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Occupational Stressors and Health Outcomes
for Nurses Working in Correctional or Non-Correctional Settings

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of the Requirements for the Bachelor's Degree in Psychology with Honors
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Abstract

Due to the nature of their work, nurses often face unique occupational stressors and health outcomes. It is important to understand the source of this occupational stress and its affect on health, so that improvements can be made. This study sought to examine occupational stress and health outcomes for both correctional and non-correctional nurses across the continental United States. A survey regarding occupational stressors, community characteristics, individual beliefs, and health outcomes was completed by the nurses ($N=459$). Predictors including demographic factors, work related stressors, community/network factors, individual beliefs, and health conditions were investigated using linear and Poisson regression analyses. Home/work conflict, work satisfaction, work environment, and length of shift were all significant predictors of occupational stress. In addition, correctional nurses (vs. non-correctional nurses) suffer more health conditions. Furthermore, nurses living in communities with less community services, those who are taking antidepressants, and those with a high BMI report managing more health conditions as well. Although there are limitations to the current study, its results provide a foundational understanding regarding nurses' occupational stress and its deleterious effects on health.

Introduction

Stress, in its purely biological form, serves as a mechanism for survival, allowing humans and other animals to remain alert and survive in the face of a possible threat. Stress brings about a physiological response to help an individual adapt to or cope with a disruption in their equilibrium. This response arises when the individual is exposed to stressors, which are internal and external events that elicit a stress response. Chronic stress events stem from a prolonged exposure to stressors such as discrimination, a low socioeconomic status, or family dysfunction (Taylor, 2015).

An individual's stress response tends to be activated for prolonged periods due to constant exposure to perceived stressful events. For instance, in the American Psychological Association's most recent Stress in America Survey, respondents cited money and work as the top two sources of significant stress in their lives (American Psychological Association, 2015). Workplace stress, also known as occupational stress, is a source of chronic stress that has been shown to have serious effects on physical and mental health. well-being. In addition, prolonged occupational stress can decrease an individual's quality of life and negatively impact their ability to perform in their job role (Elfering et al., 2002). Eventually this prolonged stress can culminate in burnout, which occurs when the demands of work exceed an individual's capacity to meet these demands resulting in depletion of energy, reduced feelings of accomplishment, and a mental detachment from work characterized as cynicism (Maslach & Jackson, 1984).

Those in human services professions are particularly at risk for developing burnout, and nurses specifically have been shown to exhibit rates of burnout due to the high stress

nature of the profession. The nature of the work environment, as well as personal factors related to the service profession make nursing an extremely stressful profession (Decker 1997; Elfering et al., 2002; Kar & Suar, 2014). It is estimated that approximately 25% of nurses experience burnout at some point during their careers (Landau, 1992).

Furthermore, due to the unique setting of their work, nurses working in correctional settings (jails, prisons, half-way houses, juvenile detention centers) regularly face distinct occupational stressors balancing the custody and security needs of patients with proper healthcare (Doyle, 1999). With over 1.5 million American adults incarcerated as of 2013, healthcare demands in correctional facilities are substantial and correctional nurses are increasingly the healthcare professionals who provide this care (US Bureau of Justice Statistics, 2013).

Nurses facing high levels of job stress are more likely to leave the profession altogether resulting in a high turnover rate (Shader et al., 2001). In addition, the quality of care has been shown to decrease when occupational stress increases among nurses (Tarnow-Mordi et al., 2000). Consequently, an understanding of occupational stress can profoundly impact retaining nurses on staff and encouraging a high level of care.

Given these circumstances, this current study seeks to examine the occupational stressors that both correctional and non-correctional nurses face. In addition, the study explores the health behaviors and outcomes of nurses in both groups to better understand how chronic exposure to occupational stressors can affect physical and mental health. Furthermore, the study investigates community characteristics, as well as individual beliefs and ideologies, to explore if linkages exist between these factors and occupational stress and health outcomes.

Review of the Literature

Occupational Stress for Correctional and Non-Correctional Nurses

Nurses cite workloads and personal responsibilities to be the major sources of on the job stress. Environment and relationship with management also play a key role in nurses' experience of occupational stress, where lack of support or poor working environments can negatively impact nurses' stress levels as well (Santos et al., 2003). McGrath et al. (2003) found that, in their sample of 171 nurses, 85% felt powerless in changing unsatisfactory workplace conditions. Difficulties in managing workload, lack of involvement in decision making, poor communication, lack of support, lack of preparation for the role, and conflicts with staff have all been reported as sources of stress for stress for nurses (Harris, 1989). In addition, those with higher levels of education also experienced more stress (Lee & Wang, 2002). Younger nurses, or those who identify as widowed, separated, or divorced tend to experience higher levels of occupational stress as well (Shen et al., 2005). Finally, those with low levels of job satisfaction have more occupational stress (Blegen, 1993).

In the past 16 years, few studies have dealt specifically with the topics of occupational stress for nurses working in correctional facilities within the United States. One of the largest studies sampled 287 nurses working in 56 correctional facilities in the Southwest U.S. (Flanagan & Flanagan, 2001) and examined how feelings of work satisfaction correlate with work stress. The study found higher stress levels for nurses who had worked longer in corrections; in turn, as job stress increased, job satisfaction decreased. Nurses with more education reported higher levels of work stress as well. The largest study in recent years was a follow-up to this original study in which 454 nurses

were sampled from correctional facilities in the northeast to determine if geographic differences affected occupational stress, and to further explore the relationship between occupational stress and turnover. The follow-up study found similar results, with an inverse relationship between job stress and job satisfaction (Flanagan, 2006).

Three other smaller studies provide congruent evidence. The most recent of these studies, conducted in 2013, involved administering the Stamp's Index of Work Satisfaction, which addresses overall satisfaction for work-related topics including salary, professional status, interaction, task requirements, organizational procedures, autonomy, and retention to 33 nurses in a Northeast Correctional Complex in Tennessee (Chaffin & Biddle, 2013). Most notably, 48% of the nurses sampled indicated that they did not feel at home in their particular unit. Furthermore, 78% of the nurses felt that they had no voice in decision-making procedures and in this way experienced minimal autonomy. In 2005, Dr. Weiskopf of the University of Connecticut Health Center, conducted in-depth interviews with 9 registered nurses who have worked or currently work in a correctional setting. These nurses cited the conflict between custody and care, the work environment, patient situations, and vigilance as primary stressors in their occupation (Weiskopf, 2005).

Health Outcomes for Correctional and Non-Correctional Nurses

The effects of job strain have been documented as having adverse effects on overall health. A commonly cited to explain this phenomenon is the *demand-control-support model*, which posits that demands at work and lack of autonomy promotes general feelings of job strain and stress, which can ultimately affect worker health (Karasek et al., 1981). Furthermore, feelings of effort-reward imbalance have also been shown to negatively impact health outcomes, where workers feel they are dedicating substantial amounts of

effort for minimal reward from their workplace. Due to the fact that nurses specifically report low levels of social support and large job demands, many believe that these models are particularly important to utilize when studying stress and health amongst nurses (Mark & Smith, 2012). Consequently, these occupational stressors can have substantial impacts on nurses' mental and physical health.

Nurses, as a whole, tend to have higher rates of mortality, report more psychiatric conditions, and poorer physical health. Specifically, high workloads coupled with avoidance coping strategies resulted in poorer than normal mental health outcomes for nurses. These nurses had higher than normal levels of depression, insomnia, and anxiety (Tyler & Cushway, 1992). The General Health Questionnaire, a tool to measure mild psychiatric morbidity found that 27% of nurses in Northern Ireland could be considered as suffering from mild psychiatric morbidity. Furthermore, 18% had been admitted to the hospital in the past year (McGrath et al., 2003).

Obesity has also been linked to job stress amongst nurses. In a study of over 2000 nurses in the United States, 55% were either overweight or obese, and these individuals reported longer work hours as compared to their normal or underweight nursing counterparts (Han et al., 2011). In a study done of 278 nurses working in a clinical hospital setting, just 30% reported being regularly active and 54% reported being active, but at an insufficient level (Albert et al., 2014). Additionally, poor health behaviors such as smoking and high alcohol use, have been shown to be prevalent among nurses. Fifty-five percent of first-year nurses in the UK were drinking alcohol at binge drinking levels on at least one occasion per week. Furthermore, 28% of the sample were smokers (Watson et al., 2006). Over time, obesity, smoking, and heavy drinking often lead to the emergence of other

chronic health conditions including hypertension, diabetes, heart disease, decreased liver function, cancers, and increased chance for heart attack or stroke.

Although the literature has examined occupational stress and health outcomes for nurses, few studies have examined this linkage specifically for correctional nurses. It is an important relationship to consider due to the fact that correctional nurses, in particular, face an increased chance of exposure to infectious diseases. Inmates often come into prison with chronic conditions such as tuberculosis, hepatitis and HIV, all of which could be passed on to nurses through exposure in their working environment (Earley, 1999). In addition, the chance of workplace accidents is also more prevalent due to the prevalence of violence in correctional facilities (Flanagan & Flanagan, 2002). Consequently, correctional nurses may experience worsened health conditions not only due to unique occupational stressors they face, but also due to the health risks they are exposed to while on the job.

Community and Individual Factors Affecting Correctional and Non-Correctional Nurses

While few studies have explored the relationship between community factors and levels of stress for health specifically for nurses, these factors have been examined in the general population. Community characteristics including levels of income inequality, poverty, and crime have all been shown to be tied to higher stress levels and poorer health outcomes (Adler, Boyce, Chesney, Folkman, & Syme 1993; Friedman & Herd, 2010). Fortunately, in communities with high levels of social support in the form of community events, these supports acted as stress-buffering mechanisms and reduced the likelihood of alcohol, drug, and mental health disorders (Stockdale et al., 2007). Similarly, according to the diathesis stress model, behavior during times of stress results from both a predisposition to the stress as well as the stressful event itself (Monroe & Simmons, 1991). In this way, the

community stands as a situational factor that logically combines with the daily life stressors of work to influence the stress of individuals. This perspective is also consonant with the network-individual-resource model (Johnson et al., 2010), which posits that individuals network with others and exchange resources that may support or oppose health. Nurses are networked to their work, to their inmate patients, and to groups in the communities where they live. It is this network that impacts how nurses experience stress and, ultimately, important health outcomes.

In addition to community level factors, nurses also hold individual beliefs that can impact the way they experience stress and health. An optimistic disposition has been shown to help people cope more effectively with stress and improve health outcomes (Segerstrom, Castaneda, & Spencer, 2003). Those who are more religious or spiritual often tend to report less stress (Agorastos et al., 2014). Conversely, those with a negative affectivity tend to have higher cortisol levels, an indicator of stress (Polk, Cohen, Doyle, Skoner, & Kirschbaum, 2005). Furthermore, studies have looked at emotional intelligence in nurses and found those who exhibit high levels of emotional intelligence, particularly in the repair and clarity dimensions, are less likely to suffer from stress and poor health outcomes (Landa et al., 2008). Unfortunately, however, not all nurses appear to have high levels of emotional intelligence. For instance, it was found that among correctional nurses, many tend to hold negative attitudes towards their inmate patients (Shields & de Moya, 1997). Thus, individual beliefs and outlooks can also be examined for their relation to stress and health as well.

Guided by the literature cited in this introductory section, the following demographic, work, health, community, and individual hypotheses were developed:

Demographic Hypotheses:

- *Hypothesis 1.1* Correctional nurses will report higher levels of occupational stress and a greater number of health conditions than non-correctional nurses.
- *Hypothesis 1.2* Females will report higher levels of occupational stress than males.
- *Hypothesis 1.3* Females will report fewer health conditions than males.
- *Hypothesis 1.4* Non-whites will report higher occupational levels of occupational stress and more health conditions than whites.
- *Hypothesis 1.5* Those who are not in a relationship (widowed, divorced, single, separated) will experience higher levels of occupational stress and poorer health outcomes (vs. those in a relationship).
- *Hypothesis 1.6* Occupational stress will increase with education level and nursing license (i.e., LPN, RN, APRN)
- *Hypothesis 1.7* Health outcomes will improve with education level and nursing license (i.e. LPN, RN, APRN).*
- *Hypothesis 1.8* Occupational stress and the number of health conditions reported will increase with age.

*Nursing licenses depend on earning particular degrees. To be an RN, for example, one must have a bachelor's or associate degree. To be an APRN, one must have at least a master's degree.

Work-Related Hypotheses:

- *Hypothesis 2.1* Occupational stress and health conditions will increase with home/work conflict.
- *Hypothesis 2.2* Occupational stress and the number of health conditions will decrease when work satisfaction is high.
- *Hypothesis 2.3* When the work environment is positive, occupational stress and the number of health conditions will decrease.
- *Hypothesis 2.4* Occupational stress and health conditions will decrease when nurses feel they can use their strengths at work.
- *Hypothesis 2.5* High levels of respect from supervisors, patients, and coworkers as well as positive supervisor relationship will decrease occupational stress and the number of health conditions reported.
- *Hypothesis 2.6* Occupational stress and health conditions will increase with longer commute.
- *Hypothesis 2.7* As length of shift increases, occupational stress and health outcomes will increase as well.
- *Hypothesis 2.8* Full-time work status (as opposed to part-time work status or other) will result in higher levels of occupational stress and more health conditions reported.
- *Hypothesis 2.9* Nurses with high levels of occupational stress will report managing more health conditions.

Health-Related Hypotheses:

- *Hypothesis 3.1* Use of antidepressants, and/or antianxiety medication, and/or painkillers is linked to managing more health conditions.
- *Hypothesis 3.2* Heavy smoking, alcohol use and/or little exercise is linked with managing more health conditions.
- *Hypothesis 3.3* Nurses with higher BMIs will report managing more health conditions.

Community/Network-Related Hypotheses:

- *Hypothesis 4.1* Increased quality of community, will result in lower levels of occupational stress and better health outcomes.
- *Hypothesis 4.2* Nurses from open minded and liberal communities will experience less occupational stress and better health outcomes.
- *Hypothesis 4.3* Nurses who frequently attend community events will report lower levels of occupational stress and better health outcomes
- *Hypothesis 4.4* As the number of community services available increases, occupational stress will decrease, and fewer health conditions will be reported.
- *Hypothesis 4.5* Nurses living in communities with high levels of community income inequality will report higher levels of occupational stress and poorer health outcomes.
- *Hypothesis 4.6* More positive community attitudes towards people of color, and/or stigmatized groups, and/or ex-cons and prisoners will result in lower levels of occupational stress and better health outcomes.
- *Hypothesis 4.7* Greater levels of family respect will result in lower levels of occupational stress and better health outcomes.

Individual Belief Hypotheses:

- *Hypothesis 5.1* More positive attitudes towards people of color, stigmatized groups, and ex-cons and prisoners will result in lower levels of occupational stress and better health outcomes.
- *Hypothesis 5.2* Nurses with higher levels of religiosity, and/or spirituality, and/or increased attendance of religious events will have lower levels of occupational stress and better health outcomes.

Method

Participants

Participants included attendees at the National League of Nurses Conference, nurses belonging to the American Nurses Association, and nurse members of the American Nursing Informatics Association, and a correctional nursing educator website, Nursing behind the Wall. The invitation was also sent to nurse employees of four different state departments of correction, and one city prison system. Two of these states were located in the Northeast census region, one was in the South census region, and the final in the Midwest census region. The city prison system was in the Northeast. In some instances, the survey was completed during non-work hours, while others had the opportunity to complete the survey during work hours. Of 592 who took the survey, 87 (15%) were omitted because they answered five or fewer questions. Another 46 cases (8%) were removed from the database as they did not identify their role as a nurse, leaving 459 nurses in the sample. There were 363 non-correctional nurses in the sample and 93 worked in correctional settings. The nurses ranged in education levels including LPNs, RNs, and APRNs, with the vast majority identifying as RNs (88%). The participants were from across the continental United States., with all 50 states represented. Data were collected from September 2015- December 2015.

Survey Instrument

The 132-item survey was administered online using the Qualtrics Survey Software. Excluding participants who were prohibited from taking lottery incentives during non-work time, participants were given the option to enter in their contact information for the chance to win one of five gift card incentives.

Variables

Demographic Information

Item	Response Choices
Gender	Male, female, transgender, other
What is your marital status?	Married, never married, divorced, separated widowed living with significant other or decline to answer
In what state do you live?	Drop down of all 50 states; zip code entry
In what state do you work?	Drop down of all 50 states
Do you work in a correctional (i.e. prison, jail, halfway house, / juvenile corrections) facility?	Yes, No
Please indicate your highest held degree/certification:	CNA, BS, BA, Master's, MD, PhD, JD, DDS, other
Please check off the description that most accurately describes / your current role:	Nurse, doctor, dentist, counselor, other
If "Nurse" was selected the nurses were asked to indicate if they were a(n):	LPN, RN, APRN
Please indicate your employment type:	Per-Diem/Hourly, salaried, voluntary, college credit, other
Are you a part-time or full-time employee?	Part-time, full-time, other
"What is your average annual salary?"	Less than \$25,000, 25,000-49,999, 50,000-74,999, 75,000-99,999, 100,000-149,999, More than \$150,000
Do you consider yourself...(check all that apply)	White, Hispanic, African-American, Black, Asian, Pacific Islander, American Indian or Alaska Native, Other, or decline to answer

Occupational Stressors

The following items were averaged to obtain an occupational stress score. This score was then used as the dependent variable "occupational stress". Items were adapted from the Harris Stress Index (1989), where participants were asked *"to select the choice that best reflects the degree to which each statement is a source of pressure for you. Pressure is defined as a problem, something you find difficult to cope with, about which you feel*

worried or anxious". Participants responded on a scale from 1 (No pressure) to 5 (Extreme Pressure). The modified stress tool was found to be reliable (13 items; $\alpha=.92$).

Item
Managing Workload <ul style="list-style-type: none"> • I have to little time to do what is expected of me • The demands of others for my time at work are in conflict • Fluctuations in workload • Management expects me to interrupt my work for new priorities • Deciding priorities • Shortage of essential resources
Organizational Support and Involvement <ul style="list-style-type: none"> • Decisions or changes which affect me are made "above", without my knowledge or involvement • Management misunderstands the real needs of my department • Lack of support from senior staff • Relationships with superiors
Dealing with Patients and Relatives <ul style="list-style-type: none"> • Involvement with life and death situations
Confidence and Competence in Role <ul style="list-style-type: none"> • Lack of specialized training for present task • Uncertainty about the degree or area of my responsibility

The items below were adapted from the home/work conflict subscale of the Harris Stress Index (1989), and were averaged to obtain an home/work conflict score.

participants were asked "to *select the choice that best reflects the degree to which each statement is a source of pressure for you. Pressure is defined as a problem, something you find difficult to cope with, about which you feel worried or anxious*". Participants responded on a scale from 1 (No pressure) to 5 (Extreme Pressure). The modified stress tool was found to be reliable (4 items; $\alpha=.79$).

Item
Home/Work Conflict <ul style="list-style-type: none"> • Job versus home demands • My superiors do not appreciate my home pressures • Over-emotional involvement and • Domestic/family demands inhibit promotion

These items were adopted from the Gallup Poll Survey on Worker Health and Well-Being:

Item	Response Choices
Are you satisfied or dissatisfied with your job or the work that you do?	101- point sliding bar scale from 10> (very unsatisfied) to 90< (very satisfied)
At work, do you get to use your strengths to do what you do best most days?	101-point sliding bar scale from 10> (never) to 90< (always)
Does your supervisor at work treat you more like he or she is your boss or your partner?	Boss, partner
How would you rate the level of respect show to you by: Supervisors, co-workers, and patients?	High, average, or low
Does your supervisor always create an environment that is trusting and open?	101-point sliding bar scale from 10> (never) to 90< (always)
Approximately, how many minutes does it take you to get from your home to your workplace?	Less than 15 minutes, 15-30 minutes, 31 minutes - 60 minutes, or greater than 1 hour
Typically, how long does your shift last?	Less than 4 hours, between 4-8 hours, or greater than 8 hours

Community Factors

These items were from the Gallup Poll Survey on Worker Health and Well-Being:

Item	Response Choices
How would you characterize the level of income inequality in the community where you live?	101-point sliding bar scale from 33.3> (low levels of inequality) to 67.3< (high levels of inequality)
Overall, would you say your community is open minded	101-point sliding bar scale from 33.3> (not open minded) to 67.3< (very open minded)
<i>Have you attended a local community event (such as a community concert, town hall meeting, continuing education class, religious dinner or social, town fair, etc.) in the past 6 months?</i>	Yes, no
Please rate the availability of community services (parks, public libraries, community centers, etc.) available for use?	101-point sliding bar scale from 33.3> (not at all available) to 67.3< (always available).
<i>Would you characterize your community as more liberal or conservative leaning?</i>	101-point sliding bar scale from 33.3> (liberal) to 67.3< (conservative)

These items were adapted from the the American National Election Studies. The question read “I want to ask you how your community feels toward certain groups. Please rate how your community feels toward each group”.

Item	Response Choices
People of color <ul style="list-style-type: none"> • Blacks • Hispanics 	101- degree sliding bar scale 101 degrees – 50 degrees Your community feels favorable and warm toward the group 0 degrees- 50 degrees means that your community does not feel favorable toward the group and that your community doesn't care too much for that group 50 degree mark if your community doesn't feel particularly warm or cold toward that group
Stigmatized groups <ul style="list-style-type: none"> • People with HIV/AIDS • People with physical disabilities • Immigrants • Gays, lesbians, bisexuals and trans people 	Same scale as above
Prisoners/ Ex-Cons <ul style="list-style-type: none"> • Prisoners • Ex-Cons 	Same scale as above

Individual Beliefs

The items asked above for community factors were then asked again from the individual's perspective so that the question read: I want to ask you how you feel toward certain groups. Please rate how you feel towards each group.” The same groups and same scale were used as above.

These items were from the Gallup Poll Survey on Worker Health and Well-Being:

Item	Response Choices
<i>How often do you attend religious services?</i>	More than once a week, once a week, once or twice a month, several times in a year, or hardly ever
How would you rate your levels of spirituality?	101point sliding bar scale from from 33.3> (not at all) to 67.3< (<i>very</i>).
<i>How would you rate your levels of religiosity?</i>	100-point sliding bar scale from from 33.3> (not at all) to 67.3< (<i>very</i>).

Health Outcomes

The number of reported conditions in the box below was totaled for each individual, and then divided by the total number of conditions possible to determine a health score. Higher health scores implied more conditions that the individual as actively managing or treating and thus considered to have poorer health outcomes. This health score was used as the “health outcomes” dependent variable for later analysis. These conditions came from the survey items from the Natural Marketing Institute’s (NMI; Harleysville, PA) health and wellness survey. The NMI has collected data about the health and wellness since 1999. Participants answered if they were “*actively managing or treating*” the following conditions:

Item	Response Choices
Physical Health <ul style="list-style-type: none"> • Acid reflux/Heartburn • Addiction to Tobacco • Arthritis • Blood sugar levels • Cancer • Diabetes Type I or Type II • Frequent cold and flu • Gluten sensitivity/intolerance • Heart disease • Hypertension/high blood pressure • Indigestion 	Yes, no, decline to answer

<ul style="list-style-type: none"> • Need to lose weight for health reasons • Need to boost immunity • Sleeplessness • Irritable bowel syndrome • Joint pain/stiffness • Menopausal issue • Chronic pain • Asthma 	
Mental Health <ul style="list-style-type: none"> • Anxiety • Depression • Lack of mental focus/ concentration • Lack of energy • Memory problems • Need to lose weight (for appearance) • Stress 	Yes, no, decline to answer

In addition, these items were from the Gallup Poll Survey on Worker Health and Well-Being:

Item	Response Choices
Have you experienced a physical accident in the last 12 months?	Yes, no
Do you smoke?	Yes, no
How often do you consume alcoholic beverages?	Never, 1-2 times a week, 3-4 times a week, 5-7 times a week

Participants were also asked about whether or not they were taking the following types of medications:

Item	Response Choices
Anti-anxiety medications (e.g., Xanax, Valium, Inderal)	Yes, no, decline to answer
Antibiotic medications (e.g., omeprazole, Z-Pak, Zithromax)	Same as above scale
Pain killers (e.g. Oxycodone, Percocet, Vicodin)	Same as above scale
Anti-depressant medications with SSRIs (e.g., Celexa, Paxil, Prozac)	Same as above scale

Data Analyses

Ordinary linear and Poisson regression equations were performed with occupational stress and health outcomes as the dependent variables along with the other items that were treated as independent variables. Analyses included independent variables clustered into conceptual blocks including: demographics, work stressors, community factors, and individual beliefs. The same clusters were used for health outcomes with the addition of health behaviors and health conditions. Non-significant ($p > .05$) terms were dropped in subsequent models that combined blocks. Data were analyzed with Stata 14.0 (StataCorp LP, TX, USA).

Results

Descriptive Statistics

Table 1 shows the descriptive statistics for the sample, which help to provide context for the characteristics of the sample. The sample was overwhelmingly female, with 79% of correctional nurses and 95% of non-correctional nurses identifying as female. The majority of respondents identified as white, followed by African American/Black. Most respondents were married or living with a significant other (XX%). Non-correctional nurses tended to hold more advanced degrees (49%) as compared to correctional nurses (9%). The majority of nurses identified as RN's for both groups. However just 1% of correctional nurses held advanced roles/licensure as compared with 10% of non-correctional nurses. Most nurses from our sample made between \$50,000- \$99,999. Correctional nurses were more likely to be employed on a per-diem/hourly basis as compared to non-correctional nurses who were most likely to be employed on a salaried basis. The majority of nurses sampled worked full-time, and work shifts that are longer than 8 hours. The nurses from both groups tend to commute between 15-60 minutes to work. Most non-correctional nurses lived in the south census region of the United States, whereas most correctional nurses sampled lived in the northeast census region of the United States.

Table 1. Descriptive Statistics

Dimension	n [%] Correctional	n [%] Non-Correctional	p	N
Gender			<0.001***	
Female	73 [78.49%]	345 [95.30%]		418
Male	20 [21.51%]	17 [4.70%]		37
Missing	0 [0%]	1 [0.275%] ^a		1
Age			0.05*	
18-25	0 [0%]	10 [2.75%]		10
26-35	14 [15.05%]	52 [14.33%]		66
36-45	32 [34.41%]	60 [16.53%]		92
46-55	26 [27.96%]	96 [26.45%]		122
56-65	18 [19.35%]	123 [33.88%]		141
66-75	2 [2.15%]	19 [5.23%]		21
76-85	0 [0%]	2 [0.55%]		2
86+	0 [0%]	0 [0%]		0
Missing	1 [1.075%] ^b	1 [0.275%] ^a		2
M age [SD]	46.83 [9.42]	49.52 [12.22]		
Race/Ethnicity			0.232	
White	63 [67.74%]	262 [72.18%]		325
African American/Black	11 [11.83%]	17 [3.03%]		28
Asian	2 [2.15%]	9 [2.48%]		11
Pacific Islander	0 [0%]	3 [0.83%]		3
American Indian/ Alaskan Native	2 [2.15%]	6 [1.65%]		8
Other	2 [2.15%]	10 [2.75%]		12
2 or more races/ethnicities	2 [2.15%]	44 [12.12%]		46
Missing	11 [11.83%] ^b	12 [3.31%] ^a		23
Relationship Status			0.502	
Married, Living with Significant Other	63 [67.74%]	262 [72.18%]		325
Divorced, Widowed, Separated, Never				
Married	28 [30.12%]	98 [27.00%]		126
Missing	2 [2.15%] ^b	3 [0.83%] ^a		5
Education Level			<0.001***	
BS, BA, CAN, or Other	82 [88.17%]	185 [50.96%]		267
PhD, JD, MD, or Master's Degree	8 [8.60%]	177 [48.76%]		185
Missing	3 [3.23%] ^b	1 [0.275%] ^a		4
Nurse Type			<0.001***	
LPN	13 [13.98%]	4 [1.10%]		17
RN	78 [83.87%]	321 [88.43%]		399
APRN	1 [1.08%]	36 [9.92%]		37
Missing	1 [1.075%] ^b	2 [0.555%] ^a		3

Dimension	n [%] Correctional	n [%]Non-Correctional	p	N
Salary			0.105	
Less than 25,000	1 [1.08%]	10 [2.75%]		11
25,000-49,999	8 [8.60%]	40 [11.02%]		48
50,000-74,999	33 [35.48%]	100 [27.55%]		133
75,000-99,999	35 [37.63%]	102 [28.10%]		137
100,000-149,999	5 [5.38%]	69 [19.00%]		74
More than 150	0 [0.00%]	11 [3.03%]		11
Missing	11 [11.83%] ^b	11 [8.54%] ^a		42
Compensation Type			0.025*	
Voluntary	0 [0.00%]	2 [0.55%]		2
College Credit	0 [0.00%]	2 [0.55%]		2
Per-Diem/ Hourly	56 [60.22%]	143 [39.39%]		199
Salaried	31 [33.33%]	208 [57.30%]		239
Other	5 [5.38%]	7 [1.93%]		12
Missing	1 [1.075%] ^b	1 [0.275%] ^a		2
Employment Type			0.014	
Full-Time	79 [84.95%]	284 [78.24%]		363
Part-Time	0 [0.00%]	40 [11.02%]		40
Other	2 [2.15%]	12 [3.31%]		14
Missing	12[12.90%] ^b	27 [7.44%] ^a		39
Commute			0.364	
less than 15 minutes	20 [21.50%]	97 [26.72%]		117
15-30 minutes	29 [31.18%]	131 [36.09%]		160
31-60 minutes	29 [31.18%]	85 [23.42%]		114
Greater than 1 hour	4 [4.30%]	24 [6.61%]		28
Missing	11 [11.83%] ^b	26 [7.16%] ^a		37
Length of Shift			0.101	
Less than 4 hours	0 [0.00%]	5 [1.38%]		5
Between 4-8 hours	34 [36.56%]	97 [26.72%]		131
Greater than 8 hours	47 [50.54%]	234 [64.46%]		281
Missing	12[12.90%] ^b	27 [7.44%] ^a		39
Census Region			<0.001***	
Northeast	36[38.71%]	61 [16.80%]		97
Midwest	23 [24.73%]	72 [19.83%]		95
West	2 [2.15%]	69 [19.00%]		71
South	10 [10.75%]	127 [34.99%]		137
Missing	23[23.66%] ^b	34 [9.37%] ^a		57

Note. *p<.05. **p<.01. ***p<.001. ^a Percentage missing out of total number of non-correctional nurses ^b Percentage missing out of total number of correctional nurses.

Table 2. Bivariate analysis of occupational stress and variables clustered conceptually

	Occupational Stress <i>r</i>	Health Outcomes <i>r</i>
A. Demographics		
Health Outcomes	.40***	
Occupational Stress		.30***
Correction vs. Non-Correction	.02	.10**
Gender	.03	.05*
White to Non-White	.06	<.01
Relationship Status	.02	.01
Nurse Type	.20	<.01***
Education Level	.04	.06**
Age	.04	<.01
B. Work-Related Stressors		
Home/Work Conflict	.74***	.27***
Work Satisfaction	.46***	.12***
Ability to use strengths at work	.49***	<.01***
Work Environment	.5***	.15***
Supervisor Relationship	.33***	.13***
Supervisor Respect	.47***	.20***
Patient Respect	.13**	.04*
Co-Worker Respect	.30***	.10***
Length of Commute	.03	.03***
Length of Shift	.08 ***	.08 ***
Full-Time vs. Part-Time	.05 ***	.05 **

*r**r***C. Community/Network Factors**

Quality of Community	.04	.05**
Community Open-Mindedness	.05	.04
Community Liberalism	.03	.08***
Frequency of community event attendance	.03	<.01
Amount of community services available	.15**	.16***
Level of community inequality	.10	.09***
Respect from family	.22***	.07***
Community attitudes toward people of color	.14*	.05*
Community attitudes toward stigmatized groups (Women, HIV/AIDS Individuals, LGBT Individuals, Immigrants)	.15**	.15***
Community attitudes towards Ex-Cons and Prisoners	.15**	.03

D. Individual Factors

Individual attitudes toward people of color	.17**	.12***
Individual attitudes toward stigmatized groups (Women, HIV/AIDS Individuals, LGBT Individuals, Immigrants)	.16**	.19***
Individual attitudes towards Ex-Cons and Prisoners	.18**	.04*
Level of spirituality	.08	.03
Level of religiosity	.06	.02
Attendance of religious events	.03	.04

E. Health Factors

Use of antidepressants	.13*	.04***
Use of antianxiety medication	.10	.15***
Use of antibiotics	.06	.04
Use of painkillers	.15*	.11***
Accident at work	.16**	.07***
Smoker	.01	.05**
Alcohol Use	.06	.01
Exercise	.10*	.17***
BMI	.12*	.20***

Analyses of Variables

Analyses were undertaken to determine predictors of occupational stress and Table 3 shows the main findings. Home/work conflict, work satisfaction, work environment, and length of shift were all significant predictors of occupational stress. When home/work conflict as well as the length of the nurses' shift increased, their occupational stress increased as well. In addition, when work satisfaction and work environment were rated as low, occupational stress increased. These findings supported the following hypotheses:

Hypothesis 2.7 As length of shift increases, occupational stress will increase as well

Hypothesis 2.1 Occupational stress will increase with home/work conflict

Hypothesis 2.2 Occupational stress will decrease when work satisfaction is high

Hypothesis 2.3 When the work environment is positive, occupational stress will decrease

Community factors including respect from family and community attitudes towards ex-cons and prisoners ceased to be significant predictors of occupational stress once other variables were controlled. Nonetheless, these results did support the following hypotheses:

Hypothesis 4.6 More positive community attitudes towards ex-cons and prisoners will result in lower levels of occupational stress.

Hypothesis 4.7 Greater levels of family respect will result in lower levels of occupational stress.

Table 3. Occupational stress as a function of variables clustered conceptually

Occupational Stress	Model 1		Model 2		Model 3		Model 4 (Trimmed)	
	<i>b</i> (<i>se</i>)	β	<i>b</i> (<i>se</i>)	β	<i>b</i> (<i>se</i>)	β	<i>b</i> (<i>se</i>)	β
B. Work-Related Stressors								
Home/Work Conflict	0.57 (0.04)	0.57***			0.54 (0.04)	0.55 ***	0.60(0.03)	0.59***
Work Satisfaction	-0.003 (0.002)	-0.09*			-0.01 (0.001)	-0.15***	-0.01 (0.001)	-0.14***
Ability to use strengths at work	-0.002 (0.002)	-0.06						
Work Environment	-0.01 (0.002)	-0.17**			-0.01 (0.001)	-0.22***	-0.01 (0.001)	-0.21***
Supervisor Relationship	0.04 (0.07)	0.02						
Supervisor Respect	0.08 (0.06)	0.1						
Patient Respect	0.09 (0.05)	0.03						
Co-Worker Respect	0.01 (0.06)	0.06						
Length of Commute	-0.0001 (0.03)	-0.0001						
Length of Shift	0.19 (0.06)	0.11***			0.21 (0.06)	0.12***	0.19(0.06)	0.11***
Full-Time vs. Part-Time	-0.14 (0.08)	-0.06						
C. Community/Network Factors								
Quality of Community			0.001 (0.09)	0.0004				
Community Open-Mindedness			0.003 (0.003)	0.08				
Community Liberalism			-0.0003 (0.002)	-0.01				
Frequency of community event attendance			-0.03(0.13)	-0.013				
Amount of community services available			-0.01 (0.003)	-0.01				
Level of community inequality			0.002 (0.002)	0.05				
Respect from family			-0.28 (0.10)	-.18**	-0.05 (0.06)	-0.03		
Community attitudes toward people of color			0.002 (0.004)	0.04				
Community attitudes toward stigmatized groups (Women, HIV/AIDS Individuals, LGBT Individuals, Immigrants)			-0.004 (0.005)	-0.08				
Community attitudes towards Ex-Cons and Prisoners			-0.01 (0.003)	-0.16*	-0.002 (0.001)	-0.04		
Constant	2.07 (0.21)		3.43 (0.48)		1.97 (.20)		1.74 (0.16)	
<i>R</i> ²	.63		.08		.62		0.62	
<i>N</i>	368		251		313		393	

Note. Occupational stress is the dependent variable in ordinary linear regression models with conceptually related predictors blocked. Statistically significant ($p < .05$) predictors were carried forward for the final model. * $p < .05$. ** $p < .01$. *** $p < .001$. Only statistically significant ($p < .05$) models are shown here, all models are shown in the appendix.

Table 4 shows analyses undertaken with variables clustered conceptually to determine predictive variables for health outcomes. Table 5 shows those variables that were significant from previous models combined in a sixth model. As Table 5 shows, as occupational stress increased, there was an increase in health conditions reported. Correctional as opposed to non-correctional nurses tended to suffer from more health conditions. As the availability of community services decreased, the number of reported health conditions increased. Additionally, as the use of antidepressants increased, the number of health conditions reported increase. Finally, as BMI increased, the number of health conditions reported increased as well. The following hypotheses were thus supported:

Hypothesis 2.1 Correctional nurses will report more health conditions as compared with non-correctional nurses.

Hypothesis 2.7 As occupational stress increases, the number of reported health conditions will increase as well.

Hypothesis 3.4 As the number of community services available increases, occupational stress will decrease, and fewer health conditions will be reported.

Hypothesis 2.13 Use of antidepressants, and/or antianxiety medication, and/or painkillers will result in more health conditions reported.

Hypothesis 2.15 Nurses with a higher BMI will report more health conditions.

Table 5 also shows that women were more likely than men to report that they were managing more health conditions. In addition, as community open-mindedness increased, the number of health conditions increased as well. Finally, although this predictor was not

significant in subsequent models, as levels of community liberalism increased, the number of reported health conditions increased as well, as Table 4 shows. These trends are the reverse of hypothesized.

Demographic factors including nurse license, occupational stressors including home/work conflict, supervisor respect, full time vs. part-time status, and community/network factors including levels of community income inequality, and familial respect all ceased to be significant after other factors of health outcomes were controlled for. This was also true for the following individual factors: levels of religiosity, frequency of religious service attendance and the following health behaviors: use of antianxiety medication, painkillers, and exercise frequency. These are all summarized in Table 4. Nonetheless, the results from these predictors did support the following hypotheses:

Hypothesis 1.6 Health outcomes will improve with education level and nursing license (i.e. LPN, RN, APRN)

Hypothesis 2.1 High levels of home/work conflict will result in more health conditions reported.

Hypothesis 2.5 The number of health conditions will decrease with high levels of respect from supervisors

Hypothesis 2.8 The number of health conditions will increase with full-time work status.

Hypothesis 4.5 Nurses living in communities with high levels of community income inequality will report poorer health outcomes.

Hypothesis 4.7 Greater levels of family respect will result in better health outcomes.

Hypothesis 5.2 Nurses with higher levels of religiosity, and/or increased attendance of religious events will have better health outcomes.

Hypothesis 3.1 Use of antianxiety medication, and/or painkillers will result in more health conditions reported.

Hypothesis 3.2 Little exercise will result in more health conditions reported.

Table 4. Health outcomes as a function of variables clustered conceptually for each model.

Health Outcomes	Model 1	
	<i>b (se)</i>	<i>Z</i>
A. Demographics		
Occupational Stress	0.34 (0.02)	13.91***
Correction vs. Non-Correction	0.17(.06)	3.0**
Gender	-0.36 (0.10)	-3.80*
White to Non-White	-0.04 (0.06)	-0.68
Relationship Status	-.01 (0.05)	-0.14
Nurse Type	-0.16 (0.07)	-2.24*
Education Level	-0.09(0.05)	-1.69
Age	-0.002 (0.002)	1.12
Constant		0.95(0.14)
<i>R</i> ²		.09
<i>N</i>		371
Health Outcomes	Model 2	
	<i>b (se)</i>	<i>Z</i>
B. Work-Related Stressors		
Home/Work Conflict	0.24 (.03)	9.17***
Work Satisfaction	0.001 (0.001)	0.97
Ability to use strengths at work	-0.002 (0.001)	-1.18
Work Environment	-0.001 (0.001)	0.75
Supervisor Relationship	-0.06 (0.06)	-0.97
Supervisor Respect	-0.16 (0.05)	-3.23***
Patient Respect	-0.08 (0.04)	-1.92
Co-Worker Respect	0.02 (0.04)	0.53
Length of Commute	-0.01 (0.03)	-0.38
Length of Shift	.004 (0.05)	0.85
Full-Time vs. Part-Time	-0.24 (0.06)	-3.83***
Constant		1.62 (0.164)
<i>R</i> ²		.08
<i>N</i>		367

	<i>b</i> (<i>se</i>)	<i>Z</i>
C. Community/Network		
Factors		
Quality of Community	0.07 (0.04)	1.52
Community Open-Mindedness	0.01 (0.002)	3.21***
Community Liberalism	0.004 (0.001)	3.66***
Frequency of community event attendance	-0.07(0.06)	-1.10
Amount of community services available	-0.01 (0.001)	-6.09***
Level of community inequality	0.003 (0.001)	2.77**
Respect from family	-0.11 (0.05)	-2.33*
Community attitudes toward people of color	0.003 (0.002)	1.45
Community attitudes toward stigmatized groups (Women, HIV/AIDS Individuals, LGBT Individuals, Immigrants)	-0.006 (0.003)	-2.30**
Community attitudes towards Ex-Cons and Prisoners	0.001 (0.002)	0.59
Constant	1.90 (0.23)	
<i>R</i> ²	.05	
<i>N</i>	251	

Health Outcomes	Model 4	
	<i>b</i> (<i>se</i>)	<i>Z</i>
D. Individual Factors		
Individual attitudes toward people of color	-0.003 (0.002)	-1.12
Individual attitudes toward stigmatized groups (Women, HIV/AIDS Individuals, LGBT Individuals, Immigrants)	-0.004 (0.003)	-1.56
Individual attitudes towards Ex-Cons and Prisoners	0.0004 (0.001)	0.39
Level of spirituality	-0.001 (0.001)	-0.71
Level of religiosity	0.002 (0.001)	2.15*
Attendance of religious	-0.08 (0.02)	-3.56***
Constant	2.31 (0.12)	
<i>R</i> ²	.02	
<i>N</i>	314	
Health Outcomes	Model 5	
	<i>b</i> (<i>se</i>)	<i>Z</i>
Use of antidepressants	0.25(0.06)	4.43***
Use of antianxiety medication	0.19(0.07)	2.77**
Use of antibiotics	0.19(0.11)	1.62
Use of painkillers	0.39(0.09)	4.59***
Accident at work	0.05(0.08)	0.64
Smoker	0.07(0.10)	0.74
Alcohol Use	0.03(0.03)	1.03
Exercise	-0.10 (0.03)	-2.40**
BMI	0.01(0.002)	4.16***
Constant	1.45 (0.11)	
<i>R</i> ²	.07	
<i>N</i>	227	

Note. Occupational stress is the dependent variable in ordinary linear regression models with conceptually related predictors blocked. Statistically significant ($p < .05$) predictors were carried forward in Table 5. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 5. Health outcomes as a function of those variables that were significant from previous models.

Health Outcomes	Model 6		Model 6 (Trimmed)	
	<i>b</i> (<i>se</i>)	<i>Z</i>	<i>b</i> (<i>se</i>)	<i>Z</i>
A. Demographics				
Occupational Stress	0.20(0.06)	3.53***	0.25(0.03)	8.60***
Correction vs. Non-Correction	0.35 (0.09)	4.04***	0.32(0.06)	5.22***
Gender	-0.42(0.13)	-3.22***	-0.27(0.10)	-2.62***
White to Non-White				
Relationship Status				
Nurse Type	-0.14(0.10)	-0.06		
Education Level				
Age				
B. Work-Related Stressors				
Home/Work Conflict	0.06(0.05)	0.16		
Work Satisfaction				
Ability to use strengths at work				
Work Environment				
Supervisor Relationship				
Supervisor Respect	-0.002(0.05)	-0.05		
Patient Respect				
Co-Worker Respect				
Length of Commute				
Length of Shift				
Full-Time vs. Part-Time	-0.15(0.10)	-1.43		
C. Community/Network Factors				
Quality of Community				
Community Open-Mindedness	0.007(0.002)	3.75***	0.01(0.001)	4.34***
Community Liberalism	0.002(0.001)	1.47		
Frequency of community event attendance				
Amount of community services available	-0.006(0.002)	-3.79***	-0.006(0.001)	-4.52***
Level of community inequality	0.001(0.002)	0.76		
Respect from family	-0.02(0.06)	-0.29		
Community attitudes toward people of color				
Community attitudes toward stigmatized groups (Women, HIV/AIDS Individuals, LGBT	-0.004(0.002)	-2.21*		-1.57
Individuals, Immigrants)			-0.002(0.002)	
Community attitudes towards Ex-Cons and Prisoners				

Health Outcomes	Model 6		Model 6 (Trimmed)	
	<i>b</i> (<i>se</i>)	<i>Z</i>	<i>b</i> (<i>se</i>)	<i>Z</i>
D. Individual Factors				
Individual attitudes toward people of color				
Individual attitudes toward stigmatized groups (Women, HIV/AIDS Individuals, LGBT Individuals, Immigrants)				
Individual attitudes towards Ex-Cons and Prisoners				
Level of spirituality				
Level of religiosity	0.001(0.001)	0.34		
Attendance of religious events	-0.008(0.03)	-0.29		

E. Health Factors				
Use of antidepressants	0.17(0.73)	2.39*	0.20 (0.10)	3.51***
Use of antianxiety medication	0.10(0.08)	1.22		
Use of antibiotics				
Use of painkillers	0.11(0.12)	0.89		
Accident at work				
Smoker				
Alcohol Use				
Exercise	-0.05(0.4)	-1.21		
BMI	0.01(0.003)	3.07**	0.011(0.003)	4.20***
Constant	1.28(0.34)		1.08(0.18)	
<i>R</i> ²	.18		.15	
<i>N</i>	161		200	

Note. Occupational stress is the dependent variable in ordinary linear regression models with conceptually related predictors blocked. Statistically significant ($p < .05$) predictors were carried forward for this table.

* $p < .05$. ** $p < .01$. *** $p < .001$.

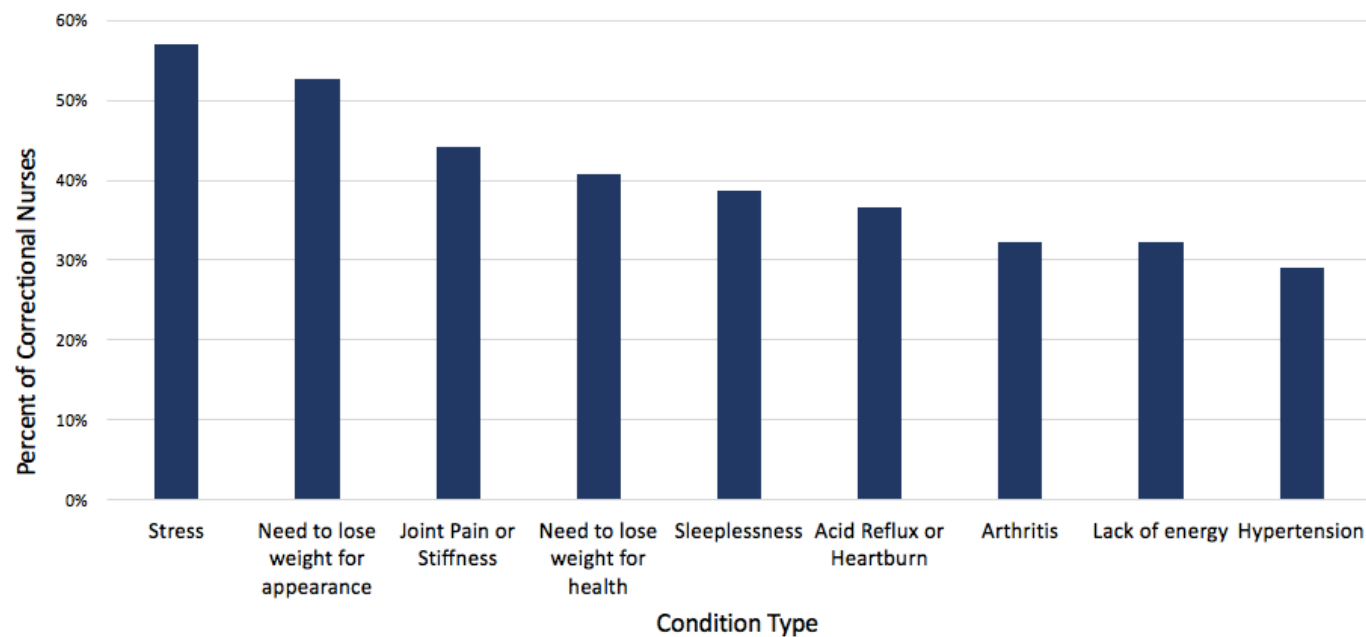
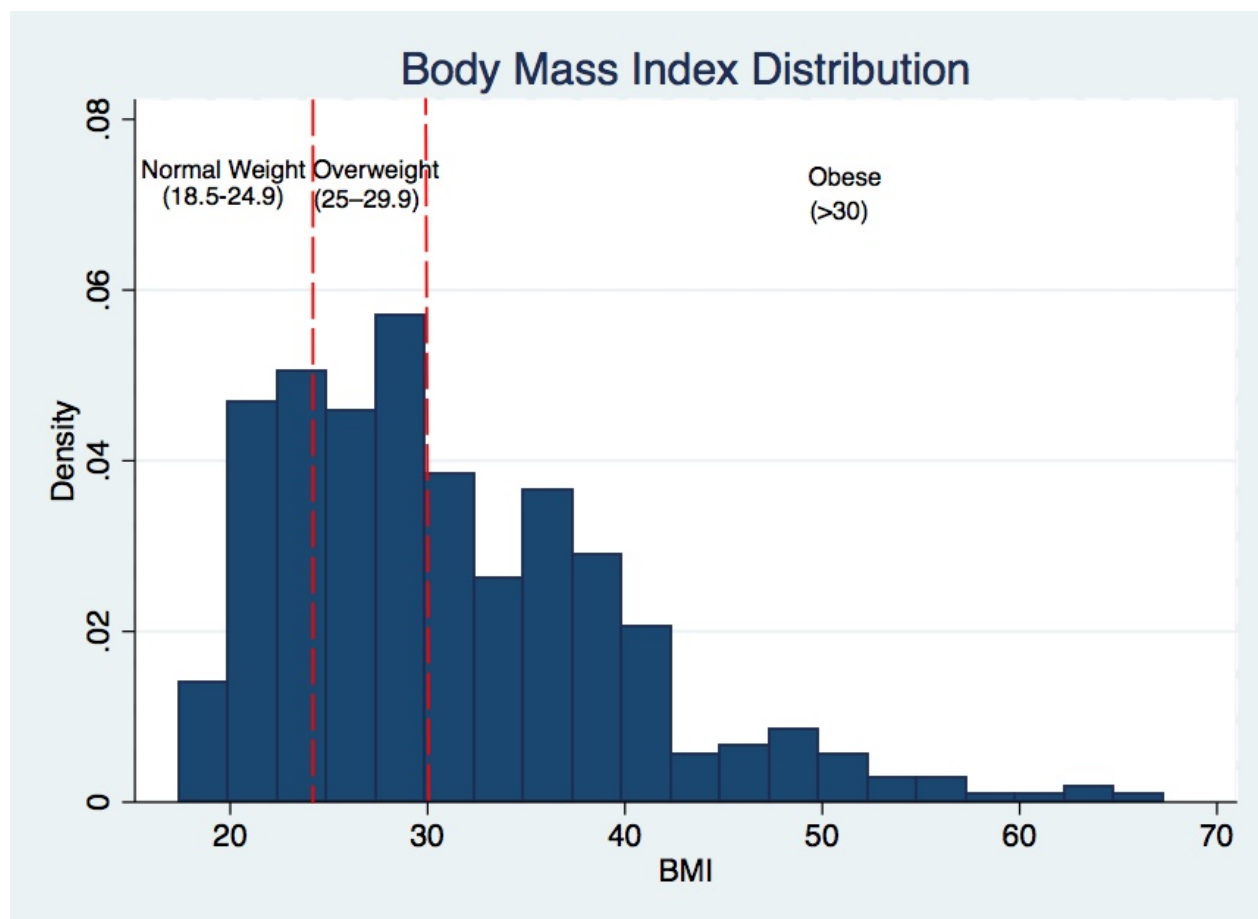
Figure 2. Top 10 health conditions reported by Correctional Nurses

Figure 3. BMI of both Correctional and Non-Correctional Nurses



Discussion

The goal of this study was to understand the occupational stress and health outcomes of nurses working in correctional or non-correctional settings and to better understand the ways in which community factors and individually held beliefs affect stress and health outcomes as well. The findings from this study are consistent with Santos et al. (2003) results regarding occupational stress, in that nurses in both samples cited the balance between workloads and personal responsibilities as a major source of job stress. In addition, lack of support and poor working environments were also cited as sources of job stress. Similarly, the nurses in our sample who had more negative views of their work environment had higher levels of occupational stress. Finally, levels of satisfaction were low for nurses who had high levels of occupational stress, consistent with Blegen's (1993) findings. Evidently, when home demands interfere with work responsibilities, and the work environment is not supportive, occupational stress increases proportionally. The home/work conflict item was determined based on the average pressure score across the following items: job versus home demands, my superiors do not appreciate my home pressures, domestic/family demands inhibit promotion, and I need to absent myself from work to cope with domestic problems. Consequently, nurses feeling high levels of pressure in these areas are also suffering from high levels of occupational stress. When combined with long hours, this factor appears to influence stress levels as well. Thus, it is important that nurses feel supported at work so that their home and work demands do not act in conflict with one another, which may mean altering shift length or offering more flexible shift schedules such

that nurses are able to accommodate both home and work demands. With these improvements, the overall work environment and job satisfaction would likely increase, which based on the findings from this study, suggest would lead to an overall reduction in occupational stress.

Occupational stress also appears to be a significant predictor of health outcomes. Health outcomes are extremely important to address, due to the fact that the overall health of nurses appears to be quite poor. The average BMI across both groups of nurses placed them in the obese categorization ($M=31.04$, $SD=8.72$). Furthermore, BMI was a significant predictor of health outcomes, such that, as BMI increased, the number of health conditions reported by the nurses increased as well. As Figure 3 shows, the nurses are clustered in the higher BMI ranges and are skewed towards the overweight to obese categories. Consequently, it is important to determine predictors of these health outcomes so that they can be improved upon. As hypothesized, correctional nurses, nurses who lived in communities with fewer services available, and nurses who were taking antidepressants tended to report more health conditions that they were currently managing or treating.

Contrary to hypotheses, males reported fewer health outcomes than females, and those nurses who lived in more open-minded communities reported more health conditions. Similarly, community liberalism (which ceased to be significant in subsequent models) also showed a trend that was contrary to what was expected: As community liberalism increased, the number of health conditions reported increased as well. This pattern could be due to the fact that communities that are more open-minded or liberal may be more accepting of those with numerous health

conditions, especially those that involve mental health issues, HIV/Aids, or other stigmatized conditions.

Nurse type, home/work conflict, supervisor respect, full time vs. part time status, levels of community income inequality, community attitudes toward stigmatized groups, familial respect, levels of religiosity, frequency of religious service attendance, and use of antianxiety medication, painkillers, and exercise frequency all ceased to be significant after other factors of health outcomes were controlled, but they did show the expected patterns in earlier models. Therefore, our hypotheses were partially supported.

The results of the current study suggest a relationship between occupational stress and health outcomes, which is consistent with the demand-control-support model described previously, where occupational stress from the demands of work, limited support, and lack of autonomy translate to feelings of job stress that have significant consequences on nurses' health (Karasek et al., 1981). Furthermore, nurses from communities with fewer services available also reported more health conditions suggesting a critical lack of support at the community level as well. Consistent with Johnson et al.'s (2010) network-individual-resource model, nurses who live in communities with limited services are lacking resources from their network. Consequently, their health, at an individual level, is also more likely to suffer. Additionally, nurses who were currently taking antidepressants also reported more health conditions, supporting Tyler and Cushway's (1992) findings. Finally, high BMI scores across both groups of nurses suggest that obesity is a serious problem for nurses and having significant effects their health outcomes,

which replicates Han et al.'s (2011) recent findings: These investigators found that over half of the 2,000 nurses in their study were either overweight or obese. Similarly, the results of the current study suggest nurses in this sample also are more likely to be considered obese or overweight.

Most notably, although they did not report greater stress levels, correctional nurses *did* report more health conditions as compared to their non-correctional counterparts, which is an important finding because, prior to the current study, correctional nurses' health has not been extensively studied. The current findings suggest that these will be an important outcome to consider, especially given that occupational stress and health outcomes are deeply related. In addition, more violent workplaces as well as higher risk of exposure to infectious diseases could play a role in this (Earley, 1999; Flanagan & Flanagan, 2002). In addition, stress was the most reported health condition across both groups of nurses. For correctional nurses, stress was followed by a need to lose weight for appearance reasons, followed by joint pain, sleeplessness, and a need to lose weight for health reasons, as Figure 2 shows.

Limitations

This study has several notable limitations. First, the online nature of the survey made it less accessible to some correctional nurses. Most prisons have limited or no internet access for employees, additionally there is little "down-time" on the job, making survey completion at work difficult, if not impossible. Furthermore, some sites prohibited nurses from completing the survey during work hours, which meant that nurses had to complete this survey in their own free time.

It stands to reason, then, that the stress levels reported from this survey may be lower than those experienced in actuality, due to the fact that nurses experiencing high stress levels may not have the time to complete a survey during or after work. Furthermore, lottery incentives were offered to some, but not all nurses, and especially correctional nurses, due to the fact that employees are not permitted to receive outside compensation during work hours. Geographic sampling of the nurses was also biased, as many correctional sites were within the northeast census region, which may mean that results do not characterize other regions as well as the northeast. In addition, this oversampling of particular census regions resulted in an inability to perform detailed geospatial analyses of the data.

Second, several non-correctional nurses were recruited from professional organizations. One of these associations consists of many nurse educators, and many nurses in this group have advanced degrees. Additionally, cost of membership is high, indicating that lower income nurses may not be able to afford membership and therefore would not have been captured in the current study sample.

Finally, to assess stress and health outcomes, one stress instrument, one marketing institute survey, and questions from a Gallup Survey Poll for Worker Health and Well Being were used. Many other studies of stress have used a combination of standardized instruments including the General Health Questionnaire and the Maslach Burnout Inventory to assess stress and health outcomes as well. In addition, the survey did not include variables that would be important to consider in future studies. One of which was length of time in role. The survey also did not ask the non-correctional nurses about their work setting; thus, it

is impossible to know what other types of settings these nurses came from, which could have provided more insight into the findings from this study as well.

Conclusions

The current study results suggest that there are several important predictors of occupational stress and health outcomes for both correctional and non-correctional nurses. Home/work conflict, length of shift, work environment, and work satisfaction are all significant predictors of occupational stress for both groups of nurses. In addition, for health outcomes, correctional nurses have poorer health in comparison to non-correctional nurses. In addition, factors such as occupational stress levels, gender, availability of community resources, use of antidepressants, and BMI are all significantly related to health outcomes. A more in-depth analysis of these predictors could add to the growing body of knowledge regarding nurses' stress and health. The findings of this study can help provide a foundation for further research on nurse stress and its implications for health outcomes.

References

- Adler, N. E., Boyce, W. T., Chesney, M. A., Folkman, S., & Syme, S. L. (1993). Socioeconomic inequalities in health: no easy solution. *JAMA*, 269(24), 3140-3145.
- Agorastos, A., Demiralay, C., & Huber, C. G. (2014). Influence of religious aspects and personal beliefs on psychological behavior: focus on anxiety disorders. *Psychological Research and Behavioral Management*, 7, 93-101.
- Albert, N. M., Butler, R., & Sorrell, J. (2014). Factors Related to Healthy Diet and Physical Activity in Hospital-Based Clinical Nurses. *OJIN: The Online Journal of Issues in Nursing*, 19(3).
- American Psychological Association. (2015). *Stress in America*. Retrieved from <http://www.apa.org/news/press/releases/stress/2014/stress-report.pdf>
- Blegen, M. A. (1993). Nurses' job satisfaction: A meta-analysis of related variables. *Nursing Research*, 42(1), 36-41.
- Chaffin, W. S., & Biddle, W. L. (2013). Nurse retention in a correctional facility: A study of the relationship between the nurses' perceived barriers and benefits. *Journal of Correctional Health Care*, 19(2), 124-134.
- Decker, F. H. (1997). Occupational and non-occupational factors in job satisfaction and psychological distress among nurses. *Health Research in Nursing & Health*, 20(5), 453-464.
- Doyle, J. (1999). A qualitative study of factors influencing psychiatric nursing practice in australian prisons. *Perspectives in Psychiatric Care*, 35(1), 29-35.
- Earley, J. (1999). Nursing behind bars. *Minnesota Nurse*, spring-summer, 22-25.

- Elfering, A., Grebner, S., Semmer, N. K., & Gerber, H. (2002). Time control, catecholamines and back pain among young nurses. *Scandinavian Journal of Work, Environment & Health Scandinavian Journal of Work, Environment, Health*, 28(6), 386-393.
- Flanagan, N. A., & Flanagan, T. J. (2002). An analysis of the relationship between job satisfaction and job stress in correctional nurses. *Research in Nursing & Health*, 25(4), 282-294.
- Flanagan, N. (2006). Testing the Relationship Between Job Stress and Satisfaction in Correctional Nurses. *Nursing Research*, 55(5), 316-327.
- Friedman, E. M., & Herd, P. (2010). Income, education, and inflammation: differential associations in a national probability sample (the MIDUS study). *Psychosomatic Medicine*, 72(3), 290-300.
- Han, K., Trinkoff, A. M., Storr, C. L., & Geiger-Brown, J. (2011). Job stress and work schedules in relation to nurse obesity. *Journal of Nursing Administration*, 41(11), 488-495.
- Harris, P.E. (1989). The Nurse Stress Index. *Work & Stress*, 3, 335-346.
- Johnson, B. T., Redding, C. A., DiClemente, R. J., Mustanski, B. S., Dodge, B., Sheeran, P., ... & Fishbein, M. (2010). A network-individual-resource model for HIV prevention. *AIDS and Behavior*, 14(2), 204-221.
- Karasek, R., Baker, D., Marxer, F., Ahlbom, A., & Theorell, T. (1981). Job decision latitude, job demands, and cardiovascular disease: A prospective study of Swedish men. *American Journal of Public Health*, 71(7), 694-705.
- Kar, S., & Suar, D. (2014). Role of Burnout in the Relationship between Job Demands and Job Outcomes among Indian Nurses. *Vikalpa: The Journal for Decision Makers*, 39(4), 23-37.

- Landa, J. M. A., López-Zafra, E., Martos, M. P. B., & del Carmen Aguilar-Luzon, M. (2008). The relationship between emotional intelligence, occupational stress and health in nurses: A questionnaire survey. *International Journal of Nursing Studies*, 45(6), 888-901.
- Landau, K., 1992. Psycho-physical strain and the burn-out phenomenon amongst health care professionals. In: Estryn-Behar, M., Gadbois, C., Pottier, M. (Eds.), *Ergonomie al'hopital*. International Symposium Paris. Editions Octares, Toulouse.
- Lee, I., & Wang, H. (2002). Perceived Occupational Stress and Related Factors in Public Health Nurses. *Journal of Nursing Research*, 10(4), 253-260.
- Mark, G., & Smith, A. P. (2012). Occupational stress, job characteristics, coping, and the mental health of nurses. *British Journal of Health Psychology*, 17(3), 505-521.
- Maslach, C., & Jackson, S. E. (1984). Burnout in organizational settings. *Applied Social Psychology Annual*, 5, 133-153.
- Mcgrath, A., Reid, N., & Boore, J. (2003). Occupational stress in nursing. *International Journal of Nursing Studies*, 40(5), 555-565.
- Monroe, S. M., & Simons, A. D. (1991). Diathesis-stress theories in the context of life stress research: implications for the depressive disorders. *Psychological Bulletin*, 110(3), 406-425.
- Polk, D. E., Cohen, S., Doyle, W. J., Skoner, D. P., & Kirschbaum, C. (2005). State and trait affect as predictors of salivary cortisol in healthy adults. *Psychoneuroendocrinology*, 30(3), 261-272.

- Santos, S. R., Simon, S. D., Carroll, C. A., Bainbridge, L., Cox, K. S., Cunningham, M., . . . Ott, L. (2003). A Four-Site Study of Stress, Strain, and Coping for Inpatient Registered Nurses. *JONA: The Journal of Nursing Administration*, 33(4), 243-250.
- Segerstrom, S. C., Castañeda, J. O., & Spencer, T. E. (2003). Optimism effects on cellular immunity: testing the affective and persistence models. *Personality and Individual Differences*, 35(7), 1615-1624.
- Shen, H., Cheng, Y., Tsai, P., Lee, S. S., & Guo, Y. L. (2005). Occupational Stress in Nurses in Psychiatric Institutions in Taiwan. *Journal of Occupational Health*, 47(3), 218-225.
- Shader, K., Broome, M. E., Broome, C. D., West, M. E., & Nash, M. (2001). Factors influencing satisfaction and anticipated turnover for nurses in an academic medical center. *Journal of Nursing Administration*, 31(4), 210-216.
- Shields, K. E., & de Moya, D. (1997). Correctional health care nurses' attitudes toward inmates. *Journal of Correctional Health Care*, 4(1), 37-59.
- Stockdale, S. E., Wells, K. B., Tang, L., Belin, T. R., Zhang, L., & Sherbourne, C. D. (2007). The importance of social context: neighborhood stressors, stress-buffering mechanisms, and alcohol, drug, and mental health disorders. *Social Science and Medicine*, 65(9), 1867-1881.
- Taylor, S. E. (2015). *Health psychology*. (9th Ed.) New York, NY: McGraw Hill
- Tarnow-Mordi, W., Hau, C., Warden, A., & Shearer, A. (2000). Hospital mortality in relation to staff workload: A 4-year study in an adult intensive-care unit. *The Lancet*, 356(9225), 185-189.
- Tyler, P., & Cushway, D. (1992). Stress, coping and mental well-being in hospital nurses. *Stress medicine*, 8(2), 91-98.

US Department of Justice, Bureau of Justice Statistics (2013). Corrections statistics.

Retrieved October 18, 2014, from:

<http://www.bjs.gov/index.cfm?ty=pbdetail&iid=5109>.

Watson, H., Whyte, R., Schartau, E., & Jamieson, E. (2006). Survey of student nurses and midwives: smoking and alcohol use. *British Journal of Nursing*, 15(22), 1212-1216.

Weiskopf, C. S. (2005). Nurses' experience of caring for inmate patients. *Journal of Advanced Nursing*, 49(4), 336-343.