Michigan Nurses' Study

Key Facts:

*March 2022 email survey included **10,374** registered nurses with a Michigan license who currently or recently practiced*

Likelihood of having left nursing practice in the past two years*:

Mandatory overtime frequently used
72% more likely to have left in the past two years

1.72

Mandatory overtime used occasionally
31% more likely to have left in the past two years

1.31

Favorable work environment
55% less likely to have left in the past two years

0.45

Among practicing nurses

84% reported emotional exhaustion
39% plan to leave their position within the next year
28% plan to reduce their clinical hours
18% plan to pursue travel nursing

Adequate staffing

was the most common workplace concern among **currently practicing nurses** & **those who recently left**

83%   70%

Likelihood of leaving current job within the next year*:

Emotionally exhausted
72% more likely to leave

1.72

Reported any abuse
27% more likely to leave

1.27
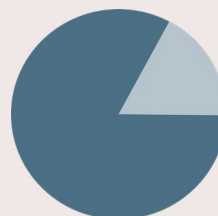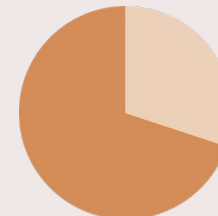
Favorable work environment
73% less likely to leave

0.27

Adequate staffing and resources
10% less likely to leave

0.9

* Values for leaving current job in next year and having left position in the last two year are odds ratios from a multivariable logistic regression model

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NURSES' STUDY

Patterns and Correlates of Nurse Departures From the Health Care Workforce

Results From a Statewide Survey

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Background: Health care executives and policymakers have raised concerns about the adequacy of the US nursing workforce to meet service demands. Workforce concerns have risen given the SARS-CoV-2 pandemic and chronically poor working conditions. There are few recent studies that directly survey nurses on their work plans to inform possible remedies.

Methods: In March 2022, 9150 nurses with a Michigan license completed a survey on their plans to leave their current nursing position, reduce their hours, or pursue travel nursing. Another 1224 nurses who left their nursing position within the past 2 years also reported their reasons for departure. Logistic regression models with backward selection procedures estimated the effects of age, workplace concerns, and workplace factors on the intent to leave, hour reduction, pursuit of travel nursing (all within the next year), or departure from practice within the past 2 years.

Results: Among practicing nurses surveyed, 39% intended to leave their position in the next year, 28% planned to reduce their clinical hours, and 18% planned to pursue travel nursing. Top-ranked workplace concerns among nurses were adequate staffing, patient safety, and staff safety. The majority of practicing nurses (84%) met the threshold for emotional exhaustion. Consistent factors associated with adverse job outcomes include inadequate staffing and resource adequacy, exhaustion, unfavorable practice environments, and workplace violence events. Frequent use of mandatory overtime was associated with a higher likelihood of departure from the practice in the past 2 years (Odds Ratio 1.72, 95% CI 1.40–2.11).

Conclusions: The factors associated with adverse job outcomes among nurses—intent to leave, reduced clinical hours, travel nursing, or recent departure—consistently align with issues that predated the pandemic. Few nurses cite COVID as the primary cause for their planned or actual departure. To maintain an adequate nursing workforce in the United States, health systems should enact urgent efforts to reduce overtime use, strengthen work environments, implement anti-violence protocols, and ensure adequate staffing to meet patient care needs.

Key Words: Workplace violence, working conditions, registered nurses, COVID-19

The United States registered nurse population has experienced substantial strain over the past 2 years, which places patients at risk for harm. Nurses have delivered extraordinary care to individuals infected with the SARS-CoV-2 virus (COVID), individuals whose underlying disease course has been complicated by the pandemic, and to important communities. Nurses have delivered both acute and community-based care in rapidly changing and potentially dangerous contexts.

Media reports, policymakers, and health system leaders have cited growing concerns for the adequacy of the nursing workforce, yet few studies have quantified these concerns and examined contributing factors to nursing workforce departures. It is unclear from currently available data, for example, whether nurses are leaving their positions due to the clinical burdens of caring for COVID patients or whether already strained workplaces became intolerable. Nurses cite an adequate nursing workforce as a key determinant to high-quality care.[1] Further, as a large proportion of the US

nursing workforce reaches retirement age (the median age of the US nurses is 52 y), it is important to examine nurses' workforce decisions by age to understand how these decisions vary by years potentially available to remain in the workforce. Such an analysis provides the opportunity for health system leaders and policymakers to target recruitment and retention strategies. The National Academy of Medicine draft plan for health workforce well-being cited a dearth of recent, multisite data to inform interventions and policy strategies.[2]

Given the absence of recent available data, we launched the Michigan Nurses Survey on February 22, 2022, with the goal of generating timely and actionable data to inform nursing workforce strategies. At the time of publication, Michigan ranked ninth among the US states in both COVID cumulative cases and deaths.[3] Through a statewide survey of current and recently employed registered nurses in one of the hardest-hit states in the nation, the survey results provide timely insights into the challenges that nurses have faced in their workplaces and identify opportunities to stem the losses of nurses from the US health care workforce.

Our 4 research questions were as follows:
1. Among practicing nurses, what proportion plan to make the following changes over the next year: leave their position, reduce their clinical hours, and/or pursue travel nursing?
2. What are the workplace conditions of practicing nurses in terms of burnout, staffing adequacy, overtime use, and abusive events?
3. Among nurses who left clinical practice in the past 2 years, what factors were associated with their departures?
4. What workplace features were associated with the intent to change clinical positions or leave the field entirely?

STUDY DATA AND METHODS

Study Population

Individuals who held a valid, unrestricted license as a registered nurse in the State of Michigan as of February 2022 and provided email addresses were eligible to participate. Nurses with restricted licenses or those who were identified in the database as in a disciplinary process were excluded. Ninety-nine percent of registered nurses in the state provide email addresses upon licensure application or renewal.

Up to 3 email message invitations were sent to the sampling frame 8 days apart, following established procedures.[4] No monetary incentives were offered, but individuals could request to receive a copy of the study results at the conclusion of the analysis.

To protect participant identities, the anonymous feature in Qualtrics (Provo, UT) was used to blind the study team from the email addresses of respondents; our team delivered reminders to those who had not yet responded, but identifiers were not linked to individual study data.

Nurses with multiple roles or positions were asked to report on their primary nursing position. Given the diversity of roles and employment arrangements, nurses were asked to answer survey questions that were pertinent to their role and skip any questions that were not. Hence, some outcomes analyzed have different sample sizes. The study protocol was

reviewed by the University of Michigan Institutional Review Board IRB-HSBS and determined to be exempt from review. The survey included a larger set of research questions; this manuscript focuses on nurses' job outcomes and potential factors associated with those outcomes, as guided by the 4 aforementioned research questions. The measures included in the survey and included in these analyses were chosen given their hypothesized relationships in extant models of clinician job outcomes.[5–7]

Job Outcomes

Among currently practicing registered nurses, we examined 3 unique outcomes of intentions in the next year: to leave their current job, reduce their clinical hours from their current baseline, and/or pursue travel nursing.

Among all surveyed nurses, we asked whether they were currently practicing nursing or not. For those who stated they were not currently practicing, we asked whether they had stopped working within the past 2 years (ie, recently resigned). These questions allowed us to identify a cohort of nurses who had left their clinical position during the pandemic (ie, between March 2020 to March 2022).

Top Workplace Concerns

Among practicing and recently-resigned nurses, we asked them to rank their top 3 concerns in their current or most recent workplace (staffing, training, patient safety, staff safety, being recognized, promotion, getting breaks, and a write-in option).

Workplace Factors

Our team hypothesized that several workplace factors would be associated with adverse nurse job outcomes. Among them, clinician burnout was measured using the 16-item Oldenburg Burnout Inventory,[8] which reports a total score on a 5-point scale. Given prior work, we focused on the instrument's emotional exhaustion subscale. Higher scores reflect greater levels of burnout, with emotional exhaustion scores above 2.25 considered clinically meaningful.[9] We asked whether nurses had experienced workplace bullying or physical, emotional, or sexual abuse in the past year.[10] Using measures from prior surveys,[11] we asked nurses to rate the overall quality of care delivered in their workplace (excellent, good, fair, or poor), whether their practice environments are favorable, mixed, or unfavorable to deliver high-quality care, and staffing and resource adequacy[12] (5-point Likert scale). We also asked respondents if their workplace never used, rarely used, or frequently used mandatory overtime policies.

Demographic variables included age category and whether the nurse held an advanced practice role (midwife, anesthetist, nurse practitioner, or clinical nurse specialist).

Analyses

Analyses were performed with SAS 9.4 (Cary, NC). After descriptive statistics were calculated for outcomes and independent variables, we used logistic regression models to examine the association of variables with the population odds of each outcome. To identify variables that were independently associated with each outcome and to eliminate the effect of collinearity when interpreting the coefficients, we employed

model reduction techniques that included backward, stepwise, and best subset selection with inclusion criteria of alpha of 5%. When different reduction techniques yielded different models, we compared nested models using the likelihood ratio test and un-nested models using the Bayesian Information criterion. Model diagnostics included an examination of variance inflation factors and a Hosmer-Lemeshow test for goodness of fit.

Stratification and Sensitivity Analyses

In the accompanying appendix, Supplemental Digital Content 1, http://links.lww.com/MLR/C614, we show full models with all variables examined, including those removed during selection procedures. We also show results separately for registered nurses with and without advanced practice degrees. We also show bivariate models unadjusted for important covariates like age and role (RN vs. APRN.) (Appendix Table 4, Supplemental Digital Content 1, http://links.lww.com/MLR/C614).

STUDY RESULTS

We received 167,534 email addresses of nurses with a Michigan license directly from the State's Board of Nursing. We excluded 246 individuals whose licenses were under suspension or disciplinary review. We identified 2103 email addresses in the database as invalid before survey deployment. Of 165,185 emails sent, 4366 email messages were undeliverable, and 2565 opted out of the survey without explanation. In all, 17,936 recipients (11% of the entire sample) opened the email survey invitation, and among these, 13,687 (76%) completed the survey. For the analyses reported herein, 9150 reported that they currently practiced as a nurse, and 1224 reported that they had stopped practicing within the past 2 years. Table 1 shows participant characteristics.

Two variables—age and advanced practice status— were available on all registered nurses in the state. Age was categorized to enable comparable results with available state data on all nurses. When comparing our sample with the Michigan registered nurse census, the survey sample is similar to the distribution of advanced practice nurses. The age distribution differs slightly from the statewide data, and 3985 surveyed nurses did not answer the question. Details are provided in the Appendix, Table 1, Supplemental Digital Content 1, http://links.lww.com/MLR/C614.

Top Workplace Concerns

The most frequently-cited workplace concerns were shared between currently practicing nurses and nurses who had recently left practice: adequate staffing (83 and 70 percent, respectively), patient safety (60 and 57 percent), and staff safety (50 and 51 percent) (Appendix, Table 2, Supplemental Digital Content 1, http://links.lww.com/MLR/C614). Promotion and compensation were the least frequently reported concerns of surveyed nurses (range of 3–6 percent).

In the analyses summarized below, we focus on registered nurses without advanced practice degrees, given the pressing concerns for the registered nurse workforce across multiple settings. Findings for nurses with advanced practice roles are in the Appendix, Supplemental Digital Content 1, http://links.lww.com/MLR/C614.

Burnout, Staffing Adequacy, Overtime, and Abusive Events

Selected nurse reports of explanatory variables are in Table 2. Among practicing nurses, the number with clinically-meaningful emotional exhaustion, reflected by a score of 2.25 or above, was 7719 (84%). Among currently practicing nurses who answered the question, 1709 (19%) reported their employer used mandatory overtime frequently, 1978 (22%) reported mandatory overtime occurred occasionally, and 3439 (38%) reported that their employer did not use mandatory overtime. The nurse survey offered nurses the opportunity to report 4 distinct workplace abusive events in the past year. Among respondents to this question, 3921(43%) reported emotional abuse, 2397 (26%) reported workplace bullying, 2031(22%) reported physical abuse, and 903(10%) reported sexual abuse in the past 12 months. Only 3692(40%) of nurses reported that staffing and resources were adequate to deliver patient care (at or above the theoretical midpoint of the scale).

Practicing Nurses' Intentions to Leave Their Current Position

Among the 9150 practicing nurses in the sample, 3576 (39%) planned to leave their current position within the next year: 1554 within the next 6 months and 2022 between 6 months and 1 year. The remaining 344 (58%) reported no plans to leave their position, and 230 (2.51%) did not answer the question. Intention to leave was highest in the youngest age categories (59% among nurses under 25 y old and 53% among nurses 25–34 y), followed by nurses at or above the age of 65 (45%) (Fig. 1).

In multivariable logistic regression models, restricted to registered nurses without advanced practice degrees (Table 3), the following factors were associated with an increased likelihood of leaving in the next year: reported any type of abuse (physical, emotional, bullying, or sexual) event in the past year (Odds Ratio 1.27, 95% CI 1.11–1.44), and higher subscale exhaustion scores on the Oldenburg Burnout Inventory (OR 1.72, 95% CI 1.48-2.01). Nurses were less likely to plan to leave their position when they rated their practice environment as favorable (OR 0.27, 95% CI 0.21–0.35) (vs. unfavorable), reported higher staffing and resource adequacy (OR 0.87, 95% CI 0.82–0.92), and good (OR 0.34, 0.24–0.48) or excellent (OR 0.26, 95% CI 0.18–0.39) (vs. poor) quality of care. Similar factors associated with employment plans were observed in the subset of nurses with advanced practice roles (Appendix, Table 3, Supplemental Digital Content 1, http://links.lww.com/MLR/C614).

Practicing Nurses' Intentions to Reduce their Clinical Hours

Of nurses currently practicing, both those with and without advanced practice roles, 2549 (28%) reported plans to reduce their clinical hours within the next 12 months, and 6601 (72%) did not plan to do so. Higher exhaustion subscale scores from the Burnout Inventory were associated with an increased likelihood of reducing clinical hours (OR 1.36, 95%

TABLE 1. Nurse Participant Characteristics, 2022

| | Participants,* n (%) | | |
Characteristics	Full sample N = 13,687	Currently practicing in nursing (n = 9150)	Left nursing practice in the past 2 years (n = 1,224)
Age			
Under 25	216 (1.6)	213 (2.3)	< 1
25–34	1,295 (9.5)	1172 (12.8)	79 (6.5)
35–44	1,785 (13.0)	1611 (17.6)	86 (7.0)
45–54	2,036 (14.9)	1838 (20.1)	92 (7.5)
55–64	2,584 (18.9)	1914 (20.9)	348 (28.4)
65 and older	1,787 (13.1)	568 (6.2)	462 (37.8)
Self-described gender			
Female	8,687 (63.5)	6,495 (71.0)	969 (79.2)
Male	894 (6.5)	736 (8.0)	85 (6.9)
Transgender	< 1	< 1	< 1
Nonbinary	< 1	< 1	< 1
Gender non-conforming	< 1	< 1	< 1
Another choice	< 1	< 1	< 1
Race and ethnicity†			
Asian	204 (1.5)	173 (1.9)	< 1
Black or African American	398 (2.9)	313 (3.4)	42 (3.4)
Hispanic/Latino	201 (1.5)	176 (1.9)	13 (1.1)
Native American or Alaska Native	< 1	< 1	15 (1.2)
Native Hawaiian or Pacific Islander	< 1	< 1	< 1
White	8587 (62.7)	6454 (70.5)	955 (78.0)
Another answer	279 (2.0)	203 (2.2)	32 (2.6)
Unknown	< 1	< 1	< 1
Nursing role			
Registered nurse	8361 (61.1)	6289 (68.7)	918 (75.0)
Advanced practice	1328 (9.7)	1021 (11.2)	149 (12.2)
Primary nursing setting			
Inpatient/acute care	3887 (28.4)	3887 (42.5)	424 (34.6)
Long-term care	331 (2.4)	331 (3.6)	80 (6.5)
Community/ public health	746 (5.5)	746 (8.2)	169 (13.8)
School nursing	< 1	112 (1.2)	21 (1.7)
Nursing education	184 (1.3)	184 (2.0)	38 (3.1)
Other setting	2074 (15.2)	2074 (22.7)	338 (27.6)

*Data are expressed as No. (%) of participants. Cells with <1% had too few observations to report precise numbers within each cell to protect privacy.

†Participants could choose multiple categories.

TABLE 2. Nurse-Reported Burnout, Overtime, Abuse Events in the Workplace, and Staffing and Resource Adequacy, 2022 (N = 9150)

Variable	n (%)
Emotional exhaustion above the threshold	7719 (84.4)
Mandatory overtime	
Never used	3439 (37.5)
Used occasionally	1978 (21.6)
Used frequently	1709 (18.7)
Workplace abusive events in the past 12 mo	
Physical	2031 (22.2)
Emotional	3921 (42.8)
Workplace bullying	2397 (26.2)
Sexual	903 (9.9)
Staffing and resource adequacy	
Adequate (at or above scale midpoint)	3692 (40.3)
Inadequate (below scale midpoint)	3893 (42.6)

Note. Numbers and percentages might not add up to 100% due to missing data.

nurses who experienced workplace abuse (OR 1.62, 95% CI 1.38–1.90). Nurses were less likely to pursue travel nursing with higher reported staffing and resource adequacy (OR 0.89, 95% CI 0.83–0.95), good (OR 0.48, 95% CI 0.35–0.65), or excellent (OR 0.46, 95% CI 0.31–0.66) quality of care, and a favorable practice environment (OR 0.55, 95% CI 0.41–0.73).

Factors associated with recent departure from the clinical nursing workforce

For this analysis, we excluded survey respondents who left nursing more than 2 years ago. In all, 1224 (12%) nurses reported leaving the clinical nursing workforce in the past 2 years. The most frequent reasons cited for departure in the past 2 years were retirement (56%), the stress of the position (38%), and inadequate staffing (32%). In multivariable analyses, factors associated with increased likelihood of recent workforce departure included frequent use of mandatory overtime (OR 1.72, 95% CI 1.40–2.11) (Table 3). Factors associated with a lower likelihood of recent departure included higher staffing and resource adequacy (OR 0.87, 95% CI 0.80–0.94), younger age, and favorable practice environment (OR 0.45, 95% CI 0.34–0.60). Associations with job outcomes were similar for advanced practice nurses.

DISCUSSION

This study examined the views of practicing registered nurses and those who had recently left the nursing workforce to quantify factors associated with intent to leave, reduce their clinical hours, pursue travel nursing, and recent departure from the RN workforce, thereby providing leaders and policymakers with actionable targets for interventions. This study found an alarmingly high rate of planned (39%) and recent departures (9%), as well as a high proportion of nurses who plan to make other changes, including reducing clinical hours (28%) and pursuing travel nursing (18%). Collectively, these actions are likely to disrupt the stability of the nursing workforce in the US health care system. Survey respondents reported high rates of emotional exhaustion and abusive events—physical, emotional, bullying, and sexual—in their workplace. Nurses also reported that staffing and resources

CI 1.16–1.60) among registered nurses without advanced practice roles (Table 3).

Practicing Nurses' Intentions to Pursue Travel Nursing

Among practicing nurses, 1652 (18%) planned to pursue travel nursing within the next 12 months, and 7,498 (82%) did not plan to do so. Nurses below the age of 25 (OR 5.83, 95% CI 3.43–9.90) and 25–34 (OR 4.87, 95% CI 3.08–7.71) were more likely to report travel nursing plans (Table 3), as were
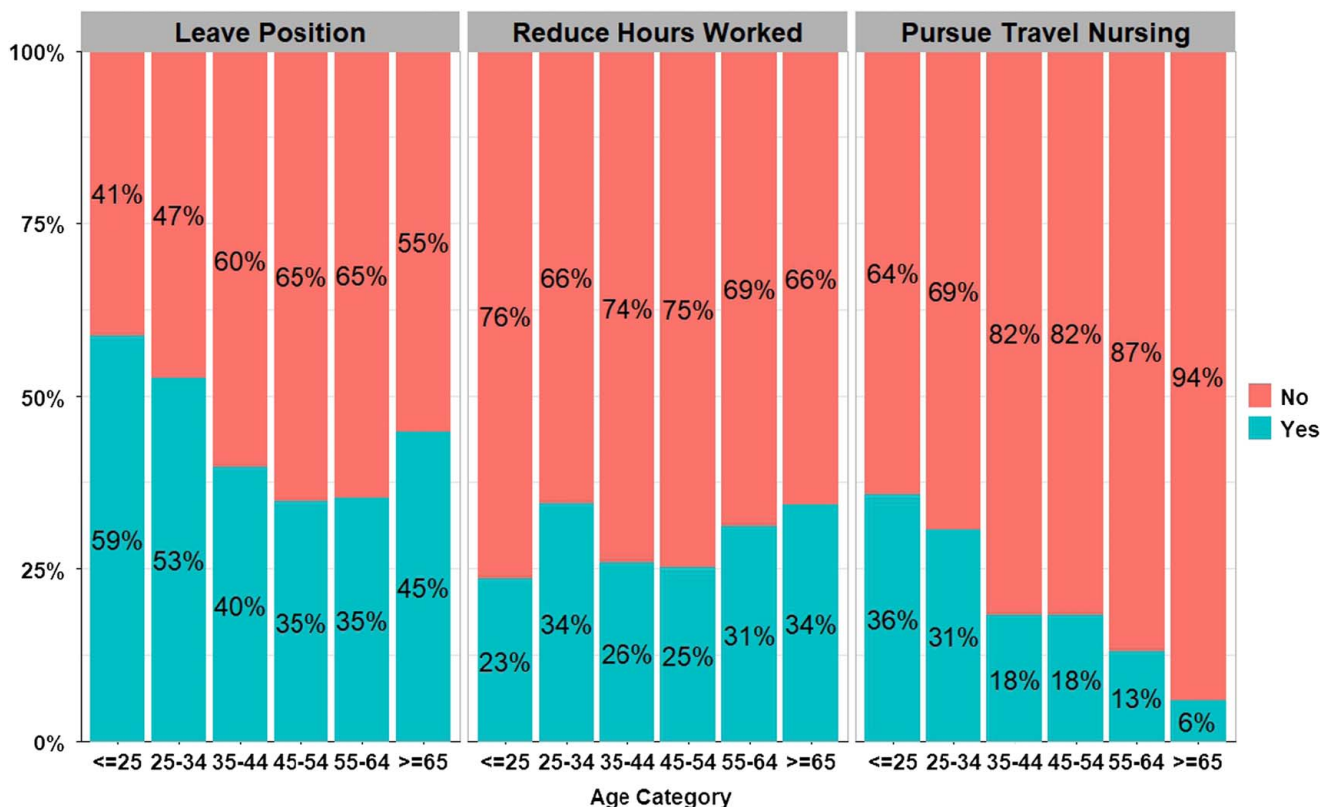
FIGURE 1. Currently practicing nurse job plans within the next 12 months by age. Note: N of each age category. (1) < = 25 years old = 213, (2) 25–34 years old = 1172, (3) 35–44 years old = 1,611, (4) 45–54 years old = 1838, (5) 55–64 years old = 1914, (6) > = 65 years old = 568. [full color online]

were inadequate to deliver high-quality patient care. Importantly, these concerns correlated highly and significantly with adverse job outcomes.

Nurses who reported notable exhaustion were less likely to pursue travel nursing, perhaps reflecting that their personal and working conditions did not align with the potential stressors of relocation and orientation to new and challenging clinical assignments.

Our findings align with the recent literature. Namely, nurses' concerns for adequate staffing and concerns for patient safety predate the pandemic.[13] Nurses reported worsening rates of physical and mental health during the pandemic, which correlated with suboptimal working environments.[14] Importantly, nurses reported helplessness and traumatic feelings with these increasingly challenging situations and sought institutional leadership for assistance[15,16]; their calls for help went largely unanswered.[17]

The findings underscore the urgent need to correct factors leading to poor job outcomes, such as the identification and correction of factors associated with burnout, coupled with policy strategies and facility-level changes to prevent workplace violence. While a relatively small group in the survey and the overall profession, special attention should be paid to younger nurses who report plans for workplace departures in relatively high proportions. Currently, it is unclear whether these plans reflect a broader societal trend of

hastened job departures—termed the "Great Resignation"—among younger individuals or whether this phenomenon is unique to nursing. Nurses of younger age were more likely to report anxiety and depression during the pandemic.[18] Focused studies to identify their specific concerns and test targeted interventions for this age cohort are urgently needed to stem the potentially preventable losses of nursing personnel.

Study Limitations

Our sampling frame excluded a very small number of nurses who declined to provide valid email addresses for the public use file (less than one percent). Nurses self-submitted email addresses, many of which were personal accounts and may be outdated, not routinely checked, or protected by anti-spam software. Due to the size of the sample, cash incentives were not possible to be distributed equitably across the sample, which may have affected the overall response rate across the state's registered nurse population. Potential participants may not have perceived the survey as relevant to them and opted not to engage. It is also possible that nonrespondents have different perceptions of their workplaces and planned changes to their employment that are not captured in our analysis. To protect nurses' identities, we did not ask for residence or employer details, which would have enabled us to compare geographic differences. We also do not know whether nurse respondents or their dependents had been diagnosed with COVID, which may have influenced their

TABLE 3. Associations Between Job Outcomes and Age and Workplace Factors Among Registered Nurses, 2022

	Leave within one year N = 5907*,†		Reduce clinical hours N = 5923*,‡		Pursue travel nursing N = 5923*,§		Left practice in past two years N = 6821*,‖	
	OR (95% CI)	*P*	OR (95% CI)	*P*	OR (95% CI)	*P*	OR (95% CI)	*P*
Age (ref. 65 and older)								
Under 25	0.74 (0.51, 1.09)	0.13	0.33 (0.22, 0.50)	<0.001	5.83 (3.43, 9.90)	<0.001	0.009 (0.002, 0.04)	<0.001
25–34	0.66 (0.51, 0.86)	0.002	0.66 (0.51, 0.86)	0.002	4.87 (3.08, 7.71)	<0.001	0.06 (0.05, 0.09)	<0.001
35–44	0.41 (0.32, 0.53)	<0.001	0.47 (0.37, 0.61)	<0.001	2.58 (1.63, 4.09)	<0.001	0.06 (0.04, 0.07)	<0.001
45–54	0.36 (0.28, 0.47)	<0.001	0.48 (0.37, 0.62)	<0.001	2.98 (1.85, 4.62)	<0.001	0.05 (0.04, 0.07)	<0.001
55–64	0.41 (0.32, 0.53)	<0.001	0.72 (0.56, 0.92)	0.01	2.13 (1.34, 3.37)	0.001	0.19 (0.16, 0.24)	<0.001
Reported any abusive event (ref. No)	1.27 (1.11, 1.44)	<0.001	1.26 (1.70, 1.44)	<0.001	1.62 (1.38, 1.90)	<0.001	N/A¶	N/A¶
Emotional Exhaustion	1.72 (1.48, 2.01)	<0.001	1.36 (1.46, 1.97)	<0.001	N/A	N/A	N/A¶	N/A¶
Practice environment (ref. Unfavorable)								
Mixed	0.53 (0.44, 0.63)	<0.001	0.88 (0.74, 1.03)	0.11	0.83 (0.69, 1.00)	0.05	0.62 (0.51, 0.77)	<0.001
Favorable	0.27 (0.21, 0.35)	<0.001	0.62 (0.49, 0.78)	<0.001	0.55 (0.41, 0.73)	<0.001	0.45 (0.34, 0.60)	<0.001
Staffing and Resource Adequacy	0.87 (0.82, 0.92)	<0.001	N/A	N/A	0.89 (0.83, 0.95)	<0.001	0.87 (0.80, 0.94)	<0.001
Quality of care (ref. Poor)								
Fair	0.53 (0.38, 0.74)	<0.001	0.83 (0.63, 1.09)	0.19	0.67 (0.51, 0.89)	0.006	N/A	N/A
Good	0.34 (0.24, 0.48)	<0.001	0.64 (0.48, 0.85)	0.002	0.48 (0.35, 0.65)	<0.001	N/A	N/A
Excellent	0.26 (0.18, 0.39)	<0.001	0.63 (0.45, 0.88)	0.006	0.46 (0.31, 0.66)	<0.001	N/A	N/A
Overtime (ref. Not used)								
Used frequently	N/A	N/A	1.23 (1.07, 1.42)	0.005	N/A	N/A	1.72 (1.40, 2.11)	<0.001
Used occasionally	N/A	N/A	1.03 (0.90, 1.18)	0.66	N/A	N/A	1.31 (1.07, 1.59)	0.008
Staff Safety is a top concern	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Patient Safety is a top concern	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Adequate Staffing is a top concern	N/A	N/A	N/A	N/A	N/A	N/A	0.55 (0.45, 0.69)	<0.001

*N reflects the denominator for each model. Observations dropped if there were missing data for any model covariates.
N/A: Variable excluded from the reduced model.
†N of nurses who plan to leave within one year = 2,449, N of nurses who do not have plans to leave within one year = 3,458.
‡N of nurses who plan to reduce clinical hours = 1757, N of nurses who do not plan to reduce clinical hours = 4,166.
§N of nurses who plan to pursue travel nursing = 1192, N of nurses who do not plan to pursue travel nursing = 2,331.
‖N of nurses in model who left practice in past two years = 810, N of nurses in model who did not leave practice in past two years = 6011.
¶"Reported any abusive event" and "Exhaustion" not included in model for nurses who left practice in past two years.

reports. Our sampling frame excludes other health care professionals at risk for poor job outcomes, including physicians, pharmacists, respiratory therapists, medical/nursing assistants, and other essential members of the health care workforce.

The limitations above are presented among important strengths, including a large, statewide sample, which included those who had recently departed the workforce, reliance on previously used and validated measures, and timely data collection and analyses that are pertinent to pressing workforce policy questions. The completion rate of 76% of those who opened the survey compares favorably with other recently-published literature.[19,20] Moreover, the distribution of age and advanced practice degrees correlates highly with the complete census of Michigan nurses,[21] suggesting that our sample is representative of the population.

CONCLUSIONS

The findings from the large, rapid-scale survey of registered nurses have immediate implications for health care executives and policymakers. Solutions are available for many of the items cited by survey respondents.[22] These include the implementation of safer staffing models to support higher-quality nursing care; evidence for safer staffing models and potential legislation has existed for decades.[23] Nurses who recently departed the workplace were more likely to report high use of mandatory overtime policies, suggesting that the elimination of this management practice would promote retention efforts.

Hospital executives do not need to wait for legislation; they can make these changes within their own institutions. Leaders can also restore trust with nurses through active listening, advocacy, and commitment to change work environments in ways that improve staff and patient outcomes.[24]

Policymakers can acknowledge the potential for substantial disruptions to the health care workforce and advance legislation that promotes safer, more supportive workplaces for nurses. Options include safer staffing legislation, policies to curtail mandatory overtime, and strengthened penalties, reporting, and corrective plans to reduce violence against health care workers. Legislators can advance appropriations for research funding opportunities that develop new models of nursing care delivery that urgently address patient and nurse outcomes.

The findings also suggest there is no time to waste. Without concerted efforts, it is likely that disruptions to the health care workforce will worsen, which will induce a spiral of additional resignations and threaten the delivery of essential care. Leaders need the moral courage to enact evidence-based strategies to stanch the hemorrhage of registered nurses and enable the US health care system to deliver the care that patients expect and deserve.

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