


RESEARCH ARTICLE

Burnout of the US midwifery workforce and the role of practice environment

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Abstract

Objectives: To determine the prevalence of burnout among the midwifery workforce and the association between fixed personal and practice characteristics and modifiable organizational factors, specifically practice environment, to burnout among midwives in the United States.

Data Source: Primary data collection was conducted via an online survey of the complete national roster of certified nurse-midwives and certified midwives over 3 weeks in April 2017.

Study Design: The study was a cross-sectional observational survey consisting of 95 items about personal and practice characteristics, respondents' practice environments, and professional burnout.

Data Collection Methods: The inclusion criterion was actively practicing midwifery in the United States. Data were analyzed with bivariate analyses to determine the association between personal and practice characteristics and burnout. A hierarchical multilinear regression evaluated the interrelationship between personal and practice characteristics, practice environment, and burnout.

Principal Findings: Of the almost one third (30.9%) of certified nurse-midwives and certified midwives who responded to the survey, 40.6% met criteria for burnout. Weak negative correlations existed between burnout and indicators of career longevity: age ($r(2256) = -0.09, p < 0.01$), years as a midwife ($r(2267) = -0.07, p = 0.01$), and years with employer ($r(2271) = -0.05, p = 0.02$). There were significant relationships between burnout score and patient workload indicators: patients per day in outpatient setting ($F(5,2292) = 13.995, p < 0.01$), birth volume ($F(3,1864) = 8.35, p < 0.01$), and patient acuity ($F(2,2295) = 20.21, p < 0.01$). When the practice environment was entered into the model with personal and practice characteristics, the explained variance increased from 6.4% to 26.5% ($F(20,1478) = 27.98, p < 0.01$).

Conclusions: Our findings suggested that a key driver of burnout among US midwives was the practice environment, specifically practice leadership and participation

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and support for the midwifery model of care. Structural and personal characteristics contributed less to burnout score than the practice environment, implying that prevention of burnout may be achieved through organizational support and does not require structural changes to the provision of perinatal health.

KEYWORDS

burnout, childbirth, leadership, midwifery, nurse-midwives, pregnancy

What is known on this topic

- Increasing access to midwifery-led care is a proposed strategy to improve poor perinatal health outcomes in the United States.
- The current midwifery workforce is inadequate to meet the needs of birthing people in the United States.
- Professional burnout potentially poses a threat to implementing midwifery-led care because it leads to workforce instability and decreases the quality of care.

What this study adds

- According to a large national sample, burnout affects two in five midwives in the United States.
- Modifiable characteristics of the practice climate, specifically practice leadership and participation and support for the midwifery model of care, have a larger effect on burnout than the less modifiable personal and practice structural characteristics.

1 | INTRODUCTION

The United States has the highest maternal mortality rate of any high-income country, disproportionately affecting people of color.^{1,2} High cesarean birth rates, decreasing access to maternity care services, and extremely high costs for care further contribute to the problem.^{3,4} Increasing the numbers of practicing midwives is an important strategy toward correcting access to care issues and improving maternal health outcomes^{5,6}; however, midwifery burnout is a barrier to expanding the midwifery workforce and is associated with workforce instability and adverse patient outcomes. Despite the deleterious effects of burnout for patients and providers, there has not been an investigation of midwifery burnout in the United States since 1986.⁷

In the United States, the majority of births are attended in hospitals by physicians,⁸ despite evidence that the majority of uncomplicated pregnant people will have better outcomes in low-intervention settings with midwifery-led care.^{9,10} Currently, there are 12,925 certified nurse-midwives/certified midwives (CNMs/CMs) attending only 9.8% of births nationwide.^{8,11} Over half (55.1%) of US counties do not have a midwife, and 48.2% of US counties lack any maternity care provider.¹² Significant development of the US midwifery workforce is necessary to have a substantial effect on outcomes, as well as on the size and function of the maternity care workforce. An understanding of midwifery burnout is a critical step in developing interventions for workforce growth and stabilization, and maximizing midwifery productivity and scope of practice. In this study we investigated the prevalence and patterns of burnout and the relationship between the practice environment and burnout among certified nurse-midwives and certified midwives practicing in the United States.

1.1 | Background

Professional burnout, a psychological condition in which an individual responds to chronic professional stressors with pathologic levels of emotional exhaustion, cynicism/depersonalization, and a sense of inefficacy,¹³ threatens initiatives to grow the midwifery workforce. Burnout leads to workforce destabilization through workplace attrition, reduced professional engagement, reduced productivity, and absenteeism.^{14,15} In the case of the maternal-child health workforce, obstetricians and gynecologists (OB/GYNs) have cited burnout as a driver for reducing their obstetric practice.¹⁶ OB/GYN residents with burnout report decreased career satisfaction and regretting choosing obstetrics-related specialties.¹⁷ Internationally, midwives with higher levels of burnout report higher absenteeism¹⁸ and intention to leave the profession of midwifery.¹⁹

Burnout is also associated with adverse patient outcomes,²⁰ and provider implicit and explicit racial bias.²¹ Health care providers experiencing burnout are more likely to make medical errors,²² miss necessary care,²³ and practice “defensively.”²⁴ In a study of maternity nurses in the United States, more than half reported not comforting their patients on their last shift, and nurses experiencing burnout were four times more likely to not do necessary patient care.²⁵

The potentially life-threatening implications of burnout have led to an extensive inquiry into the causes of burnout since the 1980s.²⁶ Personal characteristics, such as age, and structural characteristics of practices, such as where the practice is located and the patient population it serves, have had varying and inconsistent associations across studies and populations.²⁷⁻³⁰ In contrast, organizational factors, such as the lack of high-quality leadership

and the absence of a culture of safety, have been consistently demonstrated to be the key drivers of burnout.³¹ Understanding contributors to burnout informs organizational policy and regulation of practice and facilitates the development of a supportive practice environment. Among nurses, resources for patient care, the role of nurses in organizational decision making and policy development, and quality of interprofessional relationships were demonstrated to be associated with burnout.³² Physicians have identified lack of control and autonomy in the work environment, inefficient use of time due to administrative responsibilities, and lack of collegial support as primary contributors to burnout.²⁹ Internationally, midwifery researchers have described a lack of professional recognition, lack of staff and resources, and a negative work environment leading to increased rates of burnout, and autonomy and continuity of care being associated with less burnout.³³

The prevalence of burnout among the perinatal workforce in the United States ranges from 25%²⁵ to 58%.¹⁷ Internationally, the prevalence of burnout among midwives is 10%–50%.³³ The last study of burnout among CNMs/CMs in the United States, limited to 98 members of the American College of Nurse-Midwives (ACNM), was published in 1986 and reported that 8.2%–21.4% of CNMs were experiencing burnout.⁷

Examination of burnout of midwives is an essential prerequisite to restructuring the maternity care workforce in the United States. Investment in initiatives that increase the number of midwives entering the workforce, such as pipeline programs and funding academic programs, will be squandered if midwives are not able to provide high-quality midwifery care and are not retained in the workforce after training because of burnout. Therefore, the purpose of this study was to determine the prevalence of burnout and evaluate the factors contributing to burnout, specifically practice climate, among the US midwifery workforce through a national survey of all CNMs/CMs certified to practice in the United States.

2 | METHODS

2.1 | Study design

This was a national cross-sectional survey of CNMs/CM in the United States conducted in April 2017. The protocol was approved by the Colorado Multiple Institutional Review Board (COMIRB protocol No. 16-2048).

2.2 | Participants/population

The study population was the full roster of CNMs/CMs from the American Midwifery Certification Board (AMCB; $n = 11,130$). All CNMs/CMs are required to hold certification from the AMCB, and therefore, the roster theoretically contained the full population of CNMs/CMs. The inclusion criterion was currently practicing midwifery in the United States, which was based on participant self-identification.

2.3 | Instruments

A survey consisting of 91–95 questions was sent to CNMs/CMs currently practicing in the United States. Twenty-two questions asked about demographic, personal work characteristics, and practice structural characteristics (respondents that reported attending births were asked an additional 4 questions), and 69 questions measured the work environment, professional psychological well-being, job intentions, and perceived quality of care.

Personal work characteristics were those characteristics about respondent's unique role within this context of their practice setting, but not generalizable to all members of the practice (e.g., whether an individual works full-time vs. part-time). In contrast, structural characteristics were characteristics of a practice setting that apply to all midwives working in that setting (e.g., location of the practice). These items were modeled after midwifery workforce surveys conducted by the ACNM and AMCB to facilitate assessing how representative the sample was of the population and allow for potential comparison with other workforce studies.

The Maslach Burnout Inventory (MBI) is a 22-item scale that measures three components of professional burnout: emotional exhaustion (EE), depersonalization (DP), and personal accomplishment (PA).³⁴ The MBI is the most commonly used burnout instrument among nurses³⁵ and physicians.³⁶ The response options measure frequency of sentiments toward one's work on a 7-point Likert-type scale with anchors of "never" and "every day." The reliability of the MBI within a sample of US midwives is unknown; however, in a 1998 study of British midwives, Sandall et al. found adequate internal consistency of the MBI.³⁷ In this sample, the subscale Cronbach's alpha scores were 0.80 for EE, 0.69 for DP, and 0.74 for PA. There are multiple reported methods for scoring the MBI. The most common cut-off scores reported are >26 , >10 , and <33 for EE, DP, and PA, respectively³⁶; however, the developers advise treating the score as a continuous variable.³⁴ In order to allow comparisons with published studies, we reported prevalence using cut-off scores and multivariate relationships using the continuous score of the EE subscale.

The Midwifery Practice Climate Scale (MPCS) is a 10-item scale that measures two domains of midwives' perceptions of their practice: support for the midwifery model of care and practice leadership and participation.^{38,39} Items in the support for the midwifery model of care subscale measure whether a practice climate supports the tenets of midwifery care, such as physiologic birth. The MPCS is an adaptation of the Practice Environment Scale-Nurse Work Index⁴⁰ and the Nurse Practitioner Primary Care Organizational Climate Questionnaire,⁴¹ developed specifically for midwives in the US healthcare system with demonstrated internal consistency and construct validity. Responses are on a 4-point Likert-type scale ranging from strongly agree to strongly disagree. Items for each subscale are totaled and averaged. There are no established cut-off scores for the MPCS.

2.4 | Recruitment

An invitation was sent to potential respondents via email with a link to the survey over 3 weeks in April 2017. A random sample of

approximately half (5948) of potential participants received a postcard in the mail 2 weeks prior to receiving the survey invitation. The survey was promoted on social media and in public forums, such as professional conferences. Respondents were offered participation in a raffle for 13 \$100 gift cards. Study data and consent were collected and managed using Research Electronic Data Capture (REDCap) hosted at the University of Colorado Anschutz Medical Campus.⁴²

2.5 | Data analysis

Given the lack of extensive literature about the causes of burnout among US midwives, we initially conducted a bivariate analysis with independent samples *t*-tests, analysis of variance (ANOVA), and Pearson's correlation coefficients to assess the relationship between the personal and structural characteristics and EE scores with an a priori significance level of $p < 0.05$. For categorical variables with significant between-group differences, we identified the groups that differed with posthoc Tukey's tests.

We then fit a hierarchical linear regression of the variables that were found to be significantly associated with EE scores in the bivariate analysis to determine (a) the relationship between the personal and structural variables and (b) the association between the practice climate and the personal and structural characteristic's contribution to professional burnout. We created two sets of dummy variables for categorical variables. In the first set, we used the response option with the lowest burnout score as the referent variable, and in the second set, we used the category with the largest proportion of the sample as the referent variable. Births per year and patients per day were treated as ordinal level data. We entered personal work characteristics for the first block analysis, practice-level characteristics for the second block analysis, and practice climate indicators for the third block analysis. The model fit was evaluated based on adjusted R^2 . All data were analyzed in SPSS version 26 (IBM, Armonk, NY).

3 | RESULTS

Of the 11,130 CNM/CMs who were invited to participate, 3442 responded (30.9%). Of those, 2887 met the inclusion criteria of being in clinical practice in the United States. The final sample was comprised of 2333 respondents who completed 80% of more of the survey questions. The final sample represented 21.0% of all CNM/CMs certified in the United States.

The personal and practice demographic characteristics of the sample were reflective of the most recent demographics of the profession reported by the CNM/CM professional organizations, with a few minor differences (Table 1). The mean number of years in practice was slightly lower in this study (13.9 years vs. 15.9 years [ACNM] and 19.3 years [AMCB]), but the mean age of this sample, 47.2 years, was comparable to the ages reported in the other analyses (45.5–51.4 years). The most common employer of all samples was hospitals,

followed by physician-owned practices. A larger percentage of respondents to this survey attend births than is reported by the ACNM (81.5% vs. 65.0%, respectively).⁴³

3.1 | Prevalence of burnout

Using the EE cut-off score > 26 criteria, 40.6% ($n = 933$) of respondents met criteria for burnout. Twice as many respondents met the criteria for burnout based on EE than PA and four times more than DP (Table 2).

3.2 | Bivariate analysis of demographics and personal work characteristics

There was no significant difference in EE scores between different races ($p = 0.09$), ethnicities ($p = 0.06$), or genders ($p = 0.71$). There were significant although weak negative correlations between EE and age ($r = 0.09$, $p < 0.01$), years as a midwife ($r = -0.07$, $p = 0.01$), years with primary employer ($r = -0.05$, $p = 0.02$).

Of the personal work characteristics (Table 3), the shifts worked (i.e., nights, days) and employment status were significantly associated with EE scores ($p = 0.01$). Respondents who worked nights had lower levels of EE than those who worked exclusively days and those who worked both nights and days. Midwives who reported working full-time reported higher EE than those working part-time ($p < 0.01$). There was no significant difference in EE scores between those respondents who attended births and those who did not ($p = 0.22$).

3.3 | Bivariate analysis of structural characteristics

Of the 11 practice structural characteristics tested with bivariate testing, we determined that seven were significantly associated with burnout scores (Table 4). Indicators associated with the patient's socioeconomic status, insurance ($p = 0.46$), and income ($p = 0.35$) level, were not associated with EE. Midwives working shifts did not report different EE scores than those who worked in an on-call model ($p = 0.05$). The type of practice was not associated with EE score ($p = 0.32$).

There were significant relationships between EE score and indicators of patient workload. Seeing fewer patients in an outpatient setting ($p < 0.01$) and attending fewer births ($p < 0.01$) were associated with lower EE. Additionally, patient acuity was significantly and positively related to EE ($p < 0.01$).

Midwives attending births at home reported lower levels of EE than those working in hospitals, birth centers, or a combination of settings ($p = 0.02$), although the number of midwives in the sample attending homebirths was small. Practice geographic location ($p = 0.03$) and the size of practice ($p = 0.03$) were also significantly associated with EE.

TABLE 1 Demographic characteristics of the sample and related CNM/CM workforce demographic reports

Demographic characteristic	Study sample (n = 2333)	ACNM 2012 ^a (n = 1970)	AMCB 2013 ^a (n = 1323)
Age ^b	47.58 (15.6)	51.4 (11.6)	45.5 (15.2)
Years as a midwife ^b	13.99 (10.1)	15.9 (10.8)	19.3 (8.0)
Years with current employer ^b	7.65 (8.4)	NR	NR
Gender ^c			
Female	2376 (82.3)	1925 (97.7)	348 (26.3)
Male	23 (0.8)	19 (1.0)	4 (0.3)
Transgender	2 (0.1)	NR	NR
Missing/unknown	487 (16.8)	26 (1.3)	971 (73.4)
Race ^c			
American Indian/Alaskan Native	6 (0.2)	5 (0.3)	6 (0.4)
Asian	17 (0.6)	9 (0.5)	13 (1.0)
Black/African American	87 (3.0)	58 (2.9)	38 (2.9)
Caucasian/White	2158 (74.8)	1804 (91.6)	724 (54.7)
Hispanic/Latino	NA	61 (3.1)	18 (1.4)
2 or more races	66 (2.3)	NA	1 (0.1)
Other	15 (0.5)	43 (2.2)	4 (0.3)
Unknown/missing/not reporting	536 (18.6)	48 (2.4)	519 (39.2)
Ethnicity ^c			
Hispanic	87 (3.0)	NR	NR
Non-Hispanic	2207 (76.5)	NR	NR
Not reporting	79 (2.7)	NR	NR
Missing/unknown	514 (17.8)	NR	NR
Primary employer ^c			
Public hospital/university-affiliated hospital	688 (23.8)	543 (27.6) ^d	363 (27.4) ^d
Private hospital/medical center	529 (18.3)	NA ^d	NA ^d
Educational institution	NA ^e	238 (12.1)	115 (8.7)
Private physician-owned group practice	601 (20.8)	414 (21.0)	197 (14.9)
Private midwifery-owned group practice	109 (3.8)	157 (8.0)	91 (6.9)
Private solo CNM/CM practice	102 (3.5)	NR	NR
Private birthing center	112 (3.9)	NR	NR
Health Maintenance Organization	132 (4.6)	NR	NR
Community health center	267 (9.3)	148 (7.5)	81 (6.1)
Family planning clinic	56 (1.9)	NR	NR
Nonprofit Health Agency	NR	83 (4.2)	71 (5.4)
Military hospital or sites	68 (2.4)	25 (1.3)	17 (1.3)
Federal government	NR	35 (1.8)	19 (1.4)
Correctional facility/detention center	2 (0.1)	NR	NR
Other	143 (5.0)	119 (6.0)	0
Missing/unknown	78 (2.7)	1 (0.0)	208 (10.6)
Attend births ^c			
Yes	2194 (76.0)	1281 (65.0)	NR
No	541 (18.8)	471 (23.9)	NR
Missing/unknown	152 (5.3)	218 (11.1)	NR

Abbreviations: ACNM, American College of Nurse-Midwives; AMCB, American Midwifery Certification Board; NA, not applicable; NR, not reported.

^aDemographic characteristics reported by Fullerton.⁴³

^bMean (SD).

^cFrequency (percentage).

^dPublic and private hospitals reported as single category.

^eSee university-affiliated hospital.

TABLE 2 Prevalence of burnout based on three criteria

Burnout dimension	M	SD	Number of respondents with positive scores (valid percentage of the sample)
Emotional exhaustion (>26) ^a	23.9	12.6	933 (40.6%)
Depersonalization (>10) ^b	5.5	5.34	369 (16.1%)
Personal accomplishment (<33) ^c	41.0	5.66	204 (9.0%)

^a*n* = 2299.^b*n* = 2278.^c*n* = 2278.

Personal characteristics	M ^a	95% CI	SD	<i>p</i>
Race				0.09
Black/Africa American	2.78	[2.25, 2.90]	1.51	
Asian	2.72	[2.01, 3.43]	1.39	
Native American/Alaskan Native	3.74	[2.00, 5.49]	1.66	
Native Hawaiian/Other Pacific Islander	1.39	[-4.96, 7.74]	0.71	
White	2.64	[2.58, 2.70]	1.39	
Two or more races	2.72	[2.35, 3.10]	1.49	
Other	2.57	[1.41, 3.74]	1.83	
Not reporting/unknown	3.21	[2.78, 3.64]	1.36	
Ethnicity				0.06
Hispanic	2.74	[2.45, 3.04]	1.33	
Not Hispanic	2.64	[2.58, 2.70]	1.40	
Not reporting/unknown	3.03	[2.70, 3.36]	1.39	
Gender				0.71
Female	2.66	[2.60, 2.72]	1.40	
Male	2.51	[1.94, 3.09]	1.22	
Transgender	3.33	[-16.43, 23.10]	2.20	
Attend births				0.22
Yes	2.64	[2.58, 2.70]	1.50	
No	2.73	[2.59, 2.87]	1.40	
Shifts worked				<0.01
Nights	1.97	[1.62, 2.31]	1.23	
Days	2.63	[2.52, 2.74]	1.44	
Mixed	2.69	[2.62, 2.75]	1.38	
Employment status				<0.01
Full-time	2.72	[2.66, 2.79]	1.40	
Part-time/per diem	2.39	[2.27, 2.52]	1.39	

Abbreviation: CI, confidence interval.

^aMean and SD of emotional exhaustion subscale with a range of 0–7.**TABLE 3** Means, SD and bivariate analysis for demographics and personal work characteristics and Maslach burnout inventory emotional exhaustion scores

3.4 | Effect of practice climate

A hierarchal multilinear regression (Table 5) using the set of dummy variables with the category with the lowest EE score serving as the referent indicated that all of the significant predictors of personal characteristics (block 1) and practice characteristics (block 2) combined accounted for only 6.4% of the variance; however, when practice climate (block 3) was added, the model predicted 26.5% of the variance in

EE score ($p < 0.01$). Only two of the structural characteristics, practice location and patient acuity, remained statistically significant in the final model. Practice leadership and participation explained the most variation in EE score ($b = -0.43$; $p < 0.01$), followed by support for the mid-wifery model of care ($b = -0.12$; $p < 0.01$). We fit a second hierarchal multilinear regression using the second set of dummy variables in which the category with the largest proportion of the sample served as the referent variable; however, we found no meaningful difference in the

TABLE 4 Means and SD and bivariate analysis significance of structural characteristics and Maslach burnout inventory emotional exhaustion scores

Structural characteristic	M ^a	95% CI	SD ^a	p
Pt/day in the outpatient setting				<0.01
<10	2.21	[2.01, 2.41]	1.36	
10–15	2.50	[2.38, 2.61]	1.33	
16–20	2.75	[2.66, 2.84]	1.36	
21–25	2.76	[2.62, 2.89]	1.43	
>25	3.17	[2.95, 3.39]	1.50	
“I don't work in an outpatient setting”	2.16	[1.89, 2.42]	1.38	
Training of decision maker				<0.01
Non-CNM/CM decision maker	2.95	[2.86, 3.03]	1.45	
CNM/CM decision maker	2.42	[2.35, 2.49]	1.31	
Practice type (n = 2305)				0.32
Public hospital/university affiliated hospital	2.70	[2.59, 2.81]	1.36	
Private hospital/medical center	2.69	[2.56, 2.83]	1.43	
Private physician-owned group practice (including at least one physician and at least one CNM/CM)	2.65	[2.53, 2.77]	1.42	
Private midwifery-owned non-physician group practice (including no physicians but two or more CNMs/CMs/NPs/PAs)	2.53	[2.24, 2.82]	1.34	
Private solo CNM/CM practice	2.21	[1.83, 2.59]	1.45	
Private birthing center	2.73	[2.43, 3.02]	1.39	
Health maintenance organization	2.75	[2.50, 3.01]	1.38	
Community health center	2.65	[2.46, 2.83]	1.39	
Family planning clinic	2.86	[2.39, 3.32]	1.46	
Military hospitals or sites	2.63	[2.23, 3.02]	1.51	
Other	2.44	[2.17, 2.70]	1.37	
Primary insurer of patients				0.77
Privately insured	2.63	[2.54, 2.72]	1.39	
Publicly insured	2.69	[2.61, 2.76]	1.40	
Self-pay	2.50	[2.08, 2.92]	1.53	
Practice location				0.03
Urban	2.61	[2.52, 2.70]	1.41	
Rural	2.68	[2.54, 2.83]	1.40	
Suburban	2.58	[2.47, 2.69]	1.37	
Mixed	2.82	[2.69, 2.95]	1.41	
Average income of patients				0.35
High income	2.35	[1.98, 2.72]	1.38	
Middle income	2.65	[2.55, 2.75]	1.37	
Low income	2.69	[2.60, 2.78]	1.41	
Mixed income	2.64	[2.52, 2.76]	1.42	
Patient acuity				<0.01
Low risk	2.41	[2.30, 2.53]	1.38	
Moderate risk	2.66	[2.59, 2.73]	1.37	
High risk	3.00	[2.85, 3.15]	1.49	
Practice birth volume ^b				<0.01
<50	2.07	[1.80, 2.33]	1.42	
50–199	2.70	[2.57, 2.84]	1.35	
200–499	2.75	[2.64, 2.86]	1.41	
>500	2.60	[2.51, 2.70]	1.34	

(Continues)

TABLE 4 (Continued)

Structural characteristic	M ^a	95% CI	SD ^a	p
Location of births ^b				<0.01
Hospital	2.65	[2.58, 2.72]	1.38	
Birth center	2.64	[2.27, 3.00]	1.27	
Home	1.70	[1.13, 2.27]	1.44	
Combination of locations	2.67	[2.47, 2.87]	1.34	
Shift versus call ^b				0.05
Shift	2.57	[2.47, 2.67]	1.36	
Call	2.69	[2.61, 2.78]	1.39	
FTEs in practice				0.03
1-2	2.64	[2.53, 2.74]	1.45	
3-5	2.77	[2.68, 2.87]	1.37	
6-10	2.57	[2.46, 2.69]	1.39	
11-20	2.48	[2.29, 2.67]	1.34	
>20	2.65	[2.26, 3.04]	1.40	

Abbreviations: CI, confidence interval; FTEs, full time equivalents.

^aMean and SD of emotional exhaustion subscale with a range of 0-7.

^bOnly respondents who reported attending births (n = 1872) were given this question.

TABLE 5 Regression analysis summary for personal, structural, and climate variables predicting burnout

Variable	B	95% CI	SE B	β	t	p
Age	-0.02	[-0.03, -0.01]	0.004	-0.17	-4.49	0.00
Years midwife	0.01	[0.001, 0.02]	0.01	0.09	2.12	0.04
Years with employer	0.02	[0.004, 0.03]	0.01	0.08	2.75	0.01
Part-time versus full-time ^a	-0.06	[-0.22, 0.10]	0.08	-0.02	-0.74	0.46
Working exclusively days (reference = working exclusively nights)	0.67	[0.16, 1.19]	0.26	0.17	2.55	0.01
Working days and nights (reference = working exclusively nights)	0.84	[0.34, 1.33]	0.25	0.22	3.31	<0.01
Urban practice location (reference = suburban practice location)	0.01	[-0.16, 0.16]	0.08	0.002	0.06	0.96
Rural practice location (reference = suburban practice location)	0.08	[-0.12, 0.27]	0.10	0.02	0.75	0.45
Mixed practice locations (reference = suburban practice location)	0.19	[0.02, 0.37]	0.09	0.06	2.15	0.03
Moderate risk patient acuity (reference = low risk)	0.21	[0.05, 0.37]	0.08	0.08	2.60	0.01
High risk patient acuity (reference = low risk)	0.35	[0.13, 0.57]	0.11	0.09	3.10	<0.01
Average patients/day	-0.01	[-0.06, 0.05]	0.03	-0.004	-0.17	0.87
Number of births/year	0.04	[-0.04, 0.12]	0.04	0.03	1.05	0.29
Non-CNM/CM decision makers (referenced = CNM/CM decision makers)	-0.06	[-0.20, 0.09]	0.07	-0.02	-0.75	0.45
Hospital birth setting (referenced = home birth)	-0.28	[-0.87, 0.31]	0.30	-0.07	-0.92	0.36
Birth center birth setting (referenced = home birth)	0.40	[-0.27, 1.06]	0.34	0.05	1.17	0.24
Combination of birth settings (referenced = home birth)	0.24	[-0.36, 0.84]	0.31	0.05	0.78	0.44
6-10 FTEs practice size (referenced = 11-20 FTEs)	-0.07	[-0.22, 0.09]	0.08	-0.02	-0.87	0.38
Support for the midwifery model of care	-0.20	[-0.31, -0.09]	0.06	-0.12	-3.51	<0.01
Practice leadership and participation	-0.79	[-0.91, -0.68]	0.06	-0.43	-13.85	<0.01

Note: $R^2 = 0.265$ ($N = 1499$, $p < 0.001$); $F(20,1478) = 27.98$.

Abbreviations: CI, confidence interval; FTEs, full time equivalents.

findings (see Table A1) and presented the first model for ease of interpretation.

4 | DISCUSSION

Through a national survey of certified nurse-midwives and certified midwives in clinical practice in the United States, we examined the prevalence of burnout and the association of personal and practice characteristics and midwives' perceptions of their practice climate. We found that the modifiable organizational factors of a practice climate, specifically practice leadership and participation and support for the midwifery model of care, had a larger effect on burnout than the more intractable personal or practice characteristics. The important role of practice climate is supported by findings from intervention trials that organizational interventions are more effective in burnout reduction than individual-level interventions.⁴⁴

The results of this study suggested that two in five midwives in clinical practice in the United States were experiencing burnout. Comparing EE scores, midwives had a higher rate of burnout than maternity nurses (25%)²⁵ and only marginally lower rate than OB/GYNs (46%).⁴⁵ Notably, there was a dramatically different prevalence of burnout in this sample depending on the criteria used. Based on the criteria of EE alone, more than twice as many respondents met the criteria for burnout than using the DP or PA criteria. This discrepancy could be the result of psychometric weaknesses of the MBI^{36,46} or a unique characterization of the midwifery workforce in which patient interaction is hypothesized to protect from, not cause, burnout.⁴⁷

Relationships with patients are reported as a source of job satisfaction for midwives^{48,49} and studies indicate midwives' decision to stay in the profession of midwifery is positively associated relationships with patients.⁵⁰ Studies of midwifery burnout using the Copenhagen Burnout Inventory, which specifies sources of burnout within its domains, consistently find that client-related burnout levels are lower than work-related or personal burnout scores.³³ Depersonalization conflicts with this pattern of midwives responding positively to patient interaction, even in the face of exhaustion in other realms, and therefore may not be the most accurate measure of burnout for midwives.

Indicators of the duration of practice (age, years as a midwife, and years with current employer) were the only personal demographic characteristics associated with burnout. This is consistent with the midwifery burnout literature that finds age inversely related to the level of burnout.^{18,47,51} Neither gender nor race and ethnicity had a significant association with burnout. The lack of difference between providers of different races and ethnicities is also found in the international midwifery and nursing literature.^{47,52-54} Physician burnout studies have indicated a similar or a lower rate of burnout among physicians of color compared to white physicians.^{55,56} Given the importance of diversifying the midwifery workforce to include more midwives of color and the low, although a proportional, number of respondents of color in this study, understanding the professional well-being of midwives of color requires additional research.

Notably, respondents working nights exclusively reported significantly lower EE scores than respondents working all days or flipping between nights and days. This relationship may be the result of increased autonomy and time with patients during the night.⁵⁷ Autonomy is consistently inversely related to burnout across professions²⁹ and within midwifery.³³ During night shifts, midwives experience fewer competing work obligations, such as meetings or outpatient care, thereby allowing midwives to spend more time with their patients, which is a job satisfier for midwives.^{48,49} Furthermore, autonomous midwifery practice and relationships with patients are hallmarks of the midwifery model of care,⁵⁸ support of which was found to be inversely related to burnout in this sample.

In the context of a severe shortage of birth attendants¹² and initiatives to grow the proportion of births attended by midwives in birth centers⁵⁹ in the United States, our finding that there was no difference between the EE score of those respondents attending births and those not attending births is significant. While it does not appear that attending birth is inherently associated with higher rates of burnout, our findings demonstrate that efforts to grow the number of births attended by midwives must include creating supportive work climates for midwives to prevent burnout. Birth centers are uniquely poised to support midwives if birth centers retain midwifery leadership and remain true to the midwifery model of care in accordance with the standards established by the American Association of Birth Centers.⁶⁰

The international literature indicates that midwives working in a caseload model of care, in which the midwife follows a cohort of birth parents through labor and birth, is associated with lower levels of burnout than midwives who work in a shift model, indicating that a possible mechanism of protection against burnout is providing continuity of care.⁶¹⁻⁶⁶ In the United States the same clear delineation is not there between caseload and shift-based models; therefore, we compared levels of burnout for midwives who worked in on-call models, more similar to the caseload model because midwives are on-call for patients from their own practice and are, therefore, more likely to have established a relationship with the birthing parent during the prenatal period, to those who worked shifts, more consistent with a hospitalist model in which providers care for all patients on a unit regardless of who their primary care provider is, and found no difference in burnout levels. Given these findings conflict with the international literature, we suggest additional investigation of this topic using targeted sampling of midwives providing continuity of care in a similar fashion to the caseload model in the United States.

There were lower burnout scores among midwives attending births in homes in comparison to other birth settings, although this constituted a small percentage of respondents. The relationship between birth setting and burnout is significant because of increased demand for out-of-hospital birth during the COVID-19 pandemic,⁶⁷ and recent recommendations from the National Academies of Sciences, Engineering, and Medicine to expand birth setting options in the United States.⁵⁹ Attending births at home, and therefore outside of large organizational structures, may lead to more control over one's work and support for the midwifery model of care, which are two attributes of a supportive practice climate for midwives.⁶⁸

Our findings indicate that a supportive practice climate, specifically effective leadership, organizational participation, and supporting the unique perinatal care provided by midwives, is essential to burnout prevention. Workforce development initiatives should therefore aim to cultivate midwifery leadership and ensure there is a midwife on key decision making committees to drive how we care for pregnant people and their families.

Support for the midwifery model of care stands to have a three-pronged impact on improving maternal health outcomes in the United States. In addition to having the potential to reduce midwifery burnout, integration of midwifery care in the US healthcare system is associated with lower rates of cesarean birth, preterm birth, low birth weight infant, neonatal mortality, and increased rates of vaginal birth after cesarean, spontaneous vaginal birth, and breastfeeding.^{9,69} Finally, the development of the midwifery workforce has the potential to reduce physician workload, thereby reducing physician burnout and its repercussions.⁷⁰ Therefore, policy makers and administrators would be well served to invest in practices and interventions that promote the midwifery model of care, such as allowing midwives time to engage in shared decision making with patients, fetal monitoring with intermittent auscultation when appropriate and adequate staffing levels to provide labor support.

5 | LIMITATIONS AND FUTURE RESEARCH

Response bias is a systematic weakness in burnout literature as professional disengagement is a symptom of burnout, thereby potentially leading to lower response rates from people experiencing higher rates of burnout. Additionally, despite yielding a demographically representational sample, the overall response rate was low. Further research should include random sampling and using an alternative burnout instrument to corroborate these findings. Given the potential impact of burnout on professional turnover,¹⁹ a limitation to this study was that we did not include midwives who may have left clinical practice because of burnout. Sampling midwives who have ceased practicing would provide a valuable comparison group to the midwives in this sample.

The final model only accounted for around a quarter of the variance in burnout scores, indicating that there are factors influencing the well-being of the midwifery workforce that are not accounted for in this study. Future investigation should include emerging literature about team-based care,⁷¹ work-life balance,⁷² and safety culture,⁷³ as well as further exploring findings from this study, such as the effect of birth location, on midwifery burnout.

6 | CONCLUSION

The implications of these findings suggest that burnout prevention among midwives does not require a significant overhaul to perinatal care practice structures; it can be addressed through organizational development strategies, such as the inclusion of midwives in developing practice-level policies and supporting the midwifery model of care. Strong practice leadership and participation have the potential to increase the integration

of the midwifery model of care, leading to a cyclical positive impact. Therefore, the development of a supportive midwifery practice climate has the potential to improve maternity care through multiple pathways.

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APPENDIX

TABLE A1 Regression analysis summary for personal, structural, and climate variables predicting burnout with largest proportion of sample as used as referent variable

Variable	B	95% CI	SE B	β	t	p
Age	-0.02	[-0.03, -0.01]	-0.004	-0.14	-3.84	<0.001
Years midwife	0.01	[-0.001, 0.20]	0.005	0.07	1.85	0.06
Years with employer	0.01	[0.003, 0.02]	0.005	0.07	2.49	0.01
Full-time (reference = part-time) ^a	-0.23	[-0.39, -0.07]	0.08	-0.06	-2.87	0.004
Working exclusively days (reference = working days and nights)	-0.09	[-0.25, 0.07]	0.08	-0.03	-1.15	0.25
Working exclusively nights (reference = working days and nights)	-0.75	[-1.16, -0.33]	0.21	-0.08	-3.53	<0.001
Suburban practice location (reference = urban practice location)	0.02	[-0.13, 0.17]	0.08	0.01	0.31	0.76
Rural practice location (reference = urban practice location)	0.08	[-0.11, 0.26]	0.09	0.02	0.80	0.42
Mixed practice locations (reference = urban practice location)	0.22	[0.07, 0.38]	0.08	0.07	2.81	0.005
Low risk patient acuity (reference = moderate risk)	-0.09	[-0.24, 0.05]	0.07	-0.03	-1.26	0.052
High risk patient acuity (reference = moderate risk)	0.17	[0.01, 0.33]	0.08	0.05	2.07	0.04
Average patients/day	0.06	[0.002, 0.11]	0.03	0.05	2.05	0.04
Number of births/year	0.04	[-0.03, 0.12]	0.04	0.03	1.10	0.27
Non-CNM/CM decision makers (referenced = CNM/CM decision makers)	-0.12	[-0.26, 0.01]	0.07	-0.04	-1.84	0.07
Home birth setting (referenced = hospital)	0.42	[-0.17, 1.00]	0.30	0.03	1.40	0.16
Birth center birth setting (referenced = hospital)	0.69	[0.31, 1.07]	0.19	0.08	3.56	<0.001

TABLE A1 (Continued)

Variable	B	95% CI	SE B	β	t	p
Combination of birth settings (referenced = hospital)	0.46	[0.24, 0.67]	0.11	0.09	4.21	<0.001
1–2 FTEs practice size (referenced = 6–10 FTEs)	0.11	[–0.08, 0.29]	0.09	0.03	1.15	0.25
3–5 FTEs practice size (referenced = 6–10 FTEs)	0.04	[–0.11, 0.19]	0.08	0.02	0.57	0.57
11–20 FTEs practice size (referenced = 6–10 FTEs)	–0.07	[–0.27, 0.14]	0.11	–0.01	–0.62	0.54
>20 FTEs practice size (referenced = 6–10 FTEs)	0.25	[–0.11, 0.60]	0.18	0.03	1.37	0.17
Support for the midwifery model of care	–0.23	[–0.33, –0.12]	0.05	–0.13	–4.37	<0.001
Practice leadership and participation	–0.79	[–0.90, –0.69]	0.05	–0.43	–14.89	<0.001

Note: $R^2 = 0.278$ ($N = 1715$, $p < 0.001$); $F(23,1691) = 29.70$.

Abbreviations: CI, confidence interval; FTEs, full time equivalents.