

## Characteristics, work environments, and rates of burnout and job dissatisfaction among registered nurses in primary care



Jacqueline Nikpour (PhD, RN)<sup>a,b,\*</sup>, J. Margo Brooks Carthon (PhD, RN, FAAN)<sup>a</sup>

<sup>a</sup> Center for Health Outcomes and Policy Research, University of Pennsylvania School of Nursing, Philadelphia, PA

<sup>b</sup> Leonard Davis Institute of Health Economics, University of Pennsylvania, Philadelphia, PA

### ARTICLE INFO

#### Article history:

Received 6 February 2023

Received in revised form 5 April 2023

Accepted 30 April 2023

Available online xxxx

#### Keywords:

Primary care

Nurse burnout

Clinician well-being

Health equity

Work environments

Federally-qualified health centers

### ABSTRACT

**Background:** Although more people than ever are seeking primary care, the ratio of primary care providers to the population continues to rapidly decline. As such, registered nurses (RNs) are taking on increasingly central roles in primary care delivery. Yet little is known about their characteristics, their work environments, and the extent to which they experience poor job outcomes such as nurse burnout.

**Purpose:** The purpose of this study was to examine the characteristics of the primary care RN workforce and analyze the association of the nurse work environment with job outcomes in primary care.

**Methods:** Cross-sectional analysis of survey data representing  $N = 463$  RNs who worked in 398 primary care practices, including primary care offices, community clinics, retail/urgent care clinics, and nurse-managed clinics. Survey questions included measures of the nurse work environment and levels of burnout, job dissatisfaction, and intent to leave.

**Discussion:** Approximately one-third of primary care RNs were burnt out and dissatisfied with their jobs, with the highest risk of these outcomes among RNs in community clinics. Community clinic RNs were also significantly more likely to be Black or Hispanic/Latino, hold a Bachelor of Science in Nursing, and speak English as a second language (all  $p < .01$ ). Across all settings, better nurse work environments were significantly associated with lower levels of burnout and job dissatisfaction (both  $p < .01$ ).

**Conclusion:** Primary care practices must be equipped to support their RN workforce. Adequate nursing resources are especially needed in community clinics, as patients receiving primary care in these settings frequently face structural inequities.

© 2023 Elsevier Inc. All rights reserved.

### Background

Registered nurse (RN) burnout is increasingly being recognized as a key threat to patient safety and care quality. Up to 54% of RNs in the U.S. have reported burnout and studies of RNs in hospitals and nursing homes have identified associations between burnout and mortality, readmissions, and poor patient satisfaction (Aiken et al., 2002, 2014; National Academies of Medicine, 2019; White et al., 2019). As a result, in October 2022, the National Academy of Medicine released its National Plan for Health Workforce Well-Being, calling upon health care organizations to destigmatize clinician mental health, invest in strategies and research, and create and sustain supportive

clinical work environments (National Academy of Medicine, 2022). For RNs, such supportive work environments are known to be characterized by supportive managers, sufficient staff and resources, meaningful input into organizational affairs, strong collegial relations, and opportunities for clinical advancements (Lake, 2007).

A substantial body of research has demonstrated that RNs working in hospitals and other clinical environments that possess these traits of a positive work environment have lower rates of burnout, job dissatisfaction, and intent to leave their organizations, as well as improved patient outcomes such as lower mortality and readmissions (Aiken et al., 2008, 2011; Kutney-Lee et al., 2013; White et al., 2019). Yet few studies have examined these organizational features amongst RNs in ambulatory settings, such as primary care. The aging population and the expansion of Medicaid have sharply increased the demand for primary care services, and the workload amongst primary care clinicians has skyrocketed (Hajat & Stein, 2018; Bodenheimer & Mason, 2016). A 2022 study found that a primary care provider would need 27 hr in a day to provide guideline-

\* Corresponding author: Jacqueline Nikpour, Center for Health Outcomes and Policy Research, University of Pennsylvania School of Nursing, 418 Curie Blvd, Philadelphia, PA 19104.

E-mail addresses: [jnikpour@nursing.upenn.edu](mailto:jnikpour@nursing.upenn.edu) (J. Nikpour), [jmbrooks@nursing.upenn.edu](mailto:jmbrooks@nursing.upenn.edu) (J.M.B. Carthon).

concordant chronic disease management and complete associated documentation for an average primary care panel size of 2,500 patients (Porter et al., 2022). At the same time, current primary care physicians are increasingly retiring while medical trainees are opting into specialty care (Association of American Medical Colleges, 2021; Health Resources and Services Administration, 2021; Medical Group Management Association, 2020; Zhang et al., 2020). Though the growth of the nurse practitioner (NP) and physician assistant workforces has slightly offset this shortage, the ratio of primary care providers to the population is still expected to decline up to 8% by 2025 (Auerbach et al., 2020; Bodenheimer & Mason, 2016). This changing primary care landscape has resulted in the growth of team-based care models, where all members of the primary care team—including RNs—contribute to patient care (Bodenheimer & Smith, 2013; Bodenheimer & Mason, 2016). Indeed, the percentage of RNs in primary care and other ambulatory settings grew from 9% to 13% between 2013 and 2018, and the growing emphasis on chronic disease management, population health, and care coordination in primary care are well-suited to RNs' training and education (Budden et al., 2013; Bodenheimer & Mason, 2016; Health Resources and Services Administration, 2020). In primary care, nurses may be responsible for triaging patients based on their clinical status, providing complex care management and coordination to patients with multiple chronic conditions, and performing medication reconciliation, patient education, and disease screenings (Bodenheimer & Mason, 2016). As primary care RNs' role in care delivery continues to expand, an understanding of their organizational environments and job outcomes is needed to sustain this workforce.

To date, most research on the RN work environment and RN job outcomes has taken place in hospitals. While nurses in inpatient and outpatient settings share common issues—such as limited resources and insufficient staff—there are striking differences in the roles, patient populations, and relationships to managers and organizations between hospitals and primary care settings (Agarwal et al., 2020; Kim et al., 2020; Monsalve-Reyes et al., 2018). For example, while hospital-based RNs typically provide acute, episodic care to a specific patient population, primary care RNs provide more ongoing disease management to the same patients for an extended period of time (Monsalve-Reyes et al., 2018). While hospitals largely understand the daily roles and functions of their RNs, administrators may not fully understand the roles of primary care RNs (Norful et al., 2017). As a result, RNs in primary care may have substantially different perceptions of their work environments and levels of burnout, job dissatisfaction, and intent to leave. An understanding of these organizational attributes specific to RNs in primary care is thus necessary to inform primary care workforce planning and clinician well-being initiatives. As such, the purpose of this study was to examine the job outcomes of primary care RNs, and the association of RN job outcomes with the quality of the RN work environment.

## Methods

### Design and Setting

This was a descriptive, cross-sectional secondary analysis. We analyzed nurse survey data representing  $N = 463$  RNs across four states (PA, NJ, CA, FL) who worked in a primary care setting in 2016. This study was deemed exempt by the University of Pennsylvania Institutional Review Board.

### Data Sources

Nurse survey data came from the 2016 RN4CAST-US survey. This survey and its previous iterations have been widely used to study the effects of nursing workforce dynamics, such as measures of nurse staffing, nursing work environments, job satisfaction, and burnout

(Aiken et al., 2002, 2011, 2013; Cimiotti et al., 2012; Kanai-Pak et al., 2008; Kutney-Lee et al., 2013; McHugh et al., 2011; White et al., 2019). The 2016 survey was mailed to the homes of a 30% random sample of all licensed RNs across settings, including hospitals, nursing homes, primary and ambulatory care, and others. Addresses were obtained from state boards of nursing. Surveys yielded a 26% response rate, and examinations of our sampling method have revealed no evidence of non-response bias (Lasater et al., 2019).

### Construction of Primary Care Analytic Sample

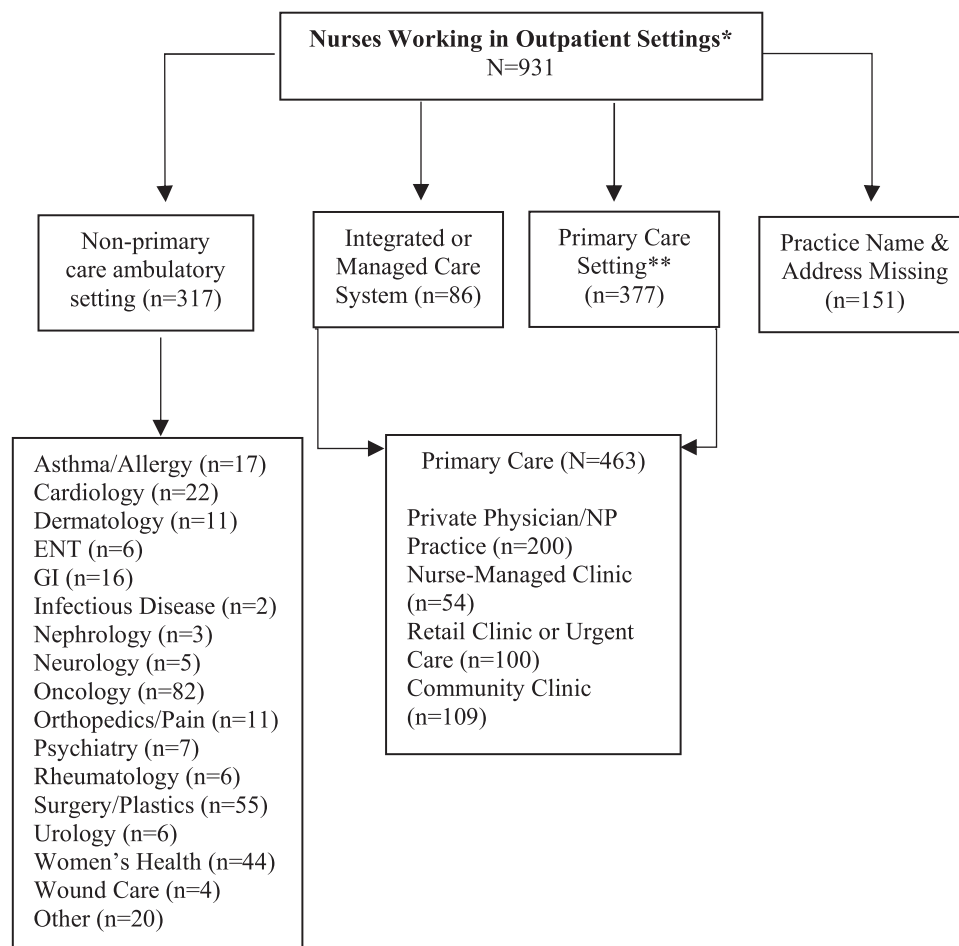
Figure 1 illustrates the process used to derive our analytic sample. RN survey respondents were asked to identify their setting of practice, including hospitals, long-term care, home health, private physician or NP offices, correctional facilities, public health, schools, retail or urgent care, nurse-managed clinics, dialysis centers, community clinics, occupational health, behavioral health center, or other. RNs were also asked for the name and address of the practice at which they worked. To capture our sample of RNs employed in primary care settings, we included respondents who indicated they worked in the following settings: private physician or NP office, retail or urgent care, nurse-managed clinics, and community clinics, following approaches in prior studies (Dols et al., 2021; Fried et al., 2020; Spetz et al., 2013).

However, given that physician or NP practices could be either a primary care or specialty care site (e.g., obstetrics, dermatology, oncology, surgical centers), we utilized practice names and addresses to identify which sites were actually primary care practices. Practice names containing the terms “family,” “internal medicine,” “primary care,” “general health,” “PCP,” and “health clinic” were classified as primary care, whereas practice names identifying a specific specialty were classified as specialty care. For practice names that were non-specific to primary or specialty care, such as those containing terms “medical associates,” “physician group,” or a specific physician's name, we located the physician and/or practice's website to identify most accurately which practices provided primary care.

A notable exception to this procedure was for practice names identified as part of a large integrated system, such as Kaiser, Geisinger, and the Department of Veterans Affairs. For these practices, we were unable to identify which provided primary or specialty care. We chose to classify these practices as primary care and include them in our analyses, as these health systems are known to have tightly coordinated care and place particular value on comprehensive and preventative care (McKinsey, 2009). Our final sample, including RNs in integrated systems, contained  $N = 463$  RN respondents.

### Explanatory Variables

Our primary explanatory variable was the RN work environment, as measured by the 31-item Practice Environment Scale of the Nursing Work Index (PES-NWI), which is endorsed by the National Quality Forum and has been widely utilized nationally and internationally (Aiken et al., 2011; Carthon et al., 2015; Cho et al., 2015; Lake, 2007). The PES-NWI consists of five subscales: nurses' participation in organizational affairs, nursing foundations for care quality, nurse manager leadership and support, nurse-physician relations, and staffing and resource adequacy. Scores for each subscale indicate the extent to which a nurse agrees with statements that supportive traits are present and ranged from 1 (strongly disagree) to 4 (strongly agree) with higher ratings indicating a better work environment. We categorized practices' work environments based on the number of subscales on which each practice scored above the practice-level mean as follows: poor (0–1 subscales above mean), mixed (2–3 subscales above mean), and best (4–5 subscales



**Figure 1.** Construction of primary care analytic sample. \*Outpatient settings include private physician/NP practices, nurse-managed clinics, retail clinics or urgent care settings, and community clinics. \*\*Sample used in sensitivity analyses. NP, nurse practitioner.

above mean). PES-NWI data came from the 2016 RN4CAST-US survey. All subscales in our sample had acceptable internal consistency reliability, with Cronbach  $\alpha$  scores ranging from 0.85 to 0.89.

### Outcome Variables

We examined three RN job outcomes: burnout, job satisfaction, and intent to leave. RN burnout was assessed with the Emotional Exhaustion scale of the Maslach Burnout Inventory (Maslach & Jackson, 1981). RNs were classified as experiencing burnout if their score was 27 or higher, consistent with the instrument's guidelines (Maslach et al., 1997). Job satisfaction was measured as a single-item question, "How satisfied are you with your primary job?" using a four-point Likert scale. We dichotomized this variable as "very or somewhat satisfied" and "very or somewhat dissatisfied," consistent with prior literature (Aiken et al., 2002, 2008; Kanai-Pak et al., 2008; White et al., 2019). Intent to leave was similarly measured by a single-item, four-point Likert scale question, "How likely are you to be with your current employer 1 year from now?" dichotomized as "intend to leave" and "do not intend to leave."

### Covariates

We included the following characteristics of the primary care RN workforce as covariates: age, sex at birth (male/female), race/ethnicity, years working as a nurse, level of education, hours worked per week, percent of time spent in direct patient care, and whether or not RNs held specialty certified, worked full-time, and held multiple

jobs. Specialty certification was a binary variable referring to whether the nurse had obtained any certification from the American Nurses Credentialing Center (i.e., Ambulatory Care Nursing, Medical-Surgical Nursing, Cardiac Vascular Nursing), regardless of whether that certification was directly related to the delivery or primary care. There is evidence that the obtainment of any nurse certification demonstrates a commitment to professional growth and establishing specialized competencies. These variables were chosen based on prior literature, as well as on opportunities to measure the diversity of our primary care RN sample (Aiken et al., 2002, 2011; Brooks Carthon et al., 2021; Cimiotti et al., 2012).

### Analyses

Descriptive statistics were used to describe RN individual and organizational workforce characteristics, including means for continuous variables and frequencies and percentages for categorical variables. *T*-tests for continuous variables and chi-square tests for categorical variables were employed to compare each characteristic across the four primary care settings. To examine the association of the RN work environment with job outcomes, we fit a single logistic regression model accounting for all covariates and clustering of RNs in practices. To ensure that our classification of integrated systems as primary care did not influence our findings, we performed sensitivity analyses that removed RNs working in these integrated systems from the model ( $n=86$ ). We used STATA 15 for analyses (StataCorp, College Station, TX).

Power

Sample-size estimation formulas and estimated power were derived based on the Diggle method that adjusts for the inter-class correlation (ICC) among nurses from the same practice (Diggle et al., 1994). Our sample consisted of 463 RNs in 398 practices classified into each of three approximately equal categories based on work environment (Poor, Mixed, Best). Our sample, with an average of 1.16 nurses per practice, will have adequate power (90%) to achieve statistical significance at the 0.05 alpha level to test hypotheses about the association with RN work environment with burnout, job dissatisfaction, and intent to leave rates if the true odds ratios are below 0.525 and the actual ICC is below 0.7 with a compound symmetry covariance structure. Furthermore, the ICC among nurses within a practice is estimated to be less than 0.7, and the alpha level was set at 0.05. Power analyses were conducted using PASS 2023 (PASS 12. NCSS, LLC. Kaysville, UT).

Results

Individual Characteristics

Our sample consisted of 463 primary care RNs working in 398 practices across the four states. Of these, 200 (43.2%) worked in private practice, 109 (23.5%) worked in a community health clinic, 100 (21.6%) worked in a retail or urgent care center, and 54 (11.7%) worked in a nurse-managed clinic. The majority of RNs were White (390, 84.2%) and female (436, 94.4%), though this was largely driven by RNs in private physician or NP offices, which comprised nearly half of the total sample. The other three settings, however, employed higher rates of non-white RNs. For example, while 7% of all respondents reported having Hispanic or Latino ethnicity, nearly 17% of respondents in community clinics were Hispanic or Latino. On average, RNs were 51.7 years old, had been working as a nurse for 23.6 years, and had been employed by their organization for 11.4 years. Nearly half (n = 223, 48.5%) had obtained a Bachelor of Science in Nursing (BSN) or higher, and over 15% (n = 66) had obtained a

specialty certification. Table 1 displays demographic, education, and practice characteristics across settings.

Organizational Characteristics

Table 2 displays the prevalence of each organizational characteristic across the four types of settings. At the practice level, 152 practices representing 168 RNs had poor work environments, 80 practices representing 97 RNs had mixed work environments, and 110 practices representing 128 RNs had the best work environments. Over one-third of RNs in nurse-managed clinics and community clinics were burnt out. These two settings also had the lowest rates of job satisfaction, the highest rates of intent to leave and of a poor work environment, and the lowest average percentage of time spent in direct patient care activities. However, only burnout and time in direct patient care showed significant differences between the four settings.

Association of RN Work Environment With Job Outcomes

Table 3 displays the logistic regression model examining the association of RN work environment with job outcomes. After adjusting for covariates and for RNs clustered within practices, we found that RNs in mixed work environments and best work environments had 30% and 7% odds, respectively, to report being burned out as those in poor work environments. Moreover, RNs in mixed and best practice environments had 3.9 times and 4.3 times the odds, respectively, of being satisfied with their jobs as those in poor work environments. The association between RN work environment and intent to leave was not significant for both mixed and best practice environments.

Sensitivity Analyses

Our sensitivity analyses revealed a similar pattern of findings after removing RNs (n = 86) who practiced in a managed care or integrated health system. Compared to RNs in poor work environments, RNs in

Table 1  
RN Characteristics Across Primary Care Settings

RN Characteristic	Total RNs (N = 463)	Setting (n, %)				p
		Private Practice (200, 43.2)	Nurse-Managed Clinic (54, 11.7)	Retail/Urgent Care (100, 21.6)	Community Clinic (109, 23.5)	
Age, year, mean (SD)	51.7 (12.0)	52.3 (11.5)	56.1 (10.3)	48.8 (12.1)	51.0 (12.8)	< .01
Years RN, mean (SD)	23.6 (13.8)	24.9 (13.5)	28.4 (10.8)	20.3 (14.0)	21.8 (14.7)	< .01
Years in organization, mean (SD)	11.4 (10.5)	12.3 (10.2)	16.8 (13.8)	9.1 (8.6)	9.3 (9.7)	< .01
Female, n (%)	436 (94.4)	197 (99.0)	49 (90.7)	92 (92)	98 (89.9)	< .01
Race, n (%)						< .01
White	390 (84.2)	190 (95.0)	45 (83.3)	77 (77.0)	78 (71.6)	
Asian	13 (2.8)	7 (3.5)	7 (13.0)	14 (14.0)	11 (10.1)	
Black	13 (2.8)	1 (0.5)	1 (1.9)	4 (4.0)	7 (6.4)	
Other	21 (4.5)	2 (1.0)	1 (1.9)	5 (5.0)	13 (11.9)	
Hispanic/Latino	33 (7.2)	4 (2.0)	4 (7.4)	7 (7.0)	18 (16.8)	< .01
English as second language	54 (11.7)	7 (3.5)	6 (11.1)	17 (17.0)	24 (22.0)	< .01
Foreign educated RN	30 (6.5)	5 (2.5)	6 (11.1)	11 (11.0)	8 (7.3)	.01
State of residence, n (%)						< .01
CA	28 (14.0)	39 (72.2)	50 (50.0)	57 (52.3)	174 (37.6)	
FL	34 (17.0)	7 (13.0)	23 (23.0)	15 (13.8)	79 (17.1)	
NJ	42 (21.0)	2 (3.7)	7 (7.0)	13 (11.9)	64 (13.8)	
PA	96 (48.0)	6 (11.1)	20 (20.0)	24 (22.0)	146 (31.5)	
Work full time, n (%)	258 (56.1)	93 (46.5)	33 (62.3)	57 (57)	75 (70.1)	< .001
Work 2+ jobs, n (%)	73 (16.0)	23 (11.6)	9 (16.7)	20 (21.1)	21 (19.4)	.13
BSN or higher, n (%)	237 (51.5)	113 (56.8)	31 (57.4)	47 (47.5)	46 (42.6)	.07
Specialty certified	71 (15.4)	20 (10.0)	17 (31.5)	13 (13)	21 (19.4)	< .01

Note. BSN, Bachelor of Science in Nursing; RN, registered nurse; SD, standard deviation.

Full time = 35 hr or more per week.

Specialty certification can include any nurse certification from the American Nurses Credentialing Center and may not only reflect those certifications directly relevant to primary care. Examples include Ambulatory Care Nursing, Gerontological Nursing, Pain Management Nursing, Pediatric Nursing, and Cardiac Vascular Nursing.

**Table 2**  
RN Practice Characteristics Across Primary Care Settings

RN Characteristic	Total RNs (N = 463)	Setting (n, %)				p
		Private Practice (200, 43.2)	Nurse-Managed Clinic (54, 11.7)	Retail/Urgent Care (100, 21.6)	Community Clinic (109, 23.5)	
Burned out, n (%)	102 (26.4)	33 (21.2)	18 (36.0)	13 (16.3)	38 (37.6)	< .01
Satisfied with job	386 (83.4)	165 (82.5)	44 (81.5)	89 (89.0)	88 (80.7)	.38
Intend to leave	60 (13.2)	24 (12.1)	7 (13.2)	11 (11.2)	18 (16.8)	.62
Work environment, n (%)						.50
Poor	168 (42.8)	69 (44.2)	21 (41.2)	30 (34.5)	48 (48.5)	
Mixed	97 (24.7)	39 (25.0)	10 (19.6)	25 (28.7)	23 (23.2)	
Best	128 (32.6)	48 (30.8)	20 (39.2)	32 (36.8)	28 (28.3)	
% Time in direct patient care (mean, SD)	51.1 (23.3)	51.7 (23.8)	51.0 (24.0)	56.4 (22.4)	46.1 (22.2)	.03

Note. RN, registered nurse; SD, standard deviation

Intend to leave refers to the single-item, Likert-style question “How likely are you to still be with your current employer 1-year from now?” Answers range from “very unlikely” to “very likely.”

**Table 3**  
Logistic Regression Model Estimating Odds of Poor RN Job Outcomes

Variable	Mixed Work Environments, OR (95% CI)	Best Work Environments, OR (95% CI)
Burnout	0.30 (0.14, 0.64)*	0.07 (0.02, 0.20)*
Job satisfaction	3.93 (1.36, 11.34)*	4.25 (1.19, 15.22)*
Intent to Leave	0.83 (0.33, 2.06)	0.58 (0.22, 1.55)*

Note: OR, odds ratio; CI, confidence interval.

\* Covariates included: Gender, full-time status (vs. part-time or per-diem), setting of practice, working multiple jobs, total hours worked per week, years worked as an RN, race/ethnicity, obtainment of a BSN degree or higher, and obtainment of specialty certification.

mixed and best work environments had 17% and 10% of odds, respectively, of reporting burnout as those in poor work environments. Moreover, RNs in mixed and best work environments had 4.2 and 4.1 times the odds of being satisfied compared to those in poor work environments. The association between work environment and intent to leave remained non-significant.

**Discussion**

The present study is among the first to examine the nursing work environment in primary care and its association with nurse job outcomes. We found that nurses across a variety of primary care settings— including private practice, nurse-managed clinics, community clinics, and retail clinics—average over two decades of nursing experience and frequently obtain BSN or higher education and specialty certification. Despite the high level of preparedness among primary care RNs, nearly 40% reported a poor work environment, including characteristics such as insufficient staff and resources, unsupportive managerial relationships, and a lack of opportunities for clinical growth. The presence of a poor primary care RN work environment was strongly associated with nurse burnout and job dissatisfaction. These findings contribute to establishing a novel evidence base on the nursing workforce in primary care settings and the organizational support they need to deliver high-quality primary care.

Our findings have several important implications for primary care practices, policymakers, and researchers. Health care delivery is increasingly moving from hospitals into community-based settings, with an increasing focus on preventative care, chronic disease management, and population health (National Academy of Medicine, 2021a, 2021b). The aging population, the expansion of Medicaid, and the growth of chronic diseases have led to primary care practices seeing larger, more complex panels than ever before (Hajat & Stein, 2018; Bodenheimer & Mason, 2016). Prior studies have emphasized the growing role of RNs in primary care, with new delivery models deploying nurses in care coordination and disease management

(National Academy of Medicine, 2021b; Bodenheimer & Mason, 2016). Yet our findings of high rates of poor work environments, burnout, and job dissatisfaction signal challenges for recruiting and retaining an adequately-sized workforce to address these paramount health care needs.

A strong body of evidence finds that better nursing work environments—where nurses are involved in decision-making, have positive relationships with physicians and managers, and receive adequate resources and support—are associated with lower patient mortality, fewer readmissions, and higher ratings of care quality and patient safety (Aiken et al., 2008, 2011, 2013; Brooks Carthon et al., 2022; Carthon et al., 2015; Kutney-Lee et al., 2013). Moreover, prior studies have found that poor nurse work environments are associated with patient dissatisfaction, nurse turnover, missed care, and poor patient outcomes such as health care-acquired infections (Aiken et al., 2002, 2008; Cimiotti et al., 2012; McHugh et al., 2011; White et al., 2019). A study by McHugh et al. found that patients cared for in hospitals with higher rates of nurse burnout and job dissatisfaction were less likely to be satisfied with their care (McHugh et al., 2011). While our study is not indicative of patient outcomes, we similarly found that the work environments of nurses in primary care were strongly correlated with both burnout and job dissatisfaction—potentially signaling poor care quality for patients cared for in those settings. Opportunities to improve the nursing work environment include heightening nursing’s involvement in organizational decision-making, establishing clear communication between clinical professional groups as well as managers, and identifying and supplying sufficient resources that may assist with the provision of high-quality care (Aiken et al., 2008; Lake, 2007; McHugh et al., 2011; White et al., 2019). These improvements may reduce burnout and may be cost-effective, particularly in their ability to lower rates of nurse turnover (Duffield et al., 2014; McHugh et al., 2011).

In their landmark 2021 report, “Implementing High-Quality Primary Care,” the National Academy of Medicine called for practices to transform their work environment to support RNs’ ability to deliver high-quality care (National Academy of Medicine, 2021a). As the role of RNs continues to grow, practices have an opportunity to ensure high-quality care delivery by establishing a work environment and taking measures to prevent and manage burnout and nurse turnover. While RN burnout has been examined at length in other settings, such as hospitals, the unique goals, patient populations, and context of care in primary care may influence levels of burnout (Kim et al., 2020; McHugh et al., 2011; Monsalve-Reyes et al., 2018). As RN job outcomes in primary care are only just beginning to be analyzed, future research should examine the contributing factors to positive and negative job outcomes and their association with patient outcomes.

Finally, it is important to note that RNs in nurse-managed clinics and community clinics reported the highest levels of burnout, intent to leave, and poor work environments. This is of concern, as patients receiving care in these settings are frequently low-income and minoritized individuals signaling potential problems for care quality amongst individuals who may already be facing structural health inequities (Goldman et al., 2012; Lim et al., 2019; Wright et al., 2015). Our findings also indicate that nurses in these settings were more diverse and that Black, Hispanic, and non-native English-speaking nurses were more likely to be burnt out. This is in line with other findings that have found Black and Hispanic nurses to have higher rates of burnout, particularly in the era of COVID-19 (<https://www.nursingworld.org/paractice-policy/workforce/racism-in-nursing/national-commission-to-address-racism-in-nursing/>; Thomas-Hawkins et al., 2022). While nurse diversity is a key recommendation of the National Academy of Medicine's 2021 report *The Future of Nursing: Charting a Path to Health Equity*, the ability of diverse nurses to address health inequities may be constrained if they are burned out or in poor work environments (National Academy of Medicine, 2021b; Nikpour et al., 2022). Future studies should examine the availability of nursing resources across various types of primary care practices and their influence on the quality of care, job outcomes across diverse nurses, and patient outcomes and health inequities.

Our study had several limitations. First, while our efforts to identify which practices provided primary care allowed us to identify a sample of primary care RNs most accurately, the manual nature by which this was done may leave room for human error and misclassification. Similarly, while our classification of integrated health systems as primary care was necessary and sensitivity analyses did not change our findings, there may have been some respondents who provided care in another type of ambulatory setting in these practices, leading to potential bias. Future survey studies of nurses working in outpatient settings should ask respondents to clearly identify their practice specialty. Additionally, we were unable to include geographic indicators such as rural or urban status in our analyses, although our inclusion of community clinics may represent medically-underserved areas. Prior studies have demonstrated that a supportive primary care work environment in medically-underserved areas is significantly associated with the quality of care delivered (Brooks Carthon et al., 2022).

Finally, while individuals without another usual source of care may utilize urgent care clinics as a source of primary care, other visits may fall outside of the scope of primary care.

## Conclusion

RNs work in a variety of primary care settings, are highly experienced and educated, and are frequently diverse—especially in community clinics and nurse-managed clinics. RNs in better work environments had significantly lower levels of burnout and higher levels of job satisfaction.

## Funding

This work was supported by the National Institute of Nursing Research (T32NR007104, Aiken, PI).

## CRedit Statement

Jacqueline Nikpour: Conceptualization, Methodology, Writing. J. Margo Brooks Carthon: Conceptualization, Methodology, Reviewing and Editing.

## Declaration of Competing Interest

The authors declare no conflicts of interest.

## References

- Agarwal, S. D., Pabo, E., Rozenblum, R., & Sherritt, K. M. (2020). Professional dissonance and burnout in primary care: A qualitative study. *JAMA Internal Medicine*, 180(3), 395–401. <https://doi.org/10.1001/jamainternmed.2019.6326>
- Aiken, L. H., Clarke, S. P., Sloane, D. M., Sochalski, J., & Silber, J. H. (2002). Hospital nurse staffing and patient mortality, nurse burnout, and job dissatisfaction. *JAMA*, 288(16), 1987–1993. <https://doi.org/10.1001/jama.288.16.1987>
- Aiken, L. H., Clarke, S. P., Sloane, D. M., Lake, E. T., & Cheney, T. (2008). Effects of hospital care environment on patient mortality and nurse outcomes. *Journal of Nursing Administration*, 38(5), 223–229. <https://doi.org/10.1097/01.NNA.0000312773.42352.d7>
- Aiken, L. H., Sloane, D. M., Bruyneel, L., Van den Heede, K., & Sermeus, W. (2013). Nurses' reports of working conditions and hospital quality of care in 12 countries in Europe. *International Journal of Nursing Studies*, 50(2), 143–153. <https://doi.org/10.1016/j.ijnurstu.2012.11.009>
- Aiken, L. H., Cimiotti, J. P., Sloane, D. M., Smith, H. L., Flynn, L., & Neff, D. F. (2011). Effects of nurse staffing and nurse education on patient deaths in hospitals with different nurse work environments. *Medical Care*, 49(12), 1047–1053. <https://doi.org/10.1097/MLR.0b013e3182330b6e>
- Aiken, L. H., Sloane, D. M., Bruyneel, L., Van den Heede, K., Griffiths, P., Busse, R., & Sermeus, W. (2014). Nurse staffing and education and hospital mortality in nine European countries: a retrospective observational study. *Lancet*, 383(9931), 1824–1830. [https://doi.org/10.1016/s0140-6736\(13\)62631-8](https://doi.org/10.1016/s0140-6736(13)62631-8)
- Association of American Medical Colleges. (2021). *The complexities of physician supply and demand: Projections from 2019 to 2034*. Retrieved Aug 11, 2022, from <https://www.aamc.org/media/54681/download?attachment>.
- Auerbach, D. I., Buerhaus, P. I., & Staiger, D. O. (2020). Implications of the rapid growth of the nurse practitioner workforce in the US. *Health Affairs*, 39(2), 273–279. <https://doi.org/10.1377/hlthaff.2019.00686>
- Bodenheimer, T. S., & Smith, M. D. (2013). Primary care: Proposed solutions to the physician shortage without training more physicians. *Health Affairs*, 32(11), 1881–1886. <https://doi.org/10.1377/hlthaff.2013.0234>
- Bodenheimer, T., & Mason, D. (2016). *Registered nurses: Partners in transforming primary care*. Retrieved Aug 5, 2022, from [https://macyfoundation.org/assets/reports/publications/macy\\_monograph\\_nurses\\_2016\\_webpdf.pdf](https://macyfoundation.org/assets/reports/publications/macy_monograph_nurses_2016_webpdf.pdf).
- Brooks Carthon, J. M., Brom, H., Nikpour, J., Todd, B., Aiken, L., & Poghosyan, L. (2022). Supportive practice environments are associated with higher quality ratings among nurse practitioners working in underserved areas. *Journal of Nursing Regulation*, 13(1), 5–12. [https://doi.org/10.1016/S2155-8256\(22\)00028-X](https://doi.org/10.1016/S2155-8256(22)00028-X)
- Brooks Carthon, M., Brom, H., McHugh, M., Sloane, D. M., Berg, R., Merchant, R., & Aiken, L. H. (2021). Better nurse staffing is associated with survival for black patients and diminishes racial disparities in survival after in-hospital cardiac arrests. *Medical Care*, 59(2), 169–176. <https://doi.org/10.1097/mlr.00000000000001464>
- Budden, J. S., Zhong, E. H., Moulton, P., & Cimiotti, J. P. (2013). Highlights of the national workforce survey of registered nurses. *Journal of Nursing Regulation*, 4(2), 5–14. [https://doi.org/10.1016/S2155-8256\(15\)30151-4](https://doi.org/10.1016/S2155-8256(15)30151-4)
- Carthon, J. M., Lasater, K. B., Sloane, D. M., & Kutney-Lee, A. (2015). The quality of hospital work environments and missed nursing care is linked to heart failure readmissions: a cross-sectional study of US hospitals. *BMJ Quality & Safety*, 24(4), 255–263. <https://doi.org/10.1136/bmjqs-2014-003346>
- Cho, E., Sloane, D. M., Kim, E.-Y., Kim, S., Choi, M., Yoo, I. Y., & Aiken, L. H. (2015). Effects of nurse staffing, work environments, and education on patient mortality: An observational study. *International Journal of Nursing Studies*, 52(2), 535–542. <https://doi.org/10.1016/j.ijnurstu.2014.08.006>
- Cimiotti, J. P., Aiken, L. H., Sloane, D. M., & Wu, E. S. (2012). Nurse staffing, burnout, and health care-associated infection. *American Journal of Infection Control*, 40(6), 486–490. <https://doi.org/10.1016/j.ajic.2012.02.029>
- Diggle, P. J. L., K.Y., & Zeger, S. L. (1994). *Analysis of longitudinal data*. Oxford University Press.
- Dols, J. D., DiLeo, H. A., & Beckmann-Mendez, D. (2021). Nurse-managed health centers: financial sustainability, community benefit, and stakeholders. *Journal for Nurse Practitioners*, 17(6), 712–717. <https://doi.org/10.1016/j.nurpra.2021.01.022>
- Duffield, C. M., Roche, M. A., Homer, C., Buchan, J., & Dimitrelis, S. (2014). A comparative review of nurse turnover rates and costs across countries. *Journal of Advanced Nursing*, 70(12), 2703–2712. <https://doi.org/10.1111/jan.12483>
- Fried, J. E., Basu, S., Phillips, R. S., & Landon, B. E. (2020). Financing buprenorphine treatment in primary care: A microsimulation model. *Annals of Family Medicine*, 18(6), 535–544. <https://doi.org/10.1370/afm.2587>
- Goldman, L. E., Chu, P. W., Tran, H., Romano, M. J., & Stafford, R. S. (2012). Federally qualified health centers and private practice performance on ambulatory care measures. *American Journal of Preventive Medicine*, 43(2), 142–149. <https://doi.org/10.1016/j.amepre.2012.02.033>
- Hajat, C., & Stein, E. (2018). The global burden of multiple chronic conditions: A narrative review. *Preventive Medicine Reports*, 12, 284–293. <https://doi.org/10.1016/j.pmedr.2018.10.008>

- Health Resources and Services Administration. (2020). *Characteristics of the U.S. nursing workforce with patient care responsibilities: Resources for epidemic and pandemic response*. Retrieved November 8, 2022 from <https://bhw.hrsa.gov/sites/default/files/bureau-health-workforce/data-research/nssrn-pandemic-response-report.pdf>.
- Health Resources and Services Administration. (2021). *Primary care workforce projections*. Retrieved November 8, 2022 from <https://bhw.hrsa.gov/data-research/projecting-health-workforce-supply-demand/primary-health>.
- Kanai-Pak, M., Aiken, L. H., Sloane, D. M., & Poghosyan, L. (2008). Poor work environments and nurse inexperience are associated with burnout, job dissatisfaction and quality deficits in Japanese hospitals. *Journal of Clinical Nursing*, 17(24), 3324–3329. <https://doi.org/10.1111/j.1365-2702.2008.02639.x>
- Kim, L. Y., Rose, D. E., Ganz, D. A., Giannitrapani, K. F., Yano, E. M., Rubenstein, L. V., & Stockdale, S. E. (2020). Elements of the healthy work environment associated with lower primary care nurse burnout. *Nursing Outlook*, 68(1), 14–25. <https://doi.org/10.1016/j.outlook.2019.06.018>
- Kutney-Lee, A., Wu, E. S., Sloane, D. M., & Aiken, L. H. (2013). Changes in hospital nurse work environments and nurse job outcomes: An analysis of panel data. *International Journal of Nursing Studies*, 50(2), 195–201. <https://doi.org/10.1016/j.ijnurstu.2012.07.014>
- Lake, E. T. (2007). The nursing practice environment: measurement and evidence. *Medical Care Research and Review*, 64(2 Suppl), 104s–122s. <https://doi.org/10.1177/1077558707299253>
- Lasater, K. B., Jarrin, O. F., Aiken, L. H., McHugh, M. D., Sloane, D. M., & Smith, H. L. (2019). A methodology for studying organizational performance: A multistate survey of front-line providers. *Medical Care*, 57(9), 742–749. <https://doi.org/10.1097/mlr.0000000000001167>
- Lim, M. T., Lim, Y. M. F., Tong, S. F., & Sivasampu, S. (2019). Age, sex and primary care setting differences in patients' perception of community healthcare seeking behaviour towards health services. *PLoS One*, 14(10), Article e0224260. <https://doi.org/10.1371/journal.pone.0224260>
- Maslach, C., & Jackson, S. E. (1981). The measurement of experienced burnout. *Journal of Organizational Behavior*, 2(2), 99–113. <https://doi.org/10.1002/job.4030020205>
- Maslach, C., Jackson, S. E., & Leiter, M. P. (1997). *Maslach burnout inventory*. Scarecrow Education.
- McHugh, M. D., Kutney-Lee, A., Cimiotti, J. P., Sloane, D. M., & Aiken, L. H. (2011). Nurses' widespread job dissatisfaction, burnout, and frustration with health benefits signal problems for patient care. *Health Affairs*, 30(2), 202–210. <https://doi.org/10.1377/hlthaff.2010.0100>
- McKinsey & Company. (2009). *What health systems can learn from Kaiser Permanente*. Retrieved August 11, 2022 from <https://www.mckinsey.com/industries/healthcare-systems-and-services/our-insights/what-health-systems-can-learn-from-kaiser-permanente-an-interview-with-hal-wolf>.
- Medical Group Management Association. (2020). *New MGMA research finds physician compensation increased in 2019* (Press release). Retrieved November 7, 2022 from <https://www.mgma.com/news-insights/press/new-mgma-research-finds-physician-compensation-inc>.
- Monsalve-Reyes, C. S., San Luis-Costas, C., Gómez-Urquiza, J. L., Albendín-García, L., Aguayo, R., & Cañadas-De la Fuente, G. A. (2018). Burnout syndrome and its prevalence in primary care nursing: a systematic review and meta-analysis. *BMC Family Practice*, 19(1), 59. <https://doi.org/10.1186/s12875-018-0748-z>
- National Academies of Medicine (2019). *Taking action against clinician burnout: A systems approach to professional well-being*. National Academies Press.
- National Academy of Medicine (2021a). *Person-Centered, Family-Centered, and Community-Oriented Primary Care*. In S. K. Robinson, M. Meisner, R. L. Phillips Jr., & L. McCauley (Eds.). *Implementing high-quality primary care: Rebuilding the foundation of health care* (pp. 93–95). National Academies Press.
- National Academy of Medicine (2021b). *Introduction*. In J. L. Flaubert, S. Le Menestrel, D. R. Williams, & M. K. Wakefield (Eds.). *The future of nursing 2020-2030: Charting a path to achieve health equity* (pp. 17–28). National Academies Press.
- National Academy of Medicine. (2022). *National plan for health workforce well-being*. Retrieved November 6, 2022 from <https://nap.nationalacademies.org/catalog/26744/national-plan-for-health-workforce-well-being>.
- National Commission to Address Racism in Nursing. (2022). *Racism in nursing*. Retrieved November 7, 2022 from <https://www.nursingworld.org/~49c4d0/globalassets/practiceandpolicy/workforce/commission-to-address-racism/racism-in-nursing-report-series.pdf>.
- Nikpour, J., Hickman, R. L., Clayton-Jones, D., Gonzalez-Guarda, R. M., & Broome, M. E. (2022). Inclusive leadership to guide nursing's response to improving health equity. *Nursing Outlook*, 70(6 Suppl 1), S10–S19. <https://doi.org/10.1016/j.outlook.2022.02.006>
- Norful, A., Martsof, G., de Jacq, K., & Poghosyan, L. (2017). Utilization of registered nurses in primary care teams: A systematic review. *International Journal of Nursing Studies*, 74, 15–23. <https://doi.org/10.1016/j.ijnurstu.2017.05.013>
- Porter, J., Boyd, C., Skandari, M. R., & Laiteerapong, N. (2022). Revisiting the time needed to provide adult primary care. *Journal of General Internal Medicine*, 38(1), 147–155. <https://doi.org/10.1007/s11606-022-07707-x>
- Spetz, J., Parente, S. T., Town, R. J., & Bazarko, D. (2013). Scope-of-practice laws for nurse practitioners limit cost savings that can be achieved in retail clinics. *Health Affairs*, 32(11), 1977–1984. <https://doi.org/10.1377/hlthaff.2013.0544>
- Thomas-Hawkins, C., Zha, P., Flynn, L., & Ando, S. (2022). Effects of race, workplace racism, and COVID worry on the emotional well-being of hospital-based nurses: A dual pandemic. *Behavioral Medicine*, 48(2), 95–108. <https://doi.org/10.1080/08964289.2021.1977605>
- White, E. M., Aiken, L. H., & McHugh, M. D. (2019). Registered nurse burnout, job dissatisfaction, and missed care in nursing homes. *Journal of the American Geriatrics Society*, 67(10), 2065–2071. <https://doi.org/10.1111/jgs.16051>
- Wright, B., Potter, A. J., & Trivedi, A. (2015). Federally qualified health center use among dual eligibles: Rates of hospitalizations and emergency department visits. *Health Affairs*, 34(7), 1147–1155. <https://doi.org/10.1377/hlthaff.2014.0823>
- Zhang, X., Lin, D., Pforsich, H., & Lin, V. W. (2020). Physician workforce in the United States of America: Forecasting nationwide shortages. *Human Resources for Health*, 18(1), 8. <https://doi.org/10.1186/s12960-020-0448-3>