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Mentoring, coaching and peer-support programs promoting well-being for physicians: A systematic review

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ABSTRACT

Introduction As many as half of U.S. physicians experience impactful levels of burnout. In early-career physicians, the consequences of burnout are significant with linkage to poor professionalism and patient care. A nurturing peer community and physician mentoring may mitigate against burnout and its associated sequelae; however, such programs for early-career physicians are rare and their impact largely unknown. We aim to synthesize the current literature on the impact of longitudinal mentoring and coaching programs for physicians.

Methods The authors searched four bibliographic databases to conduct a systematic review following PRISMA guidelines. Included studies were published between 01 January 2000 to 30 October 2022 and peer-reviewed articles reporting original research. The review examined associations between either a career mentoring, coaching, or peer support theme and outcomes in the career path of physicians.

Results Review of 5528 records yielded 23 articles that met inclusion criteria, with about half describing U.S. programs and half completed since 2017. Of these, 14 studies were of "high" or "medium" quality, 7 studies involved primary care physicians and 3 studies focused only on early-career physicians. In mixed methods studies, participants consistently reported positive experiences from their mentorship involvement and the 8 randomized control or cohort studies also reported positive effects with the mentoring programs.

Conclusion Rigorous data supporting the value of mentorship, including the best approach to be used (coaching, mentorship, or peer support) is lacking. However, a growing database of quality studies affirms physician mentoring as important to physician retention, wellbeing and quality healthcare delivery.

Introduction

Over 40 years ago, Maslach and Jackson defined burnout as "a syndrome of emotional exhaustion and cynicism that occurs frequently among individuals who do 'people-work' of some kind. A key aspect of the burnout syndrome is increased emotional exhaustion which is related to job satisfaction, performance and retention."[1]

Although the syndrome was named over 40 years ago, this phenomenon has been a focus of intensive research. Studies have linked feelings of burnout to adverse mental health issues among healthcare providers and to compromised healthcare for their patients.[2] Working in healthcare is increasingly demanding. Studies completed in the last two years report a burnout rate of forty to fifty percent among U.S. Physicians[3-5] Nearly one-quarter of these are planning to leave medical practice within two years.[6] Burnout is reported by 24% to 75% of resident physicians[7,8] and may increase during the first year of practice.[9,10] These declining trends in job satisfaction have also been reported among British and Norwegian general practitioners.[11,12] This is of particular concern during the first five years of practice, wherein high demands and lack of professional resources result in lack of engagement, withdrawal behaviors, and harms to personal health.[13]

Numerous studies have identified predictors of burnout, such as use of electronic medical record,[14] poor work control and greater time pressure.[15-17] This has led to multiple suggestions to reduce the factors associated with burnout,[18-20] with much less attention given to programs to support well-being among healthcare clinicians.

Coaching, mentoring, and peer support each have potential to enhance well-being. Mentorship, in which a more experienced and knowledgeable healthcare professional guides a less experienced colleague in career development, has been utilized since the dawn of medical practice. It requires an ongoing relationship between the mentor and one who is being mentored. Peer support—the sharing of experience, knowledge, and a social network among individuals of equivalent experience and a common background – is a close cousin of mentorship. Coaching, a process of inquiry, encouragement, and accountability, seeks to increase self-awareness and to facilitate a person's navigation of professional life and career choices. It does not require the person and his/her coach to share a professional background.[21,22]

The recent epidemic of physician burnout-especially in young and mid-career physicians-has led to a proliferation of related commentaries and small mentorship studies. What has been lacking is a cogent compilation and overview of this body of research. We sought to examine the impact of longitudinal coaching mentoring, and peer support programs for physicians.

Methods

Our systematic review follows the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) 2020 guidelines.[23] We performed a comprehensive search of four bibliographic databases: PubMed, CINAHL, Scopus, APA PsycINFO with PsycARTICLES for studies published in English between 01 January 2000 and 30 October 2022. The initial search was conducted on 30 June 2022 and last updated on 30 October 2022. We restricted our search to articles focused on physicians, with emphasis on mentoring, coaching, or peer support programs. Sample search terms utilized were physician, doctor, hospitalist, mentor, coach, orientation, onboarding, retention, burnout, stress, resilience.

Eligible publications included either mentoring or coaching intervention programs for physicians, excluding studies with the objective of developing specific clinical skills. We included only studies of physicians who had completed training. We excluded systematic or narrative reviews, program overviews, conference abstracts, opinion pieces, and protocols.

Screening was performed using Rayyan, a freely available online screening tool.[24] Two reviewers conducted independent blinded screening on title and abstract. After the initial independent decisions, two reviewers met to review records with conflicting decisions. The full text review was screened by one reviewer, and any uncertainties discussed with a second reviewer.

DATA EXTRACTION AND QUALITY ASSESSMENT

We created a data extraction table to gather data on objectives, interventions, length of intervention, participants, settings, outcome, instruments, and key findings. Data extraction was performed by one reviewer and verified by a second reviewer.

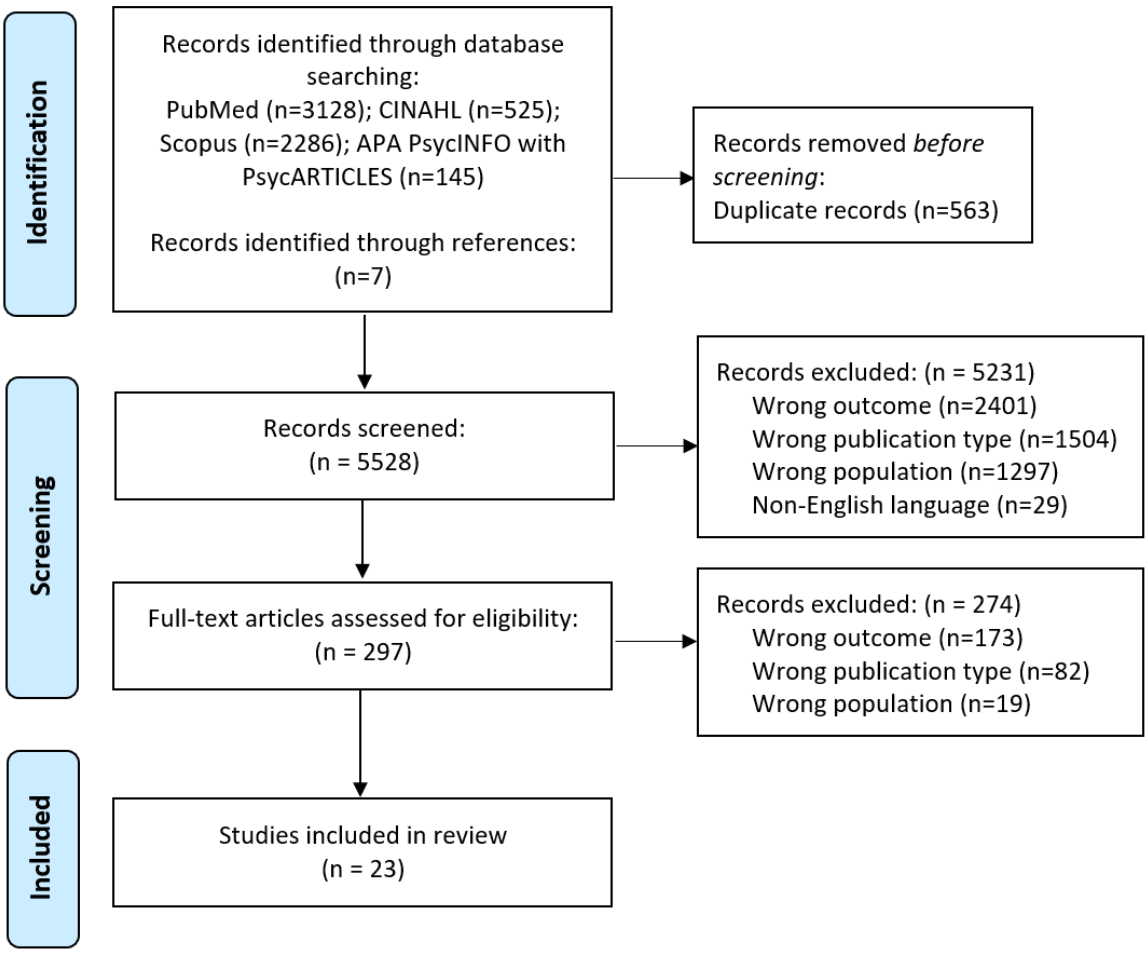
Quality assessment was measured by study type (quantitative, qualitative, or mixed methods). We assessed quantitative studies using the National Heart, Lung, and Blood Institutes' study quality assessment tools, based on the study methodology.[25] We assessed qualitative studies using the Critical Appraisal Skills Programme (CASP) Qualitative Checklist.[26] Mixed method studies were assessed using both quality assessment tools and the average reviewer rating.[25,26] Two reviewers independently rated each study; conflicting ratings were discussed to reach consensus.

Results

STUDY SELECTION

As shown in Figure 1 once duplicates were removed, 5528 records were screened based on title and abstract. After the initial screen, we reviewed 297 full text articles. The most common reason for full text article exclusion was wrong outcome (n=3593) which included both lack of outcomes (i.e., commentary) and clinical outcomes (i.e., surgical procedure). Among the 297 articles, 23 articles met our inclusion criteria.

Figure 1: PRISMA flow diagram for eligible article identification



STUDY CHARACTERISTICS

Nearly half of the 23 selected articles described U.S. programs and were completed after 2017. Nine studies reported participants' age; in six of these, the majority of subjects were aged 50 or less (Table 1). Participants' average years since training, recorded in ten studies, ranged from 2.5 years to 20 years post-residency (Table 2). Thirteen studies recorded neither the age of participants nor their number of years in practice.[27-39] Although thirteen studies reported a male/female gender breakdown, only three of 23 studies recorded race or marital status data (Table 1).

Nine studies[30,31,40-46] involved general practitioners, family physicians, or other primary care physicians and three studies[29,46,47] focused on early-career physicians (Table2). The number of participants ranged from 9[28] to 525[46] with all but four studies[27,36,43,47] occurring within the last decade. Fourteen studies[29,31,32,34,37,38,41-45,47-49] were of "high" or "medium" quality," based on established quality ratings tools (Table 3).[25,26] Only six studies used an experimental design,[30,37,38,41,43,45] whereas others used a post-intervention survey,[27,28,31-33,35,36,40,47] cross-sectional survey,[39,44,46] or qualitative interviews[27,29,34,42,47,48] (Table3).

Table 1. Overview of Study Participants' Demographics

First Author	Average Age (in years)	Gender (% Female)	Married/ In committed relationship (%)	Race (%White)
Connor et al[27]	ns	ns	ns	ns
Cuaron et al[28]	ns	ns	ns	ns
Dyrbye et al[41]	31-40 yrs (16%) 41-50 yrs (52%) 51-60 yrs (28%) >60 yrs (7%)	55%	86%	ns
Gardiner et al[43]	2/3rd 30-50 yrs (from parent study)	29% overall; 32% intervention	87% (from parent study)	ns
Gordon et al[29]	ns	55%	ns	85%
Hernandez-Lee et al[46]	ns	ns	ns	ns
Lin et al[47]	ns	44%	ns	58%
Mann et al[30]	ns	ns	ns	ns
McGonagle et al[45]	43 yrs	79%	ns	ns
McKimm et al[31]	30-50 yrs (100%)	69%	ns	76%
Menzin et al[31]	<50 yrs (62%) ≥50 yrs (31%) missing (7%)	70%	ns	ns

First Author	Average Age (in years)	Gender (% Female)	Married/ In committed relationship (%)	Race (%White)
Saperstein et al[44]	<35 yrs (81%) ≥35 yrs (19%)	26%	ns	ns
Schneider et al[48]	ns	ns	ns	ns
Sekerka et al[42]	43 yrs	31%	ns	ns
Sharieff et al[33]	ns	ns	ns	ns
Splig et al[49]	46 yrs	35%	ns	ns
Steven et al[34]	ns	ns	ns	ns
Tietjen et al[40]	ns	ns	ns	ns
Tom et al[35]	ns	ns	ns	ns
Welch et al[36]	ns	100%	72%	ns
West et al[37]	ns	34.0%	ns	ns
West et al[38]	<30 yrs (2%) 31-40 yrs (32%) 41-50 yrs (30%) 51-60 yrs (27%) >60 yrs (10%)	43%	ns	ns
Wilkie et al[39]	ns	ns	ns	ns

Table 2. Overview of Study Participants' Professional Characteristics

First Author	Average Years Post Residency (in Practice)	Specialty	Proportion of Time in Direct Patient Care	Location of study
Connor et al[27]	ns	ns	ns	UK
Cuaron et al[28]	ns	Radiation Oncology	ns	USA (NY)
Dyrbye et al[41]	16 yrs	Medicine Family Medicine Pediatrics	<25% (2%) 25-49% (16%) 50-74% (27%) 75-99% (35%) 100% (20%)	USA (AZ, FL, MN, WI)
Gardiner et al[43]	> 80% in rural practice >5 yrs (from parent study)	General Practice	79% >7 sessions per week (from parent study)	South Australia
Gordon et al[29]	0%	General Practice Medical Specialist Surgical Specialist Lab-based Specialty Anesthesiology	ns	UK
Hernandez-Lee et al[46]	≤5 yrs	Family Medicine	ns	Canada
Lin et al[47]	median time since residency 2.5 yrs (clinical); 3 yrs (research)	Radiation Oncology	ns	US (NY)
Mann et al[30]	ns	General Practice	ns	UK
McGonagle et al[45]	11 yrs	Primary Care	ns	USA (Northeastern)
McKimm et al[31]	ns	General Practice	ns	UK
Menzin et al[31]	ns	Physicians Nurses Physician Assistants Chaplains Pharmacists Psychologists Social Worker	ns	USA (NY)
Saperstein et al[44]	<10 yrs (63%) ≥10 yrs (37%)	Family Medicine	"majority" 75% or more	USA Navy
Schneider et al[48]	1st yr resident to "latter stage"	Primary Care	ns	USA (NC)
Sekerka et al[42]	12 yrs	Family Medicine	ns	USA (Ohio)
Sharieff et al[33]	ns	ns	ns	ns
Splig et al[49]	14 yrs	Internal Medicine Hematology Palliative Care Neurology Cardiology Geriatrics Endocrinology Physical Medicine and Rehabilitation Nuclear Medicine	ns	Canada (Ontario)
Steven et al[34]	ns	ns	ns	UK
Tietjen et al[40]	2- 20 yrs	Primary Care Hospitalists	ns	USA (Connecticut)

First Author	Average Years Post Residency (in Practice)	Specialty	Proportion of Time in Direct Patient Care	Location of study
Tom et al[35]	ns	ns	ns	USA (California)
Welch et al[36]	ns	Emergency Medicine	ns	USA (IN)
West et al[37]	ns	Internal Medicine	ns	USA (Minnesota)
West et al[38]	ns	Internal Medicine	ns	USA (Minnesota)
Wilkie et al[39]	ns	Addiction and Mental Health Physicians	ns	Canada (Ontario)

Table 3: Overview of Study Characteristics and Quality Assessment

First Author	Sample Size (n)	Retention (%)	Participation Proportion (%)	Data collection year(s)	Hospital /clinic system	Quality Assessment Score
Connor et al[27]	151	n/a	69%	1997	ns	Low
Cuaron et al[28]	9	85%	100%	May-Dec 2018	Memorial Sloan Kettering Cancer Center (Academic)	Low
Dyrbye et al[41]	88	93%	12%	Oct 9, 2017-Mar 27, 2018	Mayo clinic sites; both academic and community practice	High
Gardiner et al[43]	245	71%	64%	around 2000 (from parent study)	Rural general practitioners from South Australia	High
Gordon et al[29]	20	90%	ns	2016-2017	Community and hospital settings	High
Hernandez-Lee et al[46]	525	n/a	7%	Jul 2017	ns	Low
Lin et al[47]	36	89%	86%	Jul 2020-Jul 2021	Memorial Sloan Kettering Cancer Center (Academic)	High
Mann et al[30]	14	85%	ns	ns	ns	Low
McGonagle et al[45]	58	66%	ns	ns	Community-and hospital-based settings	High
McKimm et al[31]	50	76%	54%	Apr 2016-Mar 2017	ns	Medium
Menzin et al[31]	106	ns	ns	Oct 2017-Jul 2018	Northwell Health	Medium
Saperstein et al[44]	186	n/a	61%	May 2018	Military medical service	High
Schneider et al[48]	11	100%	44%	Oct 2012-May 2013	Duke University Medical Center	Medium
Sekerka et al[42]	13	100%	50%	ns	Case Western Reserve University, School of Medicine	Medium
Sharieff et al[33]	16	ns	ns	ns	ns	Low
Splig et al[49]	40	80%	15%	Jan-Aug 2019	The Ottawa Hospital	High
Steven et al[34]	49	100%	ns	ns	General practice, hospital, and public health organization	Medium
Tietjen et al[40]	27	n/a	69%	2013	Western Connecticut Health Network and New Milford Hospitals	Low
Tom et al[35]	ns	n/a	ns	2017-2018	The Permanente Medical Group	Low
Welch et al[36]	46	ns	64%	2010	Indiana University Health Methodist Hospital Emergency Medicine	Low
West et al[37]	72	97%	13%	Sep 2010-Jun 2012	Mayo Clinic	High
West et al[38]	125	86%	21%	Oct 2013-Oct 2014	Mayo Clinic	High
Wilkie et al[39]	84	n/a	46%	Nov-Dec 2017	ns "8 clinical divisions"	Low

In our review, of the 18 studies that evaluated interventions, 7 were about coaching,[31,33,41,43,45,48,49] 8 mentorship,[27,28,30,34-36,40,47] and 3 peer support[32,37,38] (Table 4). Coaching involves inquiry, encouragement, and accountability to increase self-awareness, motivation, and the capacity to take effective action. Coaches do not need to be physicians or be directly involved in health care. Professional coaching can be tailored to focus on the aspects desired by recipients and can assist individuals in their effort to navigate their professional life, their choices, and the direction of their career.

Mentorship is characterized by a relationship in which one individual who is more knowledgeable and experienced guides a less knowledgeable and less experienced individual; it may involve physicians or other individuals with direct experience in the health field. Peer support denotes collegiality among and support from peers. It involves the sharing of knowledge, experience, and emotional and social support between individuals who have common experiences. It is an informal relationship between colleagues.

Table 4: Overview of Study Characteristics

First Author	Purpose/ Objective	Study type
Connor et al[27]	To evaluate the impact of participating in a mentorship training program on senior physicians' experiences of mentoring junior doctors	Qualitative interviews and post-intervention survey of cohort
Cuaron et al[28]	To evaluate physician-reported assessments of an established faculty orientation program for new radiation oncology physicians and to prospectively analyze the effects of an onboarding program based on those assessments	Post-intervention survey of cohort
Dyrbye et al[41]	To evaluate improvements in well-being, job satisfaction, resilience, and fulfillment in physicians and burnout from professional coaching intervention	Randomized control trial
Gardiner et al[43]	To determine the relationship between cognitive behavioral coaching, the well-being of rural general practitioners (GPs), and intentions to leave	Intervention trial
Gordon et al[29]	To explore trainee doctors' experiences of the transition to trained doctor. Research questions were 1) What multiple and multidimensional transitions are experienced as participants move from trainee to trained doctor? 2) What facilitates /hinders doctors' successful transition experiences? 3)What is the impact of these transitions on doctors?	Qualitative interviews and content analyses of respondents' audio diaries of cohort
Hernandez-Lee et al[46]	To explore the need for mentorship in early-career family physicians	Cross-sectional survey
Lin et al[47]	To evaluate differences in satisfaction with mentorship for clinical and research junior faculty and the relative importance of mentoring program components	Pre- and post-intervention survey of cohort; content analysis of focus group interviews
Mann et al[30]	To explore the use of an action learning approach to mentoring of physicians, by comparing one-to-one mentoring or a group mentoring scheme	Randomized control trial
McGonagle et al[45]	To investigate the impact of a positive psychology-based coaching on primary care physicians' personal and work-related well-being, stress, and burnout	Randomized control trial
McKimm et al[31]	To assess the impact of a confidential coaching program for retention of GPs who are at risk for leaving the profession or recently returned to practice	Pre- and post-intervention surveys of cohort
Menzin et al[31]	To assess the effect of a faculty development program (Mentoring and Professionalism in Training [MAP-IT]) that fosters humanism in medicine on elements of burnout and the development of resilience	Pre- and post-intervention surveys of cohort
Saperstein et al[44]	To examine whether having a mentor is associated with positive job satisfaction among Navy family physicians	Cross-sectional survey
Schneider et al[48]	To evaluate the perceived impact of Physician Well-being Coaching on physician stress and resiliency	Qualitative interviews
Sekerka et al[42]	To identify perceived benefits coaches received from a coaching encounter and how this relates to their own process of professional development	Qualitative interviews
Sharieff et al[33]	To investigate processes that would engender and sustain improvement in individual physician experience scores	Post-intervention survey of cohort
Splig et al[49]	To assess the impact of the SMART program on academic physicians' levels of resilience, subjective happiness, stress, and anxiety	Randomized control trial
Steven et al[34]	To investigate National Health Service doctors' perceived benefits of being involved in mentoring schemes and explore overlaps between areas of benefit	Qualitative interviews
Tietjen et al[40]	To determine physicians' reasons for participating in a physician mentoring program, evaluate the program, and recommendations for improvement	Post-intervention survey of cohort
Tom et al[35]	To evaluate and improve use of a competencies-based mentoring checklist to help new physicians understand the basic work environment and resources in their daily jobs as well as achieve needed competencies	Post-intervention survey of cohort
Welch et al[36]	To describe the content, perceived value, and ongoing achievements of the "Women in Emergency Medicine Mentoring Program"	Post-intervention survey of cohort
West et al[37]	To test the hypothesis that an intervention involving a facilitated physician small group curriculum would result in improvement in well-being	Randomized control trial
West et al[38]	To evaluate physician small groups to promote physician well-being in a scenario with provided discussion topics but without trained facilitators, without protected time for participants	Randomized control trial
Wilkie et al[39]	To support the implementation of an organizational framework for physician wellness	Cross-sectional survey

Of the studies that evaluated interventions (n=18), eleven were ranked high-or medium quality, three employed qualitative or mixed methods design[31,34,48] and eight quality studies utilized randomized controlled trial or prospective cohort design (Table 5,6).[32,37,38,41,43,45,47,49] Interventions employed in these studies included onboarding for new physicians,[28] professional or positive psychology coaching sessions,[41,45] a cognitive behavioral coaching retreat followed by online sessions,[43] junior-senior faculty dyad mentoring using suggested topics,[47] and physician mentoring or coaching provided through health system leadership.[30,31] Group interventions included small group sessions led by trained physician-facilitators,[37] facilitated small group sessions for RNs and physicians lead by various health professionals,[32] a single evidence-based workshop with a follow-up on-line program,[49] and physician small group sessions utilizing a guideline but without a trained (physician) leader.[38]

Five of the included studies used structured core content for mentoring or coaching activities. Key mentoring topics included optimizing meaning in work, integrating personal and professional life, building social support and community at work, improving work efficiency,

addressing workload, building leadership skills, pursuing hobbies and recreation, engaging in self-care, and strengthening relationships outside of work.[41] Those studies that utilized a guided program also focused on identifying a vocational purpose and personal strengths, building effective work teams, and dealing with stressors;[38] or on dealing with differences or conflict, medical error, and giving feedback in challenging circumstances.[32] Qualitative studies stressed the importance of boundary-setting and prioritization, self-compassion, and self-awareness[48] among physicians who were being mentored.

Tools used during mentoring/coaching sessions included positive psychology (reframing negative situations, goal setting, simulation of work-related scenarios, mindfulness tools, reflecting on experiences that have brought joy, gratitude tools) and use of validated strengths-based tools (Best-self Tool, Values in Action Assessment, Using Strengths in New Ways Tool).[45]

Three high- or medium-quality studies did not utilize interventions but provided useful perspectives on coaching and mentoring. Gordon et al.[29] studied twenty recent UK medical graduates over six to nine months, performing content analysis of audio-diaries. Respondents identified having a senior colleague as an informal mentor and having peer support as key factors that eased the transition to clinical practice. Saperstein et al.[44] performed a cross-sectional study of 186 Navy family physicians, finding a positive association between having a mentor and job satisfaction. Sekerka et al.'s[42] qualitative study of thirteen family medicine faculty focused on the benefit of coaching to the coaches themselves. The key informants expressed that serving as a peer coach encourages times for reflection and learning and has benefit to personal and professional development.

Nine studies were rated as lower quality studies. This was based on limitations of sample size, unrecorded demographic factors, choice of methodology, or methodologic flaws, but each study was nevertheless instructive. These studies included a qualitative /post-intervention survey of senior United Kingdom mentors (N=151) of junior physicians,[27] a post-intervention survey for new radiation oncologists (N=9) who had completed an onboarding mentorship program,[28] a cross-sectional survey of early-career Canadian family physicians (N=525) exploring respondents' perceived mentorship needs,[46] a small randomized controlled trial comparing 1:1 and group mentoring for UK physicians with self-identified mentorship needs (N=14),[30] and a post-intervention cohort survey to study the impact of mentoring on participants' patient experience scores (N=16).[33] Additional lower quality studies used post-intervention or cross-sectional survey methodology to evaluate new physician mentorship programs,[39,40] to analyze the content and perceived value of a "women in Emergency Medicine" mentorship program,[36] and report the use of a mentorship checklist for new physicians.[35]

Table 5. Qualitative, Mixed Methods, and Prospective Cohort Studies - Brief description of interventions and findings for medium and high-quality studies

First Author, year of publication	Intervention	Major Findings
Qualitative Studies using Semi-Structured Interviews		
Schneider, 2014[48]	3-8 coaching sessions completed as part of a 9-month physician wellbeing program. Areas of study: life context, impacts of coaching, coaching process. N = 11 physicians/3 coaches	"Devaluing self-care while prioritizing the care of others may be a significant, but unnecessary, source of burnout for physicians." Coaching "can potentially alter this pattern through skills development and increased self-awareness, and . . . indirectly, may positively impact patient care."
Steven, 2008[34]	Informal mentorship involving mentors and mentees at multiple National Health Service sites across the UK. N= 49 general practitioners	Mentoring viewed as having major benefits for patients, positive impact on medical practice (consultation skills, work relationships, confidence). Participants expressed that mentoring enhanced leadership, educational development, and personal development.
Mixed Methods Study Design Including Pre-/Post-Questionnaire and Semi-Structured Interviews		
McKimm, 2018[31]	Four 1:1 sessions with a professional physician coach to support physicians' decision-making processes and prepare the physician for any transitions over one year. N = 50 general practitioners/4 coaches	Post-coaching, 97% of respondents rated coaching very/fairly useful in their decisions about their future as a general practitioner. Pre-coaching, 75% were likely to leave vs 21% post-coaching. Physicians' self-rated performance improved at end of coaching.
Prospective Cohort Studies		
Lin, 2022[47]	Radiation Oncology Academic Mentorship Program (ROADMAP) - monthly mentoring sessions with senior faculty partner over one year. N= 36 academic radiation oncologists	Statistically significant increased satisfaction with mentoring over time (all mentees); increase in satisfaction with work environment (research faculty). For clinical faculty, lack of time was the greatest challenge at baseline and 1 year.
Menzin, 2020[32]	10-month faculty development small-group program of 10-12 participants per group ("MAP-IT" curriculum featuring humanism in medicine, burnout prevention, and resilience) for a diverse group of health professionals. N = 106 health professionals	Statistically significant increase in resilience and personal accomplishment scores for all participants. Scores for emotional exhaustion and depersonalization remained unchanged.

Table 6. Randomized Controlled Trials - Brief description of interventions and findings for medium and high-quality studies

Randomized Controlled Trials		
First Author, year of publication	**Intervention**	**Major Findings**
Dyrbye, 2019[41]	6 Professional coaching sessions over 5 months N= 88 Mayo primary care physicians (44 intervention & 42 controls; At 5 months: 41 intervention & 41 controls)	In intervention group, statistically significant reduction in absolute rate of high emotional exhaustion and burnout at 5 months after intervention; improvement in mean quality of life and resilience scores. No difference between groups in depersonalization, job satisfaction, engagement, or meaning in work.
Gardiner, 2013[43]	9-hour workshop with group and individual coaching for career, stress, life-balance, and cognitive behavioral therapy plus 6 weeks of follow-up email coaching on well-being and retention rates N= 274 rural Australian general practitioners (69 intervention & 205 baseline group; At 3 years: 49 intervention & 312 controls)	Statistically significant lower distress scores and turnover intention; At 3 years after intervention 94% intervention and 80% controls stayed in their practice.
McGonagle, 2020[45]	6 Positive-based psychology 1:1 coaching sessions over 3 months N= 58 primary care physicians (29 intervention & 29 controls; At 6 months: 21 intervention & 18 controls)	Statistically significant decrease in burnout, increase in work engagement, psychological capital, and job satisfaction in intervention group, maintained at 6 months after intervention.
Spilg, 2022[49]	"SMART" 2-hour evidence-based resilience workshop and optional 24-week on-line follow-up program on resilience N= 40 academic Canadian physicians (20 intervention & 20 controls; At 6 months: 16 intervention & 16 controls)	Although no statistically significant difference between groups in resilience, stress, subjective happiness or anxiety at 6 months follow-up, a pattern of improvement was observed for resilience, stress, and anxiety.
West, 2014[37]	9 months of bi-weekly, 1-hour facilitated physician groups (facilitator-led small group curriculum with mindfulness, reflection, shared experience) N= 72 Mayo internists (35 intervention & 37 controls)	Statistically significant increases in empowerment and engagement at work, and decrease in high depersonalization scores, at 12 months after intervention. No difference between groups in stress, depression, quality of life, or job satisfaction scores.
West, 2021[38]	12 biweekly self-led physician small group sessions (reflection, shared experience) N = 125 Minnesota internists (62 intervention & 61 controls)	Statistically significant decrease in overall burnout, depression, and turnover intention at 12 months from start of intervention start. No difference between groups in mean scores in social isolation, meaning from work, or social support though a pattern of improvement was observed.

Discussion

Previous systematic reviews evaluated the prevalence of burnout in physicians,[50] presented evidence that burnout is associated with safety-related quality of care[51] and explored physicians' perspectives about organizational, contextual, relational and individual factors that mitigate against burnout.[14,18,52-55] Meta-analyses have affirmed the importance of organization-directed and physician-directed burnout interventions,[56-58] including psychosocial skills and mindfulness training for physicians.[59-61] In contrast, limited studies have explored strategies to improve satisfaction and well-being for physicians that address organizational or system factors.[62] Our systematic review has uncovered more than a dozen quality studies that, taken together, clearly demonstrate the value and promise of mentoring/coaching/peer group meetings in enhancing physician wellbeing. However, it is difficult to draw conclusions or make recommendations based on these 23 studies due to their heterogeneity of the purpose, design, and outcomes.

Of special concern is the issue of the early-career physician. Although we initially focused our review on this population alone, we found only three relevant studies of early-career physicians.[29,46,47] The narrowness of Lin et al.'s[47] prospective cohort (junior faculty mentees from a single specialty) limits the application of that study's findings. The qualitative methodology of Hernandez-Lee et al.[46] and Gordon et al.[29] is exploratory rather than definitive. And yet, given that over a quarter of early career physicians report burnout,[63] a strong mentoring focus for early career physicians seems vital.

Sparse information was provided on study participants' characteristics. Specifically, half of the studies provided information on number of years in practice and only three reported the proportion of time the participants engaged in direct patient care. Similarly, only three studies indicated the race of participants, about one third indicated age and half indicated sex. Absence of this information limited a more comprehensive understanding of this topic.

Cordova et al.[64] has proposed a developmental model for physician resilience training, beginning in the preclinical years and extending throughout the physician lifecycle. The model affirms attentional practices including mindfulness; the necessity of healthy lifestyles and behaviors; the importance of building safe and diverse workplaces; the value of reflective practice and conflict management. It underscores the need to lead clinical teams well, to give and receive feedback, to recognize and address burnout, and to transition to a role in advocating policy and systems change. Shanafelt and Noseworthy[65] have outlined organizational strategies to promote physician engagement and prevent physician

burnout. Their nine strategies include emphases on harnessing the power of leadership, cultivating community at work, promoting flexibility and work-life integration, and providing resources to promote resilience and self-care. Our systematic review's studies complement Shanafelt and Noseworthy's work by including a variety of employable, effective 1:1 and group strategies for physicians, but these require institutional support and funding. At issue are several key questions for system leaders and researchers: How will the healthcare system balance financial outlays necessary for programmatic support with future perceived gain? Are less costly interventions such as formalized and approved peer group meetings[38] effective enough to justify their widespread use, and when should more costly but possibly more effective formal mentoring and coaching interventions be employed? Clearly, more study of and emphasis on peer coaching and senior-junior partner mentorship, employed especially for new physicians, is needed to answer these vital questions.

Conclusion

Rigorous data validating the value of mentorship, including the best approach to be used (coaching, mentorship, or peer support) is lacking. However, a growing database of quality studies, sufficient to justify additional studies of mentoring in early- and mid-career physicians, affirms physician mentoring as central to physician retention and wellbeing. Although sparse evidence supports one particular type of program over another (i.e., coaching, mentoring, or peer group support), each one of these programs, as described in this systematic review, reported positive outcomes. The trifecta for effective healthcare encompasses improved care for the patient, better population health, and reduced healthcare costs. Given the overwhelming evidence of mental ill-health, burnout, and reduced retention among healthcare professionals, all three of these goals rest on improving well-being, satisfaction and flourishing among healthcare professionals and instituting a well-being program can aid in that endeavor.

Conflict of Interest Statement

The authors declare no conflicts of interest.

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