



A Systematic Review on Burnout Among Radiology Physicians: A Call to Action

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Background

Burnout is a syndrome resulting from chronic unmanaged workplace stress, and it is on the rise among physicians, including radiologists, with prevalence rates exceeding 50%. Burnout is defined by emotional exhaustion, depersonalization, and reduced personal accomplishment. Burnout in healthcare can result in medical errors, malpractice suits, low patient satisfaction, and poor care delivery. Many diagnostic and interventional radiologists exhibit burnout symptoms. Factors contributing to burnout among radiologists include increasing imaging volume, diminishing reimbursements, poor work environment, social isolation, loss of professional autonomy, and workforce shortages.

Objective

To systematically review studies reporting the prevalence of burnout in physicians in the radiology department and to provide an overview of the factors associated with burnout among radiologists.

Methods

- Searches were run from inception until November 13th, 2022, in multiple databases.
- This systematic review included studies that addressed the prevalence of burnout in radiologists of any sample size, using a valid method of assessment, reporting estimates of overall burnout syndrome or its subdimensions, and were cross-sectional, observational, or prospective survey peer-reviewed studies, without restrictions on publication time or language, following the PICOS framework.
- Data were extracted into a standardized Excel® sheet and descriptive statistics were generated by the same program.

Results

- Twenty-two cross-sectional studies involving 4230 radiology physicians in 7 countries published between 1996 and 2022 reporting on burnout were included. Fifteen studies (68.2%, n = 3181) were conducted in the United States.
- The studies had a range of participants from 26 to 460, with a median of 156 and an interquartile range of 89-265.
- Only 81.8% of the studies identified the gender of their sample, with 57.7% males and 42.3% females.
- The overall burnout prevalence estimates were reported by 13 studies (59.1%) and varied from 33% to 88%.
- High burnout prevalence estimates were reported by only 5 studies (22.7%) and ranged from 5% to 62%.
- Still, the prevalence estimates from these studies cannot be combined nor compared due to the variability in burnout assessment techniques, definitions, and outcomes, as well as statistical heterogeneity.

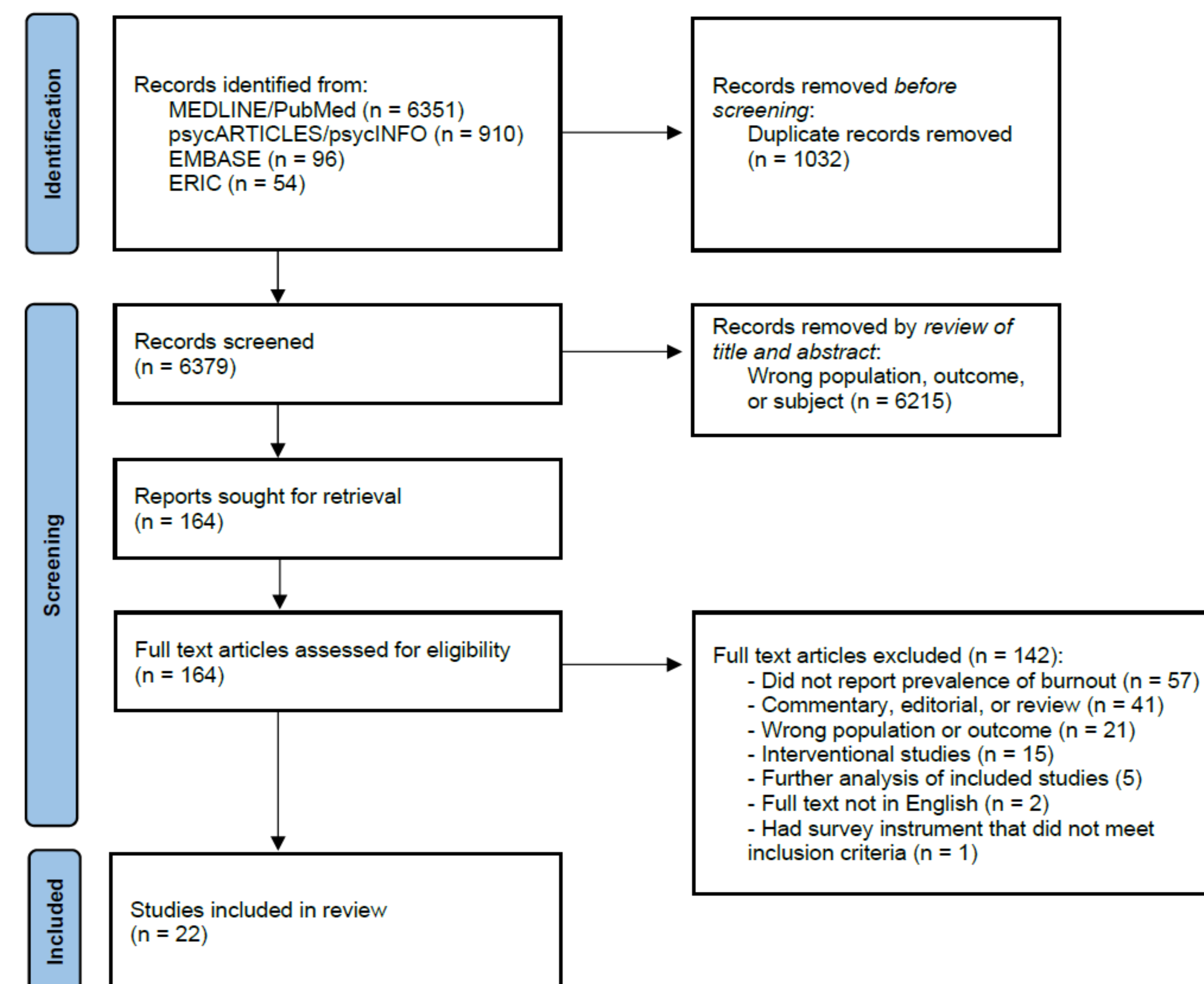


Figure 1. PRISMA flow diagram.

Discussion

- Although most studies used the full 22-item (MBI), several studies utilized the abbreviated MBI which was shown to have poor positive predictive value.
- Various factors were thought to contribute or correlate to burnout including being in early career, being a female, poor work-life balance, imposter phenomenon, being unhappy with residency and radiology as a career, feeling unsupported by staff radiologists, poor education-service balance, lack of autonomy, lack of appreciation from patients and other medical staff, financial strain, and working in a public hospital environment.
- Nonetheless, with the considerable heterogeneity in instruments used and burnout criteria between the assessed studies, it was challenging to interpret and compare the different prevalence estimates for burnout and its subcomponents. This significant variation in the research is attributable, in part, to fluctuating definitions of burnout and uncertainties about the conceptual underpinning of the burnout construct.

Conclusion

We identified 22 studies with a high degree of heterogeneity reporting prevalence estimates on burnout among radiologists. Burnout in radiology is increasing globally, with prevalence estimates reaching 88% and 62% for overall and high burnout, respectively, and a myriad of factors identified to be contributing to the increased prevalence. This data should be used as a starting point for discussion to evaluate and resolve these difficulties in the global radiology work environment. Our data demonstrated significant variability in burnout prevalence estimates among radiologists, alongside major disparity in burnout criteria, instrument tools, and study quality. Our findings do not allow for clear conclusions regarding the prevalence of burnout; however, they do emphasize the urgent need to define a standard definition of burnout and standardized assessment techniques. With the modest number of studies included and the significant methodological discrepancies, there is a need for further high-quality and methodologically robust studies conducted with standardization of burnout definition and assessment techniques.

Source	No. of participants	Practice Setting	Burnout prevalence
Parikh et al. (2022) ³¹	40 physicians	Private: 100%	Overall: 33%
Deshmukh et al. (2021) ³²	30 physicians	Academic: 100%	Overall: 47%
Eisenberg et al. (2021) ³³	286 physicians	Academic: 80% Private: 20%	1 domain altered: 22.1% 2 domains altered: 45% 3 domains altered: 18.5% Overall: 49.3%
Oprisan et al. (2021) ³⁴	150 physicians	Tertiary care: 50% Secondary care: 22.3% Primary care: 11.5% Private: 11.5% Specialist center: 4.7%	Overall: 71.9% High burnout: 47.8%
Bundy et al. (2020) ³⁵	339 physicians	Academic: 40.1% Private: 42.8% Hybrid: 17.1%	Overall: 71.9% High burnout: 47.8%
Dalmash et al. (2019) ³⁶	108 residents	NR	High burnout: 24.1%
Ferguson et al. (2020) ³⁷	144 residents	NR	NR
Ganeshan et al. (2020) ³⁸	228 physicians	Academic: 100%	Overall: 78.5% High burnout: 28.9%
Ganeshan et al. (2018) ³⁹	87 physicians	Academic: 100%	Overall: 38% High burnout: 5%
Zha et al. (2018) ³⁹	262 physicians	Academic: 53.4% Community: 45.4% Other: 1.2%	NR
Ayyala et al. (2018) ⁴⁰	460 physicians	Academic: 87% Private: 11% Non-hospital-based practice: 2%	NR
Higgins et al. (2021) ⁴¹	456 physicians	Academic: 100%	Overall: 37.4%
Giess et al. (2020) ⁴²	162 physicians	Academic: 100%	Overall: 35.2%
Chew et al. (2017) ⁴³	433 physicians	Academic: 47.7% Private: 50.5% Hybrid: 1.9%	Overall: 80.5%
Guenette et al. (2017) ⁴⁴	94 residents	NR	NR
Porrino et al. (2017) ⁴⁵	58 fellows	NR	Overall: 88%
Singh et al. (2016) ⁴⁶	35 physicians	NR	NR
Holmes et al. (2017) ⁴⁷	26 physicians	Tertiary academic center: 100%	Overall: 85%
McNeeley et al. (2013) ⁴⁸	266 residents	NR	High burnout: 62%
Shanafelt et al. (2012) ⁴⁹	216 physicians	NR	Overall: 48%
Lim et al. (2009) ⁵⁰	136 physicians	Academic: 20% Private: 25% Hybrid: 55%	NR
Ramirez et al. (1996) ⁵¹	214 physicians	NR	NR

Table 1. Selected Characteristics of the 22 included studies. NR: not reported.