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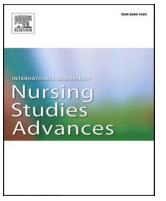

# Individual and organizational factors influencing well-being and burnout amongst healthcare assistants: A systematic review

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ABSTRACT

*Background:* Increasing evidence suggests that clinician well-being influences patient, workforce, and organizational outcomes. Despite increasing attention to well-being among licensed clinicians (e.g., nurses and physicians), collective evidence about well-being among healthcare assistants, such as nursing and medical assistants, is limited. Healthcare assistants make up a substantial portion of the clinical workforce delivering direct patient care. The well-being of healthcare assistants is critical to ensure an ample workforce supply. The objective of this systematic review was to contribute a reproducible search, summary, appraisal, synthesis, and critique of the literature about well-being among healthcare assistants, including factors that induce or inhibit burnout, and to identify gaps in evidence that warrant future research.

*Methods:* We performed a literature search across 4 databases with keywords using BOOLEAN operators. After an initial title and abstract screen, a search of relevant reference lists, and full text review was peformed independently by 2 researchers. Study quality was evaluated using Joanna Briggs Institute Critical Appraisal Checklist for Analytical Cross-Sectional Studies. We extracted study characteristics, results, and deductively analyzed each study's alignment with the United States National Academy of Medicine's Clinician Well-Being Model.

*Results:* We identified 28 articles meeting our inclusion criteria. Our synthesis indicated that most studies investigated personal factors (e.g., financial stressors or physical, emotional, and spiritual health) as opposed to organizational or policy factors (e.g., occupational policies or workplace culture) that may impact well-being. Younger workers and those with fewer years of experience appear to have higher burnout risk. Sleep health, improved unit-based culture (respect and increased decision-making with nurses), shorter shifts, and increased social support appear to be the most protective against burnout.

*Discussion:* There remains a scarcity of evidence about factors impacting well-being among healthcare assistants. Existing literature focuses on individual, as opposed to external or organizational, contributory factors to burnout or well-being risk. Future studies should use specific methods to define and measure healthcare assistant roles, isolate harmful individual and organizational factors, and measure more specific sub-concepts of well-being such as depression. Such studies can contribute greatly to the overall understanding of healthcare assistant health and wellness, which subsequently may promote optimal patient and organizational outcomes.

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*Tweetable abstract:* The hidden workforce: Systematic review demonstrates gaps in evidence about wellbeing and burnout among healthcare assistants and aides.

## 1. Introduction

There is evidence that healthcare worker well-being, or the lack thereof, significantly impacts a large range of organizational, workforce, and patient outcomes (Jun et al., 2021). The World Health Organization (WHO) defines well-being to include optimal mental health, and notes that a state of well-being involves one's ability to cope with stressors, enhance work productivity, and the capacity to contribute to society in a positive and meaningful way (World Health Organization 2004). The United States (US) National Academy of Medicine (NAM) articulates the concept of clinician well-being to include broad emotional and physical health resulting from work environments (Brigham et al., 2018). A wide array of individual and organizational factors either induce or inhibit physical, psychological, or occupational health.

Burnout, a negative manifestation of well-being, was for many years the focus of well-being research and interventions for clinicians. Conceptually, burnout is defined as emotional exhaustion, depersonalization, and lack of perceived personal accomplishment (Maslach et al., 1997). The WHO includes burnout in the 11$^{th}$ revision of the International Classification of Diseases (ICD-11) as an occupational phenomenon influencing health status (Durand-Moreau, 2019). Burnout has been linked to psychological health risk, job dissatisfaction, employee turnover, increased costs, and poor safety and quality of care (Jun et al., 2021, Prentice et al., 2023; Hall et al., 2016; Salyers et al., 2017; Murthy, 2022; Kelly et al., 2021; Menon et al., 2020). Several studies have used the term "burnout" as a depletion of overall well-being. (Prentice et al., 2023; Hall et al., 2016; Salyers et al., 2017).

Most studies to date have examined burnout among licensed clinicians with high-visibility roles, such as physicians and registered nurses (RNs) (Jun et al., 2021; Rothenberger, 2017). Less attention has been dedicated to well-being or burnout among other members of the clinician team, including assistive personnel or "healthcare assistants". This is a diverse group of assistive personnel functioning in a supportive role to licensed clinicians during direct patient care (World Health Organization 2018; Bureau of Labor Statistics 2023; McMullen et al., 2015), Cooper et al., 2016). In many countries, this clinical role lacks licensure or regulated scope of practice standards that often come with professionalization (as in nursing and medicine). As a result, healthcare assistant titles, training, and roles vary across settings and are often understudied. Formal names that encompass a healthcare assistant's role may include 'nursing assistant,' 'patient care technician,' 'aide,' or 'medical assistant.' In general, healthcare assistants expand the capacity of licensed workforce (e.g., registered nurses, physicians) including assisting patients with daily living tasks (e.g., feeding, bathing) and, when delegated by a registered nurse, basic nursing procedures (e.g., suctioning, catheter care) (McMullen et al., 2015).

In many countries, the role of healthcare assistants is growing to meet the demands for care of aging populations, which often live with multiple co-morbidities that require complex care management (World Health Organization 2018). Maintaining an ample supply of healthcare assistants is critical for healthcare systems across the globe to meet the demand for high quality, efficient, and safe care. Researchers and policymakers have noted that burnout and a lack of well-being among healthcare workforces threatens high workforce turnover and in turn jeopardizes patient care delivery. As the demand for healthcare assistants to be embedded into clinical teams grows, it is critical to understand individual and organizational determinants of well-being in this unique workforce population. We are aware of only one systematic review of the relevant literature on the topic, and though it was narrow in terms of the population of interest (nursing home healthcare aides) and the outcomes (burnout only), it indicated a need for a more robust understanding of the state of wellbeing and burnout among non-licensed workforce groups (Cooper et al., 2016). Thus, the objective of this review was to synthesize evidence about work and personal factors that may promote well-being, including mitigating burnout, among healthcare assistants. The findings of this review may inform organizations with ways to promote effective healthcare assistant workforce utilization, reduce workforce turnover, and promote a healthy work environment for this understudied occupation while also guiding researchers with the future need for studies to fill gaps about this unique workforce.

## 2. Material and methods

### 2.1. Search strategy

We performed a review of the literature to identify and synthesize current evidence about well-being and burnout among healthcare assistants globally. In developing our search terms, we applied the National Academy of Medicine Clinician Well-Being Model, which delineates a definition of well-being and its relevant contributory factors. Therefore, we used "well-being" as an umbrella term to capture any study that conceptualized its outcomes as aspects of well-being, regardless of the operational definitions. We also used "burnout" as a distinct search term to reflect the National Academy of Medicine Clinician Well-Being Model and the common conception in the healthcare workforce literature of burnout as critical component or indicator of well-being.

**Information sources.** We searched four databases (PubMed, OVID Medline, CINAHL, and Web of Science) using the following keywords and BOOLEAN operators: "medical assistants OR nurs* assistants OR aides OR patient care technicians" AND "well-being OR burnout." We replicated the search on Google Scholar to capture gray literature and searched reference lists of relevant studies to identify additional studies that met eligibility criteria. Using applicable filters, we limited our search to literature published over the past 20 years (2003-2023) to capture the current discourse on the topic and research studying relatively modern assistive personnel in

an evolving workforce. We did not limit our search by type of health care setting (e.g., hospital vs. primary care). We did not limit studies by country but were limited to studies published in the English language.

**Eligibility criteria.** Consistent with our search strategy, we identified studies that met the following eligibility criteria: (1) explored or investigated the concept of well-being or burnout and (2) study sample included healthcare assistants (if a study included other clinicians, e.g., nurses, midwives, we included the study but were careful to analyze results related to the healthcare assistant workforce only). We excluded studies meeting the following criteria: (1) data was not analyzed by individual profession (e.g., data was combined for registered nurses and healthcare assistants); (2) perspective-based articles such as op-eds or editor's letter, (3) patient-related well-being or self-care, and (4) studies that would not meet our search filters (particularly relevant to articles mined from citation lists). We also chose to exclude studies that focused on job satisfaction as the primary variable. While job satisfaction may be an antecedent or consequence of burnout or other manifestations of diminished well-being, its constituent elements differ conceptually from those of well-being. Further, the NAM conceptual model of factors affecting clinician well-being does not include job satisfaction as a primary element (World Health Organization 2004)

**Selection and data collection process**. All articles were initially managed in Endnote reference software to merge results and remove duplicates. We then imported all articles into Covidence, (Bureau of Labor Statistics 2023) an online literature review software system, to streamline screening of articles, full text review, quality appraisal, and data extraction by more than one researcher simultaneously. In phase one of our selection and data collection process, two researchers independently screened titles and abstracts, and removed studies unrelated to well-being or burnout or studied a workforce other than our target population of healthcare assistants, such as physicians or nurse-focused samples only (e.g., registered nurses, nurse midwives). If a researcher questioned whether to include the study, the entire team discussed the abstract to reach consensus about whether or not to include the article for full text review. In the second phase of review, the full text of remaining studies were reviewed independently by two researchers.

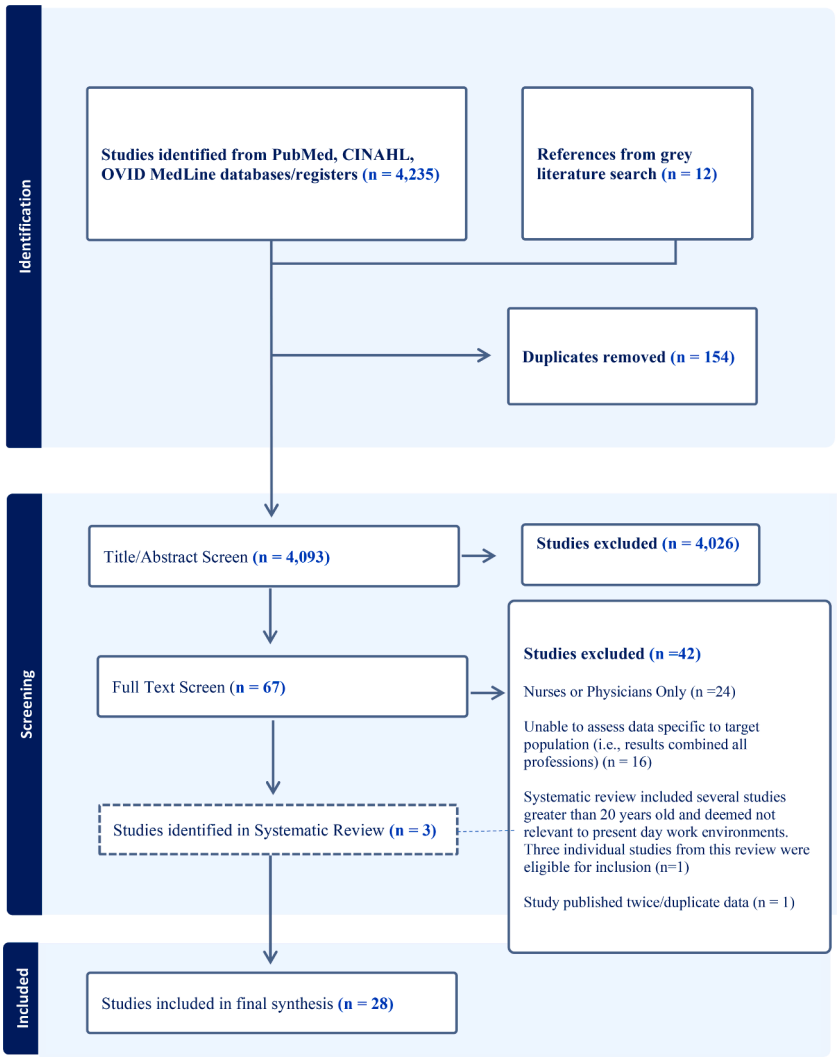


**Fig. 1.** PRISMA flow diagram.

**Table 1**
Study characteristics.

| Author | Country | Design, Sample, & Setting | Purpose | Independent Variables | Dependent Variables |
|---|---|---|---|---|---|
| Akram et al. (2017) | Iran | Cross sectional survey 446 nurses and nursing assistants Hospitals | To investigate the factors affecting the quality of life and marital satisfaction of married nurses and nursing assistants in three teaching hospitals. | Number of children, employed spouse, belief in night shift effect on social and family life, demographics | Quality of life, marital satisfaction |
| Aldaz et al. (2019 | Spain | Cross sectional survey 159 nursing assistants Nursing homes | To determine the explanatory power of alexithymia and emotional intelligence over burnout and to examine their combined explanatory capacity over burnout in the context of older adult care. | Shift work, educational level, work experience, alexithymia, emotional intelligence (attention, clarity, and repair) | Burnout |
| Bamonti et al. (2019) | United States | Cross sectional survey 56 certified nursing assistants Long-term facilities | To examine the extent to which coping and cognitive emotion regulation predict burnout in CNAs in LTC. | Problem/emotion-focused coping, sleep duration | Burnout |
| Blanco-Donoso et al. (2021) | Spain | Cross sectional survey 56 physicians, nurses and nursing aids Hospitals | To analyze if daily work-family conflict and burnout could explain the leaving intentions and vitality of healthcare workers | Work-family conflict, job depersonalization, job emotional exhaustion | Daily leaving intention, daily vitality |
| Conyard et al. (2020) | Ireland | Cross sectional survey 147 medical assistants Hospitals | To investigate the frequency of burnout syndrome in medical assistants working in hospitals. | Demographics: sex, assistant type, marital status | Burnout |
| Dos Santos et al. (2022) | Brazil | Cross sectional survey 572 nurses and medical students Hospitals | To describe the occurrence of sleep disorders and burnout in a nursing team during the COVID-19 pandemic and to identify the associated factors | Working hours, sleep medications, sleep disorders | Burnout |
| Dreher et al. (2021) | Germany | Cross sectional survey 2150 medical assistants Medical care centers, hospitals, and clinics | To investigate pandemic-related stressors, attitudes, and work outcomes among medical assistants and to identify possible determinants | Demographics, stressors, attitudes | Depression, anxiety, work outcomes |
| Ferriera and de Lucca, 2015 | Brazil | Cross sectional survey 538 nursing technicians Hospital | To measure burnout among nurse technicians of working in a public hospital in the city of Campinas, São Paulo, and examine associations with sociodemographic and professional variables | Gender, age, marital status, number of children, leisure activities, level of education, profession, and satisfaction at work | Burnout |
| Geiger-Brown et al. (2004) | United States | Cross sectional survey 473 female nursing assistants Unionized nursing homes | To explore the relationship between demanding work schedules and mental health indicators of depressive symptoms, depressive disorder, anxiety, and somatization among nursing assistants | Work schedule | Depression, anxiety, somatization |
| Hochwälder (2008) | Sweden | Longitudinal surveys 838 nurses and 518 nurse assistants Hospitals | To describe the relationship between empowerment and burnout | Profession, gender, age, number of years in profession, number of years at the present workplace | Empowerment; emotional exhaustion, depersonalization, personal accomplishment |
| Jeon et al. (2012) | Australia | Randomized control trial 124 nursing assistants 15 residential aged care sites | To test the impact of person-centered care and dementia care mapping compared to each other and to usual dementia care on staff outcomes was examined in terms of staff burnout, general well-being, attitudes and reactions towards resident behavioral disturbances, perceived managerial support, and quality of care interactions. | Person-centered care model | Burnout |
| Liang et al. (2014) | Taiwan | Cross sectional survey 443 female nursing assistants Long term-care facilities | To investigate the relationship between various job stressors and health-related quality of life | Job stressors | Health-related quality of life |

(*continued on next page*)

**Table 1** (*continued*)

| Author | Country | Design, Sample, & Setting | Purpose | Independent Variables | Dependent Variables |
|---|---|---|---|---|---|
| | | | among female nursing assistants working in long-term care facilities | | |
| Maris (2013) | United States | Cross sectional survey (Dissertation) 58 nursing assistants Staffing agency | To examine the impact of race-related stress and culture specific coping strategies on burnout and compassion fatigue in a sample of Black nursing assistants. | Race related stress and demographics (gender, age, race, ethnicity, country of birth, number of years living in the United States, current job title, number of years in the current job position, average number of hours worked weekly, and highest level of education) | Burnout and compassion fatigue |
| Meese et al. (2021) | United States | Cross sectional survey 1130 clinical support staff (respiratory therapists, pharmacists, patient care technicians, and nurse aides) Medical centers | To identify unique stressors and correlates of distress, including resilience, for various team members within a health system during the COVID-19 pandemic | Work-related factors | Distress |
| Molero Juardo et al. (2018) | Spain | Cross sectional survey 278 certified nursing assistants Health centers | To identify the relationships between some organizational, personal, and sociodemographic factors and burnout. | Emotional intelligence; social support; self-efficacy | Burnout |
| Muntaner et al. (2006) | United States | Cross sectional survey 241 nursing assistants Nursing homes | To simultaneously test the effects of the county, organizational, workplace and individual-level variables on symptoms of depression among low-wage workers in an important US industry | Organizational, workplace, income, and individual-level variables (e.g., age) | Depression, emotional demands |
| Navarro-Abal, et al. (2018) | Spain | Cross sectional survey 128 nursing assistants Private health centers | To analyze the levels of engagement, resilience, and empathy, and their interactions | Employee engagement (vigor, absorption, dedication), resilience, empathy | Burnout (emotional exhaustion, cynicism, and poor personal fulfilment) |
| Noelker et al. (2006) | United States | Cross sectional survey 338 nursing assistants Skilled nursing facilities | To examine relationships among factors affecting NA satisfaction with supervision using a conceptual model of stress and social support extrapolated from models used in research on family or informal caregivers | Age, race and/or ethnicity, marital status, number hours worked, months worked in the facility; number of nursing home beds, auspice (for- or nonprofit), personal stressors (family worries, financial worries, job-related physical health change, job-related emotional health change); job-related stressors (times asked to come in on day off, times asked to come in early and/or stay late, adequacy of entry-level training); social support (number of NA friends, positive/negative interactions with peers or patients) | Satisfaction with supervision |
| Richert (2021) | United States | Cross sectional survey (Dissertation) 100 certified nursing assistants Hospitals and long-term care facilities | To examine the relationships among personality, burnout, compassion satisfaction, work engagement, and job satisfaction in CAN | Job satisfaction, staff turnover, work engagement, personality factors (neuroticism, extraversion, openness, agreeableness, conscientiousness) | Burnout, compassion satisfaction/fatigue |
| Rios et al. (2010) | Brazil | Cross sectional survey 299 nursing assistants/ technicians Private hospital | To evaluate the QoL and the prevalence of depressive symptoms among NTs and NAs. | Quality of Life | Depression |
| Ramarajan et al. (2009) | United States | Longitudinal 108 certified nurse assistants Long term care facility | To determine the effect of organizational respect on emotional exhaustion | Organizational respect | Burnout |
| Ron (2008) | Israel | Cross sectional survey 236 nursing assistants Nursing homes | To examines nursing assistants' work stressors and their influence on nursing assistants' subjective well-being | Job characteristics (full time/ part time, number workdays per week, occupational responsibilities, promotion/ | Stressors (autonomy and control, ambiguity, role conflict, role demands, role stress) |

(*continued on next page*)

**Table 1** (*continued*)

| Author | Country | Design, Sample, & Setting | Purpose | Independent Variables | Dependent Variables |
|---|---|---|---|---|---|
| | | | | advancement opportunities, benefits) | |
| Santha et al. (2020) | Romania | Cross sectional survey 312 nurses and medical assistants State-owned healthcare institutions & primary care units | To identify the key determinants of burnout and depression among medical assistants in Romanian state-owned healthcare units | Working hours, activity domain, organizational tenure, length of the working relation, gender, age, partnership status, number of intimate social relations, and income | Burnout, Depression |
| Seay-Morrison et al. (2021) | United States | Cross sectional survey 261 medical assistants Physician practices | To examine the factors associated with burnout among medical assistants in an academic healthcare organization while validating the use of a tool previously used to assess burnout in physicians | Organizational culture, professional fulfillment, self-efficacy | Burnout |
| Silver et al. (2019) | United States | Cross sectional survey 4087 patient care aids Hospitals, nursing homes, home health | To understand healthcare access and health behaviors and outcomes among patient care aides differ by work setting (home health, nursing home, and hospital) | Personal demographics | Health behaviors, Health accessibility |
| Squillace et al. (2009) | United States | Nationally representative workforce survey 3,017 certified nursing assistants National sample of US nursing homes | To demonstrate the usefulness of the National Nursing Assistant Survey (NNAS), through analysis of the nursing assistant workforce: estimates on wages, receipt of public benefits, health benefits, and injuries | Recruitment, education, training, licensure, job history, family life, management and supervision, client relations, organizational commitment, job satisfaction, workplace environment, injuries, and demographics | Worker characteristics, receipt of public benefits, health benefits and injuries. |
| Tortorelli et al. (2022) | Brazil | Cross sectional survey 512 nursing assistants Hospital | To investigate the association between burnout and life events outside the workplace in nursing assistants | Life events (work-related vs. outside workplace) | Burnout, Depression |
| Yeatts et al. (2010) | United States | Cross sectional survey 339 nursing assistants Nursing homes | To determine the effect of perceived training availability on burnout | Training availability | Burnout |

**Quality appraisal and bias assessment**. In the final phase of screening, the remaining studies underwent a quality appraisal. Due to the majority of study designs using a cross-sectional design, we used the Joanna Briggs Institute Critical Appraisal Checklist for Analytical Cross Sectional Studies (Moola et al., 2020) to assess study quality. This checklist includes 8 questions assessing the quality of sample selection, study exposure, confounding factors, outcome measures and statistical analysis. Appraisal prompts included questions such as "Were the criteria for inclusion clearly defined?" and "Were strategies to deal with confounding factors stated?". For each question, we responded 'yes,' 'no,' 'unsure,' or 'not applicable' to assess whether the study met the appraisal criterion. Based on the critical appraisal checklist guidelines, the team iteratively discussed potential bias to determine if any studies should be excluded based on inadequate quality, including unreliable methods, inaccurate statistical analysis, and/or extremely small sample size.

**Data items and synthesis.** Our data extraction criteria were built into Covidence for direct extraction from the full text PDF files into a spreadsheet. Data from final eligible studies was extracted by four researchers and included: title, authors and publication year, study design, primary aim, sample, health care setting (e.g., hospital, long-term care facility), country, independent and dependent variables, measures, and results. We exported all extracted data from Covidence to an Excel spreadsheet. Through iterative team discussion, we reviewed the extracted data to identify patterns of designs, settings, samples, and results.

***Conceptual Model.*** The synthesis of this review was guided by the National Academy of Medicine's conceptual model of "Factors Affecting Clinician Well-Being and Resilience" (World Health Organization 2004). The model articulates individual and organizational factors that impact well-being. Individual factors are subcategorized as: (1) health care role (e.g., clinical responsibilities, patient population; learning/career stage); (2) personal factors (e.g., personality traits; personal values; relationships and social support; work-life integration; or sense of meaning); and (3) skills and abilities (e.g., clinical competence; resilience; teamwork skills; coping skills; communication skills). External factors within the model represent influential variables that are organization- or system-driven. Often, they are beyond the control of the individual. They are subcategorized as: (1) sociocultural factors (e.g., media portrayal of health workforce thereby influencing public views of workforce roles; discrimination and unconscious bias); (2) regulatory, business and payer environment (e.g., hospital service reimbursement models; litigation risk; national and state-based policies; documentation and reporting requirements); (3) organizational factors (e.g., culture, leadership and staff engagement; workload; performance compensation and value attributed to work elements; power dynamics); and (4) learning/practice environment (e.g., physical learning and practice environment; team structure and functionality; workplace safety; collaborative vs. competitive environment). During the synthesis of our extracted content from the included studies, we applied our conceptual model as a framework for defining individual or organizational factors that precipitate well-being or burnout and measured the frequency of studies that investigated each factor to

understand where a gap in evidence may lie, thereby yielding recommendations for future research.

## 3. Results

**Study selection.** The flow diagram of our search is displayed in Fig. 1. Following the title and abstract screen, the search yielded 67 studies that underwent full text review. We removed 24 studies due to their focus only on registered nurses or physicians and the inability to evaluate data that was specific to our targeted population of healthcare assistants. One study was removed for not being available in the English language. Another study was removed since it was determined to use duplicate data under a different publication. We identified one systematic review and determined that the majority of the studies were outside our predetermined eligibility time limits. Only 3 studies in this review had been conducted within the last 20 years and therefore were separately added to our list of eligible studies in this present review.

**Quality and bias**. The quality appraisal indicated overall that the studies were of acceptable quality for inclusion in the review. Reliability and validity of measures were reported. Most studies discussed strategies they used to control confounding factors. Most studies used basic descriptive or inferential statistics appropriately. The primary risk for bias, and subsequently threatening quality was the use of convenience samples and small sample sizes (threat to generalizability). Two studies were dissertations/theses and not published in peer-reviewed journal but due to the limited amount of evidence about this workforce we felt it important to include in the synthesis to identify gaps in evidence.

| ARTICLE | Conceptual Categories | Personal Factors | Organizational Factors | Health Care Responsibilities | Society & Culture | Rules & Regulations | Learning/Practice Environment | Skills & Abilities |
|---|---|---|---|---|---|---|---|---|
| | **Sum** | **24** | **12** | **5** | **6** | **1** | **9** | **5** |
| Akram et al., 2017 | 1 | ■ | | | | | | |
| Aldaz et al., 2019 | 1 | ■ | | | | | | |
| Bamonti et al., 2019 | 1 | ■ | | | | | | |
| Blanco-Donoso et al., 2021 | 2 | ■ | ■ | | | | | |
| Conyard et al., 2020 | 1 | ■ | | | | | | |
| Dos Santos et al., 2022 | 1 | ■ | | | | | | |
| Dreher et al., 2021 | 5 | ■ | ■ | ■ | ■ | | | ■ |
| Ferreira et al., 2015 | 2 | ■ | ■ | | | | | |
| Geiger-Brown et al., 2004 | 2 | ■ | ■ | | | | | |
| Hochwälder, 2008 | 2 | ■ | | | | | | ■ |
| Jeon et al., 2008 | 1 | | | | | | ■ | |
| Liang et al., 2014 | 3 | ■ | ■ | | | | ■ | |
| Maris, 2013 | 2 | ■ | | | ■ | | | |
| Meese et al., 2021 | 2 | ■ | ■ | | | | | |
| Molero Juardo et al., 2018 | 2 | ■ | | | ■ | | | |
| Muntaner et al., 2006 | 4 | | ■ | ■ | ■ | | ■ | |
| Navarro-Abal, et al., 2018 | 2 | ■ | | | | ■ | | |
| Noelker et al., 2006 | 2 | ■ | | | | | ■ | |
| Richert, 2021 | 2 | ■ | | | | | | ■ |
| Rios, Barbosa, & Belasco, 2010 | 1 | ■ | | | | | | |
| Ramarajan et al, 2009 | 2 | | ■ | | | | ■ | |
| Ron, 2007 | 4 | ■ | ■ | ■ | | | | ■ |
| Santha, Lukacs-Marton & Vingender, 2020 | 6 | ■ | ■ | ■ | ■ | | ■ | ■ |
| Seay-Morrison et al., 2021 | 3 | ■ | ■ | | | | ■ | |
| Silver, Boiano, & Li, 2019 | 1 | ■ | | | | | | |
| Squillace et al., 2009 | 5 | ■ | ■ | ■ | ■ | | ■ | |
| Tortorelli et al., 2022 | 1 | ■ | | | | | | |
| Yeatts et al., 2010 | 1 | | | | | | ■ | |

**Fig. 2.** Study alignment with National Academy of Medicine's Clinician Well-Being model.

### 3.1. General study characteristics

Our final synthesis included 28 studies (Table 1). Studies were performed within 11 countries with the most studies conducted in the United States (n=12), Spain (n=4) and Brazil (n=4). The studies were primarily conducted in hospitals (n=12) or nursing homes (n=11). Few studies were conducted in primary care (n=2), although some consisted of a mixed sample of nursing and medical assistants in non-specific health systems that encompassed both outpatient and inpatient care facilities (n=5). Three publications were university-based theses/dissertations that included cross-sectional investigations. Most studies provided cross-section descriptive analyses.

Well-being was conceptualized as the lack of burnout in several studies and the concept was operationalized using the three Maslach Burnout Inventory (MBI) subscales (emotional exhaustion, depersonalization; personal accomplishment) (Hall et al., 2016). Negative well-being outcomes other than burnout included compassion fatigue, depression, quality of life, and stress.

We sorted study variables into categories based on the conceptual model to determine the presence of evidence for both individual and organizational factors that influence well-being. Fig. 2 presents the frequency of studies that explore each specific factor from the conceptual model. We found that independent and dependent variables varied across studies and included organizational factors as predictors and burnout and psychological factors (e.g., depression) as the primary dependent variables. Aligned with the NAM Clinician Well-Being Model, the results of the synthesis of this review are organized into individual factors and organizational factors that impact well-being.

### 3.2. Individual factors that influence well-being

**Personal factors.** Studies were examined to understand the collective evidence about the conceptual model-guided personal factors that influence well-being: (1) Demographics; (2) Physical, emotional, and spiritual well-being; and (3) Financial stressors.

Several studies examined demographic factors inherent to the assistant as potential predictors of well-being and/or burnout. These factors included age, race, gender, and family dynamics. For age, two studies found a significant negative correlation between burnout and age (younger certified nurse assistants were at higher burnout risk (Noelker et al., 2006,Molero Jurado et al., 2018) while a third study found no significant association (Bamonti et al., 2019). Specifically, one study found an age cutoff of 34 years or younger as the threshold for higher burnout risk (Molero Jurado et al., 2018). A third study found that those who were older and had a longer tenure at one's facility had fewer personal stressors (Noelker et al., 2006). Age was also found to have a statistically significant association with depressive symptoms in unadjusted models ($p < .05$) (Muntaner et al., 2006).

The only study examining race as a personal factor for well-being was a dissertation focused specifically on race-related stress in Black nursing assistants. It found significant positive correlations between age and compassion satisfaction in those younger than 32 years old (Maris, 2013). In this same study sample, global race-related stress impacted quality of life significantly ($p<.01$).

Gender differences in burnout were variable. One study found no correlation between gender and burnout (Ferriera and de Lucca, 2015). Dos Santos et al. reported that male participants experienced a higher prevalence of high and moderate levels of emotional exhaustion and depersonalization (Dos Santos et al., 2022). In comparison, Navarro-Abal et al., found that women had significantly higher personal distress and empathetic concern compared to men (Navarro-Abal et al., 2018). A separate study found that female assistants endorsed better physical health than mental health (Liang et al., 2014).

Family dynamics as a personal factor included familial, marital, and parental status. Four studies investigated the influence of familial, marital, or parental status, with variable results about subsequent influence on quality of life and burnout. One study found that an increased number of tragic family life events (e.g., death of a relative or friend) was associated with increased depersonalization while controlling for other work-related changes and individual confounders (Tortorelli et al., 2022). In another study, Akram et al. (2017) found a significant correlation between spousal employment and total perceived quality of life. In this same study, the duration of marriage was also significantly associated with physical health. Marital satisfaction was positively correlated with quality of life. Blanco-Donoso et al. (2021) found a significant interaction effect of daily depersonalization between daily work-family conflict and daily intention to leave one's job ($\beta = 0.251$, $p < .01$); as well as significant interaction effects with daily depersonalization and work-family conflict predicting daily vitality ($\beta = -.526$, $p <.01$). One study found no significant association between number of children and quality of life (Tortorelli et al., 2022). In comparison, Ferriera and de Lucca (2015) found significant positive associations between depersonalization and having children or health problems.

One study examined personal health status as a factor. This study measured vitality among healthcare assistants nationwide in Ireland. They found a strong positive correlation between vitality defined as 'energy or vitality' and 'felt tired, worn out, and exhausted' ($r = 0.60$), and interpreted as the more energy one endorsed, the more tired and worn out one felt (Conyard et al., 2020).

**Physical, emotional, and spiritual well-being.** Some studies fit the category of physical, emotional, and spiritual well-being within the personal factors category of the conceptual model. Almost all the studies measured concepts within the emotional health/well-being domain, including emotional intelligence, emotional regulation, and coping. Most studies indicated that stronger emotional health predicts less burnout and negative well-being issues, whereas negative emotional health predicts higher burnout. In one study, alexithymia, defined as an impaired ability to identify and describe one's feelings, and emotional intelligence were used to operationalize mental and emotional well-being. Overall, alexithymia was found to be a strong predictor for overall burnout, whereas neither alexithymia nor emotional intelligence contributed to the explanation of emotional exhaustion, one dimension of burnout. Conversely, emotional intelligence was significantly correlated with higher levels of personal accomplishment, a second dimension of burnout. However, the researchers concluded among their sample of nursing assistants that alexithymia was a stronger predictor of burnout compared to emotional intelligence (Aldaz et al., 2019).

A study of emotional regulation found that dysfunctional coping skills yielded greater emotional exhaustion ($\beta = .61$, $p < .001$) (Bamonti et al., 2019). Dysfunctional coping was also significantly associated with greater depersonalization ($\beta = .39$, $p < .01$). Among Black nursing assistants, cognitive emotional coping was significantly correlated with race-related stress ($r = .48$; $p<.05$). Among those with less experience, spiritual coping had an inverse relationship with compassion fatigue. Culture-specific coping had no moderating effect between race-related stress and burnout. Regarding personality, dissertation work in psychology found significant negative correlations between burnout and extraversion ($r =-.46$; $p< .01$), agreeableness ($r = -.53$; $p <.01$), consciousness ($r = -.55$; $p<.05$) and openness ($r = -.29$; $p<.05$). Similar patterns were seen with compassion fatigue (Richert, 2021).

**Financial stressors.** The conceptual model includes financial stressors as a component of personal factors contributing to well-being. Two studies explored financial impacts, with most indicating financial stressors had negative impacts on well-being. Noelker et al. (2006) noted more reports of financial worry compared to worrying about family while at work. Results from the U.S. National Nursing Assistant Survey highlighted that one in three certified nursing assistants received a form of public assistance and also did not participate in employer-sponsored insurance plans due to financial stress (Squillace et al., 2009). Similarly, Silver et al. (2020) found that aides, including home health, psychiatric, and nursing aides were more likely to be among racial and ethnic minority groups, to report low annual income (<$20,000), and to have poor health behaviors compared to registered and licensed practical nurses.

### *3.3. External Factors that influence well-being*

Our synthesis determined that current evidence regarding external factors related to well-being (guided by the conceptual well-being model) included elements within two categories: (1) occupational policies, processes, operations, and workplace culture and (2) the interplay of practice environment factors.

**Occupational policies, processes, operations, and workplace culture.** This domain examined the influence of working hours, shift-type, workload, operational support, and organizational culture. For hours, shifts, and workload, several studies indicated that overall, higher workload and working toil was associated with higher levels of burnout and negative well-being. Dos Santos et al (Ferriera and de Lucca, 2015) reported higher emotional exhaustion in participants who experienced an increase in patient load and the amount of care performed (workload). In addition, participants who reported working greater than 50 hours per week had higher depersonalization compared to those who worked 20–40 hour workweeks. A separate study found that heavy perceived workload accounted for the highest variance in well-being, resilience, and stressors among clinical support staff compared to other healthcare professions (i.e. nurses, physicians, administrative/nonclinical staff) (Meese et al., 2021). An additional study found that those with a temporary contract, as opposed to permanent employment, had lower mean scores for burnout (Molero Jurado et al., 2018).

Four studies investigated relationships of work hours with poor well-being (e.g., depression, anxiety, and stress). Noelker et al. (2006) found that job-related emotional changes were higher than physical changes among nursing assistants working across 22 skilled nursing facilities. Clinical symptoms of depression in this workforce group were three times as high as the general population (Noelker et al., 2006). Upward of one-third of one study sample screened positive for depression and 43% for anxiety disorder during the COVID-19 pandemic (Dreher et al., 2021). In another (pre-pandemic) study, the odds of depression increased four-fold if female participants were working more than 50 hours per week, three or more double shifts, or more than two weekends per month (Geiger-brown et al., 2004). Rios et al. (2010) found evidence that night-shift workers exhibited higher depression risk among hospital-based nursing technicians and assistants. Liang et al. (2014) also found that work shift length had a significant, negative effect on psychological demand ($p < .01$). Specifically, 8-hour work shifts (compared to 12) resulted in significantly lower psychological demand. In a separate study, as both scope of nursing assistant work (job demand) or role conflict increased, perceived mental health decreased (Ron, 2008).

Organizational behavior and culture were identified as factors towards assistants' well-being. Overall, increased organizational support and positive organizational culture predicted better well-being. In one study, organizational support, increased transparency, and equity of compensation were among other factors that were associated with lower distress scores ($\beta = -.104$, $p = .04$) (Noelker et al., 2006). Additional self-reported job stressors included same-day requests to come to work early or work overtime, and inadequate training. Less than half (43 %) of a separate study sample of nursing assistants working in 22 skilled nursing facilities reported that their prior formal training was aligned with real-world job expectations (Noelker et al., 2006) Finally, Seay-Morrison et al. (2021) found a negative correlation between organizational culture and burnout, noting this variable as the strongest predictor of burnout among medical assistants working in physician-led practices.

**The interplay of practice environment factors.** The conceptual model describes aspects of one's practice/work environment that can influence well-being. This includes the sense of one's value to an organization, autonomy, social connections, teamwork, and support and training in one's job. We found several studies that fit this category, including studies that measured self-efficacy, social support, training, and empowerment. Two studies explored self-efficacy as a factor towards burnout. Molero Jurado et al. (2018) found a lower risk of developing burnout among those with higher self-efficacy scores ($r = -.37$; $p <.001$) and perceived social support ($r = -.20$; $p < 0.01$). Seay-Morrison et al. (2021) found similar results. In a separate study, social support, particularly positive peer interactions with other nursing assistants, moderated the effect between job-related stressors and satisfaction with leadership. The authors concluded that nursing assistants endorsing more supportive work environments, as a proxy for teamwork, may be more likely to adjust to workforce factor changes (Noelker et al., 2006). Similarly, Sántha et al. (2020) found that protection from both burnout and depression risk among medical assistants increased with the number of general supportive relationships. More specifically, another study found higher organizational respect and less emotional exhaustion post-implementation of a policy and practice change that promoted improved unit-based culture (defined as greater respect for peers, increased involvement of nursing assistants in team decision making, and increased valuation of cultural perspectives) (Ramarajan et al., 2008). Similarly, Yeatts et al. (2010) found that

nursing assistants who had a higher perception of better additional clinical training available as needed had lower burnout scores and higher perceived nurse-nurse assistant co-decision making. A longitudinal study tested empowerment as a potential protective factor among nursing assistants and found that emotional exhaustion had a significant negative effect on empowerment over time (Hochwälder, 2008).

### 3.4. Additional contributory well-being factors

**Sleep.** We noticed several studies measured sleep as a factor influencing well-being, and in some cases served as a protective factor against burnout. The conceptual model did not include sleep but considering the importance of sleep to emotional regulation and behavior, we felt it important to include these studies in the synthesis. Bamonti et al. (2019) found evidence that sleep time had a significant, negative association with depersonalization (a primary dimension of burnout) Dos Santos et al. (2022) found that nursing assistants had the highest prevalence of bad and very bad sleep (85.7 %) compared to other health professions, leading some to use sleep medications. Of the participants in this study who endorsed a pre-existing sleep disorder, MBI subscale scores showed elevated emotional exhaustion and a decreased sense of personal accomplishment.

## 4. Discussion

This systematic review aimed to understand the current evidence about factors influencing well-being and burnout among healthcare assistants. Overall, this review found that there is limited evidence about the prevalence of well-being and burnout factors among healthcare assistants. Studies vary widely in terms of variables used to define well-being and contributing burnout factors. Findings were also variable, making it difficult to establish distinct determinants of well-being and burnout among healthcare assistants. Further, while the NAM Clinician Well-Being model served as a useful approach to categorizing known evidence about factors that precede or inhibit well-being and burnout, the evidence yielded an additional factor (sleep) that was not captured in the model.

Among individual factors, studies in this review indicated younger age, being unmarried, less clinical experience, and financial concern related to lower income were related to higher risk for burnout. Those from underrepresented races also faced higher risk for burnout. These findings are aligned with a recent similar study investigating burnout among registered nurses working in emergency department settings, which also found that younger, less experienced nurses face more risk for burnout (Norful et al., 2023). Together, these findings suggest that newer healthcare workers need more supportive work environments and interventions that focus specifically on younger staff and those with fewer years of experience. Our findings align with current evidence suggesting that there is a risk for depression among healthcare workers. The studies in this review that explored depression as a proxy for psychological well-being found similar results to studies focused on nurses (Chen and Meier, 2021). More attention to and evidence of psychological well-being in healthcare assistants is greatly needed.

Organizational factors including longer shifts, consecutive workdays, higher perceived workload and inadequate training yielded similar high burnout risk. Additionally, the scarcity of studies investigating healthcare assistants working in primary care or outpatient settings was evident. Few studies investigated potential protective factors, but given available evidence, sleep health appears the most promising. This aligns with similar findings among registered nurses, which found a significant, positive correlation between the use of sleep medications and anxiety (Norful et al., 2022). Additionally, it was evident from our findings that social and peer support may play a substantial role in promoting well-being. This is consistent with evidence on the associations of teamwork, well-being, and patient safety (Welp and Manser, 2016). Despite calls for greater teamwork within interdisciplinary teams to promote high quality care (Medicare, 2016), current evidence fails to identify the influence of, or guidelines for, increased nursing assistant involvement within clinical teams, nor the impact of increased empowerment on health and well-being outcomes (Travers et al., 2021).

Though some aspects of workplace culture and organizational factors were present in the literature, we felt there is a research gap for studies examining culture, staffing/workload, scope of practice, value placed on work, and team dynamics as organizational-level factors of well-being among healthcare assistants. There is also a lack of clarity around the definition of 'value' placed on work, i.e., is value seen as compensation, affective appreciation, or both. To improve and even optimize the use of the healthcare assistant workforce, future research should examine the impact of organizational factors on workforce or patient outcomes culture, staffing/workload, scope of practice, value placed on work, and team dynamics. For example, patient care assignments, or the number of patients assigned to one's care on a given day, is a modifiable organizational factor. Exploring optimal assignment allocation may improve quality of patient care while simultaneously reducing burnout. Future comparative effectiveness research may explore varying patient assignments, team compositions, and the influence of work environment resources needed for optimal patient care delivery.

Overall, based on our findings in this review, there is limited evidence that isolates protective factors to promote well-being among this large frontline workforce. Given the increasing amount of evidence about health workforce stress and turnover amid the COVID-19 pandemic, it is essential that health systems employ efforts to understand and promote healthy work environments, which (as a system intervention) reasonably benefits all professions. More research is needed to test interventions and policy changes that may enable a healthy and ample workforce supply needed to meet the demand for complex care across the health continuum.

## 5. Limitations

There are limitations to this review. While we applied rigorous and replicable search strategies across 4 databases and searched gray literature and reference lists, we may have missed studies that were relevant. In addition, we were limited to studies published in

the English language and other non-English studies may provide additional evidence. Our terms used during the initial search, particularly 'well-being,' were capacious, but more granular terms such as "anxiety" or "depression" may have produced additional studies not included in this present review. Further, the use of 'burnout' as a proxy for well-being may inhibit our understanding of well-being or interpretation of this review's synthesis since conceptually the terms differ. Future reviews of the literature may specify individual well-being factors or outcomes in a more targeted search. Finally, quality appraisal indicated potential bias stemming from 2 papers that were dissertations (in lieu of being published in peer review journals) as well as small sample sizes that may jeopardize generalizability. However, due to the scarcity of publications focused on healthcare assistants and the rigorous methodology undertaken, we chose to include the studies and determine which evidence gaps exist to guide future research efforts.

## 6. Conclusions

This review examined the current evidence of individual and organizational factors that influence well-being and burnout in healthcare assistants. We found that those who are younger, unmarried, non-White, and with less experience appear to have higher burnout risk. Further, modifiable organizational factors such as shift durations, patterns of days off and the number of patients cared for, all pose risk for suboptimal well-being. Sleep appears to be a protective factor for burnout risk. There remain several gaps in the literature particularly among those working in primary care settings, and the unknown influence of varying roles and responsibilities and team-based tasks on well-being. Future research that explores improved metrics and operationalized definitions of well-being, and the mediating role of individual or organizational factors influencing well-being is recommended.

## Statement of ethics approval

As this was a review of existing literature, no formal ethical approval was required.

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## CRediT authorship contribution statement

**Allison A. Norful:** Writing – review & editing, Writing – original draft, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Katherine C. Brewer:** Writing – review & editing, Writing – original draft, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Katherine M. Cahir:** Writing – review & editing, Data curation. **Andrew M. Dierkes:** Writing – review & editing, Writing – original draft, Methodology, Investigation, Formal analysis, Data curation, Conceptualization.

## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## Data availability

As this is a synthesized literature review of existing studies, we do not have access to each individual study's dataset; no data are available.

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