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Original Article

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Sex and Gender Role Differences in Occupational Exposures and Work Outcomes Among Registered Nurses in Correctional Settings

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Abstract

Background and context: The correctional environment exposes registered nurses to unique occupational health hazards including, but not limited to, an increased risk for workplace violence. Gender role expectations regarding femininity and masculinity may influence occupational exposures and outcomes differently. Risk comparisons between male and female registered nurses working in correctional settings, have been minimally examined. With the proportion of male registered nurses working in corrections higher than that of nurses working in other healthcare sectors, and with the increasing number of males entering the nursing workforce in general, it is important to characterize and understand occupational exposures and outcomes of male and female registered nurses, especially those working in correctional settings.

Purpose/objectives: This paper aims to describe and compare sex and gender role differences in occupational exposures and work outcomes among correctional registered nurses.

Methods: A cross-sectional web-based survey using Qualtrics was administered to registered nurses working in a northeastern correctional healthcare system between June and October 2016. The survey was composed of 71 items from the CPH-NEW Healthy Workplace All Employee Survey, Assessing Risk of Exposure to Blood and Airborne Pathogens and General Health Survey, Bem Sex Role Inventory-Short Form (BSRI-SF), and the Negative Acts Questionnaire-Revised.

Results: Of 95 registered nurse participants, 75% were female with the highest percentage identified as belonging to the feminine group (37%), while the highest percentage of male participants were identified as belonging to the androgynous group (33%). Females worked primarily on the first shift, while males tended to work the second and third shifts ($P < 0.05$). Over one third of all participants

(37%) reported having experienced a sharps-related injury and having been exposed to blood-borne pathogens and body fluids within the previous 2–5 years. The majority of the participants (>95%) reported being at risk for workplace violence and having been victims of workplace violence perpetrated by an inmate. Significant gender differences ($P < 0.0001$) were noted in the bullying exposure with androgynous nurses having higher occasional bullying. There was a marginal difference in burnout for females (M = 6.8, SD = 2.1) and males (M = 5.8, SD = 1.9, $P = 0.05$).
Implications: Effective interventions are needed to address the sex and gender role-based differences in bullying exposure and burnout in order to promote the overall health and well-being of correctional registered nurses.

Keywords: correctional nursing; gender role; occupational exposures and outcomes; sex; workplace violence

Introduction

Men in the nursing workforce

The US nursing workforce is estimated at 3.5 million nurses, with 3.2 million females and 330,000 males (Landivar, 2013; MacWilliams *et al.*, 2013; Orlovsky, 2013). Male registered nurses (RNs), referred to as nurses hereafter, made up 9.6% of the registered nursing (Coleman, 2013) workforce in 2011, compared with 2.7% in the 1970s. Although the supply of new graduate nurses is meeting the present demands for nurses, shortages are anticipated with the escalating retirement of baby boomers currently working as nurses. With the expansion of nursing roles within the healthcare field, and to meet the needs of an increasingly aging population, it is also anticipated that additional nurses will be needed to meet increasing demands of the healthcare market (2015–2020). These shortages will increasingly be filled by males who will have selected nursing as a career (American Assembly for Men in Nursing, 2005; Landivar, 2013). Dedicated to encouraging the recruitment and professional development of men in nursing in concert with the Institute of Medicine (IOM), the American Association for Men in Nursing (AAMN) has set a goal of 20% male enrollment in US nursing programs by the year 2020 (IOM, 2011; AAMN, 2013; MacWilliams *et al.*, 2013)

Correctional nursing workforce

Correctional nurses represent a large proportion of the healthcare providers (Flanagan and Flanagan, 2002; Daggett, 2012; Chafin and Biddle, 2013) who deliver care to more than 2.2 million inmates incarcerated in US jails and prisons (Bureau of Justice Statistics, 2016). The staff turnover rate of correctional nurses is high. Chafin and Biddle (2013) noted that after a 3-year period, only 20% of the nursing staff employed by one correctional facility had remained in contrast to the prevailing 13% total national nursing workforce turnover rate. In addition to overall national challenges that may negatively impact nursing staff retention (i.e. a steady demand for nurses) and job satisfaction, correctional nurses suffer from unique occupational risks such as inmate violence and prison lockdown (Stevens, 2010). Additional stressors in the correctional environment include: safety and security concerns and a high level of vigilance as part of the regular work routine (Flanagan and Flanagan, 2001; Weiskopf, 2005); stigmatization and disparagement (Hardesty *et al.*, 2007); isolation, aggression, violence, and manipulative behavior (Galindez, 1990; Flanagan, 2006; Garland and McCarty, 2009); and time pressure, role ambiguity, and lack of organizational support (Flanagan and Flanagan, 2002; Flanagan, 2006).

Occupational health risks for nurses

The American Nurses Association (ANA) recently conducted a study to identify the health, safety, and wellness risks among a sample of registered nurses and student nurses (n = 13,500) working mostly in hospital, acute care, academia, and medical-surgical areas. The occupational health and safety hazards identified by study participants included: workplace stress (82%), lifting/repositioning heavy objects (45%), prolonged standing (42%), needlesticks and other sharp injuries (39%), blood-borne pathogens (35%), workplace violence, and bullying (Carpenter, 2017). Few studies have examined whether male nurses face disproportionate exposures to certain occupational health or safety hazards (e.g. physical job demands, workplace violence, sharps and non-sharps-related exposures) compared to female nurses (Gerberich *et al.*, 2004; Hegney *et al.*, 2006; Andrews *et al.*, 2012; Guay *et al.*, 2014) and how these might result from the organization of work (Trinkoff *et al.*, 2008). Moreover, few studies have described occupational exposures within correctional nursing in

particular (Flanagan and Flanagan, 2001; Flanagan, 2006; Weiskopf, 2005). In addition, to our knowledge, no study has been conducted within the USA to date that has compared occupational health risks and outcomes between male and female nurses and the extent to which these risks may be attributed to gender role expectations, especially within the correctional healthcare workforce. This paper aims to describe and compare sex and gender role differences in occupational exposures and work outcomes among correctional nurses.

Sex and gender role in nursing

The term 'sex' refers to the biological sex assigned at birth based on the visual appearance of the genitals, and is usually categorized as 'male' or 'female', while gender is a social construct that refers to gender identity or how individuals interpret their internal sense of who they are, and gender expression or how individuals present themselves (act, dress, behave, and interact) (Crawford, 2006; Oliffe and Greaves, 2012). Gender expression is usually interpreted by others based on traditional gender norms and often changes based on setting. Gender identity and expression are strongly tied to social–cultural prescriptions associated with feminine or masculine characteristics and behaviors. Femininity and masculinity can be displayed simultaneously, so that a female or male person may show high levels of both gender (i.e. androgyny), be high in one gender and low in another (i.e. femininity or masculinity), or show low levels of both gender (i.e. undifferentiated) (Bem, 1974).

Gender constructions can dictate how people choose, behave, and are treated in their life roles, including their occupational role. In our society, nursing is perceived as a feminine occupation (White *et al.*, 1989; White and White, 2006) because of the large number of females in the nursing profession, and because nursing is a 'caring' profession and supposedly more suited to women based on societal gender role expectations (Evans, 1997; White and White, 2006). The association of nursing with femininity may pose a barrier to men interested in a nursing career but who strongly identify with masculinity. Men are harder to recruit and more likely to quit nursing school, feel marginalized, and receive more criticism than their female counterparts (McLaughlin *et al.*, 2010). In nursing, work tasks may also be gender-constructed, with some tasks being perceived as more feminine (e.g. cleaning soiled linens) or masculine (e.g. lifting heavy objects). This could lead female and male nurses in the same job to have systematically different exposures to certain occupational health and safety hazards (Messing *et al.*, 2003).

The gender role expectations of other people at work (e.g. supervisors, co-workers, patients, incarcerated population) can also contribute to occupational risk exposures. Social construction theory suggests that social interactions serve to maximize gender differences (Mannino and Deutsch, 2007). For example, although a male nurse may not conform to masculine characteristics, if he works with a supervisor or co-worker who holds traditional gender role constructions, he may be expected or feel pressured to engage in more masculine-typed tasks, such as lifting a heavy patient or confronting a violent patient. Nurses' own gender-based behaviors also can affect their exposure to workplace hazards. For example, highly feminine nurses may tend to volunteer for feminine tasks and avoid masculine tasks, while highly masculine nurses may tend to volunteer for masculine tasks and avoid feminine tasks. Moreover, preliminary research in occupational health finds that risk taking is a masculine practice (Bauerle, 2012; Bauerle *et al.*, 2016), which may increase exposure to hazards.

Few studies have examined whether male nurses face disproportionate exposure to certain occupational health or safety hazards (e.g. physical demands, workplace violence) (Gerberich *et al.*, 2004; Hegney *et al.*, 2006; Andrews *et al.*, 2012; Guay *et al.*, 2014) or how these might result from the organization of work (Trinkoff *et al.*, 2008). Among Australian nurses, men were more likely than women to report workplace violence (Hegney *et al.*, 2006). Similarly, in Canada, the number of men who were victims of or witnesses to violent acts, was proportionally higher than that of women among health and social service sector workers (Guay *et al.*, 2014). Moreover, men were more likely than women to trivialize violence as being 'part of the job' (Geoffrion *et al.*, 2014).

The nursing profession is still influenced by stereotypes, in particular, gender stereotypes. Moreover, a unique characteristic within the context of correctional nursing is the juxtaposition between the predominant masculinity dominating correctional setting, with the majority of male correctional officers, along with the predominant femininity of nursing as a profession, and how this interplay is associated with the occupational health risks and outcomes within this workforce. All of these signify the importance of exploring both sex and gender role differences in occupational exposures and outcomes for this specialty practice group of nurses.

Accordingly, a better understanding is needed regarding occupational risks and outcomes associated with male nursing roles within the correctional workforce, factors associated with such risks, how to

develop and evaluate effective interventions aimed at retaining male correctional nurses, and making the profession safe for all genders.

This paper describes and compares the sex and gender role differences in occupational exposures and work outcomes among correctional nurses. Within the context of correctional nursing in this study, we hypothesize that male nurses who have to conform to the norms of masculinity, who self-identify as masculine gender role, will report higher risks for occupational exposures and outcomes than other groups.

Conceptual framework

To better understand and compare the sex and gender role differences in occupational exposures and work outcomes among correctional nurses, this study used a work organization framework (Sauter *et al.*, 2002) that supports a comprehensive and integrated safety, health, and well-being programs within a Total Worker Health (TWH) approach (CDC NIOSH, 2018). The Organization of Work (OOW) conceptual framework includes the impact of external context (economic, legal, technological, and demographic forces at the national/international levels), organizational context (management structures, supervisory practices, production method, and human resources policies), and work context (culture and climate, physical and psychological job demands, social interactions, worker roles, and career development). These factors affect the extent of exposure to psychosocial and physical hazards that in turn affect the health of employees, leading to illness and injury. These occupational exposures and outcomes may disproportionally distribute in different sex and gender groups. Addressing sex and gender disparities in these exposures and outcomes through the development and implementation of a comprehensive, multi-level health and safety program are needed and may benefit both the organizations and employees based on empirical findings. TWH is defined by the NIOSH as policies, programs, and practices that integrate protection from work-related safety and health hazards with promotion of injury and illness prevention efforts to advance worker well-being (Tamers *et al.*, 2018).

Methods

Sample and setting

A cross-sectional web-based survey using Qualtrics was administered and collected data from registered nurses working in a northeastern correctional healthcare system between June and October 2016. A participatory action research (PAR) approach sought to ensure stakeholders' involvement in study design, data collection, interpretation, and dissemination of the results.

The northeastern correctional healthcare system directly employs all nursing personnel working in its system. It is the largest managed medical care provider in the state. Statewide healthcare is provided to inmates of 16 Department of Corrections (DOC) facilities and 31 DOC-contracted halfway houses (HWH).

There are a total of 272 full-time equivalent registered nurses employed by the healthcare correctional system, 29% (N = 78) of whom are male. A non-probability purposive sampling method was used in this study to ensure reaching all potentially available individuals in order to obtain as representative a sample as possible (Hulley *et al.*, 2013). To be eligible to participate in the study, the participants had to be a registered nurse working in the correctional healthcare system. We achieved a response rate of 71% (107 out of 150 nurses responded to the survey), which was desirable based on power analysis to assure that results are representative of the full workforce. Twelve surveys were omitted due to completely missing data, leaving 95 responses for the current analyses.

Measures

The survey contained 71 items and was completed in an average of 25–30 min. Several reliable and valid measures, described in Table 1, were used to develop the survey guided by the Organization of Work framework (CDC National Institute for Occupational Safety and Health, 2002) and TWH approach focusing on the integration of safety, health, and well-being of the correctional registered nurses. Occupational exposures items were selected from Assessing Risk of Exposure to Blood and Airborne Pathogens and General Health Survey (Amuwo *et al.*, 2011) to assess sharps injury, exposure to blood-borne pathogens, and workplace violence; and the Negative Act Questionnaire-Revised (Haug *et al.*, 2010; Notelaers and Einarsen, 2008) to assess workplace bullying and negative act. Other physical and psychosocial work exposures were measured using the CPH-NEW Healthy Workplace All Employee Survey (Center for Promotion of Health in the New England, 2014) for the following variables: physical and psychological job exposures, justice, civility norms, and a measure to assess the gender of the organization (Xu, 2009). Work outcomes were measured using the CPH-NEW Healthy Workplace All Employee Survey for the following variables: Work-Family (W-F) Conflict and Family-Work (F-W) Conflict, stress, burnout, job satisfaction, and intent

Table 1. Description of measures and tools

Measure and tools	Description
Gender Roles: The Bem Sex Role Inventory-Short Form (BSRI-SF) (Bem, 1981).	The BSRI-SF provides independent assessments of masculinity and femininity in terms of the respondent's self-reported practice of socially desirable, stereotypically masculine and feminine personality characteristics and behavior (Bem, 1981); the BEM measure provided a system for classifying all participants into four gender-based groups: feminine (i.e. high BEM femininity score, low BEM masculinity score), masculine (i.e. high BEM masculinity score, low BEM femininity score), androgynous (i.e. high BEM femininity score, high BEM masculinity score), and undifferentiated (i.e. low BEM femininity score, low BEM masculinity score) categories. Campbell *et al.* (1997) reported reliability coefficients for the BSRI-SF (Femininity scale $\alpha = 0.89$; Masculinity scale $\alpha = 0.82$).
Occupational Exposures	
Measure and Tools	**Description**
Potential Blood-borne Pathogens Exposures-Sharps-related Injuries. Assessing Risk of Exposure to Blood & Airborne Pathogens & General Health Survey (Amuwo *et al.*, 2011).	The risk for *Sharps-related Injuries* was measured by summing the five items: giving injections, drawing blood, starting IVs, Injecting/aspirating IVs, recapping a needle during a typical workday. To estimate the risk of sharps injuries, the total score was dichotomized as '≤15' and '>15'.
Potential Blood-borne Pathogens Exposures non-sharps-related Injuries. Assessing Risk of Exposure to Blood & Airborne Pathogens & General Health Survey (Amuwo *et al.*, 2011).	The risk for *non-sharps-related Injuries* was measured by summing the five items: changing dressing, emptying wound drainage, changing dirty linen, inserting a urinary catheter, or performing peri-care during a typical workday. To estimate the risk of non-sharps injuries, the total score was dichotomized as '≤15' and '>15'.
Exposure to Type II workplace violence (perpetrated by an inmate). Assessing Risk of Exposure to Blood & Airborne Pathogens & General Health Survey (Amuwo *et al.*, 2011).	Assessed by examining RNs' exposures to inmates who had: (i) yelled or sworn at them; (ii) threatened to assault them; (iii) physically hurt them; or (iv) sexually harassed them in the past 12 months. A total index score was derived by summing the number of questions answered as yes. Scores ranged between 0 and 4. The exposure to Type II workplace violence index was dichotomized into yes/no variable given the distribution.
Risk of exposure to Type II workplace violence (perpetrated by an inmate). Assessing Risk of Exposure to Blood & Airborne Pathogens & General Health Survey (Amuwo *et al.*, 2011).	Assessed using three selected client/inmate characteristics: if the inmate (i) had mental illness, (ii) had a history of assault, or (iii) having to deal with difficult inmate in the past 12 months. The three client-characteristics items were analyzed individually and then combined into an index f. A total index score was derived by summing the number of questions answered as yes. Scores ranged between 0 and 3, with a higher score representing more risk. The risk exposure to Type II workplace violence index based on inmate characteristics was dichotomized into yes/no variable given the distribution.
Bullying Negative Act Questionnaire-Revised	Bullying was assessed using the Negative Act Questionnaire-Revised (Cronbach's alpha = 0.90) (Einarsen, Hoel & Notelaers, 2009; Haug *et al.*, 2010; Notelaers & Einarsen, 2008). The NAQ-R consists of 21 objective items describing different kinds of behaviors in the past 6 months that may be perceived as bullying if they occur on a regular basis. All items are written in behavioral terms without reference to the word bullying. The response choices were as follows: daily or almost daily; more than once a week; more than once a month; at least once during the past 6 months; not in the past 6 months or never. Five mutually exclusive categories of bullying were created to represent a gradient of exposure: [*no bullying and no negative acts*; no bullying but experienced *occasional negative acts* (reporting one or more negative act less than once per week in the past 6 months); no bullying but experienced *regular negative acts (*reporting one or more of the six negative acts at least weekly); *occasional bullying (*reported being bullied less than monthly); and *regular bullying* (reported being bullied at least monthly)].

Table 1. (Continued)

Measure and tools	Description
Other Physical and psychosocial work exposures. Psychosocial Work Exposures were measured using the CPH-NEW Healthy Workplace All Employee Survey with the following variables.	
Measure and Tools	**Description**
Physical and psychological job exposures.	Overall assessment of the physical and psychological exposures including decision authority, skill discretion, job control, job strain, psychological job demands, co-worker support and supervisor support were examined. These constructs were assessed using the CPH-NEW adapted Job Content Questionnaire items (Karasek, 1985). All items were assessed by a four-point Likert scale (1 = strongly disagree to 4 = strongly agree) and an additive score was calculated for each scale.
Justice	Was assessed using two items measuring the employee perceptions of the fairness of policies and procedures used to make organizational decisions (Niehoff and Moorman, 1993) ($\alpha = 0.648$).
Civility norms	Was assessed using two items measuring the extent to which general rudeness (i.e. behavior that violates unspoken rules of mutual respect and courtesy, and displays a lack of regard for others) is tolerated with reported $\alpha = 0.597$ (Walsh *et al.*, 2012).
Masculine culture	Was measured using 'Gender of organization' measure which is a subscale from the 'Organizational Femininity' Questionnaire with $\alpha = 0.93$ (Xu, 2009).
Work Outcomes. Work outcomes were measured using the CPH-NEW Healthy Workplace All Employee Survey with the following variables.	
Measure and Tools	**Description**
Work–Family (W-F) Conflict and Family–Work (F-W) Conflict	Four items adapted from National Comorbidity Survey (Kessler, 2008) measuring the level of difficulty in balancing the demands of work with family obligations with the following reliability coefficients: W-F conflict $\alpha = 0.737$ and F-W conflict: $\alpha = 0.732$.
Stress	Two items measuring the amount of stress in the past month within the CPH-NEW Healthy Workplace All Employee Survey.
Burnout	Two items measuring the feelings of overwork that are characterized by emotional exhaustion and disengagement with $\alpha = .731$, were adapted from the job demands-resources model of burnout (Demerouti *et al.*, 2001).
Job Satisfaction	Two items form the CPH-NEW Healthy Workplace All Employee Survey assessing the Employees' satisfaction with their jobs and organization and were adapted from the Organizational Assessment Survey (OAS) (Gowing and Lancaster, 1996).
Intent to Turnover	Two items form the CPH-NEW Healthy Workplace All Employee Survey assessing the desire to quit one's job and find a new job with a different organization during the next year, and were adapted from the Organizational Assessment Survey (OAS) (Gowing and Lancaster, 1996).

for turnover. Gender roles were assessed using the Bem Sex Role Inventory-Short Form (BSRI-SF) (Bem,1981). Demographics assessed included age, race, ethnicity, education level, family income, marital status, tenure on job, weekly work hours, and work shift.

Data collection

The research team called for an informational and planning meeting for the project with a northeastern correctional healthcare system's nurses, health service administrators, nursing supervisory representatives, and direct care nurses. The research team members provided a brief presentation about the proposed project and solicited feedback from the participants regarding the purpose and aim and agreed about the expectations with the stakeholder. Announcements about the online survey were then made through system broadcast e-mails and fliers prepared for display and posted in facilities.

The research team worked with system administrative support staff to e-mail the survey link to prospective participants. Using a multi-tiered approach and procedures described by Dillman (2007) and Dillman *et al.* (2009), nurses received a pre-survey e-mail that introduced the study, followed by an invitation e-mail with the survey link, a follow-up e-mail, and a final reminder/thank you e-mail. The research team requested waiver of consent for the online survey due to the minimal risk of participation. Participants were asked

to voluntarily provide their contact information through a different link after completing the online survey to receive a compensation of $15 gift card (Dickert and Grady, 1999). The study protocol was approved by the Institutional Review Board at the University of Massachusetts Lowell (IRB Protocol #:15–087).

Data management/analysis

For categorical variables, tests of independence (Chi square and Fisher's exact test) were conducted to investigate associations with sex and gender roles. In certain cases where tables were too sparse for a valid chi square test, the Fisher's exact test was used. If the Fisher's exact test could not be computed, the table size was reduced by combining categories and the tests were redone. Both *t*-tests and Wilcoxon tests were done on continuous variables to test if measures of central tendency were different by sex. Similarly, both analysis of variance (ANOVA) and Kruskal–Wallis tests were run on continuous variables to see if their location measures differed by gender role groups. Out of the total 107 participants, 12 surveys were omitted due to completely missing data, leaving 95 responses for the current analyses. For those who completed the survey, missing data was excluded from the analyses. All tests were run using the SAS software version 9.4 (SAS 2012).

Results

Demographics

In this cross-sectional web-based survey of 95 registered nurse respondents (71% response rate), the sample was primarily female (75%), white (69.2%), with a mean age of 44 years (± 9.7 years) and a mean tenure in the current job of 8 years (± 6.5 years). Participants worked an average of 32 h/week (± 15.46 h), almost half of the participants (49%) worked the first/day shift (7 am–3 pm). More females worked on the first/day shift while more males worked the second/evening (3 pm–11 pm) and third/night shifts (11 pm–7 am) ($P < 0.05$). The majority reported a total family income greater than or equal to $75,000 (80%), had a college degree (78%), and actively sought nursing as a career (70.5%). Sex and gender role results (Table 2) showed that the sex of nurses (i.e. female or male) was not significantly associated with gender roles (i.e. feminine, masculine, androgynous, undifferentiated). The highest percentage of female nurses was in the feminine group, while the highest percentage of male nurses were in the androgynous group (high in both femininity and masculinity).

Occupational exposures

Potential blood-borne pathogens risk exposures: sharps-related and non-sharps-related risk exposure

Almost one third of the participants reported higher sharps- (29%) and non-sharps- (32%) related risk exposure to blood-borne pathogens and body fluids (>15) during a typical workday (Table 3).

Blood-borne pathogens exposures: sharps-related and non-sharps-related injuries

More than one third of the participants (37%) reported sharps-related injuries within the last 2–5 years, where 13% of these injuries were related to using a sharps container. Less than one third of the participants (28%) reported exposure to blood-borne pathogens and body fluids in the last 2–5 years.

Male nurses reported a higher potential risk for exposure to blood-borne pathogens and body fluids (>15) ($P < 0.05$) and higher sharps-related injury ($P = 0.06$) (Table 2). Marginal significance ($P = 0.08$) was noted for gender role (undifferentiated) in non-sharps-related exposure to pathogens or body fluid.

Workplace violence and workplace bullying risks and exposures

Most of the participants (99%) reported risk of workplace violence, specifically having to deal with difficult inmates with histories of mental illness and violent behavior (Table 3). The majority (96%) reported have been yelled or sworn at, threatened with assault, physically hurt, or sexually harassed by an inmate (Table 3).

Female nurses reported a higher prevalence of verbal abuse and sexual harassment by inmates than male nurses. Though male nurses were more frequently threatened with physical assault, both male and female nurses were equally (15%) assaulted.

Regular bullying was reported by 11% of the participants, with higher incidence reported among female nurses ($P = 0.09$) (Table 2). Significant gender role differences ($P < 0.0001$) were noted in bullying exposure with androgynous nurses having higher occasional bullying (Table 3).

Psychosocial work exposures

The nurses reported that they worked in a masculine organizational culture and had low decision-making authority, low supervisor support, high physical demands, and high psychological demands (Table 4). Regarding sex differences in psychosocial work exposures, independent-samples *t*-tests were conducted to compare females and males on several variables

Table 2. Demographics and work related questions of overall sample by sex and gender roles.

	Overall sample		Males	Females	*P*-value
Variables (*N* = 95*)	***N***	**%**	***N* (%)**	***N* (%)**	
			23 (24.7)	70 (75.3)	
Gender Identity					0.2[b]
Feminine	23	26.1	2 (9.5)	21 (31.3)	
Masculine	22	25.0	6 (28.6)	16 (23.9)	
Androgynous	21	23.9	7 (33.3)	14 (20.9)	
Undifferentiated	22	25.0	6 (28.6)	16 (23.9)	
Race					0.88[a]
White	74	(69.2)	18 (78.3)	55 (79.7)	
Non-White	20	(30.8)	5 (21.7)	14 (20.3)	
Education					0.49[a]
College Degree	74	(77.9)	19 (82.6)	53 (75.7)	
Graduate Degree	21	(22.1)	4 (17.4)	17 (24.3)	
Shift					**0.04[b]**
First	46	(48.9)	6 (26.1)	39 (56.5)	
Second	24	(25.5)	9 (39.1)	15 (21.7)	
Third	22	(24.3)	8 (36.4)	14 (20.3)	
Rotating	2	(2.1)	2 (0.01)	1 (1.45)	
Total Family Income					1.0[b]
< $75,000.00	18	(19.4)	4 (18.2)	12 (17.4)	
>=$75,000.00	75	(80.6)	18 (81.8)	57 (82.6)	
	Overall Sample		**Males**	**Females**	
	Mean	**(SD)**	**Mean (SD)**	**Mean (SD)**	
Age (years)	44.2	(9.75)	44.1 (7.76)	44.2 (10.48)	0.97[c]
Hours of work/week	32.1	(15.46)	37.95 (9.04)	35.64 (11.73)	0.3[c]
Tenure in Current Job (years)	8.3	(6.55)	8.3 (6.38)	8.3 (6.7)	0.9[c]

*Numbers (*N*) on some variables may not sum to total due to missing data.
[a]Chi square.
[b]Fisher's Exact Test.
[c]*t*-test.

(Table 4). There was a significant difference in civility norms for females (M = 5.4, SD = 1.9) and males (M = 6.3, SD = 1.3); t (86) = 2.0, P = 0.04. There were no significant sex differences in other psychosocial work exposures.

There was a marginal effect of gender role on organizational justice at the $P < 0.06$ level for the four groups [$F(3, 83) = 2.56$, $P = 0.06$]. Post hoc comparisons using the Tukey honest significant difference (HSD) test indicated that the mean scores for the androgynous group (M = 3.1, SD = 1.3) were significantly different than the undifferentiated group (M = 4.2, SD = 1.6).

Work outcomes

Despite working in a moderately to extremely stressful work environment, these nurses reported positive job satisfaction with low intent to quit their job (Table 5). Regarding sex differences in work outcomes, independent-samples t-tests were conducted to compare females and males on several variables (Table 5). There was a marginal significant difference in burnout for females (M = 6.8, SD = 2.1) and males (M = 5.8, SD = 1.9); $t(39) = -2.04$, $P = 0.05$. There were no other significant sex differences among the other work outcomes.

Regarding gender role differences in work outcomes, ANOVAs were conducted to compare the differences in various work outcomes among the feminine, masculine, androgynous, and undifferentiated groups (Table 5). There was a significant effect of gender role on family-to-work conflict at the $P < 0.01$ level for the four groups [$F(3, 83) = 4.11$, $P < 0.01$]. Post hoc comparisons using

Table 3. Occupational exposures of overall sample by sex and gender roles.

	N	%	Males N (%)	Females N (%)	*P*-value	Feminine	Masculine	Androgynous	Undifferentiated	*P*-value
Potential Risk Exposure to Blood-Borne Pathogens-Sharps related					**0.01**[a]					0.45[b]
<= 15	60	71.43	10 (50)	50 (78.13)		16 (76.19)	17 (80.95)	14 (70.00)	13 (59.09)	
> 15 (more often)	24	28.57	10 (50)	14 (21.88)		5 (23.81)	4 (19.05)	6 (30.00)	9 (40.91)	
Sharps-related injury					**0.06**[a]					0.6[a]
Yes	32	36.8	11 (55.0)	21 (31.8)		6 (28.6)	10 (45.4)	9 (42.9)	7 (31.8)	
No	55	63.2	9 (45.0)	45 (68.2)		15 (71.4)	12 (54.5)	12 (57.1)	15 (68.2)	
Potential Risk Exposure to Blood-Borne Pathogens and Body Fluids-Non-sharps related					0.46[a]					0.78[a]
<= 15	58	68.24	15 (75)	43 (66.15)		14 (70.00)	14 (63.64)	16 (76.19)	14 (63.64)	
> 15 (more often)	27	31.76	5 (25)	22 (33.85)		6 (30.00)	8 (36.36)	5 (23.81)	8 (36.36)	
Non-sharps related exposure to Pathogens or body fluid?					0.41[a]					**0.08**[b]
Yes	24	27.6	7 (35.0)	17 (25.8)		2 (9.5)	8 (36.4)	5 (23.8)	9 (40.9)	
No	63	72.4	13 (65.0)	49 (74.2)		19 (90.9)	14 (63.6)	16 (76.2)	13 (59.1)	
Workplace Violence Risk					1[b]					0.356[b]
Yes	83	98.8	20 (100)	63 (98.4)		20 (100)	22 (100)	19 (95.0)	22 (100)	
No	1	1.2	0	1 (1.6)		0	0	1 (5)	0	
Workplace Violence Exposure					0.55[3b]					0.273[b]
Yes	83	96.5	19 (95)	64 (97)		21 (100)	21 (95.5)	19 (90.5)	22 (100)	
No	3	3.5	1 (5)	2 (3)		0	1 (4.5)	2 (9.5)	0	
Workplace Bullying and NAQ					0.09[a]					**<0.0001**[b]
No bully/No NAQ	9	10.47	-	9 (13.6)		7 (33.3)	1 (4.5)	-		
No bully/Occ NAQ	25	29.07	9 (45.0)	16 (24.2)		4 (19.0)	6 (27.3)	3 (14.3)	1 (4.5)	
No bully/Reg NAQ	21	24.42	5 (25.0)	16 (24.2)		6 (28.6)	5 (22.7)	5 (23.8)	12 (54.5)	
Bully Occ	22	25.58	6 (30.0)	16 (24.2)		2 (9.5)	6 (27.3)	11 (52.4)	5 (22.7)	
Bully Reg	9	10.47	-	9 (13.6)		2 (9.5)	4 (18.2)	2 (9.5)	1 (4.5)	

Bold values reflect significant and/or marginally significant *P*-values.

[a]Chi square.

[b]Fisher's Exact Test.

Table 4. Psychosocial work exposures overall sample by sex and gender roles.

	Mean	SD	Males Mean (SD)	Females Mean (SD)	*P*-value	Feminine	Masculine	Androgynous	Undifferentiated	*P*-value
Justice	3.6	1.5	4 (1.8)	3.5 (1.4)	0.1[a]	3.6 (1.1)	3.4 (1.5)	3.1 (1.3)	4.2 (1.6)	**0.06**[b]
Civility norms	5.6	1.7	6.3 (1.3)	5.4 (1.9)	**0.04**	6.0 (1.7)	5.4 (1.3)	5.0 (2.2)	6 (1.7)	0.2[b]
Masculine Culture	8.5	2.7	7.5 (3.0)	8.8 (2.6)	0.06[a]	7.9 (2.6)	8.6 (2.7)	8.5 (3.4)	9.2 (2.2)	0.49[b]
JCQ										
Decision Authority	5.1	1.4	5.4 (1.2)	5 (1.4)	0.2[a]	5.3 (1.2)	5.0 (1.5)	4.6 (1.5)	5.4 (1.2)	0.2[b]
Psychological Demands	5.8	1.3	5.8 (1.2)	5.9 (1.3)	0.7[a]	5.9 (1.2)	5.7 (1.6)	6.1 (1.3)	5.7 (1.1)	0.6[b]
Co-worker Support	5.6	1.3	5.7 (0.8)	5.5 (1.4)	0.4[a]	5.7 (1.2)	5.5 (1.8)	5.2 (1.4)	5.8 (0.8)	0.6[b]
Supervisor Support	5	1.6	5.2 (1.4)	4.9 (1.7)	0.3[a]	5.1 (1.2)	4.5 (1.7)	4.4 (1.9)	5.5 (1.4)	**0.08**[b]
Skill Discretion	5.6	1.0	5.6 (0.8)	5.6 (1.0)	0.8[a]	5.6 (0.9)	5.5 (1.0)	5.7 (1.1)	5.6 (0.8)	0.9[b]
Job Control	1.7	1.7	10.9 (1.5)	10.6 (1.8)	0.4[a]	10.9 (1.6)	10.5 (1.9)	10.3 (1.7)	11.0 (1.7)	0.5[b]
Job Strain	0.6	0.2	0.5 (0.1)	0.6 (0.2)	0.4[a]	0.6 (0.2)	0.6 (0.2)	0.6 (0.2)	0.5 (0.2)	0.5[b]

Bold values reflect significant and/or marginally significant *P*-values.
[a]*t*-test.
[b]ANOVA.

Table 5. Work Outcomes of overall sample by sex and gender roles.

	Mean	SD	Males Mean (SD)	Females Mean (SD)	*P*-value	Feminine	Masculine	Androgynous	Undifferentiated	*P*-value
Work-Family Conflict	5.8	2.1	6.0 (1.9)	5.8 (2.2)	0.6[a]	6.0 (2.3)	5.6 (2.3)	6.0 (1.9)	5.9 (2.1)	0.9[b]
Family–Work Conflict	4.4	1.9	4.4 (1.8)	4.4 (1.9)	0.8[a]	3.5 (1.3)	4.5 (1.9)	4.1 (1.6)	5.4 (2.0)	**<0.01**[b]
Burnout	6.6	2.1	5.8 (1.9)	6.8 (2.1)	**0.05**[a]	6.8 (2.1)	6.5 (2.3)	7.0 (2.4)	6.2 (1.4)	0.6[b]
Stress	5.8	1.3	5.7 (1.1)	5.9 (1.3)	0.4[a]	5.9 (1.2)	5.7 (1.5)	6.0 (1.3)	6.0 (1.3)	0.8[b]
Job Satisfaction	6.2	2.2	6.4 (1.7)	6.2 (2.3)	0.64[a]	5.9 (2.6)	5.8 (2.3)	6.1 (2.3)	7.0 (1.3)	0.29[b]
Intent to Turnover	4.7	2.5	4.3 (2.5)	4.8 (2.4)	0.39[a]	4.0 (1.8)	4.9 (2.6)	5.7 (3.0)	4.5 (2.1)	0.15[b]

Bold values reflect significant and/or marginally significant *P*-values.
[a]*t*-test.
[b]ANOVA.

the Tukey HSD test indicated that the mean scores for the undifferentiated group (M = 5.4, SD = 2.0) were significantly different than the feminine group (M = 3.5, SD = 1.3).

Finally, nurses perceived their workplaces as unsafe (50%) and agreed that taking risks is part of their jobs (62%). Half (50%) were concerned about their personal safety in the workplace, with more female nurses reporting this concern than male.

Discussion

The goal of this study was to understand the sex and gender role differences in occupational exposures and outcomes among correctional nurses. The sample was primarily female, but with a higher prevalence of male nurses (25%) compared to the national average of 10% (ANA, 2017), and higher than the most recent study by the ANA on Health Risk Appraisal (HRA) where 9% of the participants were male.

Potential blood-borne pathogens risk exposures: sharps-related

The Centers for Disease Control and Prevention (CDC) estimates that about 385,000 sharps-related injuries occur annually among healthcare workers in hospitals (CDC, 2013). Almost one third of the correctional nurses reported exposure to sharp and non-sharp related injuries, which is similar to the recent ANA Health Risk Appraisal findings where 39% reported needlesticks and other sharps injuries, and 35% reported blood-borne pathogens (ANA, 2017). The

CDC Exposure Prevention Information Network (EPINet) suggests that these injuries can be reduced, as sharps-related injuries in non-surgical hospital settings decreased by 31.6% from 2001 to 2006, following the enactment of the Needlestick Safety and Prevention Act of 2000 (CDC, 2103). Such risks can be attributed to work schedule characteristics, whereby staff are required to work long work hours, second or third shifts, or weekends (Trinkoff, 2007). The sex differences noted in our study, with males reporting higher risk and exposure as hypothesized, may be attributed to higher risk taking among male nurses, and their less adherence to safety practices (Courtenay, 2000; Bauerle, 2012; Bauerle *et al.*, 2016).

Workplace violence risks and exposures

The majority of the participants reported high risk and exposure to workplace violence including being yelled or sworn at, threatened to assault; physically hurt, or sexually harassed by an inmate. The risk and rate of exposure reported was higher when compared to other public healthcare sector workers, including mental health services where the incidence of injuries and illnesses resulting in days away from work from a non-fatal assault was 14.6 per 10,000 (BLS, 2012), and higher compared to international WHO findings (Di Martino, 2002) and national ANA findings where almost one-quarter of the participants reported that they had been physically assaulted at work (ANA, 2017).

Workplace bullying exposures

The exposure to bullying and negative act agrees to a certain extent with other studies within correctional settings (Hoel and Cooper, 2000) and similar to the findings in the national study by the ANA, where up to half had been bullied in some manner in the workplace (ANA, 2017). In 2006, the Bureau of Labor Statistics (BLS) reported that half of the employers surveyed reported at least one incident of workplace violence (BLS, 2006). The results showed that 34% of employers who reported an incident reported a co-worker-related event (BLS, 2006; Schmidtke, 2011). The rate among correctional nurses is slightly higher than the range of rates reported by other studies within the public sector in the USA and Europe where estimated prevalence of bullying exposure ranged between 5 and 30% which can vary based on the study methodology and how the concept is operationalized (Hoel Cooper, and Faragher, 2001; Mikkelsen and Einarsen, 2001; Paoli and Merllié, 2001; Zapf *et al.*, 2003; Lipscomb *et al.*, 2015). The higher rate of bullying within this workforce might be attributed to the fact of working with potentially violent population (inmates), as noted by a high rate of workplace violence exposure and hence stressful work environment, thus increasing the risk of co-worker bullying where it may be more tolerable to react against co-workers than the recipient of the services (inmates) (Lipscomb *et al.*, 2012). Despite the lack of difference between males and females in terms of bullying exposure (Hoel *et al.*, 1999), the sex and gender role differences noted in our findings, which varied from the hypothesis with female (Eng *et al.*, 2011) and androgynous nurses having higher exposure, can be attributed to the male-dominated masculine and power-based correctional culture (Vartia and Hyyti, 2002).

Psychosocial work exposures

Our results showed that female nurses reported significantly lower ratings of civility norms than male nurses, as hypothesized, which is consistent with previous civility research. Regarding gender roles, those in the undifferentiated group reported significantly higher ratings of family-to-work conflict than the other groups, which can likely be explained by undifferentiated people exhibiting a lower overall social orientation than those in the other gender role groups, and therefore a greater likelihood of family involvement interfering with work.

In terms of gender role differences, trends showed circumstances being most favorable for the undifferentiated group (i.e. low femininity, low masculinity) who reported the highest ratings of organizational justice, civility norms, decision authority, co-worker support, supervisor support, and job control while having the least amount of job strain than the other groups. The androgynous group (i.e. high femininity, high masculinity) showed the least favorable situation, with reporting the lowest ratings for organizational justice, civility norms, co-worker support, supervisor support, and job control, and having the greatest amount of psychological demands than the other groups. This is in contrast to previous gender role research, much of which has traditionally identified the androgynous group as the group with the highest degree of well-being, particularly in comparison with the feminine and masculine groups, with little attention paid to the undifferentiated group (Bem, 1974; Bassoff and Glass, 1982). Our findings could be explained by the fact that femininity and masculinity are each a type of social orientation, and that being high in both femininity and masculinity (i.e. androgynous) may represent a generally high social orientation. Thus nurses in this category may

not have greater psychosocial needs, be more aware of their social environment, or have a higher level of expectation in social situations than people who are less socially-oriented, and thus may have less favorable perceptions of a stressful psychosocial context.

Work outcomes

Similar to other studies among correctional nurses (ANA, 2017; Flanagan and Flanagan, 2001, 2006), the correctional nurses in this study reported high work stress scores. The high work stress level among the correctional nurses was indicated by low decision-making authority, low supervisor support, high physical demands, and high psychological demands. With an estimate that approximately one quarter of nurses would experience burnout at a given point during their tenure (Landau, 1992), our findings showed high burnout scores within the sample of correctional nurses, where burnout score was significantly higher for female nurses.

Shift work

Our results suggested that more female nurses were working day shifts while more male nurses were working evening and night shifts. This result is consistent with the demographic profile of US shift workers which reported more males than females start work between 7 pm and 7 am, while more females than males start work between 8 am and 1 pm (Population Reference Bureau, 2008). This may be explained by the traditional role of females as the primary family caregivers, whereby they are more likely to have the responsibility of caring for children or other dependents during the evening and nighttime, and therefore more likely to work during the day. This sex difference in the work schedule distribution could be associated with differences in occupational exposures and outcomes, for example, day shifts could be associated with a higher workload, while evening and night shifts could be associated with higher risk of work injuries (Mustard *et al.*, 2013).

Limitations

This is one of the few studies that described and compared sex and gender role differences in occupational exposures and work outcomes among correctional nurses. In addition to the high response rate, the study included a higher percentage of male nurses compared to the national average, which supported the goal of the study to assess the sex and genders role differences in occupational exposures and outcomes in this specialty practice group of nurses. Despite these strengths, several study limitations were noted including: the cross-sectional study design limited the ability to infer causality; the self-reported data might have suffered from information and recall bias; and possible convenience sample and self-selection bias during data collection. Due to the intricacies of the correctional nursing environment and the population served, and the uniqueness of each individual correctional system, the generalizability of this study's results is limited. The small sample size coupled with missing data within the dataset limited the possibility of multivariate regression analysis.

In addition to design limitations, contextual limitations of the study involved recruitment challenges due to unanticipated correctional budgetary restrictions which negatively impacted registered nurse availability and willingness to participate in the study. Another limitation is the geographic dispersion of the workforce across different sites within the correctional system which limited face to face interaction between the research team and participants for the purpose of data collection and necessitated reliance on the online survey for data collection. In addition, though communication inviting registered nurses to participate in the study was done confidentially through e-mails sent by health system administrative support staff, based on organizational culture and climate, and individual degree of trust that confidentiality would be maintained, it is possible that response rate may have been affected. Worksite regulations requiring participants to take the online survey on their own time, away from the worksite and using their own computer or mobile devices, might have been challenging to some participants and subsequently affected the response rate. Regarding gender role expectations using the BSRI-SF, given that it was developed in 1981, it might not be reflective of the latest and current societal gender role expectations of the 21st century.

Conclusion and Implications

This study reported sex and gender role differences in female and male correctional nurses in terms of occupational exposures such as blood-borne pathogen exposures and injuries, workplace bullying, and civility norms, and work outcomes such as burnout and family–work conflict.

The aforementioned results will help better understand the sex and gender role differences in occupational exposures among correctional nurses which is a crucial first step towards creating a safe workplace culture for both female and male nurses. Future research on sex and gender roles as predictors for occupational exposure and outcomes are needed within this workforce

with a larger sample size to add the power and effect size for a multivariate regression analysis.

Workplace training programs and stricter reporting policies to reduce bullying behaviors and burnout of employees may focus on specific sex or gender roles in order to address sex and gender differences in occupational exposures and outcomes in correctional nurses. Workplace policies, occupational health programs, and employee assistance programs could be tailored to a specific sex or gender to promote the overall safety and health of nurses in correctional settings and for more inclusive work environment. Addressing sex and gender differences in occupational exposures and outcomes can create a healthy work environment for all nurses, which is important for patient safety and a high quality of care delivery (Trinkoff *et al.*, 2008).

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Declaration Statement

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