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Differences in employment, job characteristics, and work-related perceptions by sociodemographic factors among registered nurses of diverse race/ethnicity

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ABSTRACT

Background: Available research on registered nurses (RNs) indicates that RNs with diverse race/ethnicity are more likely to work in disadvantaged workplaces.

Purpose: To examine differences in employment, job characteristics and perceptions about work among RNs by sociodemographic characteristics.

Methods: We analyzed data from statewide random samples of California RNs (N=895).

Findings: Increased age was associated with increased likelihoods of working part-time, day-shift, and in non-hospital settings and having managerial positions. Asian and Black nurses were more likely to work in urban areas than White nurses. The levels of job demand, job control, job satisfaction, perceived organizational culture, and safety climate were significantly different by sociodemographic characteristics. Greater intention to leave the job was associated with younger age and working in non-hospital settings.

Discussion: The findings suggest that differences exist in nurses' employment, job characteristics, and perceptions about their work and work environment by sociodemographic characteristics among RNs of diverse race/ethnicity.

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Introduction

Nursing professionals account for about half of the global health workforce and constitute the largest healthcare occupation in the United States (US) (Bureau of Labor Statistics, 2021). Nurses practice in a wide variety of settings including hospitals, clinics, schools, homes, communities, and rural/urban areas (Smiley et al., 2021). The health and well-being of nurses are crucial for the individuals but also have a significant impact worldwide on the nursing shortage, work productivity in healthcare and quality care that they provide (Letvak, Ruhm, & Lane, 2011; Waldman, Kelly, Arora, &

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Smith, 2010). The importance of the health and safety of nurses as essential workers on the healthcare frontlines has been highlighted clearly during the coronavirus disease 2019 pandemic (Centers for Disease Control and Prevention [CDC], 2021; Dorn, Cooney, & Sabin, 2020; National Nurses United, 2021). There has been a growing interest to safeguard the health and well-being of nurses and understand nurses' perceptions about work in the relationship with employment, job characteristic, work environment, and sociodemographic factors.

Similar to the US population, the nursing workforce has becoming increasingly diverse in terms of age, gender, race/ethnicity, country of initial nursing education, and education levels (Bureau of Labor Statistics, 2021; Smiley et al., 2021). These sociodemographic characteristics may be associated with nurses' job opportunities (e.g., job title), job-related characteristics, and perception of their work environment. Growing research evidence suggests that differential work experiences and workplace environment among racial/ethnic minorities may contribute to work-related health risks and mental and physical health among workers (Bailey et al., 2017; Bronkhorst, Tummers, Steijn, & Vijverberg, 2015; Fujishiro et al., 2017). For example, available research on nurses indicates that racial/ethnic minority nurses are more likely to work in disadvantaged workplaces with inadequate resources and less staffing (Baptiste, 2015; Moore & Continelli, 2016; Spetz, Gates, & Jones, 2014; Tuttas, 2015). Along similar lines, nurses' perceptions about work environments and psychosocial job factors may differ by age, gender, and other social identities, such as education levels and country of initial nursing education, which may contribute to their workforce participation, health, and well-being (Kelly, Gee, & Butler, 2021).

Psychosocial job factors, such as job stress and job satisfaction have been shown to increase risks of coronary heart disease, obesity, and diabetes in the general population (Fox, Niemeier, Hudson, Siegel, & Dotson, 2021; Lee, Colditz, Berkman, & Kawachi, 2002; Wang et al., 2021). In the general workers' population, perceptions about jobs differed by gender, but the gender differences were also varied by types of job and types of psychosocial job factors (job demand, control, and satisfaction) (Cerdas, Harenstam, Johansson, & Nyberg, 2019; Kim, Kim, Jang, & Bae, 2016; Miao, Li, & Bian, 2017). Studies of nurses have shown similar findings that nurses' job satisfaction and psychosocial work environment have an influence on their physical symptoms, anxiety, and perceptions of well-being (Bégat, Ellefsen, & Severinsson, 2005; McNeely, 2005). However, there is a dearth of studies investigating gender differences in psychosocial job factors among the US RNs; few studies of other health care providers or small-scale studies have shown mixed results (Carrillo-García, Solano-Ruíz, Martínez-Roche, & Gómez-García, 2013; Miao et al., 2017).

Organizational culture and safety climate have been identified as important factors affecting workers' perceptions about job and work environment and their health and well-being in the general population (Bronkhorst et al., 2015; Rafnsdottir & Heijstra, 2009). For example, safety climate reflects organizational safety practices, communication, and management commitment to workers' safety (Flin, Burns, Mearns, Yule, & Robertson, 2006; Zohar, 2010). Better safety climate perceptions were linked to lower job-related stress, higher job satisfaction, higher work engagement, and lower employee turnover rates (Huang et al., 2016; Lee & Lee, 2017; Phipps, Malley, & Ashcroft, 2012). Similarly, poor organizational culture and safety climate has been shown to be associated with higher job stress, job-related injury, burnout, and intention to leave among nurses (Labrague et al., 2017; Lee & Lee, 2017).

Although previous studies found the significant impact of work environments and job characteristics on health outcomes (Ahonen, Fujishiro, Cunningham, & Flynn, 2018; Fujishiro et al., 2017), few studies examined how the intersection of various sociodemographic characteristics are associated with perception about work and the workforce participation among nurses. In particular, there is no study that has comprehensively examined differences in employment, job characteristics, and work environment by various sociodemographic factors among nurses. Examining the potential differences in work-related factors by sociodemographic characteristics may provide valuable insight to the development of interventions that can address workplace social inequality and provide evidence to inform policy decisions and practices to retain nurses in the health care system and improve overall nurses' health and well-being.

The purpose of this study was to examine the relationships between sociodemographic characteristics (age, gender, race/ethnicity, country of initial nursing education, and education) and employment and job characteristics (e.g., employment status, job title, work shift, work settings, work areas) and perceptions about work (psychosocial job factors and organizational culture and safety climate) among registered nurses (RNs) in California.

Methods

Design and Sample

This study is a secondary data analysis using pooled data from two statewide surveys of California RNs conducted in 2013 and 2016. Survey samples were randomly selected from up-to-date lists of RNs with an active license from the California Board of Registered Nursing (2000 RNs in 2013 and 3000 nurses in 2016). Detailed information on power analysis and sampling methods of the parent studies was reported elsewhere (Lee, Kang, & Lee, 2021). The parent studies had 526 respondents in the 2013 survey (26% response rate) and 592 respondents in the 2016 survey (20 % response rate). Considering small proportions of racial/ethnic minority nurses among the respondents, this present

study pooled data from the two surveys to increase the sample size. This study included currently employed RNs in any setting. After excluding respondents who were retired or currently not employed and who did not respond to most of the survey questions (90% missing; $n = 4$), the final sample for data analysis consisted of 896 nurses (424 in 2013 and 472 in 2016), which represent 80% of all respondents.

Data Collection

The parent study obtained approval from the Institutional Review Board (IRB) at the University of California San Francisco. The present study using de-identified data was exempt from IRB review. The parent study had access to only mailing addresses to contact potential participants. We mailed the potential participants the survey packets including a questionnaire, a study information letter, and a return envelope. The study used primarily postal surveys and also gave participants an alternative option of completing the survey online, which was created using the Qualtrics survey tool (Provo, Utah). The study used an opt-in approach for informed consent, where we did not ask to return their signed informed consent forms for those who responded to the surveys. Respondents entered into raffles of gift cards ($20–$100).

Variables and Measures

Sociodemographic Characteristics

Sociodemographic characteristics included age, gender, race/ethnicity, and education. The country of initial nursing education was collected; those who received initial nursing education outside of the US were categorized as non-US-educated nurses.

Employment and Job Characteristics

Employment and job characteristics included job tenure in nursing, job title (e.g., staff nurse, manager, nurse practitioner, etc.), employment status (full-time, part-time, per diem), and work shifts (days, evenings, nights, rotating), work setting (e.g., hospital, ambulatory center, long term care), and work areas (rural, suburban, urban).

Perceptions About Job

Psychosocial job factors including job demand, job control, job satisfaction, and intention to leave the job, were measured using the Job Content Questionnaire, a widely used validated instrument (Karasek et al., 1998). The job demand scale (five items, Cronbach's alpha = 0.71) assessed the psychological load related to work speed, amount, intensity, and time. The job control scale (nine items, Cronbach's alpha = 0.72) assessed employees' control over job tasks, required skill types, and decision-making. These measures used a four-point Likert scale (1 = strongly disagree to 4 = strongly agree). The scale scores were calculated by summing each item's scores following the developers' instruction, and higher scores indicated higher demand and higher control. Job satisfaction was measured by one item with four response categories (1 = not at all satisfied, to 4 = very satisfied), and intention to leave job was measured by the question, "How likely is it that you will find a new job in the next year?," with 3 response categories (1 = very likely, 2 = somewhat likely, and 3 = not at all likely).

People-oriented culture and safety climate were measured by the Organizational Policies and Practices Questionnaire, which has shown acceptable validity and reliability (Amick et al., 2000). People-oriented culture (five items, Cronbach's alpha = 0.89) assessed the culture of the workplace including meaningful decision making, trust between management and employees, and openness to share information in a cooperative work environment. The safety climate scale (seven items, Cronbach's alpha = 0.92) assessed workers' perceptions about the organization's overall safety practices and management's commitment to safety. The measures used a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). The average score was calculated for each scale, and higher scores indicated better workplace culture and safety climate.

Statistical Analysis

Prior to statistical analysis, we first evaluated missing data in the study sample. Missing data per each study variable ranged from 0.6% (job titles, $n = 6$) to 7% (job demand, $n = 66$). Non-response items were treated with multiple imputations using the "*MICE*" package in the R software (van Buuren & Groothuis-Oudshoorn, 2011). For multi-item measures, we conducted the imputation at an item-level rather than a scale-level and calculated scale scores with the imputed data.

Descriptive statistics were performed to summarize the sociodemographic characteristics of the study sample and job variables. Bivariate analyses were performed to examine differences in employment, job characteristics, and perceptions about work by sociodemographic characteristics. Chi-square or Fishers' exact tests were conducted for categorical variables to compare proportions, and t-tests or one-way analysis of variance tests were carried out for continuous variables to compare means by two or more than two groups, respectively. As for age, we used it as a categorical variable in describing and comparing continuous job variables (e.g., job demand, safety climate) but treated it as continuous variable for all other analyses. For work settings or job titles, we collapsed some small categories in the multivariate analyses. For example, home health/hospice and long-term care were combined into one category. Multivariable analyses for the associations between sociodemographic and job or employment characteristics adjusted for other sociodemographic variables. Multiple logistic regressions were carried out for binary job variables such as employment status, work areas, work shifts, and intention to leave. Multinominal logistic regressions

were performed using "*nnet*" package for dependent variables with more than two categories, such as work settings and job titles (Venables & Ripley, 2002) odds ratios (ORs) and 95% confidence intervals (CIs) were obtained. For the continuous variables of job perceptions, multiple linear regressions were performed adjusting for other sociodemographic and job and employment characteristics and coefficients, and 95% CIs were obtained. All analyses were conducted using the open-source R software version 3.6.3 (R Core Team, Vienna, Austria).

Findings

Table 1 shows sociodemographic, employment, and job characteristics of respondents (n = 896). The mean age was 48.3 (SD: 12.4) years, and the mean tenure in nursing was 19.8 (SD: 13.2) years. The majority of respondents were women (89%), White (57%) or Asian (26%), and had bachelor's degrees (51%). Of the respondents, 20% were non-US educated nurses, and they were predominantly Asian nurses (73.6%). Most

Table 1 – Characteristics of Participants: California Registered Nurses (*N* = 896)

Variable		N (%) or Mean (SD)
Gender	Woman	801 (89)
	Man	95 (11)
Age	Years, mean (SD)	48.3 (12.4)
	≤35	179 (20)
	36-55	410 (46)
	≥56	307 (34)
Race/ethnicity	White	511 (57)
	Asian	237 (26)
	Hispanic	83 (9)
	Black	31 (3)
	Other*	34 (4)
Country of Initial nursing education	US	714 (80)
	Non-US	182 (20)
Non-US-educated nurses by race/ethnicity	Non-US educated, White	32 (17.6)
	Non-US educated, Asian	134 (73.6)
	Non-US educated, Hispanic	5 (2.7)
	Non-US educated, Black	7 (3.9)
	Non-US educated, other	4 (2.2)
Highest education	Diploma/associate degree	311 (35)
	Bachelor's degree	454 (51)
	Master/doctoral degree	131 (15)
Employment status	Full-time	655 (73)
	Part-time/per-diem	241 (27)
Work area	Rural/suburban	430 (48)
	Urban	466 (52)
Work setting	Hospital	613 (68)
	Ambulatory care	132 (15)
	Long-term care	39 (4)
	Home health/Hospice	33 (4)
	School/University	24 (3)
	Government/non-profit organization	23 (3)
	Other†	32 (3)
Job title	Staff nurse	613 (68)
	Nurse manager/program manager	96 (11)
	Case manager	42 (5)
	Advanced practice registered nurse	36 (4)
	Quality improvement/utilization review nurse	25 (3)
	Population health‡	25 (3)
	Educator/researcher	21 (2)
	Other§	38 (4)
Work shift	Days	607 (68)
	Evenings/nights/rotation	289 (32)
Tenure in nursing	Years, mean (SD)	19.8 (13.2)
Tenure in the current workplace	Years, mean (SD)	9.5 (9.2)

* Includes American Indian or Alaskan Native, Middle Eastern, and mixed race/ethnicity groups.
† Includes correctional facilities, insurance companies, corporations, and offices/homes.
‡ Includes school nurses, occupational health nurses, and public health nurses.
§ Includes home care nurses, telephone triage nurses, clinical coordinators, liaison nurses, critical care transport nurses, and clinical informaticians.

respondents worked as a staff nurse (68%), worked full-time (73%), and in hospital settings (68%).

Employment and Job Characteristics by Gender, Age, Race/Ethnicity, Country of Initial Nursing Education and Education Levels

Table 2 presents employment/job characteristics by sociodemographic factors and their bivariate relationships. With respect to gender, significant differences were found for employment status ($p < .001$), work areas ($p = .004$), and work shifts ($p = .02$). More women worked part-time/per diem, in suburban/rural areas, and day shift compared to men. Significant differences were also found for age: while older nurses were more likely to work part-time/per diem ($p < .001$) or in non-hospital settings ($p < .001$), younger nurses tended to work evening/night/rotation shifts, as a staff nurse, or in hospital settings. For race/ethnicity, compared to White nurses, minority nurses were more likely to work full-time (White 69%, Asian 80%, Black 87%, and Hispanic 76%; $p = .006$) and work more in urban areas (White 45%, Asian 65%, Black 68% and Hispanic 54%; $p < .001$). With respect to education, significant differences were found for work setting ($p = .007$), work areas ($p < .001$), work shifts (more day shifts, $p = .04$), and job titles ($p < .001$). For example, nurses with a graduate degree were more likely to work in urban areas, day shifts, and as a nurse manager or advanced practice registered nurse (APRN).

Table 3 presents multiple logistic regression analyses on the associations between sociodemographic characteristics and employment/job characteristics. After adjusting for other sociodemographic variables, significant differences remained for the following variables. Men were more likely to work full-time (OR = 2.91, 95% CI: 1.57–5.92), work in urban areas (OR = 1.86, 95% CI: 1.18–2.98) and non-day shifts (OR = 0.60, 95% CI: 0.39–0.95). Older nurses were more likely to have a managerial position (OR = 1.04, 95% CI: 1.02–1.06) and work part-time (OR = 0.97, 95% CI: 0.96–0.99), day-shift (OR = 1.03, 95% CI: 1.01–1.04), in ambulatory centers (OR = 1.03, 95% CI: 1.02–1.05) or long-term care facilities (OR = 1.06, 95% CI: 1.03–1.08). Compared to White nurses, Asian (OR = 1.77, 95% CI: 1.21–2.61) and Black (OR = 2.36, 95% CI: 1.09–5.43) nurses were more likely to work in urban areas. Non-US-educated nurses were less likely to work as APRNs than US-educated nurses (O R = 0.24, 95% CI: 0.06–0.95). Nurses with higher education, particularly with a graduate degree, were more likely to work in urban areas (OR = 1.96, 95% CI: 1.28–3.01), on day-shifts (OR = 2.00, 95% CI: 1.25–3.29), and as a manager/supervisor (OR: 9.12, 95% CI: 4.66–17.84) compared to nurses with diploma/associate degrees.

Perceptions About Work by Gender, Age, Race/Ethnicity, Country of Initial Nursing Education and Education Levels

Supplement Table A shows perceptions about work by sociodemographic characteristics and their bivariate analysis findings. We found significant relationship between job demand and age and gender. Women reported greater job demand than men. With respect to age, younger nurses reported greater job demand and greater intention to leave the job than older nurses. There were significant differences by race/ethnicity regarding job control, people-oriented culture, safety climate, and job satisfaction and intention to leave; and intention to leave was lowest among White nurses. US-educated nurses reported greater job demand, more negative perceptions about people-oriented culture and safety climate than non-US-educated nurses. Nurses with diploma/associate degrees were less likely to have the intention to leave the job and reported lower job control in the bivariate analysis.

Table 4 presents the multivariable analysis results of the associations between sociodemographic characteristics and perceptions about work. After adjusting for employment/job characteristics and sociodemographic variables, statistical significance remained only for the following relationships. Man gender was associated with lower job demand ($p < .05$). Older age was associated with lower job demand ($p < .01$), poorer people-oriented culture ($p < .01$), and less intention to leave the job ($p < .001$). Compared to White nurses, Asian nurses had lower job satisfaction ($p < .01$), and Asian, Hispanic, and other race groups had lower job control ($p < .05$). Non-US-educated nurses were more likely to report better people-oriented culture ($p < .01$), and safety climate ($p < .01$). For education, a graduate degree was associated with higher job control ($p < .05$).

Discussion

This study comprehensively examined differences in employment, job characteristics, and perceptions about work by sociodemographic characteristics among RNs in California, the state with the most diverse population. An important contribution of this study is demonstrating that significant differences exist among nurses in terms of employment, job characteristics, and perceptions about work by gender, age and race/ethnicity, country of initial nursing education, and education levels. We cannot determine whether these differences reflect system-level barriers to job opportunities or individual nurses' preferences or choices, which may also be derived from system-level social inequality.

Our study found that gender and age were associated with employment status and work shift. Women compared to men and older nurses were more likely to work part-time and day shifts. Asian or Black nurses were employed more in urban areas, and Asian or non-US-educated nurses were more likely to work as staff nurses (vs. managers) compared with White nurses. Regarding education, higher degrees were associated with employment in non-hospital settings, in urban areas with day shift jobs and managerial job

Table 2 – Employment and Job Characteristics of California Registered Nurses by Gender, Age, Race/Ethnicity, Country of Initial Nursing Education, and Education

	Gender (%)			Age (Years)		Race/Ethnicity (%)						Country of Initial Nursing Education (%)			Highest Education (%)			
	Woman (*n* = 8 01)	Man (*n* = 95)	*p*	Mean (SD) (*n* = 896)	*p*	White (*n* = 511)	Asian (*n* = 237)	Hispanic (*n* = 83)	Black (*n* = 31)	Other* (*n* = 34)	*p*	US (*n* = 714)	Non-US (*n* = 182)	*p*	Diploma/ Associate (*n* = 311)	Bachelor (*n* = 454)	Graduate (*n* = 131)	*p*
Employment status			<.001		<.001						.006			.08				.08
Full time	71	88		47.2 (12.1)		69	80	76	87	77		72	79		71	72	81	
Part-time/per-diem	29	12		51.3 (12.7)		32	20	24	13	24		28	21		29	28	19	
Work area			.004		.31						<.001			<.001				<.001
Rural/suburban	50	34		48.7 (12.1)		55	35	46	32	53		52	34		59	42	41	
Urban area	50	66		47.9 (12.7)		45	65	54	68	47		49	66		41	57	59	
Work setting			.40		<.001						.21			.05				.007
Hospital	68	76		46.5 (12.2)		65	73	70	71	76		68	70		68	72	58	
Ambulatory care	15	11		51.8 (11.7)		18	9	13	23	9		16	10		17	13	15	
Long-term care	4	5		52.0 (12.7)		4	6	4	3	6		4	8		4	4	5	
Home health/ Hospice	4	3		56.2 (10.6)		5	3	2	0	0		4	4		3	4	5	
School/University	3	0		53.3 (10.4)		4	2	2	0	0		3	2		0.3	3	8	
Government/non-profit	3	1		50.3 (11.9)		3	3	2	0	3		2	4		3	2	5	
Other†	3	4		50.2 (14.5)		3	4	6	3	6		4	2		4	3	5	
Job title			.27		<.001						.24			.55				<.001
Staff nurse	67	77		46.3 (12.4)		64	75	76	65	79		68	71		78	71	38	
Nurse/program manager	11	8		51.9 (10.7)		13	8	6	10	12		11	10		6	10	23	
APRN	4	1		51.1 (11.6)		4	3	5	10	0		5	2		3	2	14	
Case manager	5	3		53.3 (11.5)		5	4	7	6	3		5	5		4	5	6	
QI/utilization review nurse	3	1		53.6 (12.8)		4	2	0	3	0		3	2		3	2	5	
Educator/ researcher	2	1		52.5 (11.6)		3	1	1	3	0		2	3		1	2	6	
Population health nurse‡	3	1		56.7 (8.83)		4	1	1	0	3		3	2		1	4	5	
Other§	4	7		52.3 (12.3)		4	5	4	3	3		4	5		4	5	3	
Work shift			.02		<.001						.14			.30				.04
Day	69	57		49.6 (11.9)		71	65	66	61	53		69	64		66	67	77	
Evening/night/ rotation	31	43		45.6 (13.0)		29	35	34	39	47		31	36		34	34	23	

Notes. APRN, advanced practice registered nurse; QI, quality improvement.

* Includes American Indian or Alaskan Native, Middle Eastern, and mixed race/ethnicity groups.
† Includes correctional facilities, insurance companies, corporations, and offices/homes.
‡ Includes school nurses, occupational health nurses, and public health nurses.
§ Includes home care nurses, telephone triage nurses, clinical coordinators, liaison nurses, critical care transport nurses, and clinical informaticians.

Table 3 – Associations Between Sociodemographic and Employment/Job Characteristics Among California Registered Nurses: Multiple Logistic and Multinomial Regression[§] (*N* = 896)

	Gender (Man)	*Age (Years)*	*Race/Ethnicity* (Ref: White)				*Country of Initial Nursing Education*	*Highest Education* (Ref: Diploma/Associate)	
			Asian	Hispanic	Black	Other[‖]	Immigrant Nurses	Bachelor	Graduate
Full-time	2.91[†] (1.57–5.92)	0.97[‡] (0.96–0.99)	1.55 (0.99–2.46)	1.21 (0.71–2.15)	2.71 (1.01, 9.41)	1.23 (0.55–3.03)	1.23 (0.76–2.01)	0.80 (0.57–1.13)	1.59 (0.96–2.69)
Urban area	1.86[†] (1.18–2.98)	1.00 (0.99–1.01)	1.77[†] (1.21 –2.61)	1.48 (0.91–2.41)	2.36[*] (1.09, 5.43)	0.91 (0.44–1.86)	1.35 (0.89–2.04)	1.74[‡] (1.28–2.39)	1.96[†] (1.28–3.01)
Work setting (Ref: Hospital)									
Ambulatory care	0.63 (0.31–1.28)	1.03[‡] (1.02–1.05)	0.55 (030–1.01)	0.91 (0.45–1.84)	1.29 (0.52–3.19)	0.52 (0.15–1.79)	0.80 (0.43–1.52)	0.99 (0.43–1.52)	1.19 (0.64–1.52)
Long-term care, home health and hospice	1.03 (0.47–2.28)	1.06[‡] (1.03–1.08)	1.00 (0.49–2.03)	1.07 (0.40–2.91)	0.35 (0.04–2.74)	0.71 (0.16–3.21)	1.54 (0.77–3.10)	1.34 (0.74–2.44)	1.77 (0.83–3.76)
Other[¶]	0.51 (0.20–1.32)	1.03[†] (1.01–1.06)	1.05 (0.53–2.11)	1.68 (0.76–3.74)	0.36 (0.05–2.83)	0.99 (0.28–3.52)	0.84 (0.40–1.76)	1.19 (0.66–2.14)	3.06[‡] (1.58–5.90)
Job title (Ref: Staff nurse)									
Nurse/program manager	0.60 (0.27–1.33)	1.04[‡] (1.02–1.06)	0.56 (0.28–1.11)	0.63 (0.24–1.68)	0.82 (0.22–3.02)	0.70 (0.22–2.25)	0.99 (0.50–1.97)	2.54[†] (1.42–4.55)	9.12[‡] (4.66–17.84)
Advanced practice registered nurse	0.15 (0.02, 1.18)	1.04[*] (1.01, 1.07)	1.21 (0.43, 3.42)	1.88 (0.57–6.15)	3.63 (0.89–14.84)	-	0.24[*] (0.06–0.95)	1.19 (0.45–3.14)	15.05[‡] (6.08–37.21)
Case manager	0.53 (0.15–1.79)	1.06[‡] (1.03–1.09)	0.70 (0.26–1.90)	2.06 (0.78–5.49)	1.53 (0.32–7.25)	0.53 (0.07–4.22)	1.06 (0.40–2.76)	1.91 (0.89–4.09)	4.22[†] (1.60–11.12)
Other[#]	0.73 (0.35–1.52)	1.06[‡] (1.04–1.08)	0.56 (0.29–1.06)	0.54 (0.19–2.53)	0.70 (0.07–1.40)	0.31 (0.53–1.93)	1.01 (0.53–1.93)	1.42[‡] (1.43–4.08)	5.74[‡] (2.99–11.03)
Day shift	0.60[*] (0.39–0.95)	1.03[‡] (1.01–1.04)	0.96 (0.64–1.44)	1.06 (0.64–1.77)	0.74 (0.35–1.63)	0.54 (0.26–1.14)	0.75 (0.49–1.15)	1.32 (0.95–1.84)	2.00[†] (1.25–3.29)

* $p < .05$.
† $p < .01$.
‡ $p < .001$.
§ Odds ratio (95% confidence intervals) adjusted for gender, age, race/ethnicity, initial nursing education and education.
‖ Includes American Indian or Alaskan Native, Middle Eastern, and mixed race/ethnicity groups.
¶ Includes school/university, government/non-profit organization, correctional facilities, insurance companies, corporations, and offices/homes.
# Includes quality improvement/utilization review nurses, educators/researchers, school nurses, occupational health nurses, public health nurses, home care nurses, telephone triage nurses, clinical coordinators, liaison nurses, critical care transport nurses, and clinical informaticians.

Table 4 – Associations Between Sociodemographic Characteristics and Perceptions About Work Among California Registered Nurses: Multivariable Analyses ($N = 896$)[§]

	Job Demand[‖]	*Job Control*[¶]	*People Oriented Culture*[#]	*Safety Climate*[**]	*Job Satisfaction*[††]	*Intention to Leave*[‡‡]
	Coefficient (95% CI)	Coefficient (95% CI)	Coefficient (95% CI)	Coefficient (95% CI)	Coefficient (95% CI)	OR (95% CI)
Man	−1.79 (−3.16, −0.43)*	0.82 (−1.33, 2.96)	−0.16 (−0.35, 0.04)	−0.13 (−0.32,0.05)	−0.12 (−0.28, 0.03)	1.21 (0.74–1.94)
Age (in years)	−0.05 (−0.09, −0.02)†	−0.02 (−0.08, 0.03)	−0.01 (−0.01, 0.00)†	0.00 (−0.01, 0.00)	0.00 (0.00–0.01)	0.95 (0.94–0.96)‡
Race/ethnicity (Ref: White)						
Asian	−1.01 (−2.20, 0.18)	−1.95 (−3.82, −0.08)*	0.02 (−0.15, 0.19)	0.09 (−0.07, 0.25)	−0.18 (−0.31, −0.05)†	1.38 (0.91–2.10)
Hispanic	−1.20 (−1.69, 1.29)	−2.67 (−5.02, −0.33)*	−0.20 (−0.42, 0.01)	−0.09 (−0.29, 0.10)	−0.03 (−0.19, 0.14)	1.06 (0.62–1.79)
Black	−0.73 (−3.03, 1.58)	0.45 (−3.18, 4.07)	−0.04 (−0.36, 0.29)	−0.10 (−0.41, 0.21)	0.03 (−0.23, 0.29)	2.19 (0.97–4.89)
Other[§§]	0.83 (−1.36, 3.03)	−3.95 (−7.42, −0.49)*	−0.18 (−0.49, 0.13)*	−0.15 (−0.44, 0.15)	−0.10 (−0.35, 0.14)	1.36 (0.61–2.92)
Non-US-educated nurses	−0.85 (−2.09, 0.40)	0.77 (−1.19, 2.73)	0.27 (0.09–0.45)**	0.25 (0.08–0.42)†	0.03 (−0.11, 0.17)	1.29 (0.83–2.01)
Highest education (Ref: Diploma/Associate)						
Bachelor	0.50 (−0.47, 1.48)	0.99 (−0.55, 2.53)	−0.07 (−0.21, 0.07)	−0.08 (−0.21, 0.05)	0.02 (−0.09, 0.13)	1.32 (0.93–1.89)
Graduate	0.86 (−0.52, 2.25)	2.81 (0.63–5.00)*	−0.10 (−0.30, 0.10)	−0.12 (−0.31, 0.07)	0.05 (−0.11, 0.20)	1.61 (0.98–2.66)

* $p < .05$.
† $p < .01$.
‡ $p < .001$.
§ Adjusted for other sociodemographic variables in the table and job characteristics including work shift, work setting, work area, employment status, and job title.
‖ Higher scores indicate greater job demand (Range: 12–48).
¶ Higher scores indicate greater job control (Range: 24–96).
\# Higher scores indicate better people-oriented culture (Range: 1–5).
** Higher scores indicate better safety climate (Range: 1–5).
†† Higher scores indicate higher job satisfaction (Range: 1–4).
‡‡ Very likely or somewhat likely to find a new job in the next year.
§§ Includes American Indian or Alaskan Native, Middle Eastern, and mixed race/ethnicity groups.

positions other than staff nurse positions. Some of these findings were consistent with previous studies (Smiley et al., 2021; Zurlo, Vallone, & Smith, 2020). Studies have shown that age, having young children, minority status, job settings, and other household income may have an impact on working full-time in nurses (Brewer et al., 2006; Chiha & Link, 2003). Although we did not collect data on marital status, household income, or family composition, we observed that women tended to work more part-time and day shifts, which may imply that the gender difference may be due to the dual responsibility in work-family life. Therefore, investigating work-family conflict would be worthy of further investigation to understand sociodemographic differences in employment status and work settings.

As the problem of the global nursing shortage continues to grow, nurses' perceptions about work become a particularly important topic for developing strategies for the retention of nurses in the healthcare workforce. Previous studies examined nurses' perceptions about work such as job demand, job control, and job satisfaction in the context of job-related injuries and psychological stress (Kim & Lee, 2019; Nantsupawat et al., 2017). While previous studies provided some insights on this issue, few studies examined differences in nurses' perceptions about work, including organizational culture and climate, by their sociodemographic characteristics. Our study found that women and younger nurses reported higher job demand, and Asian, Hispanic, and other race RN groups had lower levels of job control than their counterparts, suggesting more stressful working conditions among these groups and potential negative impacts on their health and work-life balance.

Our study found that Asian nurses had significantly lower job satisfaction than White nurses. Only a few studies examined racial/ethnic differences in job satisfaction among nurses and produced inconsistent findings. One study found Asian American nurses had a higher level of neutral (vs. dissatisfied) job satisfaction and displayed no evidence of lower satisfaction compared to White nurses (Xue, 2015). In contrast, another study found that Asian American nurses had higher job satisfaction than White nurses (Doede, 2017). Other researchers claimed that inconsistent findings in job satisfaction by race/ethnicity across the studies may be explained by differences in study sample characteristics in terms of the proportion of foreign-educated nurses and Asian nurses with high education levels (Lin, 2009; Xue, 2015). However, our study adjusted for country of initial nursing education and educational level in multivariable models and found no significant differences in job satisfaction between other racial/ethnic minority groups and White nurses. Future studies are needed to identify the reasons for these inconsistencies, for example, the role of other contextual factors, such as geographical differences, workplace social networks (e.g., co-workers with diverse race/ethnicity, social support, social cohesion), and work-family conflicts.

Organizational culture and climate are important for workplace environments and associated with workers' job demand, job-related stress, and injuries (Labrague et al., 2017; Lee & Lee, 2017). We found that non-US-educated nurses' perceptions of people-oriented culture and safety climate were significantly more positive than US-educated nurses' perception, while these perceptions were not different by race/ethnicity in the multivariable analyses. Our samples of non-US-educated nurses were predominantly from the Asian group, which also reflects characteristics of foreign-educated RNs in the US (e.g., most of them are from Philippines and India) (Smiley et al., 2021). Future studies with a larger sample size to incorporate the intersections of race, country of initial nursing education, and education levels would be helpful to elucidate the relationship between organizational culture and climate and race/ethnicity.

Together, our study findings support the need for organizational level efforts to address differences in nurses' perceptions about work and create a better work environment for all nurses, which can contribute to a healthy nursing workforce. Also, future studies that incorporate objective measures of organizational-level factors on policies and programs for promoting diversity, equity, and inclusion, child care support for working parents, union membership, and Magnet or Pathway Institution status are needed to understand top-down influences of work environment on nurses' health and well-being.

Strengths of our study include comprehensive examinations of employment, job characteristics, and perception about work by sociodemographic factors, using statewide random samples of RNs of diverse race/ethnicity. Currently, the RN workforce in the US consists of 81% of White, and Asians represent the largest non-White racial group, which accounts for 7.2% of the RN workforce (Smiley et al., 2021). Our study included 44% of respondents from racial/ethnic minority groups.

Our study also has several limitations. The current study was conducted in a single state, California, and the findings may not be generalizable to other states or countries. Also, causality cannot be established in this cross-sectional study. Our response rate is relatively low, and response bias may be present and influence the validity of the results. Particularly, Black and Hispanic nurses and nurses in long-term care or other settings were underrepresented in our study sample. This may have limited the statistical power to examine differences in employment and job characteristics in these small groups. Work-family conflict may interact and influence the outcomes of our study (e.g., spillover effect from demand in family life). However, the nature of the secondary data analysis limited the interpretation of race/gender differences in perception about work without examining potential confounders, such as family structure, income, and other social contexts.

Conclusions

Our study provides valuable insight to understanding RN workforce participation and their perceptions about work and differences across various sociodemographic groups. This information is important to develop interventions and inform policy decisions and practices to develop and sustain a healthy nursing workforce. Nurses are the largest healthcare occupation worldwide and play pivotal roles as frontline healthcare workers. The global nursing shortage is a significant problem in healthcare systems (Bureau of Labor Statistics, 2021; Letvak et al., 2011; Waldman et al., 2010) and there is a clear need to address identified differences in nurses' experiences and perceptions about employment, work conditions, and environment. The role of work as a social determinant of health is important but complex as it is intertwined with multiple socioeconomic factors and system-level factors that affect health. Our study that comprehensively evaluated work experiences and perceptions by multiple sociodemographic factors can enhance the understanding of reported occupational health disparities. Our study produced some inconsistent findings compared with previous studies. The inconsistent findings are worthwhile to investigate further by incorporating multiple social contexts, such as work-family life, social networks, and other social inequality and by including more comprehensive measures of organizational factors. Such efforts will improve nurses' work environment, productivity, and their health and build a diverse nursing workforce, and in turn, quality of health care they provide.

Author Contributions

Soohyun Nam contributed to the conceptualization of the study, data analysis, and interpretation of data; wrote the manuscript, and agreed to be accountable for all aspects of work ensuring integrity and accuracy. Suyoung Kwon conducted the data analysis and contributed to interpretation of data and manuscript preparation; gave final approval; and agreed to be accountable for all aspects of work ensuring integrity and accuracy. Soo-Jeong Lee conducted the parent study as the principal investigator and contributed to the conceptualization of the present study, data analysis, data interpretation, and critical revision of the manuscript; gave final approval; and agreed to be accountable for all aspects of work ensuring integrity and accuracy

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Data availability

Data used in the current paper will be available upon request. Please contact the PI, Soo-Jeong Lee (Soo-Jeong.Lee@ucsf.edu).

Supplementary materials

Supplementary material associated with this article can be found in the online version at doi:10.1016/j.outlook.2022.05.014.

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