence	Burnout dimension prevalence
Corrado et al., 2018 [24] Italy	Neurology Orthopedics Multipathology Others	118	<26 26: 3% 26–35: 41% >35: 32%	41	22 item MBI-HSS (Italian version)	EE ≥23 + DP≥6+ PA ≤31	High EE: ≥23 High DP: ≥6 Low PA: ≤31	8%	High EE: 25 % Moderate to high DP: 90% Low PA: 20%
Carmona-Barrientos et al., 2020 [25] Spain	Public and private	272	<25 years: 16% 26-50: 80% >50: 5%	62	22 item MBI-HSS (Spanish version)	NR	High EE: ≥27 High DP: ≥13 Low PA: <31	NR	High EE: 31% High DP: 37% Low PA: 30%
Al-Imam et al., 2014 [26] Saudi Arabia	Multiple	119	23-33: 74% 34-44: 19% 44-55: 3%	62	16 item MBI-GS	High E + high CY + low PE	High E: ≥ 16 High CY: ≥ 13 Low PE: ≤23	7%	High E: 42% High CY: 34% Low PE: 28%
Lima et al., 2021 [27] Brazil	Intensive care	56	32 (6)	80	22 item MBI-HSS (Brazilian version)	NR	High EE: ≥27 High DP: ≥13 Low PA: ≤31	NR	High EE: 62% (35) High DP: 93% (52) Low PA: 0% High PA: 100% (56)
Silva et al., 2018 [28] Brazil	Adult intensive care units Pediatric/ neonatal intensive care units	5	<29: 30% 30-39: 44% >40: 26%	25	22 item MBI-HSS (Brazilian version)	High EE + High DP + low PA	High EE: ≥27 High DP: ≥13 Low PA: ≤31	3% (1) Adult intensive care units: 12% Pediatric/neonatal intensive care units: Moderate: 28%-47% Low: 33%-18%	Adult vs pediatric intensive care units: High EE: 56% - 65% High DP: 56% - 65% Low PA: 38% - 35%
Yousaf et al., 2021 [29] Pakistan	Private Public	387	Private: 29 (4) Public: 28(6)	Public: 67 Private: 55	22 item MBI-HSS	NR	NR	0%	Public: No Burnout: 22% Borderline Burnout: 44% Burnout: 31% Severe Burnout: 3% Private: No Burnout: 14% Borderline Burnout: 22% Burnout: 53.2% Severe Burnout: 11%

Table 1 (*Continued*)

Source and country	Settings	No. physical therapists	Age	Female %	Burnout Assessment Instrument	Overall Burnout definition	Burnout dimension definitions	Overall Burnout Prevalence	Burnout dimension prevalence
Baudry et al., 2020 [30] France	Freelance Public workers	919	-< 30 (38%) -30-49 (53%) -50-67 (8%) - 67 (0%)	78	22 item MBI-HSS (French version)	High risk in all MBI dimension	EE: >30 DP: >12 PA: <33	7.6%	High EE risk: 26% High D risk: 26% High PA risk: 34%
Berry et al., 2015 [31] United States	NR	113	NR	69	22 item MBI-HSS	NR	High EE: ≥27 High DP: ≥14 Low PA: ≤30	NR	High EE: 22% High DP: 4% Low PA: 5%
Bowens et al., 2021 [32] United States	Acute care hospital Assisted living Continuing care residential community Health and wellness facility Health system/health-based outpatient Facility Nursing home Home health care Private outpatient office or group practice	715	<25: 1% 25-44: 33% 35-44: 25% 45-54: 25% 55-64: 13% 65-74: 3% > 75: 0%	28	Pro QOL Burnout subscale	Low burnout: <23 Moderate burnout: 23-41 High burnout: >41	No dimensions	- Low burnout: 53% - Moderate burnout: 51% - High burnout: 0%	
Castro et al., 2020 [33] Brazil	intensive care unit or step-down unit	88	35 (range: 31-39)**	73**	22 item MBI-HSS (Brazilian version)	High EE + high DP + low PA	High EE: ≥27 High DP: ≥10 Low PA: ≤33	34%	High EE 35% High DP: 68% Low PA: 98%
Castro Sanchez et al., 2006 [34] Spain	Hospital and primary care	46	44(11)	63	22 item MBI-HSS (Spanish version)	High EE + high DP + low PA	High EE: > 31 High DP: <9 Low PA: < 33	11%	High EE: 37% High DP: 17% Low PA: 69%
Donohoe et al., 1993 [35] United States	Rehabilitation hospital	122	27 (5) (range: 20-50)	93	22 item MBI-HSS	NR	NR	NR	High EE: 46% High DP: 20% Low PA: 60%

Table 1 (*Continued*)

Source and country	Settings	No. physical therapists	Age	Female %	Burnout Assessment Instrument	Overall Burnout definition	Burnout dimension definitions	Overall Burnout Prevalence	Burnout dimension prevalence
Fischer et al., 2013 [36] Italy	Public hospitals	132	Men: 36 Women: 42	78	22 item MBI-HSS for healthcare workers (German version)	NR	EE e D: ≥4 PA: ≤3	NR	High EE: 35% High DP: 18% Low PA: 14%
Khanna et al., 2013 [37] India	NR	28 (5% of the whole sample)	≤45 (42%) 45-60 (47%) >61+ 11%**	18	22 item MBI-HSS	NR	High EE: >27 High DP: >13 Low PA: 0–31	NR	Hogh EE: 14% High DP: 7% Low PA: 7%
Mandy & Rouse, 1997 [38] England	Hospital	31	26 (4)	68	22 item MBI-HSS	NR	High EE: >27 High DP: >12 Low PA: ≤31	NR	High EE: 29% High DP: 23% Low PA: 16 %
Mandy et al., 2004 [39] Norway	Private sector Public sector	127	41 (10) (range: 22-66)	78	25 item BBI	Extremely content/no burnout: 25-29 Very content/no burnout: 30-49 Content/no burnout: 50-74 Early borderline burnout: 75-99 Burnout borderline: 100-124 Burnout 125-149 Dangerous burnout: 150-175	NR	0%	Extremely content/no burnout: 1%Very content/no burnout: 26% Content/no burnout: 41% Content/no burnout: 24% Burnout borderline: 9% Burnout: 0% Dangerous burnout: 0%
Matsuo et al., 2021 [40] Japan	Hospital, multiple specialties and intensive care	13 (2% of the whole sample)	21- 30: 36% 31- 40: 31% 41-50: 21% 51-60: 11% >60: 2%**	NR	16 item MBI-GS (Japanese version)	High E low PE	High E: >3.5 Low PE: <2.5	0%	NR
Nascimento et al., 2017 [41] Brazil	Intensive care unit	25	34 (5)	56	22 item MBI-HSS (Brazilian version)	High EE + high DP + low PA	High EE: ≥26 High DP: ≥13 Low PA: ≤31	4% (1)	High EE: 12% High DP: 8% Low PA: 20%
Nowakowska-Domagala et al., 2015 [42] Poland	Inpatient and outpatient clinic	117	32 (9)	78	22 item MBI-HSS (Polish version)	High EE + high DP+ low PA	High EE: > 22 High DP: ≥11 Low PA: < 23	NR	High EE: 17% High DP: 16% Low PA: 15%

Table 1 (*Continued*)

Source and country	Settings	No. physical therapists	Age	Female %	Burnout Assessment Instrument	Overall Burnout definition	Burnout dimension definitions	Overall Burnout Prevalence	Burnout dimension prevalence
Pasternak et al., 2010 [43] Poland	Stroke Unit	40	range: 41-50	N.A.	22 item MBI-HSS (Polish version)	NR	NR	NR	High DP: 50% Low PA: 53%
Pavlakis et al., 2010 [44] Cyprus	Public and private	172	<30 years old 8% 31-40 10% 41-50 30% 51-60 43% >60 8%	64	22 item MBI-HSS Greek version	DP: >11 and/or EE: >31	High EE ≥31 High DP ≥11 Low PA: ≤35	21,1%	High EE: 8% High DP: 17% Low PA: 23%
Rodriguez-Nogueira et al., 2021 [45] Spain	Freelance Dependent	472	33 (9)	70	22 item MBI-HSS (Spanish version)	NR	High EE: ≥27 High DP: ≥14 Low PA: <30	NR	High EE: 47% High DP: 42% Low PA: 41%
Saganha et al., 2012 [46] Portugal	NR	106	28 (5)	66	22 item MBI-HSS	NR	High EE: ≥27 High DP: ≥14 Low PA: ≤30	NR	High EE: 22% High DP: 7% Low PA: 4 %
Schuster et al., 1984 [47] United States	multiple	195	32 (8) (range 23-58)	65 data regarding only people experiencing burnout	Self-made 52 item questionnaire	NR	NR	53%	NR
Scutter et al., 1995 [48] Australia	Public hospital Private centers	66	26 (range 22-44)	66	22 item MBI-HSS	NR	High EE: ≥27 High DP: ≥6 Low PA: ≤31	High EE: 24% High DP: 9% Low PA: 6%	NR
Seixas et al., 2020 [49] Portugal	Private clinics	71	NR	89	Shirom-Melamed Burnout Measure	NR	High physical fatigue: ≥5 Emotional exhaustion: ≥5 Cognitive weariness: ≥5	15%	High physical fatigue: 20% High cognitive weariness: 13% High emotional exhaustion: 3%
Serrano Gisbert et al., 2008 [50] Spain	Public hospitals Medical centers Private hospitals Private clinics Working mutual funds Hospital foundations	258	35 (10)	64	22 item MBI-HSS (Spanish version)	High EE + high DP+ low PA	High EE: > 24 High DP: <9 Low PA: < 33	4%	High EE: 35% High DP: 21% Low PA: 19%

Table 1 (*Continued*)

Source and country	Settings	No. physical therapists	Age	Female %	Burnout Assessment Instrument	Overall Burnout definition	Burnout dimension definitions	Overall Burnout Prevalence	Burnout dimension prevalence
Tragea et al., 2012 [51] Greece	Public and private hospitals Rehabilitation clinics	176	35(9)	57	22 item MBI-HSS (Greek Version)	High EE + high D + low PA	NR	NR	High EE: 14% High D: 23% Low PA: 29%
Ullah et al., 2020 [52] Pakistan	General hospital	101	≤27 42% 27-30 14% ≥30 25%	44	22 item MBI-HSS	High EE+ High DP	NR	36%	High EE: 6% High DP: 37% Low PA: 58%
Wolf, 2011 [53] Germany	Outpatient clinic Inpatient clinic	173	21-61 (55%) 21- 31 (51%)**	86**	22 item MBI-D (modified German version)	Mean values ≥ 3.5 for all MBi dimensions (Leiter model)	High EE, DP risk if mean values for the subscale values ≥ 3.5	NR	High EE risk: 24% High DP risk: 8%
Jácome et al., 2021 [54] Portugal	Multiple	511	33	82	19 item CBI (Portuguese version)	-Personal: ≥50 - work related burnout: ≥50 -patient related burnout: ≥50	NR	-personal 42%, -work related burnout 42% -patient related burnout 25%	NR
Bruschini et al., 2017 [55] Italy	NR	210	41(10)	38**	22 item MBI-HSS (Italian version)	High burnout risk: High EE + high DP + low PA	High EE: >22 High DP: >5 Low PA: <33	16%	NR

Abbreviations: CY, cynicism; DP, depersonalization; E, *exhaustion*; EE, emotional exhaustion; PA, Personal accomplishment; MBI, Maslach Burnout Inventory; MBI-GS, MBI-General Survey; MBI-HSS, MBI–Human Services Survey, NR, Not reported; PE *professional efficacy*

[a] Studies are ordered alphabetically by continent and medical specialty.

the burnout assessment method was not explicitly reported by the study, it was inferred based on the articles or manuals cited the study, when possible.

[b] If the cutoff was not explicitly reported by the study, it was inferred based on the articles or manuals the study cited, when possible.

[c] Note that the MBI-GS uses the terms exhaustion, cynicism, and professional efficacy rather than emotional exhaustion, depersonalization, and personal accomplishment.

** data from the whole healthcare sample

Table 2
The quality assessments of included studies.

Author, year	Representativeness of sample	Sample size	Non responders	Prevalence of burnout	Quality of descriptive statistics reporting	Total
Developed countries						
Corrado et al., 2019 [24]	1	1	0	1	0	3
Carmona Barrientos et al., 2020 [25]	1	1	0	1	0	3
Al Imam et al., 2014 [26]	1	1	0	1	0	3
Baudry et al., 2020 [30]	1	1	0	1	0	3
Berry et al., 2015 [31]	1	1	0	1	0	3
Bowens et al., 2021 [32]	1	1	0	1	1	4
Castro Sanchez et al., 2006 [34]	0	1	0	1	0	2
Donohoe et al.,1993 [35]	1	1	0	1	0	3
Fischer et al., 2013 [36]	1	1	0	1	0	3
Mandy and Rouse., 1997 [38]	1	0	0	1	0	2
Mandy et al., 2004 [39]	1	1	0	0	0	2
Matsuo et al., 2021 [40]	1	0	0	1	0	2
Nowakowska et al., 2015 [42]	1	1	0	1	0	3
Pasternak et al., 2016 [43]	0	1	0	1	0	2
Pavlakis et al., 2010 [44]	1	1	0	1	1	4
Rodriguez Nogueira et al., 2021 [45]	1	1	0	1	0	3
Saganha et al., 2012 [46]	1	1	0	1	0	3
Schuster et al., 1984 [47]	0	0	1	1	1	3
Scutter et al., 1995 [48]	1	1	0	1	0	3
Seixas et al., 2020 [49]	0	0	0	1	1	2
Serrano Gisbert et al., 2008 [50]	0	1	0	1	0	2
Tragea et al., 2012 [51]	1	1	0	1	0	3
Wolf, 2011 [53]	1	1	0	1	0	3
Jacome et al., 2021 [54]	0	0	0	1	1	2
Bruschini et al., 2017 [55]	0	1	0	1	0	2
Developing countries						
Lima et al., 2021 [27]	1	1	0	1	0	3
Silva et al., 2018 [28]	0	0	0	1	0	1
Yousaf et al., 2021 [29]	1	1	0	1	0	3
Castro et al., 2020 [33]	1	1	0	1	1	4
Khanna et al., 2013 [37]	0	0	0	1	0	1
Nascimento et al., 2017 [41]	0	0	0	1	1	2
Ullah et al., 2020 [52]	0	1	0	1	1	3

countries (Fig. 3). Heterogeneity was found to be high in all analyses, with I^2 values ranging from 93% to 94%.

MBI dimensions

The prevalence of abnormal values for the three MBI dimension, reported in 23 studies (74%), was: (i) EE, 27% (21−34) (Fig. 4); (ii) D, 23% (15−32) (Fig. 5); (iii) low PA, 25% (15−40) (Fig. 6). The prevalence of both overall and single components burnout tended to be higher in developing (6 studies) than in developed (17 studies) countries, although with no statistically significant difference.

Heterogeneity was high in all analyses, with I^2 values ranging from 91% to 94%.

Metaregressions and subgroup analyses

Metaregressions using year of publication as potential moderator showed that the prevalence of burnout increased with time, both for the overall assessment and for each component. However, two studies conducted in developing countries and published in recent years might have biased these results (Appendix). Subgroup analyses according to Newcastle-Ottawa Scale scores did not change heterogeneity (Appendix).
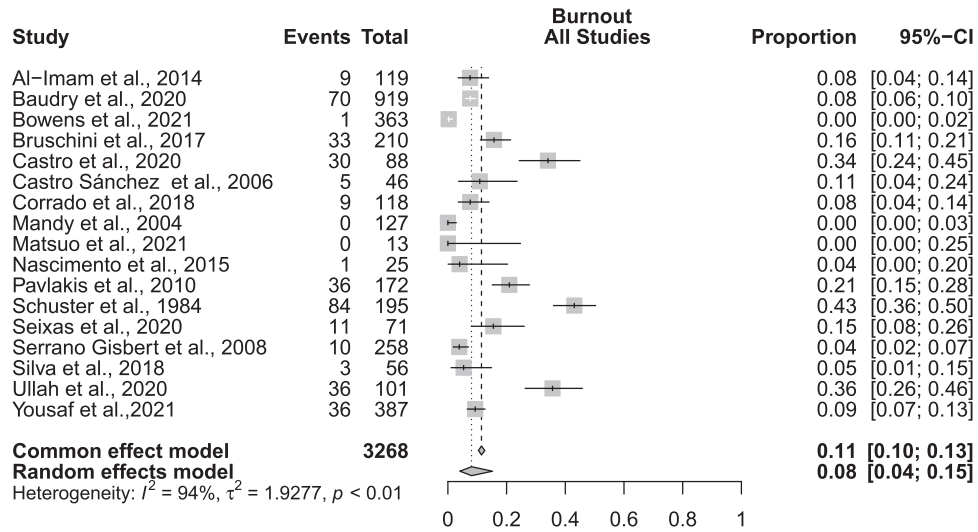
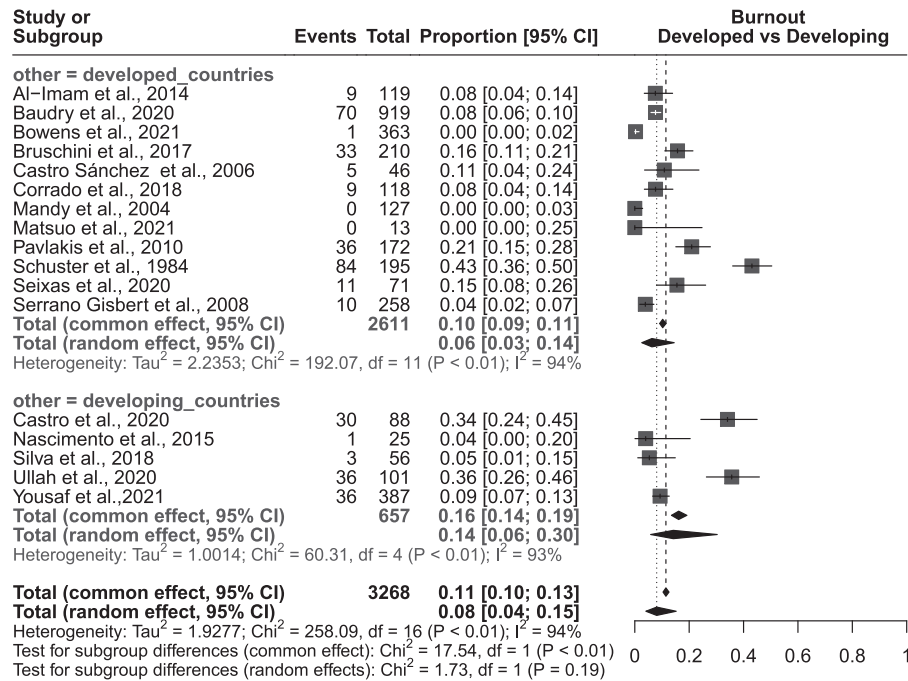Fig. 2. Results of the meta-analyses for overall burnout for all included studies.

Fig. 3. Results of the meta-analyses for overall burnout for studies conducted in developed and developing countries.

Discussion

As this study shows, burnout is a relevant and largely explored health issue among physiotherapists, since 32 studies involving a total of 5984 physiotherapists from 17 countries were retrieved. Most studies used the MBI as an assessment tool, although in its different versions. This allowed estimating the prevalence of each dimension of the scale.

To our knowledge, this is the first meta-analysis on burnout among physiotherapists, reporting a prevalence of

overall burnout ranging from 0% to 43%. High variability was found also for the three components of the MBI, with prevalence ranging from 6% to 62% for EE, from 4% to 93% for D, and from 4% to 93% for low PA.

The high heterogeneity observed in the studies included might stem from several sources, such as the tools used to assess burnout, the cut-off scores chosen to identify the burnout prevalence, and the different settings and clinical experience within and between studies.

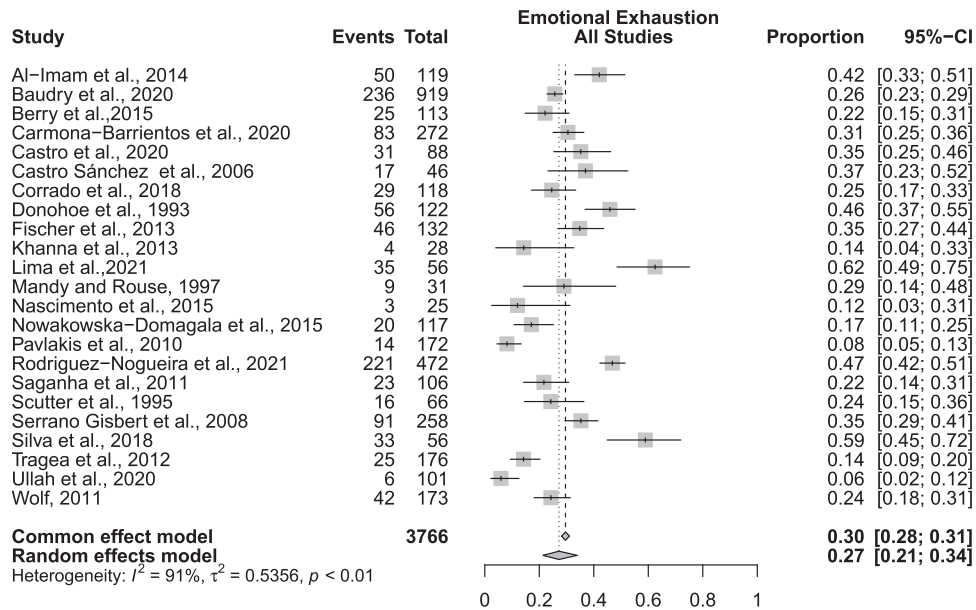Differences in the definition of burnout and in the conceptual framework of its construct may have been another

Fig. 4. Results of the meta-analyses for study conducted in developed and developing countries and for all included studies in the Emotional Exhaustion domain.

source of heterogeneity. For example, it has been observed the MBI reflects more the symptoms than the clinical condition of burnout [56] Other authors [57] questioned the appropriateness in meta-estimating the prevalence of burnout, since scores obtained with the MBI, the most frequently used assessment tool, should be used as continuous variables for each domain and, in the absence of fully agreed upon cut-offs, cannot be used as diagnostic criteria. However, dichotomizing or combining the

subscales to diagnose burnout may offer a valuable support to organizations and institutions that may want to develop policies for identifying burnout in physiotherapists [4].

Following the recommendation not to add the scores of the three MBI dimensions, a large number of studies applying this tool did not report the overall prevalence of burnout, resulting in differences between the overall prevalence (8%) and prevalence of each component (23% to 27%). Moreover, pooled overall prevalence value results
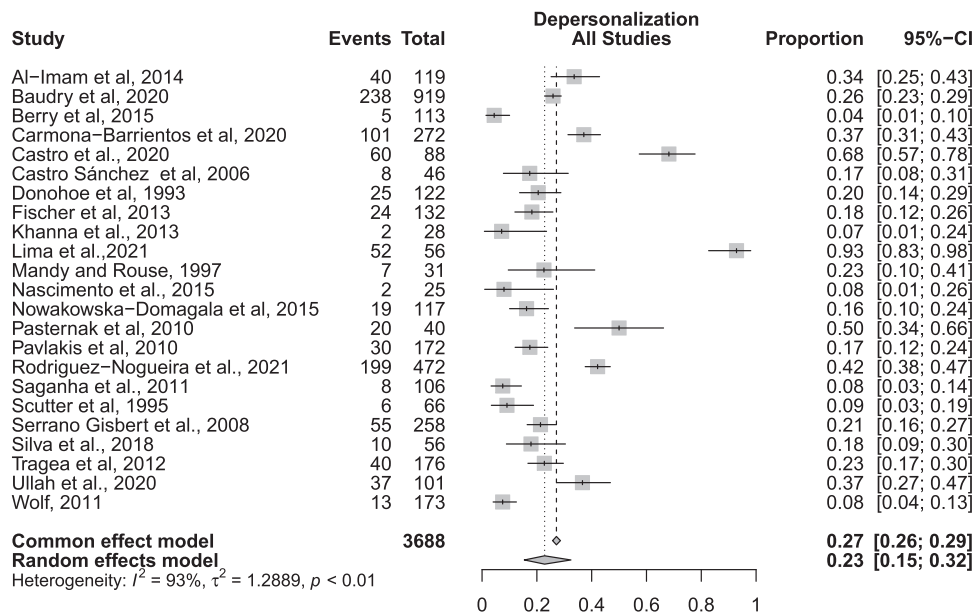

Fig. 5. Results of the meta-analyses for study conducted in developed and developing countries and for all included studies in the Depersonalization domain.

Study	Events	Total	Personal Accomplishment All Studies	Proportion	95%−CI
Al−Imam et al., 2014	34	119		0.29	[0.21; 0.38]
Baudry et al., 2020	311	919		0.34	[0.31; 0.37]
Berry et al.,2015	6	113		0.05	[0.02; 0.11]
Carmona−Barrientos et al., 2020	81	272		0.30	[0.24; 0.36]
Castro et al., 2020	1	88		0.01	[0.00; 0.06]
Castro Sánchez et al., 2006	32	46		0.70	[0.54; 0.82]
Corrado et al., 2018	24	118		0.20	[0.13; 0.29]
Donohoe et al., 1993	73	122		0.60	[0.51; 0.69]
Fischer et al., 2013	19	132		0.14	[0.09; 0.22]
Khanna et al., 2013	2	28		0.07	[0.01; 0.24]
Lima et al.,2021	56	56		1.00	[0.94; 1.00]
Mandy and Rouse, 1997	5	31		0.16	[0.05; 0.34]
Nascimento et al., 2015	5	25		0.20	[0.07; 0.41]
Nowakowska−Domagala et al., 2015	17	117		0.15	[0.09; 0.22]
Pasternak et al., 2010	21	40		0.53	[0.36; 0.68]
Pavlakis et al., 2010	40	172		0.23	[0.17; 0.30]
Rodriguez−Nogueira et al., 2021	195	472		0.41	[0.37; 0.46]
Saganha et al.,2011	4	106		0.04	[0.01; 0.09]
Scutter et al., 1995	4	66		0.06	[0.02; 0.15]
Serrano Gisbert et al., 2008	50	258		0.19	[0.15; 0.25]
Silva et al., 2018	21	56		0.38	[0.25; 0.51]
Tragea et al., 2012	51	176		0.29	[0.22; 0.36]
Ullah et al., 2020	59	101		0.58	[0.48; 0.68]
Common effect model		**3633**		**0.31**	**[0.29; 0.32]**
Random effects model				**0.25**	**[0.15; 0.40]**

Heterogeneity: $I^2 = 92\%$, $\tau^2 = 2.4149$, $p < 0.01$
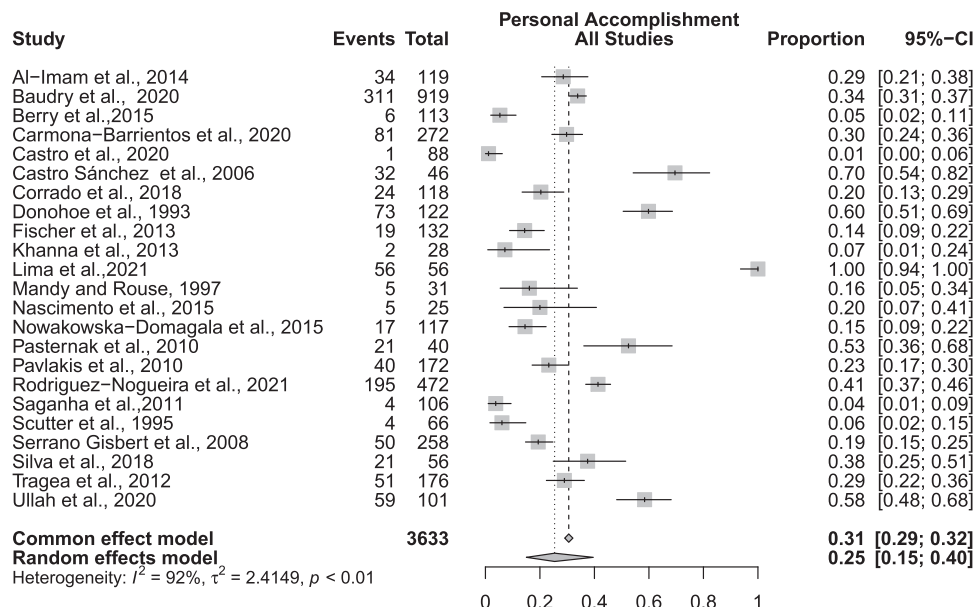
0   0.2   0.4   0.6   0.8   1

Fig. 6. Results of the meta-analyses for study conducted in developed and developing countries and for all included studies in the Personal Accomplishment domain.

from different assessment tools, probably contributing to this difference. All these issues confirm that, as previously recommended [4], scientific consensus should be reached in order to achieve a shared definition of burnout and to standardize assessment tools.

Emerging issues, such as the COVID-19 pandemic, could affect the burnout perception, due to lack of social interaction or support by managers, changes in working environment and organization, or reduction in training opportunities [58,59].

Overall, our findings compare well with prevalence of burnout found in nurses [10,11,60,61] and in European physicians [8], though other meta-analyses [4,62] reported higher levels of burnout among physicians. In addition, the rate of burnout in physiotherapists seems to have higher than in general population for each of the three components, similarly to physicians and healthcare workers in general [12,13].

The prevalence of burnout varied across different countries and geographical regions, probably because of socio-economic and organization differences. Cultural issues might also affect the perception of the three components of burnout. We explored prevalence between developed and developing countries because different results might be expected [20,63,64]. Our analyses show higher prevalence of burnout in developing countries, but these results should be interpreted with caution, since only seven studies were conducted in developing countries and two of them, reporting the highest scores for all the three components, included professionals working in severely stressing settings (i.e., intensive care unit) [16]. Yet, similar results have been recently reported for both medical and non-medical university students [63], suggesting the need for a special attention and additional investigations in developing countries.

Likewise, the effect of the year of publication as a moderator might be also related to the high levels of burnout reported in the same two studies. However, the observed increase of burnout over the years and the higher levels of this condition in developing countries should warn to support policies and interventions aiming to development of healthcare professionals worldwide, especially in higher risk countries. On the other hand, the methodological quality does not seem to be a significant moderator.

Since physiotherapists work in different clinical settings and treat individuals with a wide range of health conditions, and because they are involved in different organizational contexts, variable levels of stress related to the professional environment might be expected. Unfortunately, many studies report aggregate data from samples of physiotherapists employed in different clinical settings.

Limitations

This study has some limitations. First, the tools used to assess burnout, as well as the cut-off scores chosen to identify the burnout prevalence, differed across studies. Second, only a few studies were conducted in developing countries, and none in Africa. The lack of investigations conducted in developing countries could potentially introduced a bias in the comparison between developed and developing countries. In addition, many studies involved samples of physiotherapists working in multiple settings and sub-analyses based on different contexts could be not carried out. Finally, 27% of the studies included (n = 8) did not use probabilistic sampling or did not declare the modalities of sample selection. The non-probabilistic sampling of more than a quarter of the studies may have contributed

to a distortion in the results: it is possible that physiotherapists with higher burnout were not identified from the studies included. Furthermore, the fact that almost all the studies did not define the comparability between those who responded to the study and those who did not answered might have introduced some biases.

Conclusions

Physiotherapists have high prevalence of burnout worldwide, comparable with prevalence reported in physicians and nurses. There was a substantial variability in the prevalence of burnout, possibly related to marked variations in burnout definition, assessment method, and study quality. These findings preclude drawing definitive conclusions and highlight the importance of developing a consensus for burnout definition and standardized measurement tools.

Educational and organizational strategies should be implemented to prevent and reduce the phenomenon among physiotherapists, with special attention to developing countries.

Funding: None declared.

Conflict of interest: None declared.

Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at doi:10.1016/j.physio.2024.01.007.

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