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Review / meta-analyses

Burnout in mental health professionals: A systematic review and meta-analysis of prevalence and determinants

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ABSTRACT

This study aimed to estimate the level of burnout in mental health professionals and to identify specific determinants of burnout in this population. A systematic search of MEDLINE/PubMed, PsychINFO/Ovid, Embase, CINAHL/EBSCO and Web of Science was conducted for original research published between 1997 and 2017. Sixty-two studies were identified as meeting the study criteria for the systematic review. Data on the means, standard deviations, and prevalence of the dimensions of burnout were extracted from 33 studies and included in the meta-analysis (n = 9409). The overall estimated pooled prevalence for emotional exhaustion was 40% (CI 31%–48%) for depersonalisation was 22% (CI 15%–29%) and for low levels of personal accomplishment was 19% (CI 13%–25%). The random effects estimate of the mean scores on the Maslach Burnout Inventory indicate that the average mental health professional has high levels of emotional exhaustion [mean 21.11 (95% CI 19.98, 22.24)], moderate levels of depersonalisation [mean 6.76 (95% CI 6.11, 7.42)] but retains reasonable levels of personal accomplishment [mean 34.60 (95% CI 32.99, 36.21)]. Increasing age was found to be associated with an increased risk of depersonalisation but also a heightened sense of personal accomplishment. Work-related factors such as workload and relationships at work, are key determinants for burnout, while role clarity, a sense of professional autonomy, a sense of being fairly treated, and access to regular clinical supervision appear to be protective. Staff working in community mental health teams may be more vulnerable to burnout than those working in some specialist community teams, e.g., assertive outreach, crisis teams.

1. Introduction

The novelist Graham Greene first introduced the term 'burnt out' when he wrote about a fictional architect who could no longer find meaning in art or pleasure in life [1]. The term 'burnout' was introduced to the scientific literature in 1974 by an American psychologist Herbert J Freudenberger where he described burnout as a 'state of mental and physical exhaustion caused by one's professional life' [2]. Freudenberger defined it as something that related exclusively to frontline human service workers. Subsequently, Maslach and Jackson defined burnout as a psychological syndrome that occurs in professionals who work with other people in challenging situations that is characterised by (a) emotional exhaustion; feeling overburdened and depleted of emotional and physical resources, (b) depersonalisation; a negative and cynical attitude towards people, and (c) a diminished sense of personal accomplishment [3,4]. Although, this definition of burnout remains most prominent in the literature other definitions of burnout have also been proposed [5]. Kirstensen et al. 2005 proposed that fatigue and exhaustion are the core feature of burnout but that depersonalisation is a coping strategy, while reduced personal accomplishment a consequence rather than a defining feature of burnout [5]. Demerouti and Bakker (2007), proposed that burnout was defined by two core dimensions (a) affective, physical and cognitive exhaustion and (b) disengagement from work [6]. An important development in this field has been an attempt by researchers to expand their understanding of burnout by looking at what could be considered its positive antithesis which has been defined as 'work engagement' [7,8]. However, while some researchers consider engagement to be the opposite of burnout [7]. Others define engagement as a persistent, positive affective-motivational state of contentment that is characterised by the three components of vigour, dedication and absorption. In this view, work engagement is an independent and distinct concept, which is not the opposite of burnout [9].

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Burnout has been found to be associated with job dissatisfaction, low organisational commitment, absenteeism, intention to leave the job, and turnover [7,10]. Furthermore, there is considerable evidence that burnout has negative impacts on the physical and mental well-being of the individual worker [11], the welfare and functioning of the team and organisation in which they work [12,13], and is associated with lower productivity and impaired quality of care provided to patients [14]. Factors particular to the mental health field have been proposed to make workers in this field more vulnerable to burnout [7]. These factors include stigma of the profession [15], demanding therapeutic relationships [15] and threats of violence from patients and patient suicide [15,16]. However, a systematic review and meta-analysis of the prevalence and determinants of burnout in MHPs has not been conducted.

1.1. Aims of this study

The aim of this review is [1] to quantify the level of burnout in MHPs and [2] to identify specific determinants of burnout in MHPs.

2. Methods

2.1. Literature search

We used the PRISMA guidelines. A systematic search of MEDLINE/PubMed, PsychINFO/Ovid, Embase, CINAHL/EBSCO and Web of Science was conducted in May 2017 for original research published from 1st January 1997 until 31st December 2016. Relevant controlled vocabulary terms and free text terms related to burnout and MHPs were used to search each database. In all databases, the search was restricted to studies published in English. All studies had to be published in a peer-reviewed journal. The reference lists from articles and reviews were examined for any additional studies. The full search strategies for the individual databases can be found in Appendix 1.

2.1.1. Inclusion and exclusion criteria

The inclusion criteria were [1]: the study examined the prevalence/ determinants of burnout [2], the sample population was comprised of MHPs (including doctors, nurses, social workers, psychologists, occupational therapists, counsellors) working in mental health services [3], the study had to be empirical and quantitative [4] the response rate was greater than 25% [5], the study sample was comprised of at least 50% MHPs [6], the study included at least 50 participants. The exclusion criteria was [1] the study did not use a validated measure of burnout.

2.1.2. Study selection, data extraction and assessment of study quality

After removing the duplicates, two investigators (KOC and DMN) reviewed study titles and abstracts for eligibility. If at least one of them considered an article as potentially eligible, the full texts were assessed by the same reviewers. Any disagreements were resolved by discussion. Detailed information on the country, data source, study population, and results were extracted from each included study into a standardized spreadsheet by one author and checked by a second author (KOC and DMN). EndNote X7.3.1 (Thomas Reuters, New York, USA) was used to organize the identified articles.

Two investigators (KOC and DMN) independently assessed the risk of bias of each of the included studies. A score for quality, modified from the Newcastle-Ottawa Scale (NOS), was used to assess the appropriateness of research design, recruitment strategy, response rate, representativeness of the sample, objectivity/reliability of outcome determination, power calculation provided, and appropriate statistical analyses (See Appendix 2). Score disagreements were resolved by consensus. An NOS score of 8 or more was considered 'good,' a score of 5 or less was considered 'poor.'

2.2. Data synthesis

The meta-analyses were conducted using Comprehensive Meta-Analysis software, version 3 (Biostat Inc., NJ, USA). In light of expected differences in study sample and design, random-effects models were used to calculate the pooled means and prevalence. Heterogeneity across studies was tested using Q statistics [17], and the I^2 [18]. Results from studies grouped according to pre-specified study-level characteristics were compared using subgroup analyses (for MBI-HSS High EE/DP/PA 'cut off' score, geographical location and NOS) and random effects meta-regression (for age, sex, study size and professional background of participants). To address the issue of publication bias, we examined funnel plots [19], and used the Eggers Test [20].

3. Results

3.1. Search outcome

The electronic literature search identified 1348 unique citations. Based on a review of article titles and abstracts 1262 citations were excluded. After full-text review 62 articles remained (See Fig. 1 for PRISMA flow diagram). The features of the identified studies are summarised in Table 1.

3.2. Study population and study design

Studies conducted across 33 different countries were identified. The vast majority of studies were cross-sectional (N = 57) and multi-site (N = 47). However, five studies had a longitudinal design with follow-up times varying between six months [67,68] and five years [50]. Self-reported questionnaires were utilised in every study. The number of respondents ranged from 60 [36] to 2258 [45]. The mean study size was 370.61 (SD 457.77), the median was 195. In most studies, female respondents were over-represented. Mean age of respondents ranged from 30.9 years [39] to 51.6 years old [71] and the response rate varied between 26% [16] and 100% [28]. The minority of studies (N = 11) examined burnout in the inpatient setting exclusively. The rest examined burnout in community settings or a mix of community and inpatient settings.

Most studies examined the prevalence and correlates of burnout in several different MHP groups (N = 31). Data on burnout in nursing staff was gathered in 30 studies, in doctors in 17 studies, in psychologists in ten studies, in occupational therapists in eight studies, in social workers in 12 studies. Although the data on individual professional groups was not reported in each of these studies.

3.3. Quality of studies

On the modified Newcastle-Ottawa Scale (NOS) 15 of the studies rated as being of good quality (score $\geq$8) 41 studies rated as being of moderate quality (score 6–7) and six studies rated as being of poor quality (score $\leq$5) [36] (See Table 1)

3.4. Measurement of burnout

Eight validated measures of burnout are cited in the literature between 1997 and 2017. These are the Maslach Burnout Inventory (MBI) [83] (n = 54), the Oldenburg Burnout Inventory (OLBI) [6] (n = 2), the Copenhagen Burnout Inventory (CBI) [5](n = 3), Pines Burnout Measure (n = 3), the Psychologists Burnout Inventory (n = 2), the Organisational Social Context Scale (OSCS) [84](n = 1),

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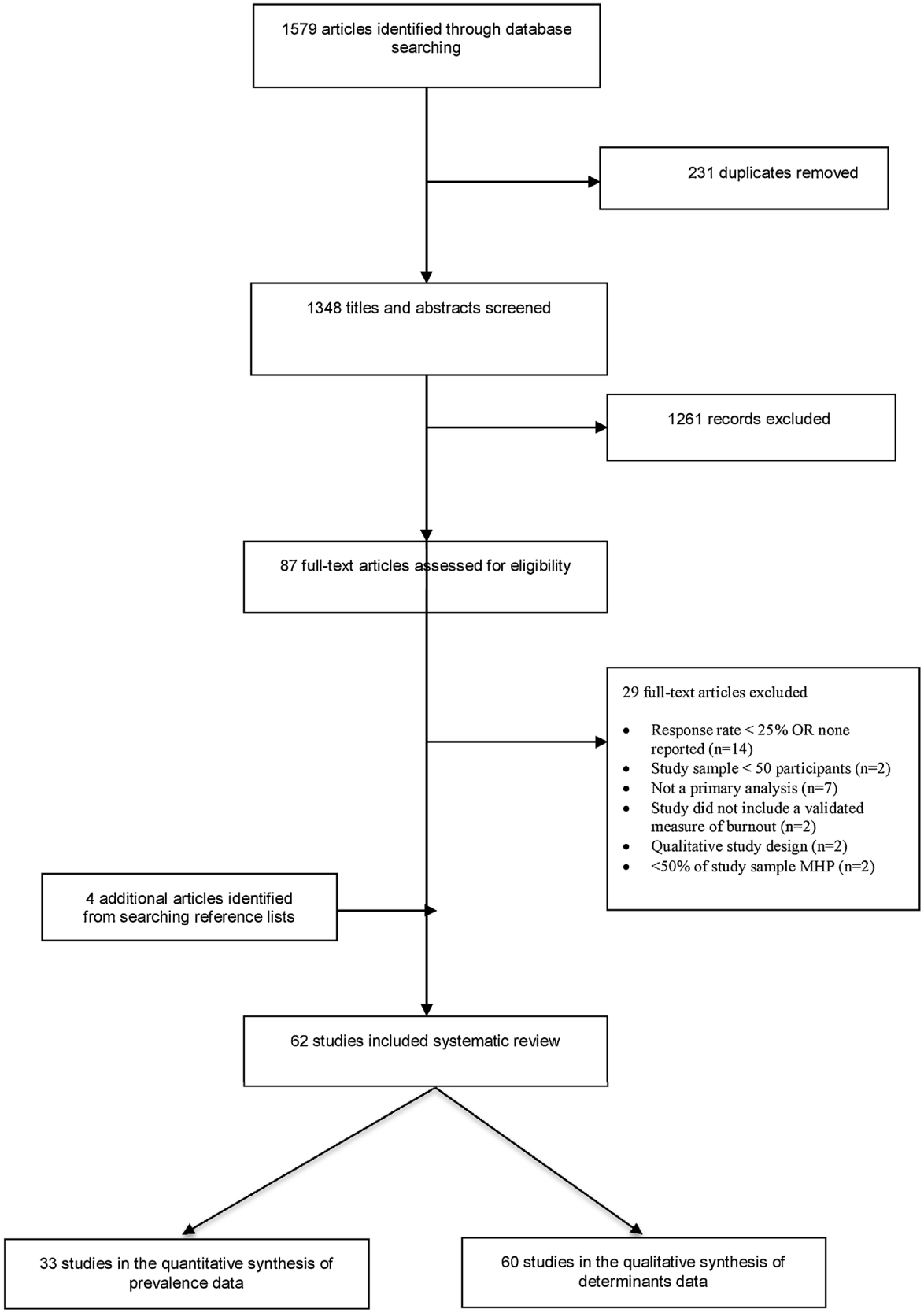

Fig. 1. Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram.

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Table 1
Overview of the selected studies, the basic characteristics and results.

Study	Design	Study population	Response rate	Sample size and characteristics	Burnout measure	EE	DP	PA	Burnout Prevalence High EE > 21 High DP > 8 Low PA < 28	Quality Score Good ≥8 Moderate 6-7 Poor≤5
[21] Angermeyer et al. 2006 Germany	CS	Nursing staff from 5 psychiatric facilities in Leipzig and nearby.	48.3%	N = 140 Male: 18.7% Female: 81.3% Mean age: 38.9 years	MBI- HSS	14.73 (8.75)	5.73 (5.08)	34.87 (7.53)	NR	7
[22] Ashtari et al. 2009 Iran	CS	Mental Health Professionals from large psychiatric hospital in Tehran (1370 inpatient beds)	95%	N = 100 Nurses (N = 22) co-nurses (N = 29) Psychologists (N = 31) Social workers (N = 12) Occupational therapists (N = 6) Male: 32% Female: 67% Mean age: 38.9 years	MBI- HSS	29.4 (6.9)	9.3 (2.1)	34.5 (7.0)	High EE: 42.5% High DP: 65.5% Low PA: 21% Cut off points for 'high' unclear.	7
[23] Benbow and Jolley, 2002 UK	CS	Consultant old age psychiatrist from across UK	31.66%	N = 145 Male: 66.9% Female: 33.1%	MBI-HSS	31.26 (10.99)	7.06 (5.62)	29.74 (6.15)	NR	6
[24] Bilings et al, 2003 UK	CS	Assertive Outreach (AOT) and Community Mental Health Teams (CMHT)	82.9%	N = 301 Male: 46.18% Female: 53.82%	MBI-HSS	AOT 17.4 (NR) CMHT 19.0 (NR)	AOT 4.4 (NR) CMHT 5.7 (NR)	AOT 34.8 (NR) CMHT 32.7 (NR)	NR	8
[25] Blau et al. 2013 USA	CS	Psychiatric rehabilitation practitioners	44.6%	N = 1639 Male: 27% Female: 73% Psychologists (N = 361) Social workers (N = 246) Average age of 41- 50 years old Average length of service 10 years	MBI-HSS	NR	NR	NR	NR	8
[26] Bowers et al. 2009 UK	CS	Nursing staff on 136 acute admission psychiatric wards in England	56%	N = 1525 Nurse 67% Healthcare assistants 29% Male: 33% Female: 66%	MBI- HSS	17.78 (11.39)	5.49 (5.09)	35.46 (8.16)	NR	8
[27] Bressi et al. 2009 Italy	CS	Psychiatrists working in Italian public health system in Milan	70%	N = 81 Male: 42% Female: 58% Mean age: 46.8 years	MBI-HSS	21.33 (13.28)	6.43 (6.66)	35.78 (8.94)	High EE: 49%	7
[28] Chakraborty et al. 2012 India	CS	Psychiatric nurses scoring <2 on GHQ From 2 psychiatric hospitals in India	100%	N = 101 Male: 15.9% Female: 84.1% Mean age: 44 years	CBI	NR	NR	NR	NR	6
[29] Coffey, 1999 UK	CS	Forensic community mental health nurses in England, Wales	76.4%	N = 80 Male: 53.8% Female: 46.2% Mean age: 37.8 years	MBI-HSS	19.3 (10.1)	5.65 (4.3)	33 (6.2)	High EE: 44.3% High DP: 26.6% Low PA: 26.6%	5
[30] Devilly et al 2009 Australia	CS	Mental health professionals working in	31.7%	N = 152 Male: 30% Female: 70%	CBI	NR	NR	NR	NR	8

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Table 1 (*Continued*)

Study	Design	Study population	Response rate	Sample size and characteristics	Burnout measure	EE	DP	PA	Burnout Prevalence High EE > 21 High DP > 8 Low PA < 28	Quality Score Good ≥8 Moderate 6-7 Poor≤5
		Victoria, Australia		Psychologists (N = 125) Psychotherapists (N = 15) Social workers (N = 6) Psychiatrists (N = 1) Nurse (N = 1) Other (N = 4)						
[31] Edwards et al. 2001 UK	CS	Community Mental Health Nurses working in Wales	49%	N = 301 Male: 38% Female: 62% Mean age: 40 years 49% had been in current post >5 years	MBI- HSS	21.2 (10.3)	5.2 (4.5)	34.8 (6.5)	High EE: 51% High DP: 25% Low PA: 14%	7
[32] Edwards et al. 2006 UK	CS	Community Mental Health Nurses working in Wales	32%	N = 260 Male: 38% Female: 62% Mean age: 40 years Mean length of time working as a CMHN was 16 years Mean length of time in current job was 6.5 years.	MBI- HSS	22.3 (4.7)	6.0 (5.3)	31.5 (5.4)	High EE: 36% High DP: 12% Low PA: 10%	6
[33] Evans et al. 2006 UK	CS	Mental Health Social Workers in UK	39%	N = 237 Male: 39% Female: 61% 58% of sample were < 50 years old Mean length of time since graduation was 11.9 years.	MBI-HSS	26.3 (10.1)	7.3 (5.2)	33.9 (6.8)	Burnout threshold: 8% (Defined as all three threshold EE > 21, DP > 8, PA < 28)	7
[34] Fong et al. 2015 China	LS 2 year longitudinal study 7 measurement times over 2 years	Newly employed mental health workers in psychosocial rehabilitation institution in Hong Kong 50% drop out over 2 years	89%	N = 312 Male: 22.3% Female: 77.7% Mean age: 38.6 years	CBI: work sub-scale	NR	NR	NR	Mean at baseline: 22 Increased over 7 time points. Largest increase from year 1- year 2. 2 year follow up mean score: 34	6
[35] Garman et al. 2002 USA	CS	Staff and clients from 48 behavioural health programs in mid western USA. Teams were included only if at least 2 clients and 2 team members provided completed survey data 31 different psychosocial rehab teams from inpatient and community settings	65%	N = 333 Male: 25% Female: 75% Teams from public hospitals (N = 11) Community based care providers (N = 20)	MBI-HSS	17.2 (10.9)	5.4 (5.2)	37.4 (7.9)	NR	5

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[36] Galeazzi et al. 2004 Italy	CS	30 nurses, 30 psychiatrists working in community mental health teams in province of Modena in Italy	74%	N = 60 Male: 32% Female: 68%	MBI-HSS	Psych 21.2 (9.8) Nurses 14.3 (9.4)	Psych 7.2 (4) Nurses 4.8 (4.9)	Psych 36.7 (5.8) Nurses 34.9 (7.5)	NR	4
[37] Green et al. 2013 USA	CS	Community mental health staff working with children and families from 64 programs in USA	88.2%	N = 388 Male: 24% Female: 76% Mean age: 35.74 years old	Emotional exhaustion subscale from the Children's Services Survey	NR	NR	NR	NR	7
[38] Green et al. 2014 USA	CS	Clinical and case management service providers to children, adolescents and families within 49 public-sector programs in San Diego, USA	89%	N = 285 Male: 18.6% Female: 81.4% Mean age: 36 years old	Organisational Social Context	NR	NR scale	NR	NR	8
[39] Hamaideh, 2011 Jordan	CS	All psychiatric nurses in Jordan	82.3%	N = 181 Male: 55.8% Female: 44.2% Mean age: 30.94 years old	MBI-HSS	23.96 (31.91)	6.98 (7.07)	31.58 (11.52)	High EE: 54.7% High DP: 34.2 % Low PA: 38.7%	6
[40] Happell et al. 2003 Australia	CS	Compare forensic nurses with Community nurses in Melbourne, Australia	67.5%	N = 129 Forensic nurses N = 51 Community nurses N = 78	MBI-HSS	Forensic 12.9 (7.5) CMHT 17.4 (12.2)	Forensic 4.7 (6) CMHT 4.5 (4.9)	Forensic 34.5 (7.9) CMHT 35.6 (9.8)	Forensic High EE: 15.6% High DP: 17.6% Low PA: 17.6% CMHT High EE 35.8% High DP: 24.3% Low PA: 23%	5
[41] Imai et al. 2006 Japan	CS	Public Health Nurses 396 psychiatry 389 non psychiatry	74.7%	N = 785 Mean age: 41.4 years old Mean length of career as PHN 18 years Mean length of time in current service was 3 years.	Pines Burnout Measure	NR	NR	NR	NR	7
[42] Imai et al. 2004 Japan	CS	Public health nurses who work in mental health compared with general public mental health nurses	80.6%	N = 396 Mean length of career as PHN 19 years	Pines Burnout Measure	NR	NR	NR	Burnout: 59.2% Defined as mean response of >3 for all items.	7
[43] Jahrami 2009 Bahrain	CS	Psychiatric nurses, doctors, occupational therapists, social workers, psychologists	58%	N = 153	MBI-HSS	18.96 (13.81)	6.69 (5.26)	34.28	NR	5
[44] Jeanneau and Armelius 2000 Sweden	CS	MHPs working in a variety of settings across Sweden: psychiatric wards, small psychiatric treatment homes, forensic wards, community care settings	100%	N = 754 Male: 39% Female: 61% Mean age: 45 Psychiatric aids (N = 430) Nurses (N = 113)	MBI-HSS Pines Burnout Measure	NR	NR	NR	NR	7
[45] Johnson et al., 2012 UK	CS	MHPs from 100 wards & 36	64%	N = 2258 Male: 36% Female: 64%	MBI-GS	**Ex** 20.1 (12)	**Cy** NR	**PA** 33.7 (8.3)	High Ex: 49% of staff in acute general wards	8

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Table 1 (*Continued*)

Study	Design	Study population	Response rate	Sample size and characteristics	Burnout measure	EE	DP	PA	Burnout Prevalence High EE > 21 High DP > 8 Low PA < 28	Quality Score Good ≥8 Moderate 6-7 Poor≤5
		CMHTs in England		Nurses (N = 1054) Doctors (N = 135) Psychologists (N = 44) Occupational Therapists (N = 82) Nursing assistants/ support workers (N = 640) Social workers (N = 86) Ward managers (N = 111)					60% of staff in CMHT High Ex: Nurses: 47% Nursing assistants: 38% OTs: 45% Psychiatrists: 46% Psychologist: 46% Social workers: 54% Service managers: 49% High Cyn: 32% staff on acute general wards 29% in CMHTs 27% Crisis Resolution Teams Nurses: 32% Nursing assistants: 26% OTs: 19% Psychiatrists: 32% Clinical psychologist: 18% Social workers: 32% Service managers: 28% Low PA: 28% staff on acute general wards 19% in CMHTs 17% Crisis Resolution Teams Nurses: 24% Nursing assistants: 31% OTs: 21% Psychiatrists: 17% Clinical psychologist: 27% Social workers: 21% Service managers: 12%	
[46] Johnson et al. 2016 UK	CS	One independent forensic psychiatric hospital group, 2 sites.	97%	N = 114 Male: 42% Female: 78% Staff based in: Medium secure unit (N = 47) Low secure unit (N = 50) Medium/low secure (N = 6) Locked rehabilitation	MBI-HSS	NR	NR	NR	NR	7

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				(N = 11) Support workers (N = 66) Nursing staff (N = 27)						
[16] Jovanovic et al. 2016 22 European countries	CS	Psychiatry trainees in 22 countries Online survey distributed through training colleges/ trainee databases/ contacting training institutions in each country	26%	N = 1980 Male: 40.3% Female: 59.4% Mean age: 32 years old	MBI-GS	**EX** 2.6 (1.4)	**CY** 2.0 (1.4)	**PE** 4.5 (1.1)	37% severe burnout syndrome. (Mean sum score >2.20 on MBI-Ex and > 2.0 on MBI-CY) Ex: 58.9% Cyn: 4.5% PE: 20.2%	8
[47] Karanikola and Papathanassoglou, 2013 Cyprus	CS	Mental health nurses in hospital and community settings in Cyprus	75.8%	N = 226 Male: 41.2% Female: 58.8% Employed in hospital setting: 65.5% Employed in community setting: 34.5%	MBI-HSS	14.87 (9.5)	6.53 (5.3)	34.49 (8.7)	High EE: 4.7 % (EE > 31) High DP: 21.8% (DP > 11) Low PA: 19.6% (<35)	8
[48] Kilfedder et al. 2001 UK	CS	Psychiatric nurses from one Scottish Trust	48.8%	N = 635 Male: 14.1% Female: 86.9% Mean age: 40 years Employed in hospital setting: 63.3% Employed in community setting:	MBI-HSS	18.8 (10.6)	4.9 (4.6)	34.2 (7.9)	High EE: 21.6% (EE ≥ 27) High DP: 7.1% (DP ≥ 11) Low PA: 33.1% (PA ≤ 35)	8
[49] Kumar et al. 2007 New Zealand	CS	Psychiatrists working across New Zealand	56%	N = 239 Male: 63% Female: 37%	MBI-HSS	22.4 (10.85)	6.6 (4.99)	36.5 (5.32)	High EE: 33% (EE ≥ 27) High DP: 60.7% (DP ≥ 11) Low PA: 23.8% PA ≤ 35)	6
[50] Kumar et al. 2011 New Zealand	LS	Psychiatrists working across New Zealand	54.8%	N = 131 Male: 61.8% Female: 38.2% Follow up of sample identified in 2005 study	MBI- HSS EE score only	22.2 (10.1)	NR	NR	NR	7
[51] Lasalvia et al. 2009 Italy	CS	MHPs working in Veneto region of Italy.	78.6%	N = 1585 Male: 35.2% Female: 64.8% 67.8% were aged between 36- 65 years old. Nurses (N = 666) Support workers (N = 363) Psychiatrists (N = 166) 61% had been employed in the mental heath sector for at least 6 years	MBI-GS	**Ex** 1.96 (1.25)	**Cyn** 1.53 (1.22)	**PE** 4.32 (1.06)	High Ex: 33.6% High Cyn: 25.7 % Low PE: 23.7 %	8
[52] Lloyd and King, 2004 Australia	CS	Occupational therapists and social workers working in community mental health teams in Australian	76.6%	N = 304 Male: 18.75% Female: 81.25% Occupational therapists (N = 196) Social workers (N = 108)	MBI-HSS	22.7 (9.9)	6.1 (4.9)	36.4 (5.9)	High EE: 57% High DP: 32.7 Low PA: 8.9%	7

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Table 1 (*Continued*)

Study	Design	Study population	Response rate	Sample size and characteristics	Burnout measure	EE	DP	PA	Burnout Prevalence High EE > 21 High DP > 8 Low PA < 28	Quality Score Good ≥8 Moderate 6-7 Poor≤5
		public health system								
[53] Levert et al. 2000 South Africa	CS	Psychiatric nurses working in psychiatric and general hospitals in South Africa	27%	N = 94	MBI-HSS	29.9 (12.93)	9.63 (4.63)	19.16 (8.26)	High EE: 54.9% High DP: 45% Low PA: 3.3%	6
[54] Madathil et al. 2014 USA	CS	Psychiatric nurses working in 2 hospital groups in Montana and New York		N = 89 Male: 12% Female: 88% 33% (n = 29) Montana State Hospital 67% (n = 60) New York State hospitals	MBI-HSS	31.3 (12)	12.2 (5)	43.84 (7.8)	NR	8
[55] Melchior et al. 1997 Netherlands	CS	Nurses working in long stay psychiatric wards in five psychiatric hospital in Netherlands	73.4%	N = 361 Male: 28% Female: 72% Mean age: 35 years Respondents working in psychiatry for an average of 13.5 years	MBI- HSS	17.22 (7.67)	6.51 (4.02)	31.97 (4.14)	NR	7
[56] Ndetei et al. 2008 Kenya	CS	MHP working in Mathari Psychiatric hospital. Only national referral and teaching psychiatric hospital in Kenya. 600 in patient beds.	71.6%	N = 285 Male: 35.5% Female: 64.5% Clinical staff (doctors, nurses, pharmacists) (N = 80) Non clinical staff (N = 14) Support staff (N = 27)	MBI- HSS	17.2 (9.78)	7.3 (6.5)	29.3 (10.26)	High EE: 38% High DP: 47.8% Low PA: 38.6% Cut off point on scale unclear	7
[57] Nelson et al. 2009 UK	CS	MHPs working in Crisis Resolution Teams (CRT), Assertive Outreach Teams (AOT), Community Mental Health Teams (CMHT) in UK	78%	N = 433 Male: 47.3% Female: 52.7% Nursing (N = 196) Social work (N = 82) OT (N = 23) Psychiatry (N = 48) CRT (N = 132) AOT (N = 187) CMHT (N = 114)	MBI-HSS	CRT 17.7 (NR) AOT 17.4 (NR) CMHT 19 (NR)	CRT 4.8 (NR) AOT 4.4 (NR) CMHT 5.7 (NR)	CRT 36.7 (NR) AOT 34.8 (NR) CMHT 32.7 (NR)	NR	7
[58] Oddie and Ousley, 2007 UK	CS	Nurses and occupational therapists from three wards in one medium secure psychiatric hospital in UK	57.3%	N = 71 Male: 60% Female: 40% Mean age 34 years old Mean length of time respondents reported working in current location was 4.8 years	MBI-HSS	23 (10.9)	7 (6.7)	35 (8.2)	High EE: 54% High DP: 35% Low PA: 15%	7
[59] Ogresta et al. 2008 Croatia	CS	3 state hospitals and 12 clinics in Croatia	50%	N = 174 Male: 20.1% Female: 79.9% Mean age 41.2 years old Nurses (N = 86) Social Workers	MBI-HSS	24.5 (9.2)	16.6 (7.6)	21.8 (7.4)	NR	7

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				(N = 27) Psychiatrists (N = 61)						
[60] Onyett et al. 1997 UK	CS	Members of 57 Community Mental Health Teams in UK	51.1%	N = 445 Male: 37.5% Female: 62.5% Mean age: 39.5 Years Nurses (N = 197) Social workers (N = 69) Admin staff (N = 41), Occupational Therapists (N = 39), Psychologists (N = 34), Psychiatrists (N = 19), Support workers (N = 11), Therapists (N = 7)	MBI-HSS	20.9 (NR)	4.7 (NR)	35.7 (NR)	NR	7
[61] Oyefeso et al. 2008 UK	CS	Service misuse professionals	69%	N = 194 Male: 43% Female: 57% Mean age: 38 years Doctors (N = 12) Addiction counsellors (N = 56) Social workers (N = 15) Nurses (N = 70)	MBI-HSS	22.1 (NR)	7.4 (NR)	33.7 (NR)	High EE: 33.2% High DP: 17% Low PA: 35.8%	7
[62] Piko, 2006 Hungary	CS	Nurses working in two hospitals in Szeged in Hungary	44.6%	N = 250 Male: 11.4% Female: 88.6% Nurses (N = 123) Physician assistant (N = 40) Administrator (N = 9)	MBI-HSS	24.7 (6.2)	9.4 (3.3)	27.4 (4.4)	NR	7
[63] Pinikahana and Happell, 2004 Australia	CS	Psychiatric nurses working in rural Victoria, Australia	61.8%	N = 136	MBI-HSS	15.9 (13.9)	5.7 (7.01)	37.2 (11.8)	High EE: 10.4% High DP: 11.6% Low PA: 11.6%	7
[64] Priebe et al. 2005 UK Germany	CS	Sample of psychiatrists, nurses, social workers providing care in a community setting in Berlin, Germany and London, UK	49.6%	N = 109 **UK** **Psych** Male: 80% Mean Age: 41.8 years old **CMHN** Male: 39% Mean age: 41.9 years old **SW** Male: 46% Mean age: 40.3 years old **Germany** **Psych** Male: 50% Mean Age: 46.0 years old **CMHN** Male: 19% Mean age: 41.3 years old **SW** Male: 37%	MBI-HSS	Psych UK 17.9 (9.5) Ger 18.7 (8.6) CMHN UK 21.8 (8.5) Ger 15.1 (7.4) SW UK 26.5 (12.5) Ger 17.4 (7.3)	Psych UK 11.1 (5.9) Ger 5.7 (4.3) CMHN UK 15 (5.2) Ger 3.7 (3.5) SW UK 18.2 (9) Ger 5.7 (4.4)	Psych UK 39.2 (4.2) Ger 37.1 (4.9) CMHN UK 36.9 (4.3) Ger 36.3 (7.2) SW UK 34.4 (6.8) Ger 33.5 (6.6)	**Total BO score** Psychiatrists UK: 37.8 Germany: 35.3 Community Psychiatric Nurses UK: 48 Germany: 30.5 Social workers UK: 58.4 Germany: 37.7	7

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Table 1 (*Continued*)

Study	Design	Study population	Response rate	Sample size and characteristics	Burnout measure	EE	DP	PA	Burnout Prevalence High EE > 21 High DP > 8 Low PA < 28	Quality Score Good ≥8 Moderate 6-7 Poor≤5
				Mean age: 40.6 years old						
[65] Prosser et al. 1997 UK	CS	MHPs from 3 mental health sectors in inner city London. Included staff working in in-patient and out-patient settings.	76%	N = 121 Male: 43% Female: 57% Nurses: 71 Psychiatrists: 23 66% of staff had been in current job for less than 2 years.	MBI- HSS	NR	NR	NR	NR	7
[66] Prosser et al. 1999 UK	LS	Study completed during move from institutional setting to community based model	**1994** 76% **1995** 60% **1996** 62%	**1994** N = 120 Nurses: N = 80 Psychiatrists: N = 23 In-patient: N = 50 Community: N = 29 Day/outpatient in main hospital: N = 42 **1995** N = 166 Nurses: N = 63 Psychiatrists: N = 17 In-patient: N = 35 Community: N = 65 Day/outpatient in main hospital: N = 0 **1996** N = 94 Nurses: N = 64 Psychiatrists: N = 12 In-patient: N = 35 Community: N = 59 Day/outpatient in main hospital: N = 0	MBI-HSS	**'94** EE: 22.9 (11.1) **'95** EE: 24.3 (11.2) **'96** EE: 21.1 (9.7)	**'94** DP: 7.5 (5.7) **'95** DP: 8.1 (6.1) **'96** DP: 7.5 (5.5)	**'94** PA: 33.5 (6.6) **'95** PA: 33 (6.5) **'96** PA: 34.2 (6.2)	NR	7
[67] Rogala et al. 2015 USA, Poland & [68] Shoji et al. 2015 USA, Poland	LS Baseline (T1) and 6 month follow up (T2)			**Study 1** T1: 294 T2: 135 MHPs in USA military working with people suffering from trauma Mean age: T1 48.87 years T2 50.62 years **Study 2** T1: 306 T2: 193 Health providers, social workers working with civilian trauma survivors in Poland. Mean age: T1:35.32 years	OLBI	NR	NR	NR	NR	7

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				old T2 34.97 years old						
[69] Rossi et al. 2012 Italy	CS	4 psychiatric catchment areas in Verona Mental Health Department, The MHPs work in both in-patient and community settings.	84%	N = 260 Male: 32.6% Female: 66.7% Psychiatrist: N = 25 Psychologist: N = 13 Social worker: N = 14 Rehabilitation therapist: N = 13 Psychiatrist in training N = 19 Health support workers N = 66	MBI-HSS	NR	NR	NR	NR	7
[70] Rupert and Kent, 2007 USA	CS	Psychologists randomly selected from membership of American Psychological Association. Partial replication of 2005 study.	49.6%	N = 595 Male: 41.7% Female: 58.3% Mean age: 51.98 years old Mean years of experience post licensure of 17.91 years.	MBI- HSS Psychologist Burnout Inventory-revised	17.8 (9.2)	4.8 (3.8)	41.56 (4.88)	High EE: 34.1%	8
[71] Rupert and Morgan, 2005 USA	CS	Psychologists randomly selected from membership of American Psychological Association.	47.6%	N = 571 Male: 46% Female: 54% Mean age: 51.61 years old Mean years of experience post licensure of 16.93 years.	MBI- HSS Psychologists Burnout Inventory-revised	19.99 (9.83)	5.21 (4.26)	41.64 (4.78)	High EE: 44.1%	8
[72] Salyers et al. 2015 USA	CS	MHP at a community metal health centre in a Midwestern city in USA	72%	N = 113 Male: 17% Female: 83% The mean length of time working at this location was 6.7 years. The mean length of time in mental health field was 10.5 years.	MBI-HSS	NR	NR	NR	NR	7
[73] Salyers et al. 2013 USA	CS	MHPs working at Veterans Association (VA) and Community Mental Health Centre (CMHC) in the same large Mid-Western city in USA.	45%	N = 152 VA (N = 66) Male: 29% Female: 71% CMHC (N = 86) Male: 32% Female: 68%	MBI- HSS	VA 24.3 (11.5) CMHT 28.9 (10.8)	VA 9.1 (4.6) CMHT 9.8 (4.2)	VA 49.4 (5.8) CMHT 42.9 (6.5)	NR	7
[74] Sherring and Knight, 2009 UK	CS	All nurses in one trust in NHS in UK.	36.2%	N = 172 Male: 26.9% Female: 73.1% 54% were aged 46 years old. 53.8% had been in post less than 5 years.	MBI-HSS	19.7 (12.1)	4.41 (4.5)	33.8 (7.6)	High EE: 41% High DP: 20.5% Low PA: 21.7%	7
[75] Siebert, 2006 USA	CS	Social workers from North Carolina, USA	75.1%	N = 751	MBI- EE only with 2 questions removed (7 Item scale)	NR	NR	NR	High EE: 36% (Scored > 16 on adapted 7 item scale)	8
[76] Singh et al. 2015 Australia	CS	Mental health Nurses working in rural or urban setting in	80%	N = 319	MBI-HSS	NR	NR	NR	NR	7

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Table 1 (*Continued*)

Study	Design	Study population	Response rate	Sample size and characteristics	Burnout measure	EE	DP	PA	Burnout Prevalence High EE > 21 High DP > 8 Low PA < 28	Quality Score Good ≥8 Moderate 6-7 Poor≤5
		four states in Australia (Victoria, New South Wales, Queensland and Western Australia)								
[77] Sorgaard et al. 2007 5 European countries: Denmark Norway UK Finland Poland	LS Baseline 6 months 12 months	In patient and community MHP in 6 psychiatric centres in 5 European countries	72%	N = 414 In patient staff: N = 205 Male: 15.3% Female: 84.7% Mean age: 40.2 years Community staff: N = 209 Male: 16.3% Female: 83.7% Mean age: 43.9 years	MBI-HSS	In patient 15.8 (9.7) Community 18.3 (10.5)	In patient 4.9 (4.7) Comm unity 4.5 (4.4)	In patient 36.3 (8.1) Community 36.4 (7.4)	BO: 1.2%	8
[78] Sorgaard et al. 2010 5 European countries: Denmark Norway UK Finland Poland	CS	Qualified and unqualified mental health nursing staff	72%	N = 196 Qualified N = 124 Male: 16.9% Female: 84.1% Mean age: 40.8 years Unqualified N = 72 Male: 27.8% Female: 72.2% Mean age: 43.1 years old	MBI-HSS	15.6 (8.9)	3.6 (4.7)	36.3 (7.4)	High EE: 8.9% High DP: 8.0% Low PA: 25.4%	7
[79] Spear et al. 2004 Australia	CS	MHPs working in eight metropolitan mental health services for older adults in Western Australia.	33%	N = 116 Psychiatrists N = 13 Nurses N = 66 AHP N = 18 Admins staff N = 5 Managers N = 4 Other N = 10	MBI-HSS	NR	NR	NR	NR	7
[80] Steel et al. 2015 UK	CS	Psychotherapists working AT eight Improving access to Psychological Therapy services in UK	44.3%	N = 116 Male: 21% Female: 79% Mean age: 36.9 years old Mean length of years in practice was 1.9 years	MBI-HSS	20.47 (9.7) 0	3.26 (3.45)	38.71 (5.36)	NR	7
[81] Tummers et al. 2001 Netherlands	CS	Psychiatric nurses from 5 different wards in one psychiatric hospital in the Netherlands	63.6%	N = 178 Nurses: N = 151 Male: 47% Female: 53% Mean age: 34 years old	MBI-GS EE	NR	NR	NR	NR	7
[82] Volpe et al. 2014 Italy	CS	Early career MHPs (defined as those who completed their training in psychiatry within 5 years and/or were below the age of 40 years old)	71.4%	N = 100 Psychiatrists N = 50, Non medical MHPs N = 50 Male: 52% Female 48% Mean age: 31.9 years	MBI-HSS	Non medical: 16.5 (NR) Medical: 26.9 (NR)	7.43 (NR) 10.9 (NR)	28.5 (NR) 39.9 (NR)	Presence of moderate to high burnout: 28% in non medical MHPs 52% in early career psychiatrists	5

NS not significant, NR Not reported, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.
MBI-HSS Maslach Burnout Inventory Health Services Survey, MBI-GS Maslach Burnout Inventory General Survey, CBI Copenhagen Burnout Inventory, OLBI Oldenburg Burnout Inventory, ProQOL Professional Quality of Life.

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the Professional Quality of Life Scale (ProQOL III) [85] (n = 1) and the Children's Services Survey- emotional exhaustion subscale (n = 1). Five studies utilised more than one validated measure of burnout.

The MBI-Human Services Survey (MBI-HSS) was utilised by 50 studies while the MBI-General Survey (MBI-GS) was utilised by four studies (See Table 2). The original MBI-HSS was developed for the human services field and included 22 items; emotional exhaustion (MBI-EE nine items), depersonalisation (MBI-DP five items), personal accomplishment (MBI-PA eight items). The scores for each of the three factors are totalled separately and can be coded as low, average or high using cut-off scores defined in the MBI Manual [83]. See Appendix 3 for information on the cut-off scores for MHPs. Reliability and validity of the MBI-HSS have been established across a wide range of countries and professional settings including in the mental health field [83,86–89]. Maslach and Jackson later adopted a measure suitable for use in any professional context the MBI-General Survey (MBI- GS). This MBI-GS contains three scales that parallel those of the original MBI: Exhaustion (EX), Cynicism (CY) and Personal Efficacy (PE). This scale has been found to be reliable and valid across multiple occupational and cultural settings [90].

3.5. Prevalence of burnout in MHPs

3.5.1. Mean score on MBI subscales

Thirty-nine studies reported means and standard deviations for the different dimensions of burnout while five studies reported means but no standard deviations. Only studies, which utilised the MBI-HSS, and the MBI-GS were included in the meta-analysis (33 studies). The total sample of MHPs was n = 9409. The overall random-effects estimate of the mean for the MBI-EE was 21.25 (95% CI 19.92, 22.58, MBI-DP was 6.82 (95% CI 6.13, 7.48) and MBI-PA was 34.61 (95% CI 32.97, 41, 24). There was significant evidence of between-study heterogeneity (EE: Q 1282.8, df 36, $p < 0.001$; $I^2 = 97.3\%$, DP: Q 1485.0, df 33, $p < 0.001$; $I^2 = 97.8\%$, PA: Q 5577, df 34, $p < 0.001$, $I^2 = 99.39\%$). See Fig. 2 for forest plots. Sensitivity analyses, in which the meta-analysis was serially repeated after exclusion of each study, demonstrated that no individual study affected the overall pooled mean by more than 0.50 point (See Appendix 4). To further characterise the range of MBI subscale mean estimates, some pre-defined subgroup analyses and meta-regression analyses were conducted.

When only studies rated 'good' on NOS (M8) were considered, the pooled mean estimates decreased for EE to 17.54 (95%CI 16.27, 18.02), with reduced heterogeneity ($I^2 = 73\%$, $p < 0.001$), for DP to 5.19 (95%CI 5.05, 5.34) with reduced heterogeneity ($I^2 = 83\%$, $p < 0.001$) and for PA to 37.81 (95% CI 37.37, 37.96, $I^2 = 96.3\%$, $P < 0.001$) (Appendix 5). When the studies were analysed in subgroups according to the geographical region in which they were conducted there were significant differences noted across the PA mean estimates (test for subgroup differences Q 59.17, $p < 0.001$). When only studies from North America were considered, the pooled mean estimates for PA increased to 41.74 (95% CI 41.52, 41.93) ($I^2 = 99\%$, $p < 0.001$), whereas when only studies from Europe were considered, the pooled mean estimate for PA reduced to 32.49 (95% CI 32.29, 32.69) ($I^2 = 99\%$, $p < 0.001$) (Appendix 5).

Meta regression analyses indicated that age was associated with increased PA, (slope = 0.36 points increase on the PA scale per 1-year increase in average age [95% CI 0.11 to 0.62]; Q = 6.52, $p = 0.01$; $R^2 = 0.52$). Estimates of the pooled mean of EE was found to vary with study size (slope = -0.01 point reduction in the EE mean, per increase of n = 1 [95% CI, -0.01 to -0.0004]; Q = 4.53, $p = 0.03$; $R^2 = 0.03$]. Estimates of the pooled mean EE and DP were found to vary with the percentage of nurses in the study (slope= −0.02 point decrease in EE mean, per 1% increase in nurses in the sample [95% CI -0.04 to 0.002]; Q = 4.8, $p = 0.02$, $R^2 = 0.17$), (slope = – 0.01 decrease in DP mean per 1% increase in nurses in the sample [95% CI -0.02 to -0.003]; Q = 7.01, $p = 0.008$, $R^2 = 0.27$]. The percentage of psychologists in a study was also found to be associated with decreased DP and increased PA scores (slope = -0.004 decrease in DP score with each increase in 1% of psychologists in the sample [95% CI -0.08 to 0.00]; Q = 3.84, $p < 0.001$, $R^2 = 0.66$), (slope = 0.01 increase in PA score with each increase in 1% of psychologists in the sample [95% CI 0.011 to 0.013] Q = 622.8, $R^2 = 1$). See Appendix 6.

3.5.2. Prevalence of 'high' rates on burnout subscales

The meta-analytic pooling of the prevalence estimates of 'high' rates of emotional exhaustion, 'high' rates of depersonalisation and 'low' rates of personal accomplishment were calculated for studies utilising the MBI-HSS (15 studies) and MBI-GS (2 studies). Where the 'cut off' was unclear or was not in line with those recommended by the MBI scale authors, this was stated in Table 1 and the study was not included in the meta-analysis. Seventeen studies reported on 'high' rates for emotional exhaustion (n = 7935) and fourteen studies reported on 'high' rates for depersonalisation/ cynicism and personal accomplishment / personal efficacy (n = 7469). The pooled prevalence indicated that 40% (CI 31%–48%, Q = 4874, df = 13, $p < 0.001$, $I^2 = 99.7$) exceeded the 'high' cut-off for emotional exhaustion, 22% (CI 15%–29%, Q = 64710, $p < 0.001$, $I^2 = 99.9$) exceeded 'high' cut-off for depersonalisation / cynicism and 19% (CI 13%–25%, Q = 2605, $p < 0.001$, $I^2 = 99.7$) exceeded cut-off for low levels of personal accomplishment/ personal efficacy. See Fig. 3. There was significant evidence of between-study heterogeneity, and subgroup analyses and meta-regression analyses were conducted to explore this.

Studies included in this meta-analysis applied two different 'cut-off' points on the MBI-HSS when determining prevalence rates. Eleven studies applied the cut-off specified for MHPs (EE > 21, DP > 8, PA < 28) [27,29,31,32,39,53,58,63,70,74], three studies utilised the cut-offs for other health professionals (EE 27, εDP 11, PA δ35) [48,49,78]. A subgroup analysis was conducted to investigate the extent the use of two different cut-offs points was contributing to the between-study heterogeneity. The pooled prevalence of the EE > 21 cut-off group (n = 2542) was estimated at 44% (95% CI = 38%–49%) and for the EEε26 cut-off group (n = 945) was estimated at 21% (95% CI = 8%–33%). This was a statistically significant difference between the two groups (Z 13.46, $p < 0.001$). The pooled prevalence of the DP > 8 group (n = 1735) was estimated at 26% (95% CI = 20%–33%) and the pooled prevalence of the DPε11 (n = 945) group was 9% (95% CI = 5%–12%), a statistically significant difference (Z 10.29, $p < 0.001$). The pooled prevalence of the PA < 28 group (n = 1519) was estimated to be 18% (95% CI = 9%–28%) and for the PA δ35 group (n = 945) was estimated to be 27% (95% CI = 21%–33%. This difference was also statistically significant (Z 6.26, $p < 0.001$). See Appendix 7. A meta-regression analysis found that more than 50% of the EE between-study heterogeneity and more than 40% DP and PA between-study heterogeneity may be explained by the use of the two different MBI-HSS cut off scores (EE coefficient = 25.04, 95% CI = 14.8–35.3, $p < 0.001$, R^2=0.52; DP coefficient = 16.86, 95% CI 5.66–28.06, $P < 0.001$, $R^2 = 0.44$; PA coefficient = 26.23, 95% ci 20.37, 32.08, $p < 0.001$, $R^2 = 0.44$).

3.6. Publication bias

Inspection of the funnel plots demonstrated that studies were distributed symmetrically. The Eggers test was not significant for bias for the means/ prevalence of emotional exhaustion (t = 1.43, df = 31, p = 0.08) depersonalisation (t = 1.94, df = 33 p = 0.06) or professional accomplishment (t = 1.37, df = 31, p = 0.10) (See Appendix 8).

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Table 2
Determinants of Burnout in Mental Health Professionals.

Study	Design	No of Resp	Measure of Burnout	Measure of determinants	EE	DP	PA
[21] Angermeyer et al. (2006)	CS	N = 140	MBI- HSS	Gender (female)	β = 3.2*	NS	NS
				Married	NS	NS	β-3.65*
				Intensity of care	β = 0.059*	β = 0.027*	NS
[22] Ashtari et al. (2009)	CS	N = 100	MBI- HSS	Job Performance Inventory	r = 0.60**	r = 0.57**	r = 0.66**
[23] Benbow & Jolley (2002)	CS	N = 145	MBI-HSS	Age	NS	r=-0.35***	NS
				Stress checklist	r = 0.701***	r = 0.544***	r=-0.487
[24] Billings et al. (2003)	CS	N = 363	MBI	Gender (female)	NS	r=-1.3**	NS
				Black ethic group	r=-6.4**	r=-2.0*	NS
				Age over 55years	NS	r=-8.3*	NS
				Psychiatrist	r=-5.0*	NS	NS
				Psychologist	NS	r=-3.2**	NS
				Time in current post	r=-0.62*	r = 0.24*	NS
				Time as mental health worker	NS	r=-0.11*	NS
				Assertive outreach team member	NS	r=-1.7*	r = 1.8*
				Minnesota job satisfaction scale & job diagnostic survey (job satisfaction)	NR	NR	NR
[25] Blau et al. (2013)	CS	N = 1639	MBI-HSS	Age	NS	β=-0.05*	β = 0.04*
				Gender (female)	NS	β = 0.20**	NS
				Education level	β = 0.08*	NS	NS
				Personal involvement	NS	β = 0.05**	NS
				Length of service	NS	NS	β=-0.05*
[26] Bowers et al (2009)	CS	N = 1525	MBI	Gender (female)	R=-2.19***	R=-0.93**	NS
				One year or less in current post	R=-2.54**	NS	NS
				Between 3 and 5 years in current post	R = 2.21*	NS	NS
				20 or under compared to 30-39 years of age	NS	R = 3.85*	NS
				40-49 compared to 30-39 years of age	NS	R = 1.62***	NS
				50-59 compared to 30-39 years of age	R=-2.23*	R=-1.62***	NS
				60 and over compared to 30-39 years of age	R=-5.96**	R=-2.05*	NS
				Working between 1 and 2 years in psychiatry compared to 5 years	R = 1.38*	NS	NS
					R=-1.13**	NS	NS
				African compared to white	R=-2.261*	NS	NS
				Access to ACT team	NS	R = 0.023*	NS
				Index of multiple deprivation (patient)	NS	NS	NS
				Patient-staff Conflict Checklist	NS	R=-0.325**	NS
				Attitudes to Containment Measures Questionnaire	NS	R = 0.229*	NS
					NS	R=-1.815*	NS
				• Safe for patients	R = 4.375**	R = 1.508*	NS
				• Prepared to use	R = 4.755**	R=-1.612*	R = 1.806*
				Attitude to Personality Disorder Questionnaire	R=-3.943**	NS	NS
					NS	NS	R = 1.497*
				• Acceptance	NS	R=-0.361**	R = 0.615**
				• Purpose	NS	NS	NS
				• Enthusiasm			
				• Security			
				• Enjoyment			
				Ward Atmosphere Scale			
				• Order and organisation			
				Multifactor Leadership Questionnaire (MLQ-X4)			
[27] Bressi et al. (2009)	CS	N = 81	MBI-HSS	GHQ-12	NS	NS	NS
				Job Diagnostic Survey	β = 0.17*	NS	NS
				Work with patients family	β=-0.49***	β=-0.26*	β = 0.31*
				Job satisfaction	NS	β = 0.26*	NS
				Work with demanding patients	NS	NS	β=-0.23*
				Negative relationship with patients			
[28] Chakraborty et al. (2012)	CS	N = 101	CBI	Age	**Burnout**	–	–
				Duration period of nursing	−0.236*	–	–
				Duration of army service	−0.252*	–	–
				Emotional maturity scale	−0.332*	–	–
				General well being scale	−0.554***	–	–
				Locus of control scale	−0.403***		
					−0.280**		
[30] Devilly et al. (2009)	CS	N = 152	CBI	Post-traumatic Stress Scale (adapted)	NR	NR	NR
				Depression, Anxiety and Stress Scale	NR	NR	NR
				Secondary Traumatic Stress Scale	NR	NR	NR
				TSI Belief Scale- revision L	NR	NR	NR
				Interpersonal Reactivity Index	NR	NR	NR
				Interpersonal Support Evaluation List	NR	NR	NR
					Exposure to service users traumatic experiences did not affect burnout rates.		
	CS	N = 301	MBI-HSS				

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Table 2 (*Continued*)

Study	Design	No of Resp	Measure of Burnout	Measure of determinants	EE	DP	PA
[31] Edwards et al. (2001)				Community Psychiatric Nursing Stress Questionnaire	r = 0.579*	r = 0.307*	r=-0.151*
				PsychNurse Coping Questionnaire	NR	NR	NR
				Rosenberg Self Esteem Scale	NR	NR	NR
				GHQ- 12	NR	NR	NR
[32] Edwards et al (2006)	CS	N = 260	MBI-HSS	Age	NS	r=-0.190**	NS
				Gender (male vs female)	NS	Z= -3.583***	NS
				Manchester Clinical Supervision Scale	r= -0.148*	r=-0.220**	NS
				• Trust/rapport	r=-0.19*	r=-0.23**	NS
				• Finding time	NS	r=-0.21**	NS
				• Supervisor advice and support	NS	r=-0.17*	NS
				• Importance of clinical supervisor			
[33] Evans et al (2006)	CS	N = 237	MBI	GHQ-12	NR	NR	NR
				Karasek Job Content Questionnaire	F = 5.00**	F = 3.2*	F = 11.56***
				Decision latitude	F = 25.44***	NS	NS
				Job demand	F = 5.53**	NS	NS
				Social support			
[34] Fong et al. (2016)	LS	N = 312	CBI: work sub-scale	Holistic Care Climate Scale (Perceptions of work climate)	**Burnout** r= -0.44- 0.60**	–	–
				Baseline:	r=-0.43**	–	–
				Work climate	r = 0.58**		
				Changes in work climate			
				Changes in depression			
[35] Garman et al (2002)	CS	N = 333	MBI-HSS	Consumer Satisfaction Scale	β=-0.49*	NS	NS
				Environment	NS	NS	β = 0.44*
				Therapist	β=-0.60**	β = 0.50*	NS
				Treatment	β=-0.43*	NS	NS
				Autonomy			
[36] Galeazzi et al (2004)	CS	N = 60	MBI-HSS	Age	r = 0.33*	NS	NS
				Total number of years employed in mental health	r = 0.28*	r = 0.27*	NS
					r = 0.45***	r = 0.39**	NS
				The number of different jobs in mental health	r = 0.33*	NS	NS
				Being a psychiatrist	r = 0.29*	NS	NS
				Team conflict as pressure source	NS	r = 0.22*	NS
				High caseload	NS	r = 0.33*	NS
				Generic clinical activities	NR	NR	NR
				Team identity	NR	NR	NR
				Job Satisfaction			
[37] Green et al. (2013)	CS	N = 388	Emotional exhaustion subscale from the Children's Services Survey	Transformational leadership (MLQ-5)	r=-0.30**	–	–
				Turnover intention	r = 0.44**	–	–
[38] Green et al. (2014)	CS	N = 285	Organisational Social Context scale	Role conflict	t = 2.58**	t = 3.81**	NS
				Role clarity	NS	NS	t = 2.41*
				Role overload	t = 7.66**	NS	NS
				Transformational leadership (MLQ-5)	NS	NS	t = 2.11*
[39] Hamaideh (2011)	CS	N = 181	MBI-HSS	Age	NS	NS	r = 0.200**
				Gender	r=-0.186*	NS	r=-0.167*
				Physical assault	r=-0.353**	r=-0.261**	NS
				Verbal assault	r=-0.272*	r=-0.220**	NS
				Caseload	r=-0.171*	NS	r=-0.186
				Psychiatric experience	NS	NS	r=-0.195**
				Stress level	r = 0.353**	r = 0.429**	r=-0.265**
				Social Support Scale	r=-0.28**	r=-0.301**	r = 0.172*
				Job Satisfaction Scale	r=-0.313**	r=-0.349**	r = 0.187*
[91] Hannigan et al. (2000)	CS	N = 283	MBI-HSS	Gender (male)	NS	t = 2.65**	NS
				Urban location of work	t = 2.0*	NS	NS
				Unsupportive attitude of line manager	t = 2.9**	NS	NS
				No job security	NS	t = 2.98**	NS
				Unsupportive attitude of line manager	NS	t = 2.9*	NS
				Drinks Alcohol	NS	NS	t = 3.4**
				GHQ-12	r = 0.497**	r = 0.253**	r=-0.369**
				Rosenberg self-attitude questionnaire	r = 0.413**	r = 0.345**	r=-0.369**
				Psychnurse methods of coping questionnaire	r=-0.360**	r=-0.271**	r = 0.301**
				Claybury CPN stress questionnaire	r = 0.579**	r = 0.307**	r=-0.151*
[40] Happell et al. (2003)	CS	N = 129	MBI-HSS	Job Satisfaction Scale of the Nurse Stress Index	NR	NR	NR
					NR	NR	NR
				Satisfaction with Nursing Care and Work	Forensic nurses displayed lower levels of burnout and higher levels of job satisfaction than nurses in mainstream services		
	CS	N = 754		Gender	NS	r = 0.08**	NS
				Age	NS	r = 0.11**	NS

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Table 2 (*Continued*)

Study	Design	No of Resp	Measure of Burnout	Measure of determinants	EE	DP	PA
[44] Jeanneau & Armelius			MBI Pines Burnout Measure				
[45] Johnson et al. (2012)	CS	N = 2258	MBI-HSS	Job related affective well being scale Anxiety contentment Depression-enthusiasm GHQ-12 Workplace employment relations survey-2004 NHS staff survey Job Involvement Scale Intrinsic satisfaction Differences across service type Difference across profession	Ex r=-0.63*** r=-0.64*** r = 0.63*** r=-0.12*** r=-0.45*** F = 8.97*** EE highest in CMHT (21.1 +/- 12.7) lowest in CRHT (17.7 +/- 10.7) F = 6.65*** EE highest in social workers (23 +/- 12.15) lowest in 'other' occupations (17.2 +/-10.87)	Cynicism r = 0.55*** r=-0.40*** r = 0.40*** r=-0.12*** r=-0.12*** NR NR	Personal Accomplishment r = 0.27*** r = 0.39*** r=-0.27*** r = 0.17*** r = 0.17*** F = 4.38** PA highest in rehabilitation wards (35.1 +/-7.9) lowest in forensic wards (32.1 +/- 8.9) F = 2.87** PA highest in service managers (35.8 +/-6.38) lowest in nursing assistants (32.7 +/- 9.27)
[46] Johnson et al. (2016)	CS	N = 114	MBI- HSS	Measure of trust within teams • Propensity to trust • Perceived trust • Cooperative behaviours • Monitoring behaviours Boundary violations- scale developed by authors • Frequency of boundary violations • Impact of boundary violation	NS −0.305** −0.338** 0.213* NS 0.233*	NS 0.071 −0.271** 0.291* 0.191* 0.201*	−0.277** −0.275** NS NS NS NS
[16] Jovanovic et al. (2016)	CS	N = 1980	MBI-GS	Age Gender (males) Psychiatry not first career choice No postgraduate education Working hours Not enough daily rest No clinical supervision	**Ex** NS NS NS NS r = 0.11*** r = 0.33*** r = 0.34***	**Cynicism** r=-0.13*** r = 0.14* r = 0.22** NS NS NS r = 0.34***	**Personal Accomplishment** NS NS NS r=-0.15** NS NS NS
[47] Karanikola et al. (2013)	CS	N = 226	MBI-HSS	Hamilton Anxiety Scale Beck Depression Scale	r = 0.562*** r = 0.616***	r = 0.448*** r = 0.394***	NS r=-0.186**
[48] Kilfedder et al (2001)	CS	N = 635	MBI	Length in post GHQ-12 Job satisfaction survey Psychosomatic symptoms Positive and Negative Affect Schedule Positive affectivity Negative affectivity Social support measure Predictability Job future ambiguity measure Role ambiguity measure Role conflict measure Nursing stress scale	NS β = 0.5** β=-0.2** β = 0.7** β = 0.3** β=-0.5* β=-0.3** β=-0.3** β=-0.3** β=-0.3** β = 0.3** β = 0.4**	NS β = 0.2** NS β = 0.3** β = 0.2** β = 0.3** β=-0.2** β=-0.2** β=-0.2** β=-0.2** β = 0.2** β = 0.3**	β=-0.2** NS NS NS β = 0.3** NS β = 0.2** β = 0.2** β = 0.2** β = 0.2** NS NS
[49] Kumar et al. (2007)	CS	239	MBI-HSS	Gender Marital status Years of practice Job diagnostic survey	NS F = 5.75*** NS p=-0.38**	NS NS F = 3.5* p=-0.38**	F = 4.22* NS NS p = 0.29**
[50] Kumar et al. (2011)	LS	N = 131	MBI- HSS EE score only	Stress (Sources of stress questionnaire-developed by authors) • Too much work • Too long working hours • Aggressive administrative environment • Lack of support from management	p <0.05 p <0.05 p <0.05 p <0.05	– – – –	– – – –
[52] Lloyd and King (2004)	CS	N = 304	MBI-HSS	Younger Age Greater amount of activity in general clinical work	NS NS	F = 7.8** NS	NS F = 16.0***

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Table 2 (*Continued*)

Study	Design	No of Resp	Measure of Burnout	Measure of determinants	EE	DP	PA
[51] Lasalvia et al (2009)	CS	N = 1585	MBI-GS	Areas of Worklife Scale (AWS) • Workload • Control • Reward • Fairness Evaluation of Changes scale Management Areas scale • Skills development • Work-group cohesion	**Ex** **R (SE)** 1.08 (0.07)** −0.15 (0.07)* −0.22 (0.06)** NS 0.35(0.09)** −0.18 (0.07)** NS	**Cyn** **R (SE)** 0.28 (0.07) ** −0.25 (0.07)** −0.35 (0.06)** −0.29 (0.09)** −0.39 (0.09)** −0.22 (0.07)** 0.19(0.07)**	**Efficacy** **R (SE)** NS 0.55(0.06)** 0.24(0.06)** 0.28(0.08)** NS NS 0.20(0.07)**
[53] Levert et al (2001)	CS	N = 94	MBI-HSS	Work load (Workload and lack of collegial support) • Work load • Collegial support Role conflict & ambiguity (• Role conflict • Role ambiguity Antonovsky's sense of coherence (Orientation to life questionnaire)	r = 0.47*** r = 0.21* r = 0.36*** r = 0.29** r = 0.41***	r = 0.31*** r = 0.23* r = 0.3*** r = 0.31*** r = 0.36**	NS NS NS r = 0.26* NS
[54] Madathil et al. (2014) USA	CS	N = 89	MBI-HSS	MLQ- X4 Nursing Work Index-revised Brief symptom inventory	NR NR NR Leadership style and work role autonomy protect nurses againsy burnout.	NR NR NR	NR NR NR
[55] Melchior et al. (1997)	CS	N = 361	MBI- HSS	Age Work experience in nursing Job characteristics (Adapted job diagnostic survey) complexity autonomy feedback/clarity Leadership behaviour questionnaire social instrumental Nursing care model questionnaire personal care tasks psycho-social tasks household tasks organizational tasks	NS NS r = 0.28*** NS r=-0.18*** r = 0.22*** NS NS NS r = 0.11* r = 0.15**	NS NS r = 0.23*** NS r=-0.19*** r=-0.19*** NS NS r = 0.13* r = 0.15** NS	r = 0.15** r = 0.15** NS r = 0.18*** r = 0.34*** r = 0.16** NS NS NS NS NS
[56] Ndetei et al. (2008)	CS	N = 285	MBI- HSS	Work attitudes and relationships (questionnaire developed by study authors)	NR Young age, number of own children, number of years worked, workload and low morale associated with burnout.	NR	NR
[57] Nelson et al (2009)	CS	N = 132	MBI- HSS	Minnesota Satisfaction Scale Job Diagnostic Survey- general job subscale Pan London Assertive Outreach Study questionnaire on stress and satisfaction Asian ethnic group (less EE, DP, greater PA) Time as mental health worker (less EE, less DP with longer career) CMHT member (greater DP, less PA) Female (less DP) Psychologist (less DP) Age 46-54 (less DP) Age over 55 (less DP) Black Ethnic group (less DP) Office hours, incl. evenings and weekends, no overnight (greater DP) Shifts, telephone on call only (greater DP) Shifts, plus on call overnight (greater DP) Time in type of team (greater PA)	NR NR **Regression coefficient (95% CI)** −5.5 (-9.0 to -2.0)* −0.2 (-0.4 to -0.01)* NS NS NS NS NS NS NS NS NS NS	NR NR **Regression coefficient (95% CI)** −1.9 (-3.4 to -0.4)* −0.1 (-0.2 to -0.01) 1.8 (0.6-3.0)** −1.3 (-2.2 to -0.4)** −2.6 (-5.0 to -0.2)* −3.3 (-6.3 to -0.4)* −4.7 (-8.3 to -1.2)** −2.1 (-3.3 to -0.9)** 1.6 (0.5-2.8)** 1.9 (0.4-	NR NR **Regression coefficient (95% CI)** 3.4 (0.8 to 6.0)* NS −2.1 (-4.1 to -0.1)* NS NS NS NS NS NS NS 0.5 (0.2-0.9)**

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Table 2 (*Continued*)

Study	Design	No of Resp	Measure of Burnout	Measure of determinants	EE	DP	PA
						3.4)* 1.9 (0.3-3.5)* NS	
[58] Oddie & Ousley (2007)	CS	N = 71	MBI-HSS	Psychiatric Nurse Occupational Stress Scale • Occupational Stress • Limited resources • Staff conflict • Patient care	r = 0.439** r = 0.313** r = 0.287* r = 0.248*	r = 0.419** r = 0.325** r = 0.291* NS	r=-0.383** NS r=-0.337* NS
[59] Ogresta (2008) Croatia	CS	N = 174	MBI- HSS	Job Satisfaction Survey • Rewards • Work climate • Advancement and benefits • Superiors and colleagues Manifestations of occupational stress questionnaire • Psychological manifestations • Physical manifestations • Negative emotional and behavioural reactions towards patients and colleagues	r= -0.52** r= -0.38** NS NS r = 0.45* r = 0.40* NS	NS r= -0.27** NS NS NS r = 0.26* r = 0.40*	NS r=-0.19* NS NS NS NS NS
[60] Onyett et al. (1997)	CS	N = 445	MBI	Consultant psychiatrists, social workers, nurses and psychologists (higher EE) Consultant psychiatrists (greater DP) Job Satisfaction Scale Role ambiguity scale	F(11,420) = 2.9** NS NR NR	NR K-W X^2 = 42.5*** NR NR	NR NS NR NR
[61] Oyefeso et al (2008)	CS	N = 194	MBI-HSS	GHQ-12 High levels of alienation High levels of tension Age: under 25	NR OR = 3.49** OR = 2.65* OR = 7.15*	NR NS OR = 4.57* NS	NR NS NS NS
[62] Piko (2006	CS	N = 250	MBI	Gender (male) Age Schooling Psychosomatic symptom scale Job satisfaction, Role conflict (measure developed for study) Job satisfaction Role conflict Years in healthcare	NS NS NS R = 0.46*** R=-0.49*** R = 0.35*** NS	R= -0.17** R = 0.19* R=-0.16* NS R=-0.37*** R = 0.34*** NS	R = 0.26*** NS R = 0.14* NS R = 0.38*** NS NS
[63] Pinikahana & Happell (2004)	CS	N = 136	MBI-HSS	Nursing Stress Scale Job Satisfaction Scale of nurse stress scale	NR NR	NR NR	NR NR
[64] Priebe et al (2005)	CS	N = 109	MBI-HSS	Identity scale • Type of professional	**Burnout** F = 20.72***	–	–
[65] Prosser et al. (1997)	CS	N = 121	MBI- HSS	Job Diagnostic Survey • Stress from role (increased) • Stress from work overload (increased) • Satisfaction with career (decreased) • Satisfaction from work with people (decreased) • Children at home (reduced) • Stress from poor support (increased) • Stress from client (increased) • Career satisfaction (decreased) • Manager satisfaction (decreased) • Satisfaction with career (increased)	β = 4.1*** β = 4.4*** β = 2.5** NS NS NS NS NS NS NR	NS NS β = 1.1* β = 1.1* β = 3.0*** β = 1.1** β = 1.5** β = 1.4** β = 1.3* NR	NS NS NS NS NS NS NS NS NS β = 2.6***
[66] Prosser et al. (1999)	LS	1994 N = 120 1995 N = 166 1996 N = 94	MBI-HSS	**Higher if:** Nurse Social worker White **Lower if:** Very new Very experienced in profession In the sector longest community Psychologist	β = 4.03* β = 13.32*** NS β=-3.24* β=-4.56** β=-0.34* NS	β = 2.34** NS β = 3.44*** NS β=-3.05* NS β=-3.22**	NS NS NS NS NS NS NS
[67] Rogala et al. (2016) & (68)Shoji et al. (2015)	LS	**Study 1** T1: 294 T2: 135 **Study 2**	OLBI	Multidimensional Scale of Perceived Social Support Disengagement T1 Disengagement T2 Self Efficacy T1	**Emotional Exhaustion** **T1 T2** r = r= 0.77*** 0.80*** 0.49*** 0.66***		**Depersonalisation** **T1 T2** r = r= NR NR

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Table 2 (*Continued*)

Study	Design	No of Resp	Measure of Burnout	Measure of determinants	EE	DP	PA
		T1: 306 T2: 193		Self Efficacy T2 Social support T1 Social support T2 Exhaustion at T1 led to disengagement at T2 Traumatic stress at T2 Secondary Traumatic Stress (Secondary Traumatic Stress Scale Scale (STSS)) Job burnout at T1 led to STS STS assessed at T1 did not lead to job burnout at T2	−0.52*** 0.38*** −0.52*** 0.61*** −0.29*** 0.23*** −0.29*** 0.30*** p < 0.001 NS	NR NR NR NR NR NR	
[69] Rossi et al. (2012)	CS	N = 260	Professional Quality of Life- III	Marital status: separate, divorced, widowed v's single No of years spent in mental health department Lifetime traumatic events > 1 event v's none Distress (GHQ-12 score > 3)	**Burnout** r = 3.117* r = 0.099* r = 3.154* r= -4.298***	– – – –	– – – –
[70] Rupert and Kent (2007)	CS	N = 595	MBI- HSS Psychologist Burnout Inventory-revised (PBI-R)	Age Total hours per week PBI-R • Negative clientele • Over-involvement • Control • Support Direct pay client Managed care client Job satisfaction scale Career sustaining behaviours	r=-0.18* r = 0.27* r = 0.19* r = 0.35* r=-0.29* NS r=-0.11* NS NR NS	r=-0.12* r = 0.16* r = 0.27* r = 0.15* r=-0.22* NS NS NS NR r=-0.12*	r = 0.12* NS NS r = 0.16* r = 0.42* r = 0.11* r = 0.13* NS NR r = 0.30*
[71] Rupert & Morgan (2005)	CS	N = 571	MBI- HSS Psychologists Burnout Inventory (PBI-R)	Age Total hours per week PBI-R subscales • negative clientele • over-involvement • control Direct pay client Managed care client Sources of satisfaction and stress scale	−0.17* 0.29* 0.30* 0.30* −0.29 −0.23* 0.15* NR	−0.13* NS 0.29* 0.15* −0.21* NS −0.14* NR	NS NS NS 0.18* 0.33* NS 0.11* NR
[72] Salyers et al. (2015)	CS	N = 113	MBI - HSS	Job diagnostic survey Quality of care (quality of care scale developed by authors) • Total score • General work conscientiousness • Client-centred care Turnover intent past 6 months Turnover intent next 6 months	r=-0.62*** NS r=-0.22* NS r = 0.58*** r = 0.51***	r = 0.50*** NS r=-0.24* NS NS NS	r=-0.44*** r = 0.5* NS r = 0.53*** NS NS
[73] Salyers et al. (2013)	CS	N = 152	MBI- HSS	Job Diagnostic Survey Consumer Optimism Scale Veteran association vs community providers	NR NR t = 2.48*	NR NR NS	NR NR t = 6.29***
[74] Sherring & Knight (2009)	CS	N = 172	MBI-HSS	Clinical supervision monthly v's every 2/3 months Mental Health Nursing Questionnaire • Feeling valued at work • Perceived support at work • Perceptions of involvement in the decision-making process regarding nursing issues • Perceptions of feeling involved in the decision making process regarding changes	F = 4.25** F = 16.82*** Effect size eta ^{2} = 0.29 F = 3.488** Effect size eta^2 = 0.08 F = 9.60*** Effect size eta^2 = 0.02 F = 8.06*** Effect size eta^2 = 0.17	NR NR NR Effect size eta^2 = 0.09 NR	NR F = 2.55* Effect size eta^2 = 0.06 NR NR
[75] Siebert (2006)	CS	N = 751	MBI- EE only	Personal and Occupational variables- tool developed for study Marital status: Not married vs married Living alone vs living with others Employed by not private for profit organisation vs private for profit organisation	F = 3.92* (DF = 1) F = 4.41* (DF = 1) F = 33.38*** (DF = 1) F = 7.30* (DF = 1)	– – – –	– – – –
[77] Sorgaard et al. (2007)	LS	N = 414	MBI-HSS	OSCAR Demographic questionnaire Mental Health Professional Stress Scale (MHPSS)	NR NR NR NR	NR NR NR NR	NR NR NR NR

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Table 2 (*Continued*)

Study	Design	No of Resp	Measure of Burnout	Measure of determinants	EE	DP	PA
				Psychosocial Work Environment and Stress Questionnaire	No significance between ward staff and community staff		
[78] Sorgaard et al. (2010)	CS	N = 196	MBI	Nurses v's unqualified staff	NS	NS	NS
				MHPSS	NR	NR	NR
					With the exception of high work demands the main differences between the two groups appeared to be centre-dependent		
[79] Spear et al. 2004	CS	N = 116	MBI	Stress Checklist	**Total Burnout**	–	–
				Social Support Scale	r = 0.70**	–	–
				Role Ambiguity Scale	NR	–	–
				Team Dynamics Checklist	NR	–	–
				Job satisfaction	NR	–	–
					R=-0.51***		
[80] Steel et al. (2015)	CS	N = 116	MBI-HSS	Job content questionnaire	β = 0.491***	NS	NS
				• Psychological job demands	NS	NS	NS
				• Decision latitude	β = 0.29**	NS	NS
				• Stressful involvement			
[81] Tummers et al. (2001)	CS	N = 178	MBI- EE	Maastricht Autonomy Questionnaire	r=-0.20**	–	–
				Workload 8-item scale	r=-0.34**	–	–
				Social support at work scale	r = 0.29**	–	–
				Job involvement scale	NS	–	–
[82] Volpe et al. (2014)	CS	N = 100	MBI-HSS	Beck Depression Inventory	**Total MBI Score**	–	–
					r = 0.54*		

NS not significant, NR Not reported, * $p < 0.05$, **p <0.01, ***$p < 0.001$, MBI-HSS Maslach Burnout Inventory Health Services Survey, MBI-GS Maslach Burnout Inventory General Survey, CBI Copenhagen Burnout Inventory, OLBI Oldenburg Burnout Inventory, ProQOL professional quality of life. EE Emotional Exhaustion, DP Depersonalisation, PA Personal Accomplishment, Ex Emotional Exhaustion, Cyn Cynicism, PE Personal Efficacy. BO Burnout. GHQ-12 General Health Questionnaire-12, MLQ- X4 Multifactor Leader Questionnaire- X4 CMHN Community Mental Health Nurses, Psych Psychiatrists, SW Social workers, CMHT Community Mental Health Teams, AOT Assertive Outreach Team, CRT Crisis Resolution Team.

3.7. Determinants of burnout in MHPs

Fifty-nine studies were included in the narrative review of determinants. For this review, we categorised these determinants in terms of 'individual' factors and 'work-related' factors [3]. It was not possible to synthesise these results utilising meta-analytic techniques due to the variation in how determinants were assessed, and results reported. The studies and associated determinants are summarised in Table 2.

3.7.1. Individual factors

A negative correlation between age and depersonalisation was reported in eight studies [16,23–26,28,45,52,70,71]. While, two studies reported a positive relationship between age and depersonalisation [44,62]. A negative correlation between age and emotional exhaustion was reported by five studies [26,28,45,70,71] and four studies reported a positive relationship between age and rating higher on the personal accomplishment sub-scale [25,39,55,70]. The findings on the relationship between gender and burnout dimensions were inconsistent. No consistent relationship between the length of service and burnout was found in the studies identified in this review

3.7.2. Work-related factors

3.7.2.1. Workload. Increased workload/ high caseloads were found consistently by the studies in this review to be associated with higher rates of burnout [16,21,33,36,39,50,51,53,56,65,81].

3.7.2.2. Job control. A sense of autonomy at work and perceived capacity to influence decisions that affect work was consistently reported by the studies identified in this review to be associated with lower rates of burnout, particularly lower rates of emotional exhaustion and increased rates of professional accomplishment [35,45,54,55,70,71,74,80,81].

3.7.2.3. Community. Community relates to the on-going relationships that employees have with other people on the job. Role conflict was found in this review to be associated with increased rates of emotional exhaustion [48,53,62], role ambiguity associated with increased emotional exhaustion [48,53] and role clarity was associated with higher rates of personal accomplishment [38]. Johnson et al. 2012 in their large sample of MHPs in the UK found that support from colleagues and managers was associated with reduced emotional strain and increased work engagement [45]. Lack of /inadequate clinical supervision was associated with increased risk of burnout in three studies [16,32,74]. In a sample of 189 community mental health nurses, Edwards et al. [31] demonstrated that higher scores on the Manchester Clinical Supervision Scale were associated with lower levels of measured burnout (EE: r=-0.148, $p < 0.05$, DP r=-0.22, $p = 0.03$) [32]. Furthermore, Sherring & Knight (2009) reported that in a population of 172 nurses those who reported a lesser quantity ($F = 4.25$, $p = 0.001$) and or perceived inadequacy of clinical supervision ($F = 7.63$, $p < 0.001$) reported higher rates of emotional exhaustion. Fairness in how staff feel they are treated and a sense of being rewarded for work was identified as being important in protecting against the development of burnout [56,59].

3.7.2.4. Work setting. In a longitudinal study, comparing levels of burnout and sources of stress among the community and acute ward staff in six European countries Sorgaard et al. 2007 (n = 414) found that burnout was not a serious problem among community or ward staff in this study at baseline, six months or 12 months [78]. However, they did find that rates of emotional exhaustion

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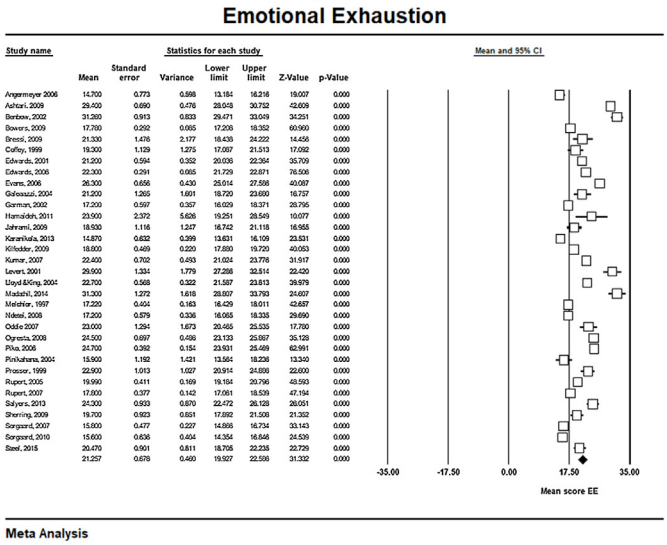
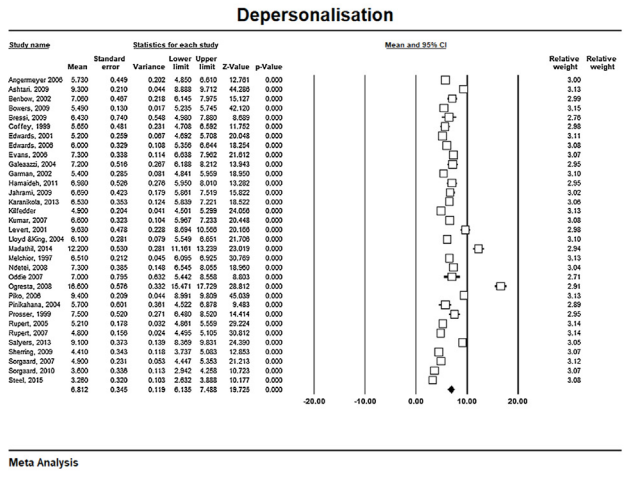
a: Mean score on Maslach Burnout inventory- Emotional Exhaustion subscale



b: Mean score on Maslach Burnout inventory- Depersonalisation subscale



c: Mean score on Maslach Burnout inventory- Personal Accomplishment subscale

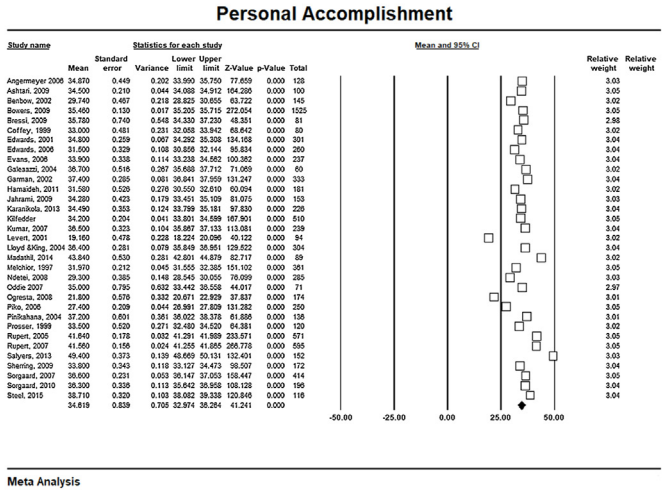


Fig. 2. Forrest Plots of mean scores on Maslach Burnout Inventory. a Mean score on Maslach Burnout inventory- Emotional Exhaustion subscale. b Mean score on Maslach Burnout inventory- Depersonalisation subscale. c: Mean score on Maslach Burnout inventory- Personal Accomplishment subscale.

were higher in community staff (EE mean 18.31 +/- 10.5) when compared to staff based on inpatient units (EE mean 15.8 +/- 9.74) and that the variable that primarily distinguished between ward staff and community staff was job control. Furthermore, although the staff in the community reported a greater sense of control, they also reported higher work demands. Johnson et al. 2012 reported significant differences in work demand and job control described by staff working in different parts of the mental health service [45]. Staff working in community mental health teams reported the highest level of work demand (Mean 3.36 (SD 1.03), max score 5.0) while staff working staff working on rehabilitation wards reported the lowest level (Mean 2.47 (SD 0.94)). Conversely, staff in community mental health teams reported the highest level of job control (Mean 3.65 (SD 0.76), max score 5.0) while those working on acute general wards reported the lowest level (Mean 2.99 (SD 0.89)). Furthermore, emotional exhaustion was significantly higher among acute general ward (EE mean 21.1, SD 12.7) and community mental health team staff (EE mean 23.8, SD 11.0) when compared to other service types ($F = 8.87$, $p < 0.0005$). Nelson et al. 2009 (n = 433) assessed and compared the burnout levels of crisis resolution teams with assertive outreach and community mental health teams utilising a multicentre cross-sectional survey in England [57]. This study found that staff on crisis resolution and assertive outreach teams reported significantly higher sense of personal accomplishment than staff working in community mental health teams (p=0.0005). Nelson et al. 2009 proposed that although the demands of working in a crisis resolution team are likely to be high, these may be mitigated by the sense of autonomy staff report and the benefit of working in a cohesive team [57]. Billings et al. 2003 (n = 301) compared satisfaction and burnout between assertive outreach teams and community mental health teams in London [24]. They found that staff on the assertive outreach team reported lower rates of depersonalisation (r=-1.7, $p = 0.01$) and higher rates of personal accomplishment (r = 1.8 $p = 0.01$) compared to staff on the community mental health teams.

3.7.2.5. Professional background. Six studies reported on associations between burnout and MHPs professional background [24,36,45,51,57,60,66]. Five of these studies were completed in the UK. Johnson et al. 2012 reported that in their large

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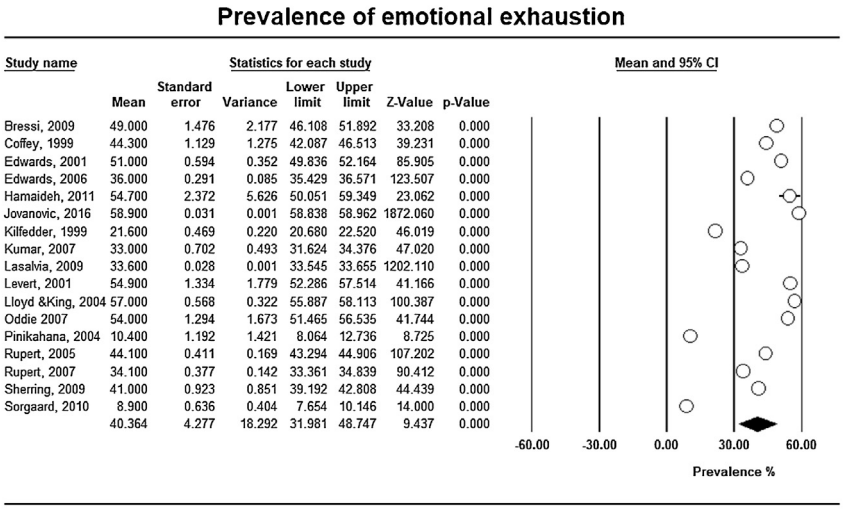
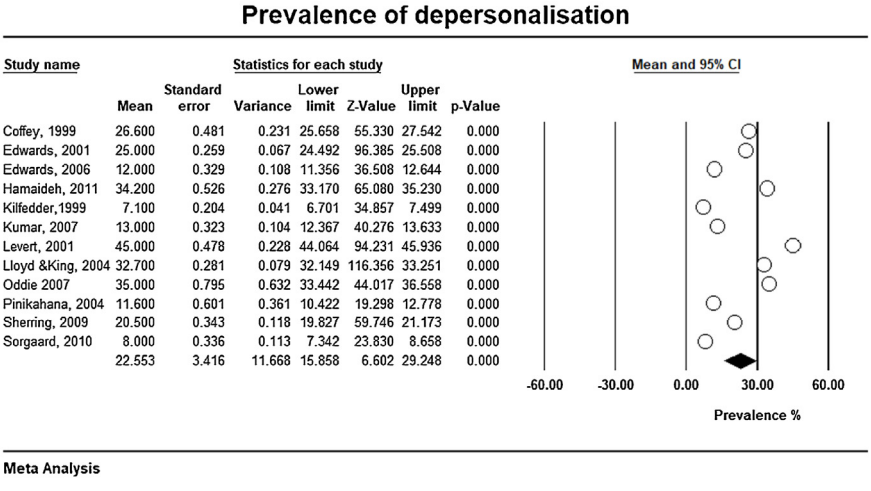
a:Prevalence of Emotional Exhaustion



b : Prevalence of depersonalisation



c : Prevalence of personal accomplishment

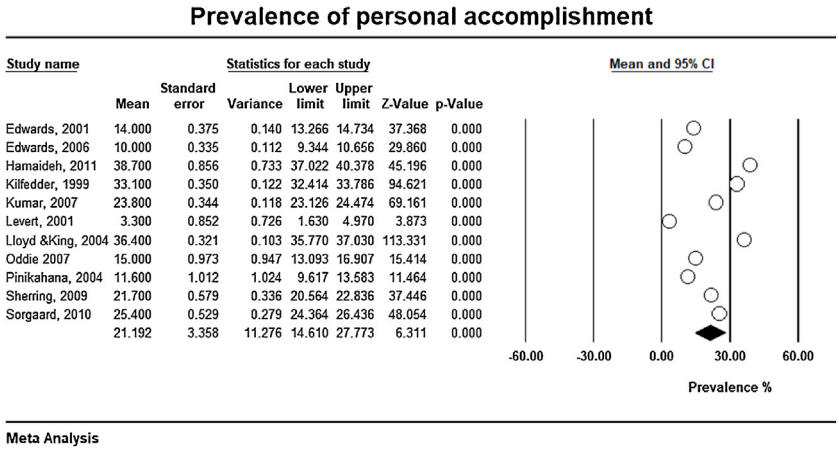


Fig. 3. Prevalence of burnout as rated on Maslach Burnout Inventory. a Prevalence of Emotional Exhaustion. b Prevalence of depersonalisation. c Prevalence of personal accomplishment.

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sample of MHPs (n = 2258) social workers were significantly more likely than other MHP's to report high rates of emotional exhaustion ($F = 6.65$, $p < 0.001$). In a longitudinal study, Prosser et al. 1999 reported higher rates of emotional exhaustion in social workers ($\beta = 13.32$, $p < 0.01$) and nurses ($\beta = 4.03$, $p < 0.05$) and lower rates of depersonalisation in psychologists (β=-3.22, $p < 0.01$) [45,65]. Billings et al. 2003 and Nelson et al. 2009 also reported lower levels of depersonalisation in psychologists when compared to other MHPs (r=-3.2, $p < 0.001$; $p < 0.05$) [24,57].

4. Discussion

4.1. Key findings

This review included data on prevalence and determinants of burnout in MHPs from 62 studies, across 33 different countries. It is the first systematic review and meta-analysis on this topic in MHPs.

The overall estimate of the means for the burnout dimensions as rated on the MBI-HSS were 21.11 for emotional exhaustion, 6.76 for depersonalisation and 34.60 for depersonalisation. These means indicate that the average MHP has a 'high' level of emotional exhaustion, a 'moderate' level of depersonalisation but retains a 'high' level of personal accomplishment. These findings suggest that MHPs may still feel competent despite feeling exhausted, overextended, depleted and disconnected. The prevalence estimates for emotional exhaustion was 40% (range, 8%–59%), for depersonalisation was 22% (range, 8%–65%) and for low sense of personal accomplishment were 19% (range 3%–38%). Given that emotional exhaustion is typically considered the core dimension of burnout, this review indicates that 40% of the respondents in the selected studies suffered from professional burnout [7].

The systematic review of determinants found a reasonably consistent relationship between increasing age and increased risk of depersonalisation but also an increased sense of personal accomplishment. The relationship between increased workload and increased rates of burnout was consistent across the studies identified. This relationship arose as a particular issue for those working in general community teams more than those working in specialist teams, e.g., assertive outreach teams, crisis teams, forensic settings. A sense of autonomy and perceived capacity to influence decisions at work were associated with lower rates of burnout. The data from the present study suggests that staff working in general adult in-patient settings report a lower sense of autonomy at work, while staff in the community teams and particularly in the specialist teams reported a greater sense of autonomy and associated personal accomplishment. The data identified in this review indicates that when relationships at work are characterised by role conflict, role ambiguity, and unresolved conflict, there is a higher risk of burnout. Clinical supervision, a sense of being treated fairly and of receiving fair reward for one's work appears to be protective. There was some data suggesting that social workers, working in the UK were at higher risk of burnout in comparison to other MHPs. Whereas, there was data suggesting that psychologists in the UK may be at lower risk of depersonalisation when compared to other MHPs.

4.2. Comparison with previous literature

The pooled estimates of respondents exceeding the 'high' cut-offs for the different dimensions of burnout are double those seen in the general population [92] and considerably higher than those reported in a systematic review of burnout in emergency nurses in which 26% reported high rates of emotional exhaustion [93,94], and a meta-analysis of health professionals working in palliative care in which 17.5% reported high rates of emotional exhaustion, 6.5% reported high levels of depersonalisation and 19.5% reported low levels of personal accomplishment [95]. The rates of emotional exhaustion and depersonalisation are also similar to those reported in a meta-analysis of burnout in cancer professionals, which reported high rates of emotional exhaustion in 36%, high rates of depersonalisation in 34%. However, the rates of low personal accomplishment in this meta-analysis of cancer professionals were reported as 25%, which is considerably higher than the 18% reported in this meta-analysis of MHPs [96].

Consistent with previous reviews on this topic we did find significant relationships between workload, role conflict, lack of job control and burnout [7,15,88,97–99]. The findings that community staff are at higher risk of burnout is consistent with a literature review of burnout in community mental health nurses [100].

4.3. Limitations

This study has important limitations. Firstly, the levels of heterogeneity identified across studies in this review were high. However, meta-analyses of prevalence studies often report high levels of heterogeneity and published meta-analyses on the prevalence of burnout in other health professionals report similarly high levels of heterogeneity [95,96,101]. Some of the variance in this study was explained by the use of different cut-offs for 'caseness' on the MBI-HSS subscales, differences in the quality of the studies as rated on the Newcastle-Ottawa Scale, the average age of study participants, geographical region in which studies were conducted, sample sizes and % of nurses/psychologists in the studies. However, work-related factors such as high caseload, poor team functioning, and lack of job control make MHPs more vulnerable to developing burnout. While these factors may be perpetuated by features common across the field of psychiatry; national health service characteristics and then local organisational factors are likely to be more critical to the work-related experience of MHPs and underlie their vulnerability to burnout. As such, some variation in the reported prevalence of the burnout phenomenon across countries and the world is unsurprising.

Secondly, although doctors, nurses, and psychologists were reasonably well represented in the studies identified, few studies reported individual data for other MHPs. Studies which reported on differences between rates of burnout in MHP's were primarily UK samples and given there are differences in how MHP's work in different countries these findings may not represent the experience in other countries and service delivery models. Thirdly, several conceptual models of burnout emphasise the need for a good person-environment fit to prevent burnout. However, the majority of studies identified only measured some work stressors and some outcomes, without taking into account the perception of the stressor by the MHP. These limitations mean that only a small part of the variance can be explained, interrelationships between determinants cannot be adequately investigated, results from different studies cannot be easily compared and causal relationships between determinants and outcomes cannot be made.

5. Conclusion

Burnout rates are high in MHPs, with the summary estimate of the prevalence of emotional exhaustion being 40%. The present systematic review indicates that interventions to prevent and reduce burnout should focus on the promotion of professional autonomy, manageable caseloads, the development of good team function and the provision of quality clinical supervision to all MHPs.

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Author contributions

KOC, DMN and SP designed the study. KOC and DMN completed the data collection, analysis and interpretation. KOC drafted the article. DMN and SP revised the article. KOC, DMN and SP approved the final draft of the article.

Conflict of interest statement

KOC, DMN and SP have no competing interest to declare.

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Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:https://doi.org/10.1016/j.eurpsy.2018.06.003.

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