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Final closeout report for

Workplace Violence Nursing Health & Employment Outcomes:

The “Safe at Work” Study

Awarded to Johns Hopkins University

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List of Terms and Abbreviations

Violence finds its expression in physical assault, homicide, verbal abuse, bullying, sexual harassment, and psychological stress. Violence does not only occur as one single incident, but also may be expressed in repeated small incidents which together create severe harm.

Workplace violence	Incidents where staff are abused, threatened or assaulted in circumstances related to their work involving an explicit or implicit challenge to their safety, well-being or health. ¹
Physical assault	The use of physical force against another person or group that results in physical, sexual or psychological harm. Includes beating, kicking, slapping, stabbing, shooting, pushing, biting, pinching, among others. ²
Sexual assault	The sexual contact of one person with another without appropriate consent. ³
Stalking	A persistent pattern of behavior in which one person uses intimidating and coercive tactics to maintain a relationship with another person. Some people are stalked by current or past intimate partners, or by people who would like to become an intimate partner. Others can be stalked by people they barely know.
Emotional abuse	Intentional use of power against another person or group that can result in harm to physical, mental, spiritual, moral or social development. ⁴ May include any of the following: <ul style="list-style-type: none">• Behavior that humiliates degrades or otherwise indicates a lack of respect for the dignity and worth of an individual.⁵• Repeated and over time offensive behavior through vindictive, cruel, or malicious attempts to humiliate or undermine an individual or groups of employees.⁶• Any conduct based on age, disability, HIV status, domestic circumstances, sex, sexual orientation, gender reassignment, race, color, language, religion, political, trade union or other opinion or belief, national or social origin, association with a minority, property, birth or other status that is unreciprocated or unwanted and which affects the dignity of men and women at work.⁷• Any threatening conduct that is based on race, colour, language, national origin, religion, association with a minority, birth or other status

that is unreciprocated or unwanted and which affects the dignity of women and men at work.⁸

Sexual harassment Any unwanted, unreciprocated and unwelcome behavior of a sexual nature that is offensive to the person involved, and causes that person to be threatened, humiliated or embarrassed.⁹

Threat Promised use of physical force or power (i.e. psychological force) resulting in fear of physical, sexual, psychological harm or other negative consequences to the targeted individuals or groups.

1. *Adapted from European Commission DG-V*
2. *Adapted from WHO definition of violence.*
3. *Adapted from the American College of Emergency Physicians' Evaluation and Management of the Sexually Assaulted or Sexually Abused Patient, 1999, Overview, p.7*
4. *Adapted from WHO definition of violence.*
5. *Adapted from Alberta Association of Registered Nurses*
6. *Adapted from ILO – Violence at Work*
7. *Adapted from Human Rights Act, UK*
8. *Adapted from Human Rights Act, UK*
9. *Adapted from Irish Nurses Organisation*

Baseline, T1, T2, T3: 4 rounds of data were collected.

- T1 represents Time 1 from Baseline, which was the 2nd round of data collection (6 month follow-up)
- T2 represents Time 2 from Baseline, which was the 3rd round of data collection (12 month follow-up)
- T3 represents Time 3 from Baseline, which was the 4th round of data collection (18 month follow-up)

Child sexual abuse (CSA)

Intimate partner abuse (IPA)

Intimate partner violence (IPV)

Workplace violence (WPV)

Abstract

Workplace violence, including workplace intimate partner violence, has major long-term health and employment outcomes and affects nursing personnel in significant numbers. By affecting productivity, absenteeism and job satisfaction workplace violence also may significantly affect nursing personnel retention and therefore the nursing shortage. The overall purpose of this investigation was to identify individual, environmental and organizational risk and protective factors for negative health and employment outcomes from all forms of workplace violence, including intimate partner workplace violence, among nursing personnel. The study population was derived from a large medical institution, consisting of three hospitals, an inner city medical center, Johns Hopkins Hospital, a metropolitan Baltimore community hospital, Johns Hopkins Bayview, and a suburban medical center, Howard County General Hospital. The three hospitals, known as the Johns Hopkins Medical Institutions (JHMI), employ approximately 4164 nursing personnel. A confidential online survey of workplace violence was used to obtain responses from 2166 (52% response rate) nurses (76%) and nursing personnel (24%) from one large urban, one medium sized community and one small suburban hospital. Cases who experienced WPV in the past year (N = 652) were prospectively followed and compared with a random sample of controls who had never experienced workplace violence (N = 1038). Participants completed follow-up questionnaires at 3 consecutive 6-month intervals; of the 1690 participants selected for follow-up, 1355 (80%) completed the Round 2 questionnaire, 1267 (75%) completed Round 3, and 1179 (70%) completed Round 4. Prevalence and descriptions of the episodes of workplace violence were obtained, including type (physical, sexual, emotional, harassment, stalking, witnessed violence), injury, reporting, organizational response, and any interventions received. Case and control groups were compared in terms of health (injury, physical and mental health symptoms and medical records), and employment outcomes (productivity, job satisfaction, burnout, lost work time, intent to stay in employment, and return to work), controlling for lifetime trauma and prior health and employment status. Multivariate logistic regression was utilized to determine the risk factors for physical and psychological WPV. Those experiencing intimate partner violence (IPV) at the workplace (including stalking) were also compared with other workplace violence survivors, survivors of IPV outside of the workplace, and those who have never experienced either IPV or workplace violence. At baseline, 30.3% of the participants reported experiencing physical (19.8%) and/or psychological (20%) WPV in the past 12 months. Approximately 10% of those physically assaulted were injured. At the first follow-up period the response rate was 81.3% (n=1378). 37% of follow-up participants reported experiencing physical (23.9%) and/or psychological (24.5%) violence in the approximately 6 months between baseline and follow-up surveys. Of

those who reported experiencing WPV at follow-up, 21.8% had not reported experiencing WPV at Baseline. Nurses and nursing personnel working in the emergency department were found to be at greatest risk for experiencing WPV compared to those working in other hospital sites. Additional risk factors included male gender, younger age, and experiences of childhood abuse or intimate partner violence.

Section 1

Highlights/Significant Findings

- Overall, 30% of the nurses/nursing personnel reported some form of workplace violence during the previous 12-month period, with a prevalence of 19.4% and 19.9% for physical and psychological violence respectively.
- Prevalence was higher for nurses as compared to non-nurses, with a difference of 6.4% for psychological violence ($c^2 = 10.07$, $p=.002$), 8.1% for physical violence ($c^2 = 16.57$, $p<.001$), and 10.8% ($c^2 = 21.77$, $p<.001$) for any episode of WPV.
- By site, the prevalence of any workplace violence ranged from 27.9 to 36.0 per 100 and differed significantly across sites ($c^2 = 8.13$, $p=.043$), with the highest rate at the geriatric care center and the lowest rate at the large urban medical center.
- When examined by unit, the greatest annual prevalence per 100 workers was found for the emergency department and psychiatry, with both units exceeding rates of 50/100 workers, followed by neurology at nearly 40/100, and long term care or pediatrics with both units exceeding rates of 30/100.

For physical WPV, the emergency department and psychiatry had by far the highest rates (35/100 and 33/100 respectively)

- Among those who experienced physical violence, the majority of participants indicated at least one incident (90.2%) involving a patient as perpetrator, followed by participants (27.0%) who had experienced violence from a patient relative
 - More than 10% of the participants reported a physically violent incident involving another perpetrator, including co-workers (7.6%), physicians (1.5%), and supervisors (1.7%).
- Slightly more than half (54.0%) of those who experienced psychological violence said a patient perpetrated the violence, with 32.8% reporting an incident involving a patient's relative.

Approximately one-third (35.5%) of the participants reported an incident of psychological workplace violence with a co-worker as perpetrator, 22.8% reported a physician as perpetrator, and 11.3% stated that they had faced psychological violence at the hands of their supervisor.

- Risk factors for physical workplace violence during the past year:
 - Length of employment between one and 20 years significantly increased risk of physical WPV during the past 12 months, compared to those employed for less than one year.
 - Those participants employed over 20 years did not have a significantly increased risk for physical WPV within the past year.
 - Males were nearly twice as likely to have experienced physical WPV compared to females.
 - Risk of physical WPV is 60% greater for nurses than non-nurses.

- Black/African American and Asian/Pacific Islander participants were less likely than White participants to experience WPV
- Risk increased with age.
- Those who had experienced child physical abuse and those who reported lifetime IPV were at 60% and 111%, respectively, greater risk of physical WPV.
- The obstetrics and gynecology (OB/GYN) department had the lowest risk of physical WPV and was, therefore, used as the referent category for administrative unit analysis. Risk was approximately 9 times greater for those working in the emergency and psychiatry departments, and between 4-5 times greater for those in neurology and pediatrics.
- Risk factors for psychological violence during the past year
 - Black/African American respondents were less likely to experience psychological WPV than White participants.
 - Unlike for physical WPV, other demographic characteristics were non-significant.
 - Respondents who experienced child physical abuse or child sexual abuse were 50-60% more likely to experience psychological WPV.
 - Lifetime IPV increases risk for psychological WPV by nearly 90%.
 - There is an increased risk of psychological WPV for those whose length of employment was 1 year or greater as opposed to less than 1 year.
- WPV as well as history of childhood abuse and intimate partner violence were all significantly associated with depression and PTSD among nurses and nursing personnel
- Different types of violence tend to occur together with many nurses (although not all) who experience high levels of workplace violence tending to also have experienced high rates of childhood and romantic forms of violence.

Nurses who had experienced childhood and intimate partner abuse were at highest risk for PTSD (AOR = 6.6) and current depression (AOR = 3.6) while those who experienced intimate partner and WP violence also were at increased but lower risk for PTSD (AOR = 5.3) and current depression (AOR = 2.3) while those who experienced WPV alone were at a slight increased risk for depression (AOR = 1.4).
- Significant risk factors for physical health problems at baseline included past year physical and/or psychological WPV (AOR = 1.43); lifetime intimate partner violence (IPV) (AOR = 1.32); caregiving responsibilities for children not your own or elders (AOR = 1.43); as well as being in a supervisory position (AOR = 1.57), being Asian or Pacific Islander (AOR = 1.81) and depression (AOR = 2.14). Being married was protective (AOR = .78).
- Psychological health problems were significantly predicted by psychological (not physical) WPV (AOR = 1.22); IPV (AOR = 1.70); white race/ethnicity (AOR = 1.40), and childhood physical and/or sexual abuse (AOR = 1.38). Marriage was again protective (AOR = .74)
- Female nurses who experienced physical WPV in the past year had a 6.15 percent (95% CI: 3.76, 8.54) increase in patient burnout score as compared to nurses who did not

report WPV at baseline, controlling for health status, age, race, the presence of organizational social support, and other work variables.

- Both physical and psychological WPV had strongly positive associations with work burnout score at both baseline and six-month follow-up (T1: $\beta=4.23$ and 7.94 for psychological and physical WPV, respectively).
- Coworker support was a significant and strong protective factor against all types of burnout (patient, work, personal), as well as total burnout, at the 6-month follow-up.
 - Supervisor support was a protective factor against patient burnout but not the other kinds of burnout at the 6-month follow-up
- Experiences of workplace violence (case/control status) were associated with termination of employment from the institution by chi square analysis ($p < .05$) at T2 and T3.

Translation of Findings

The research team has a strong commitment to connect research with real world practice. We have committed to sharing our findings with our research participants, as well as the greater research and practice community. In addition to disseminating study findings in peer-reviewed publications, we have strived to make information accessible through a “preliminary findings” page on the study website, which has been updated with each round of data collection. (http://www.jhmisafework.org/jhmisafework_T3/studyInfo/preliminary.pdf)

Presentations to each participating study site have been conducted at continuing education sessions, internal HR conferences, the risk assessment team meeting, nursing administration meetings and more are underway. We have also presented findings to numerous conferences. There is currently training on WPV being planned for the emergency department and a training intervention for civility at the workplace to address workplace bullying is being tested with state funding after consultation with the PI of the Safe at Work study and based on our findings. Below is a brief outline of interventions that have been suggested to nursing administrators and HR during presentations by the Principal Investigator that included a detailed presentation of the study methodology and findings.

Nursing personnel who experience **physical or psychological WPV** are at risk for emotional & physical distress in the form of physical and mental health symptoms and patient, work, and personal burnout

- Experiences of intimate partner violence and physical WPV are significantly associated with physical health problems among nurses and nursing personnel as are caregiving responsibilities for elders and children not one’s own.
- Experiences of childhood abuse and intimate partner violence as well as psychological WPV are predictive of psychological problems among nurses and nursing personnel

- **Depressive symptoms** are significantly associated with all types of WPV and all types of burnout;
- **Being a nurse (vs. nursing personnel)** was significantly predictive of all burnout;
- Baseline **coworker support** is a significant & strong protective factor against all types of burnout
- **Supervisor support** is protective against work burnout
- Interventions
 - enhanced centralized reporting of both physical and psychological WPV with supervisor training as to how to receive and record reports and worker training as to benefits of reporting
 - explore confidential reporting
 - developing effective workplace policy to reduce both physical and psychological WPV – making both policies and training specific to the particular types of WPV, perpetrators most responsible and units most affected by those types
 - recognizing & addressing staff depressive symptoms
 - providing assessment and counseling for experiences for childhood abuse and intimate partner violence for nurses and nursing personnel, especially those with chronic physical and mental health problems
 - strengthening supportive workplace climate

“Research to Practice” (r2p) Panel

The research team has also developed a proposal for a “Research to Practice” (r2p) Panel, and is exploring its implementation. This was especially driven by a desire to represent the needs of employees affiliated with bargaining units. Early discussions have found that there are strong concerns among the participating institutions about how data from the project could be politicized by the differing interests of administration, employees, and bargaining units. This has necessitated a focus of translating the findings to “healthcare settings which may be similar,” rather than application to our participating institutions.

Background and Mission: The Research to Practice (r2p) Panel is based on the NIOSH initiative that focuses on the translation of research findings and information into effective prevention practices and products to be adopted in the workplace. The panel members represent the groups who have a mutual interest in the health and well being of workers who have experienced violence in their workplace and who may be at risk of further adverse outcomes. The panel will meet periodically to consider the results of the Safe at Work study in the broad context of the health care environment and will share with the investigators suggestions that may be offered to health care organizations with like concerns.

A panel will be comprised of a mix of representatives – admin, RNs, non-professional nursing personnel – whose purpose would be to consider our results and offer suggestions as a group about

how these might be put into practical use by health care institutions in general. We propose calling our group the Research to Practice Panel, and we would have representatives from all 4 sites. That way we could solicit their reflections from various settings – long term care, critical care, etc – where the practice implications might differ widely.

Future research

While environmental factors, such as lighting and employee provided cellular telephones or portable alarms, may serve as protective factors against WPV¹, these factors were not examined in this research. Future research should continue to examine the effect of workplace physical environment on the likelihood of WPV.

Outcomes/Relevance/Impact

Workplace violence is a common experience for both nurses and other nursing personnel and is significantly associated with general physical health outcomes as well as injury. Depression is an important mediator of the effects of various types of trauma (WPV, IPV, and CSA) on health as well as having a direct effect as strong as the trauma. When experiences of trauma and depression are considered, other usual predictors of health are no longer significant. Therefore prevention of WPV as well as interventions to address IPV and the effects of CSA and depression are important in preserving the health of nursing and other patient care personnel.

None of the prior major comparable studies have examined the relationship of trauma history to WPV, even though many investigations of other forms of violent victimization have found early violence experiences to be risk factors for later violence (e.g. Early victimization may have increased the recognition of verbal aggression as violence.) Experiences of trauma may also result in PTSD symptoms of hypervigilance which may lead to escalation of tense situations rather than being able to defuse the situation.

Section 2

Scientific Report

Background for the Project

Homicide in the workplace was the third leading cause of fatal occupational injuries for all workers in 2007 and the second leading cause of fatal occupational injuries for women (US BLS, 2007). Workplace violence that results in fatality is well documented and often highly publicized. Yet, incidents of nonfatal workplace violence (WPV), defined as physical and verbal assault as well as threat of assault², are generally considered to be underreported³. Nonfatal occupational violence against women is even less likely to be reported than violence against men⁴. Still, women accounted for roughly 61% of nonfatal WPV victims in 2003⁵. For nurses and nurse aides working within the United States, of which 91% are female (US BLS, 2007), WPV is cause for concern. An estimated 60% of workplace assaults occurred in health services, social assistance, and personal care occupations (Wolfe, 2006).

Violence against healthcare workers has been recognized as an occupational health hazard, compromising the personal safety of nurses as well as their patients. According to the Bureau of Labor Justice Statistics, from 1993-1999, nurses were victims of nonfatal assaults at a rate 72% higher than medical technicians and more than twice the rate of other medical field workers⁴. Recent investigations reveal that nurses attribute absenteeism and a desire to leave the profession to workplace violence^{6,7,8} and health care workers who had been victims of workplace violence experienced a decrease in positive affect toward their jobs⁸. Of workers who had experienced violence, as many as 36% report fear as a result⁹. Lateral violence, violence between and among workers, is also of particular concern for nurses¹⁰, as disruptive behaviors and a hostile working environment can cause medical errors¹¹. Given the current shortage of nurses and crisis in nursing recruitment, workplace violence must be recognized as a significant factor in the recruitment and retention of nursing professionals.

There is wide variation in reports of violence experienced by nurses, related to differing operational, setting and population definitions; time frames; and study design. When examining studies that have focused on nurses and nursing personnel who are *not* in specialized settings (e.g., psychiatric units, nursing home), the prevalence of physical assault ranges from 9.5% to 31.7% of relatively large (n=413-34,107) and international samples.^{1,12-21} Psychological violence, including harassment, threats and verbal abuse, is more prevalent, with between 23.6% and 96% of nurses experiencing verbal abuse in relatively large (n=264-4,918) international samples with non-specified perpetrators.^{12,16-20,22-25} However, in two studies in which prevalence of verbal abuse was reported and where perpetrators were specified as other healthcare personnel, there was also wide variation. The prevalence of harassment was reported to be 5.9% by coworkers¹³, 8% by supervisors¹³ and 90% by physicians.²⁶ Physical and non-physical violence are not mutually exclusive. Nurses and nursing personnel who have experienced physical violence often have experienced verbal abuse, harassment from superiors, sexual harassment, and threats.^{15,27}

The majority of physical violence against health care professionals is perpetrated by patients.^{16,17,27-29} Most studies also have found that patients' relatives are the second most common perpetrators of physical violence,^{16,29} although some have found coworkers²⁸ or supervisors¹⁷ as the second most common source of violence. The proportion of perpetrators who commit verbal abuse is more varied depending upon the study. Common perpetrators include patients, patients' relatives, physicians, coworkers, and supervisors.^{16,17,22,24,25,27,28} In two studies physicians were identified as the most frequent perpetrators of verbal abuse.^{23,25}

Fewer studies, and only one other US study, have examined risk factors for physical and verbal abuse among nurses and nursing personnel in general medical settings.^{1,17,27} International research has examined risk factors,^{13,15,18,30} yet the differences in healthcare policy and culture may decrease the generalizability of those findings. It appears that Licensed Practical Nurses (LPNs) and Nursing Aides are more likely to experience violence than Registered Nurses (RNs),^{13,15,27} although few studies have examined differences in risk factors among these groups.²⁷ In one study, LPNs were at increased risk of physical violence when they had been in the profession greater than 10 years and when their primary activity was supervisory; while RNs were at increased risk when they were performing direct patient care.²⁷

In almost all studies, working in the emergency department,^{1,13,15,17,27} psychiatric units,^{1,13,15,17-19,27} intensive care,^{17,27} and geriatrics/long term care^{1,13,15,17,27} has been found to increase the risk for physical assault and verbal abuse in comparison to other settings. Other workplace factors found to increase the risk of physical assault are uncertainty regarding patient treatment, poor quality teamwork, role conflict and ambiguity, time pressures, dissatisfaction with work schedules, high levels of physical strain at work, frequent interruptions, irregular hours, and nursing shortages.^{13,15}

Personal characteristics are also related to experiences of workplace violence. Male nurses report higher levels of physical and non-physical violence than do female nurses.^{13,15,18,27,30} Younger age^{13,15,27} and having an Associate Degree education in comparison to diploma or Bachelor Degree are related to increased physical and nonphysical workplace violence.²⁷ In addition, nurses who have poor interpersonal relationships with supervisors, management, colleagues, physicians and/or administration are at higher risk for experiencing physical violence.¹³ Race and the number of years worked as a nurse or in a particular department appear to have little effect on the experience of violence in the workplace.²⁷

There is wide variation in the estimates of physical and psychological WPV among nurses and nursing personnel. Only one US study has investigated the risk factors for WPV in this population, and no research has included other forms of interpersonal violence as risk factors for WPV. Therefore, this study addressed six major specific aims as listed below:

Specific Aims

1. To investigate the association between individual factors (trauma history, work history, incident characteristics) and organizational factors (staffing levels, organization of work, and hours worked) with post violent incident outcomes over time for nursing personnel in the health care setting.
2. To identify the prevalence of officially reported compared to self reported WPV and the factors that influence reporting of workplace violence among nursing personnel.
3. To analyze the prevalence and impact of intimate partner violence (IPV) in and outside the workplace on nursing personnel and its potential interactions with other forms of workplace violence on post violent incident outcomes.
4. To identify the risk factors and causal pathways for “negative” sequelae of violence affecting health care workers, e.g., physical and mental health effects, decreased retention (resignation), lowered productivity, lost work time, job dissatisfaction.
5. To describe the predictors of intent to stay and return to work following a WPV incident.
6. To evaluate the impact of existing interventions designed to manage the sequelae of workplace violence.

Methods

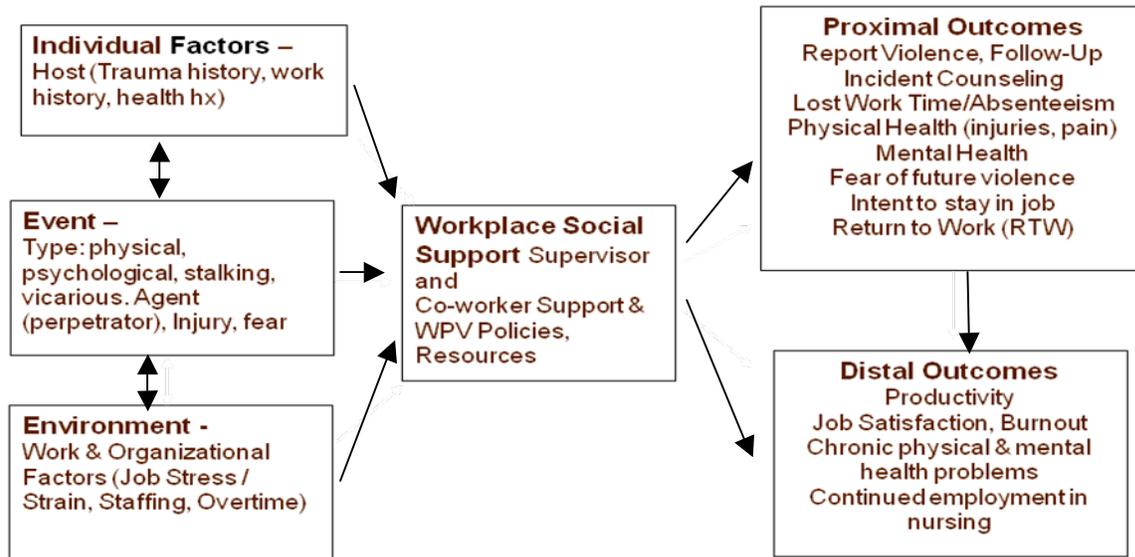
The basic methods of the project will be described below along with data management and general statistical approaches. Specific data analysis will be described along with the results for each section. This research was approved by the Johns Hopkins Medicine Institutional Review Board.

Conceptual Framework

The framework for this study was the Haddon matrix³¹³², which applies the principles of public health to prevent or minimize the consequences of injuries. The model is organized by phase of the injury event: pre-event, event, and post-event and by the four potential targets for intervention strategies: host, agent or vehicle, physical environment, and social environment. Data collection, therefore, focused on characteristics of the individuals who experienced workplace violence (host), the source of violence (agent), as well as the physical and social settings in which the events occurred. Participants provided demographic data as well as information about their work histories, such as position title and length of employment. Participants were asked about their past experience with childhood and intimate partner violence as well as with other types of violence not related to work. The agents, or perpetrators, consisted of patients, their relatives, or other employees (such as supervisors, physicians, or co-workers). With regard to setting, we determined participants’ institutions and departments (i.e., units of practice). Social environment variables included staffing levels, supervisor and co-worker support, and policies regarding the institution’s response to violence.

Figure 1: Haddon Matrix adapted for conceptual framework for study

Measured Variables and Conceptual Model



• Haddon Matrix adapted for conceptual framework for study

Procedures

This longitudinal study consisted of a baseline questionnaire and three follow-up assessments at 6-month intervals. Study participants were recruited from four hospital settings -- a large urban medical center, an affiliated community hospital, a suburban community hospital, and a geriatric care center. Participants were eligible if they were nursing personnel, English speaking, at least 18 years of age, and had been employed at the participating area hospital for at least 4 weeks prior to baseline assessment. "Nursing personnel" was defined as any employee who reported to a Nurse Manager and had patient care responsibilities, and included Directors of Nursing through Support Associates providing transport and meal service, etc. Personnel who did not meet these criteria were excluded from participating in the research.

At baseline, participants were recruited by announcements during department staff meetings, flyers, postings to the hospital intrastaff electronic communication system, and information tables. Participants who completed the baseline questionnaire received \$10 coupons to the hospital cafeteria, and each unit that achieved a 70% participation rate received a pizza party. 2,166 participants were enrolled to the study and completed a baseline

questionnaire (52% response rate). The majority (90%) completed the confidential questionnaire on a secure website; 10% opted to complete a paper version.

A case control sample was selected for follow up, including all respondents who initially reported experiencing physical or psychological WPV (N=652) and a random sample of respondents who did not report experiencing WPV (N=1038).

Rigorous retention efforts for follow-up at T1-T3 included letters, emails, phone calls, flyers distributed to workplace mailboxes, and postings to the hospital intrastaff electronic communication system. Strong efforts were made to retain participants who had left employment at the hospital, because of their importance for measuring employment outcomes among this population. Participants received a \$15 check for each completed round of follow-up questionnaire. Of the 1690 participants selected for follow-up, 1355 (80%) completed the Round 2 questionnaire, 1267 (75%) completed Round 3, and 1179 (70%) completed Round 4.

Definitions of Workplace Violence

Physical and psychological WPV were based on definitions and a survey developed by the Joint Programme on Workplace Violence in the Health Sector, a collaboration between the International Labour Office, International Council of Nurses, World Health Organization, and Public Services International.(23) The experience of physical WPV was defined as “the use of physical force against another person or group, or threat of physical force, that results in physical, sexual or psychological harm.” Psychological WPV was defined as “verbal abuse, bullying, stalking, or sexual harassment.” Participants were asked whether they had experienced physical and/or psychological WPV within the previous year. Based on these responses, it was possible to classify each participant as having had the experience of: 1) physical violence only; 2) psychological violence only; 3) both physical and psychological violence; or 4) no experience of violence within the previous year. Physical and psychological WPV are not mutually exclusive. To measure the prevalence of and risk factors for physical WPV, participants who had experienced physical WPV, regardless of whether they had also experienced psychological WPV, were designated as cases. Psychological WPV was treated in the same manner. Those with no experience of physical or psychological WPV in the previous year were excluded from case status. The multivariate analyses to examine potential predictors of WPV were conducted separately for physical and psychological WPV, and case status was treated in the same manner.

Measures

Workplace violence (WPV) case-assessment for physical and psychological WPV was based on a survey developed by the Joint Programme on Workplace Violence in the Health Sector, a collaboration between the International Labour Office, International Council of Nurses, World Health Organization, and Public Services International.(23) Participants were asked whether they had experienced physical and/or psychological WPV within the previous year. Based on these responses, it was possible to classify each participant as having had the experience of: 1) physical violence only; 2) psychological violence

only; 3) both physical and psychological violence; or 4) no experience of violence within the previous year. Physical and psychological WPV are not mutually exclusive. To measure the prevalence of and risk factors for physical WPV, participants who had experienced physical WPV, regardless of whether they had also experienced psychological WPV, were designated as cases. Psychological WPV was treated in the same manner. Those with no experience of physical or psychological WPV in the previous year were excluded from case status. The multivariate analyses to examine potential predictors of WPV were conducted separately for physical and psychological WPV, and case status was treated in the same manner.

Intimate Partner Violence (IPV) and Intimate Partner Abuse (IPA) experiences were assessed using an adaptation of the Abuse Assessment Screen (AAS) reflecting the Centers for Disease Control and Prevention definitions of physical and sexual intimate partner violence (Saltzman et al., 1999) and psychological abuse. The AAS is both a reliable and valid measure of detecting partner abuse (Soeken et al., 1998). Four questions were asked of the participant at baseline and follow-up: (1) Have you ever been physically assaulted, sexually assaulted, threatened with physical or sexual assault or stalked by a former or current intimate partner? (2) Have you been hit, slapped, kicked, pushed, or otherwise physically hurt by a former or current intimate partner? (3) As an adult, have you ever been forced into sexual activities by a former or current intimate partner? IPA was assessed with this question: (4) As an adult, have you ever been emotionally abused or sexually harassed by a former or current intimate partner? Respondents who answered in the affirmative to any one of the four questions were considered to have experienced IPV/A.

Burnout was defined as a state of prolonged physical and psychological exhaustion, and was measured by the Copenhagen Burnout Inventory (CBI), a 19-item scale measuring three domains of burnout: patient burnout, work-related burnout, and personal burnout (Kristensen et al., 2005). Likert scale response categories include Always, Often, Sometimes, Seldom, and Never/almost never; a total score of 1-100 (100 being the most severe) is generated by averaging the item responses for each domain of burnout. The CBI has a high internal reliability ($\alpha=.87$), and prior research with other samples in the human services sector demonstrates the association between burnout and adverse mental health and job-related outcomes (Aiken et al., 2002; Vahey et al., 2004).

Workplace Social Support was measured by the Job Content Questionnaire (JCQ), a questionnaire measuring the psychological and social structure of the workplace, specifically the supervisor and coworker support scales, each comprising four items on the degree to which coworkers/supervisors: show concern; express interest; are hostile; are friendly or helpful, (test retest reliability for all scales ≥ 0.90) (Karasek & Theorell, 1990).

Depression was measured using the Center for Epidemiologic Studies Depression Scale short form (CESD-10), a 10-item screening questionnaire. Factor analyses demonstrate that this briefer forms tap the same depression symptom domains as does full-length 20-item original CES-D, and with comparable reliability using a cut-off score > 10 on the CESD-10 and a cut-off score > 16 for the full CES-D ($\kappa = .97$, $P < .001$) (Radloff, 1977; Andresen et al., 1994).

Post Traumatic Stress Disorder (PTSD) was measured with the primary care PTSD screen (PC-PTSD), a self-administered 4-item screening scale often used in primary care settings. The screening scale is scored by summing the positive responses with scores in range 0-4. Using a threshold of 4, the PC-PTSD test-retest reliability was 0.84, $p < .001$, and the criterion validity against the clinician-administered PTSD scale (CAPS) is determined by the mean kappa across the 7 items (kappa = 0.67) (Breslau et al., 1999; Kimerling et al., 2006).

Health was measured using the SF-8: Multipurpose Short Form survey of health status with 2 subscales. This is comprised of the PCS-8 Physical Health Subscale (Test-Retest Reliability: 0.88; Alternate Forms Reliability, General Health: 0.74) and the MCS-8 Mental Health Subscale (Test-Retest Reliability: 0.82; Alternate Forms Reliability, Mental Health: 0.70). The SF-8 has shown good content validity, convergent & discriminant validity in relation to the SF-36, and factor analytic construct validity has shown that the SF-8 measures the same health components as the SF-36. The SF-8 items compare “very favorably” to the content of items in the SF-36.

Statistical Analyses

Statistical tests were conducted using PASW Statistics 18³³. Univariate statistics were used to describe the sample of nurses and nursing personnel, and their exposure to WPV. Bivariate chi-square analyses were used to examine relationships between variables, including differences in outcomes between nurses and non-nurses, settings and hospital units. Finally, multivariate logistic regression using a backward stepwise approach statistically determined predictors of physical and psychological violence.

Qualitative interviews

In order to better assess context, interactions of individual and system effects, and patterns of health and employment outcomes, in-depth qualitative interviews were conducted with a sub-sample of nurses and nursing personnel. Purposive sampling was utilized to select 21 participants to participate in hour-long interviews that were guided by a semi-structured interview guide. Follow-up interviews were completed with 4 interviewees, but it was determined that saturation had been reached and that follow-up interviews did not yield additional information to what had been captured during the initial interview.

Results

Characteristics of baseline respondents

The characteristics of participants at the time of baseline data collection are described in Table 1. The 2193 participants at baseline consisted of 2008 (91.6%) women, and 185 (8.4%) men. Study participants were mainly of White (61.9%) or African-American (22.4%) race/ethnicity with a mean age of 39.2 years (SD = 11.3 years). Of note is that this was a very well-educated sample in that nearly two-thirds (64.5%) of participants held at least a 4-year college degree. Additionally, the sample had a relatively high household income (mode=\$100,000/year or higher). Although nurses (registered nurses, nurse practitioners, and clinical specialists) comprised the majority (75.9%) of the sample, nearly a

quarter of participants were nursing personnel (i.e., clinical and patient care technicians, and other nursing assistants). Participant ages ranged from 18-71, with a mean of 39.21 (SD=11.29). More than half of participants were married (52.4%) and have children (50.9%).

Table 1. Select Participant Characteristics

Variable	Category	Percent
Age (in years) Mean = 39.21 Std Dev = 11.291	18-19	0.6
	20-29	25.3
	30-39	27.3
	40-49	24.5
	50-59	18.7
	60-69	3.4
	70 and over	0.2
Race	White	62.4
	Black	22.8
	Asian	9.9
	Other	4.9
Education	Less than a High School Graduate	0.2
	High School Graduate or GED	10.1
	Post High School Certification	3.4
	2-year College	22.3
	4-year College	53.9
	Graduate Degree	10.4
Marital Status	Married	52.4
	Divorced	10.0
	Widowed	1.5
	Separated	2.7
	Never married	28.6
	Member of unmarried couple	4.9
Children	Yes	50.9
	No	49.1
Caregiving Responsibilities	Children (not own)	11.10
	Eldercare	10.34
Household Income	Under \$20,000	2.8
	\$20,000-\$39,999	11.9
	\$40,000-\$59,999	15.8
	\$60,000-\$79,999	19.5
	\$80,000-\$99,999	16.6
	\$100,000 & Above	33.2
Nurse (RN, Nurse Practitioner, Clin. Spec.)	No	24.1
	Yes	75.9
Supervisory Position	No	83.45
	Yes	16.55

Note: Due to rounding, percentages may not total to 100%

Prevalence of Workplace Violence

The annual prevalence per 100 participants was determined for physical workplace violence, psychological workplace violence, and for having had any experience of workplace violence (physical or psychological) (Table 2). Overall, 30% of the nurses/nursing personnel reported some form of workplace violence during the previous 12-month period, with a prevalence of 19.4% and 19.9% for physical and psychological violence respectively (Figure 2). Prevalence was higher for nurses as compared to non-nurses, with a difference of 6.4% for psychological violence ($c^2 = 10.07$, $p=.002$), 8.1% for physical violence ($c^2 = 16.57$, $p<.001$), and 10.8% ($c^2 = 21.77$, $p<.001$) for any episode of WPV.

By site, the prevalence of any workplace violence ranged from 27.9 to 36.0 per 100 and differed significantly across sites ($c^2 = 8.13$, $p=.043$), with the highest rate at the geriatric care center and the lowest rate at the large urban medical center. Rates were approximately equal across sites for physical and psychological violence when measured alone. When examined by unit, the greatest annual prevalence per 100 workers was found for the emergency department and psychiatry, with both units exceeding rates of 50/100 workers, followed by neurology at nearly 40/100, and long term care or pediatrics with both units exceeding rates of 30/100.

Annual prevalence was also examined for site and unit by whether or not the respondent was a nurse (Table 2). Among non-nurses, prevalence did not differ by site for any of the three categories of WPV. However, among nurses there was a difference across sites in prevalence of any workplace violence ($c^2=15.49$, $p=.001$) as well as psychological workplace violence alone ($c^2=11.46$, $p=.009$) although not for physical workplace violence alone. For nurses, reports of violence were consistently highest for the geriatric long-term care facility, in some cases almost doubling the rates found for nurses in other facilities.

Nurses experienced greater overall rates of WPV compared to non-nurses in every clinical area and for all three violence classifications, with greater overall WPV rates for nurses in the emergency department ($c^2= 6.30$, $p=.015$), geriatrics/long-term care ($c^2= 8.44$, $p=.004$), intensive care ($c^2= 6.56$, $p=.010$), and psychiatry ($c^2= 4.50$, $p=.048$). When these data were further examined by specific classification of violence, differences between nurses and non-nurses in rates of psychological workplace violence were found for only the geriatrics/long-term care unit with nurses experiencing 25% more psychological violence ($c^2=6.10$, $p=.018$). Prevalence for physical workplace violence was greater for nurses compared to non-nurses in four types of units: emergency department ($c^2= 8.67$, $p=.003$), intensive care ($c^2=3.97$, $p=.046$), outpatient ($c^2=4.36$, $p=.040$), and psychiatry ($c^2=4.78$, $p=.032$).

Table 2. Annual Prevalence per 100 Participants of Physical and Psychological Workplace Violence by Setting and Unit by Nurse/Non-Nurse Role

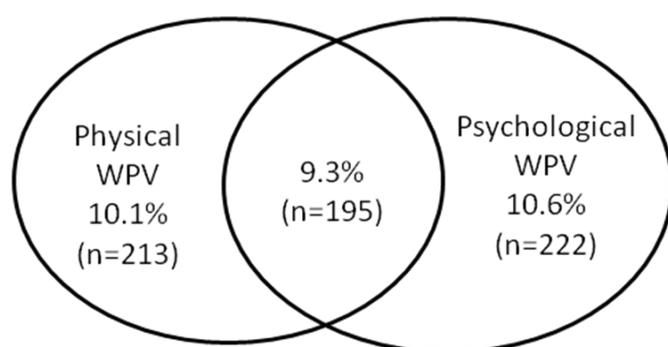
Setting ^a	Any Workplace Violence ^b			Physical Workplace Violence			Psychological Workplace Violence		
	Nurse	Non-Nurse	Overall	Nurse	Non-Nurse	Overall	Nurse	Non-Nurse	Overall
A	29.7	21.9	27.9	19.6	11.0	17.8	20.0	14.7	18.8
B	37.2	24.8	33.9	24.3	15.7	22.0	25.3	15.7	22.7
C	33.9	18.1	29.4	23.0	13.9	20.4	18.0	15.5	17.3
D	57.1	23.4	36.0	32.1	17.4	23.0	39.3	14.9	24.0
Overall	32.7	21.9	30.0	21.4	13.3	19.4	21.5	15.1	19.9
Unit									
Administration	31.3	18.2	25.9	12.5	9.1	11.1	25.0	9.1	18.5
Emergency Department	60.6	39.1	54.9	53.5	28.3	46.8	37.8	27.3	35.1
Geriatrics/ Long-term Care	55.6	21.4	34.8	29.6	17.1	22.1	37.0	11.9	21.7
Intensive Care Unit	29.2	16.1	26.7	18.2	9.7	16.6	17.7	10.8	16.4
Medicine	27.2	26.7	27.0	19.5	14.5	18.0	17.4	20.0	18.2
Neurology	47.8	26.7	39.5	34.8	6.7	23.7	34.8	26.7	31.6
Obstetrics/ Gynecology	13.3	0	10.9	5.1	0	4.2	11.2	0.0	9.2
Outpatient	23.4	11.4	20.5	9.2	0	7.0	20.6	11.4	18.4
Pediatrics	32.9	28.6	32.3	29.4	21.4	28.3	9.6	14.3	10.3

Psychiatry	59.3	40.5	54.5	50.4	31.0	45.5	38.2	21.4	33.9
Surgery	23.1	14.3	21.0	8.5	6.1	8.0	18.0	11.2	16.4
Other	48.0	29.2	41.9	28.0	25.0	27.0	32.0	20.8	28.4

^aA = Large Urban Medical Center, B = Midsized Community Hospital, C = Small Suburban Hospital, D = Geriatric Care Center

^b Includes those who experienced only physical, only psychological, or both types of workplace violence

Figure 2. Distribution of WPV by type at Baseline



Perpetrators of Workplace Violence

Respondents who had experienced WPV were asked to report the perpetrator(s) of the most recent incident of physical and/or psychological violence (respondents were able to indicate more than one perpetrator). Among those who experienced physical violence, almost all incidents (90.2%) involved a patient as perpetrator, followed by patient relatives (27.0%). More than 10% of the incidents involved another perpetrator, including co-workers (7.6%), physicians (1.5%), and supervisors (1.7%). In contrast, only slightly more than half (54.0%) of those who experienced psychological violence indicated that the patient perpetrated the violence, with 32.8% indicating it was a patient’s relative. Approximately one-third (35.5%) of the participants reported an incident of psychological workplace violence with a co-worker as perpetrator, 22.8% reported a physician as perpetrator, and 11.3% stated that they had faced psychological violence at the hands of their supervisor.

Risk Factors for Workplace Violence

Risk factors for physical workplace violence and psychological workplace violence were examined in separate logistic regression analyses. Potential risk factors that were considered included demographic variables of gender, race, age, education, and marital status; previous experience with violence including child abuse, child sexual abuse, and lifetime intimate partner violence; and the work-related variables of profession (nurse vs. non-nurse), work unit, and length of employment on the unit.

Physical Workplace Violence

At the bivariate level, child sexual abuse ($p=.44$) and age ($p=.40$) did not appear to be associated with physical workplace violence and consequently were not entered into the regression model. The full model (Table 3) was significant ($c^2=239.01$, $p<.001$) with a non-significant Hosmer and Lemeshow Test ($c^2=6.53$, $p=.59$). Overall, 81.9% of the sample was correctly classified and the model provided a significant fit ($c^2=233.35$, $p<.001$). Using the backward stepwise approach, only marital status was removed from the model. The final model showed a significantly increased risk of physical WPV for those whose length of employment was between one and 20 years compared to those employed for less than one year. Those participants employed over 20 years did not have a significantly increased risk for physical WPV within the past year. Males were nearly twice as likely to have experienced physical WPV compared to females, the risk of physical WPV is 60% greater for nurses than non-nurses, Black/African American and Asian/Pacific Islander participants were less likely than White participants to experience WPV, and risk increases with age. Those who had experienced child physical abuse and those who reported lifetime IPV were at 60% and 111%, respectively, greater risk of physical WPV. The obstetrics and gynecology (OB/GYN) department had the lowest risk of physical WPV and was, therefore, used as the referent category for administrative unit analysis. Risk was approximately 9 times greater for those working in the emergency and psychiatry departments, and between 4-5 times greater for those in neurology, pediatrics and those departments classified as “other.”

Psychological Workplace Violence

Potential risk factors were entered in the logistic regression model for psychological workplace violence with the exception of gender which was not associated with violence ($p=.51$). In the full model (Table 4), length of employment, experience of child physical abuse, experience of child sexual abuse, race/ethnicity, and lifetime IPV were significant; age and administrative unit were not significantly associated with psychological WPV in the full model, but were retained as control variables in the final model as their p -values were less than .10. The full model was significant ($c^2=118.75$, $p<.001$) with a non-significant Hosmer and Lemeshow test ($c^2=6.18$, $p=.63$). Using the final model, 80.8% of the sample was correctly classified and the model provided significant fit ($c^2=115.04$, $p<.001$). Black/African American respondents were less likely to experience psychological WPV than White participants though, unlike for physical WPV, the other demographic characteristics were non-significant. Respondents who experienced child physical abuse or child sexual abuse were 50-60% more likely to experience psychological WPV, and lifetime IPV increases risk for psychological WPV by nearly 90%. Finally, there is an increased risk of psychological WPV for those whose length of employment was 1 year or greater as opposed to less than 1 year.

Underreporting of WPV

According to participants' responses at baseline, only about 70% of physical workplace violence events are formally reported to the institution (272 of 391 who reported physical WPV and responded to the question about actions taken afterwards). These reports are made through several different

avenues of possible reporting, and are not mutually exclusive. Most formal reporting is done to a supervisor (60.3%), or by notifying security (58.8%), but only 24.6% completed an incident/accident form. Even fewer used services provided by the institution – 4.8% went to an occupational clinic, 1.1% talked to a counselor through the Employee Assistance Program, and 1.1% completed a compensation claim. Among those who responded to the incident by talking to someone other than a formal reporting source (n=38, 9.7%), the most common response was to tell a colleague (81.6%). Others responded to the incident by telling friends/family (15.8%), transferring to another position (7.9%), and seeking counseling outside of the Employee Assistance Program (2.6%). 20% (n=81) of participants who experienced physical WPV responded to the incident without telling anyone (either within the institution or outside of the institution). 72.8 % of these participants said that they told the perpetrator of the violence to stop, 34.6% said they took no action, 13.6% tried to defend themselves, and 2.5% tried to pretend it never happened.

There were significant differences between the actions taken in response to physical WPV depending on the unit in which a participant worked ($X^2=26.227, p < .001$). Due to sample size, unit-based comparisons were made between the Intensive Care Unit, Emergency Department, Psychiatric Department, Medical/Surgical Unit and “other.” Nurses and Nursing Personnel in the Psychiatric Department were significantly more likely to take formal action and significantly less likely not to tell anyone. Nurses and Nursing Personnel in the ICU were significantly more likely than other departments to not take action when they experienced physical WPV. However, there were no significant differences by unit for participants’ reported responses to psychological WPV.

Although the study team was unable to access official reports of WPV incidents, the number of WPV incidents reported to the questionnaire was far higher than those reported to either the official workplace risk assessment team that keeps reports of physical or psychological co-worker or supervisor violence, or what participants said they formally reported to the institution. There is no other centralized record keeping mechanism for reported WPV at these institutions. Events for which security was called are recorded in a hand-written log and do not routinely contain the name of staff experiencing violence during an incident for which security was called to intervene. Other incidents may be reported to Nurse Managers via an Incident Report Form, but these are not centrally collected or tabulated, nor was it possible to access forms that were exclusively related to workplace violence (the same forms are used for reportable incidents including needle sticks, etc). This inability to obtain a record or count of incidents that were formally reported through Security or Nurse Managers demonstrates that hospital administrators do not have a means for evaluating the frequency of WPV within their institution.

On the self-report questionnaire, most employees demonstrated a high understanding of the existing workplace violence policies. 61.8% reported knowledge of their employer’s policies and procedures regarding violence in the workplace. 35% reported that they know policies exist, but are unclear what these policies state.

Over three-quarters of respondents reported awareness that free counseling services for work place violence are available; however, only .7% of those experiencing physical WPV and only 2.6% of those experiencing psychological WPV availed themselves of this EAP counseling. More than 90% of employees reported they were somewhat or very satisfied with their job at baseline, and over 80% of employees who responded to the survey believe both that the health and safety conditions at work are good and that safety is a high priority.

Burnout

Our analytic approach was to use multivariate regression to develop two models identifying (1) risk factors for baseline burnout and (2) risk factors for burnout at the follow-up assessment 6 months later (T1). This analytic approach was selected in order to build models that both examine associations between individual and organizational-level factors and burnout at baseline and T1, as well as identify risk factors that were constant problems during this interval.

Descriptive statistics, including experiences of violence victimization, were calculated using data from baseline assessments; t-tests and chi-square tests were used to evaluate the means and categorical variables between groups, respectively. Patterns of missing data were explored, and conditional mean imputation was used to impute values for depression, personal burnout, physical burnout, and psychological burnout based on regression estimates, resulting in sample size of N= 1168 at baseline and N = 786 at the 6-month follow-up. Bivariate analyses were conducted, focusing on the main effects of violence, mental and physical health status, work variables, and socio-demographic variables on the outcome of burnout. Multivariate linear regression was used to develop predictive models of patient, work, personal, and total burnout, and to assess influence of violence victimization at on burnout both at baseline and at the 6-month follow-up. Covariates statistically significantly related to the outcomes included age, race/ethnicity (white, black, asian, other), depressive symptoms, physical health, type of shift worked (day, evening/night, irregular/rotating), the presence of coworker and supervisor support, and whether the participant was a nurse or a member of nursing personnel. Our discussion of results emphasizes the similarities of risk factors across the three types of burnout under investigation.

Distribution of burnout at 6-month follow-up (T1)

The distribution of patient, work, personal, and total burnout scores are displayed in Table 3. The lowest mean score is on patient burnout (24.80, SD=19.51), and overall scoring is higher (100 being most severe) between work (39.81, SD=17.92) and personal burnout (44.47, SD=17.43). A total burnout score was created by averaging the three subscales in an effort to reduce random measurement error (M = 36.40; SD = 16.04).

Table 3. Distribution of Baseline Burnout by Type*

	Patient Burnout (n=1470)	Work Burnout (n=1478)	Personal Burnout (n=1478)	Total Burnout (n=1467)
25 th percentile	8.33	28.57	33.33	24.60
50 th percentile	20.83	39.29	45.83	35.71
75 th percentile	37.50	53.57	54.17	46.63
99 th percentile	79.17	85.71	91.67	78.77
<i>Mean (s.d.)</i>	24.80 (19.51)	39.81 (17.92)	44.47 (17.43)	36.40 (16.04)

*Burnout scales are scored 1-100 (100 = most severe)

Models of burnout by violence victimization group

Multivariate linear regression analyses were used to a) evaluate differences in burnout scores among nurses and nursing personnel who have experienced violence both at and outside of the workplace and b) to identify and compare independent individual and organizational variables statistically related to burnout scores among nurses and nursing personnel. In addition to the main variables of interest, past-year physical and psychological WPV and past-year IPV/A, other variables examined included demographic variables of race, age, education, income, marital status, work-related variables including supervisor and coworker support, type of shift worked, whether the participant worked mandatory overtime, whether the participant were a nurse (compared to nursing personnel) or a supervisor, and physical and mental health status.

Burnout was scored on a scale of 1-100, with 100 being the most severe; a negative coefficient indicates that burnout score declines with increasing values of the predictor variable. Table 3 gives the bivariate associations between burnout score and type of violence experienced.

In the bivariate analyses (regression of burnout outcome on independent variables of violence) a statistically significant relationship between physical and psychological WPV and all measures of burnout was observed. The strongest association was observed between physical WPV and T1 patient burnout, and between physical WPV and T1 work burnout ($\beta = 10.48$; $SE = 1.16$ and $\beta = 7.94$; $SE = 1.07$, respectively). The following individual-level variables were not statistically related to the outcome at the bivariate level and consequently were removed from Models 1 and 2: income, educational level attained, marital status, mandatory overtime, hours spent in patient contact, and supervisor status.

In Model 1, differences in burnout score at baseline (T1) were evaluated among nurses and nursing personnel experiencing baseline WPV and IPA/V, accounting for physical health, depressive symptoms, type of shift, the presence of coworker/supervisor support, age, and race/ethnicity. In Model 2, adjusting for the variables in Model 1, differences in burnout scores were evaluated according to T2 experiences of WPV and IPA/V, including T2 covariates of coworker/supervisor support. Analyses in Model 2 were weighted to account for the study's sampling design. The results from these multivariate linear regression models are displayed in Table 4.

Table 4. Bivariate Associations between Type of Burnout and Type of Violence Experienced

Type of Violence	Patient Burnout β estimate (SE)		Work Burnout β estimate (SE)		Personal Burnout β estimate (SE)	
	T1	T2	T1	T2	T1	T2
Physical WPV	10.48** (1.16)	.86** (.12)	7.94** (1.07)	.68** (.10)	4.60** (1.05)	.58** (.12)
Psych WPV	4.06** (.58)	.43** (.06)	4.23** (.53)	.51** (.05)	2.89** (.52)	.45** (.06)
IPV/A	2.49 (2.64)	3.95 (2.29)	4.41 (2.42)	5.39* (1.86)	5.74† (2.35)	7.12** (2.05)

†p <.05 *p<.01 **p<.001

SE = standard error

Type of violence at T1 associated with type of burnout at T1; Type of violence at T2 associated with type of burnout at T2

Table 4. Multiple Regression Results for Predicting Burnout among Female Nurses & Nursing Personnel

	Model 1				Model 2			
	Patient Burnout	Work Burnout	Personal Burnout	Total Burnout	Patient Burnout	Work Burnout	Personal Burnout	Total Burnout
	β estimate (SE)							
Violence Variables								
Physical WPV	6.15** (1.22)	3.00* (1.01)	.26 (.99)	3.06** (.87)	.25 (.15)	.21 (.11)	.14 (.11)	.20† (.10)
Psych WPV	.79 (.60)	1.10† (.50)	.58 (.49)	.86† (.43)	-.02 (.08)	.19* (.06)	.06 (.06)	.07 (.05)
IPV/A	-2.27 (2.57)	-1.9 (2.13)	.41 (2.09)	-1.31 (1.84)	-3.25 (2.57)	-1.68 (1.75)	-.37 (2.05)	-1.48 (1.70)
Health Variables								

Depressive symptoms	1.33** (.11)	1.57** (.09)	1.58** (.09)	1.50** (.08)	.60** (.17)	.83** (.13)	1.35** (.13)	.90** (.12)
Physical health	-.32** (.07)	-.35** (.06)	-.40** (.05)	-.36** (.05)	-.15 (.09)	-.14† (.07)	-.29** (.07)	-.19* (.06)
Work Variables								
Nurse	6.43** (1.39)	7.34** (1.15)	5.58** (1.13)	6.42** (1.00)	n/a	n/a	n/a	n/a
Shift type								
<i>day</i>	referent	referent	referent	referent	referent	referent	referent	referent
<i>evening/night</i>	1.07 (1.25)	-1.73 (1.03)	-1.17 (1.01)	-.65 (.90)	n/a	n/a	n/a	n/a
<i>irregular/rotating</i>	1.21 (1.24)	1.92 (1.03)	1.08 (1.47)	1.36 (.89)	n/a	n/a	n/a	n/a
Coworker support	-.35 (.22)	-.74** (.18)	-.47† (.18)	-.52** (.16)	-1.46 (1.19)	-2.31* (.93)	-2.46* (.95)	-2.20* (.86)
Supervisor support	-.72** (.22)	-.98** (.18)	-.77** (.18)	-.83** (.16)	1.34 (1.33)	.01 (1.02)	.88 (1.08)	.81 (.95)
Demographic Variables								
Age	-.15** (.05)	-.22** (.04)	-.15** (.04)	-.17** (.03)	n/a	n/a	n/a	n/a
Race					n/a	n/a	n/a	n/a
<i>white</i>	referent	referent	referent	referent	n/a	n/a	n/a	n/a
<i>black</i>	-1.15 (1.43)	-1.28 (1.18)	-1.01 (1.16)	-1.21 (1.03)	n/a	n/a	n/a	n/a
<i>asian</i>	6.87** (1.81)	.40 (1.50)	4.78* (1.47)	3.98* (1.30)	n/a	n/a	n/a	n/a
<i>other</i>	.30 (2.38)	-.07 (1.97)	-.18 (1.93)	-.01 (1.71)	n/a	n/a	n/a	n/a
Adjusted R2	.2662	.4090	.3762	.4405	.2510	.3594	.4380	.4300

†p < .05 *p < .01 **p < .001

Abbreviation: SE, standard error

Model 1 (N=1168): Burnout at baseline among female nurses & nursing personnel

Model 2: (N=786) Burnout at follow-up among female nurses & nursing personnel controlling for effects of baseline burnout

Total Burnout

Total burnout score was created as an average of patient, work, and personal burnout subscales and is reflective of the state general emotional exhaustion in this sample. As seen in Model 1 (Table 3),

both physical and psychological WPV are associated with a general state of burnout, as are depressive symptom and poor physical health. Overall, nurses are like to score higher on burnout scales than non-nurses after controlling for all other covariates.

This analysis identified several key risk and protective factors for patient, work-related, and personal burnout among nurses and nursing personnel at 4 hospitals in a midatlantic urban area. Past-year physical WPV was a significant risk factor for all 4 types of burnout, with its strongest effect on patient burnout. Past-year psychological WPV, income, shift type, and supervisor support were significantly associated with work burnout only. Past-year IPV/A was significantly associated with work and personal burnout in bivariate analyses, but this relationship became insignificant after other variables were added to the models. Depressive symptoms were a consistent predictor of all three types of burnout even after accounting for violence victimization, social support, health status, and demographic variables at baseline. Being a nurse (in contrast to nursing personnel) was a significant predictor of all three measures of burnout. At the organizational level, the presence of coworker support was a significant and strong protective factor against all types of burnout, as well as total burnout, at the 6-month follow-up. Nursing personnel who experience physical or psychological WPV are at risk for emotional distress in the form of burnout with regard to their work with patients, personal exhaustion, and job burnout and frustration.

Health Outcomes

As previously described, almost 20% (19.8%) of the respondents reported physical WPV at baseline. Approximately 10% of those physically assaulted were injured, but only 3.2% went to an occupational health clinic or occupational injury clinic. WPV was significantly associated with poorer physical health in multivariate logistic regression, as was intimate partner violence (IPV), Asian Pacific Islander ethnicity, being a supervisor, caring for elders and children not one's own and being depressed. Depression was a mediator of the effects of the various trauma experiences on physical health as well as having a direct independent effect. Being married was protective. Occupational category (RN vs. non), functional unit, gender, income level, education, hours of work, and number of children, did not affect physical health status when the trauma experiences were entered into the equation. Psychological (not physical) WPV was a significant predictor of mental health symptoms (SF-8) as was childhood abuse and IPV; being married was protective.

Workplace violence is a common experience for both nurses and other nursing personnel and is significantly associated with general physical health outcomes as well as injury. Depression is an important mediator of the effects of various types of trauma (WPV, IPV, and CSA) on health as well as having a direct effect as strong as the trauma. When experiences of trauma and depression are considered, other usual predictors of health are no longer significant. Therefore prevention of WPV as well as interventions to address IPV and the effects of CSA and depression are important in preserving the health of nursing and other patient care personnel.

Employment outcome

Participants reported their employment status at each round of data collection. Anyone who reported no longer being employed by the medical institution at the time each survey was administered is reported here as having terminated employment, without regard to cause of termination (which may include retirement, moving out of the area, firing, or quitting, etc.) Transfers between hospitals within the institution were not classified as termination.

Case status at baseline was associated with higher rates of termination than expected at T2 and T3, but not at T1. Of the 620 cases identified as cases at baseline, 16 (2.6%) had terminated employment at T1. There is no significant difference in case status between those that terminated at T1 and those who had not ($X^2=1.043$, *NS*). At T2, 36 (5.8%) of participants who were identified as cases at baseline had terminated employment, which was significantly more cases than expected ($X^2=4.012$, $p<.05$). At T3, 57 (9.2%) of participants who were identified as cases at baseline had terminated employment, which was also significantly more cases than expected ($X^2=16.306$, $p<.0005$).

The cumulative count of participants with “termination” as their employment outcome increased with each round of data collection. The rise in total number of reported terminations over time also increased the power to detect associations between termination and case or control status. Physical or psychological WPV was associated with termination at T2 and T3 but neither form of WPV was statistically significantly related to termination at T1. 792 participants were classified as cases at T1, which included cases identified at baseline as well as participants who experienced new incidence of WPV during the period since baseline assessment (“crossovers”). At T1, there were no significant differences in physical and/or psychological WPV between those who terminated and those who remained employed by the institution ($X^2=2.973$, *NS*). Due to the small number of terminators at T1, it is possible that there is not enough power to detect differences at this stage. At T2, 877 participants were classified as cases, including new crossovers. Of the 91 terminators at T2, 57 (62.6%) had experienced physical or psychological WPV since the 12 months prior to baseline assessment. This represents termination among cases significantly more than expected ($X^2=15.576$, $p<.0005$). At T3, 922 participants were classified as cases, including crossovers due to new incidence of WPV. Of the 123 terminators at T3, 88 (71.5%) had experienced physical or psychological WPV since the 12 months prior to baseline assessment. This represents termination among cases significantly more than expected ($X^2=37.772$, $p<.0005$).

At total of 123 participants reported termination of employment during the study period. Participant experience of WPV and concerns about safety in the healthcare environment were cited as contributing factors for terminating employment, although not in large numbers (<12% of terminators at any assessment). When provided with the instruction to “mark all that apply” for their reason for terminating employment, a total of 11 participants included “concern[s] about safety in the health care environment.” A total of 12 participants reported that the reason for termination included an experience of WPV.

Prevalence of IPV/IPA, Childhood Abuse

The prevalence of intimate partner violence, intimate partner abuse, and childhood victimization among female participants is reported in Table 6. Approximately 25% of participants reported experiencing lifetime IPV, and 22.87% of participants reported experiencing IPA. These experiences overlap; the majority of women who experience IPV also experience IPA. Of participants who reported lifetime IPV, most reported that a former boyfriend (30.8%) or an ex-spouse (48.2%) perpetrated the violence. The majority of participants have left the abusive relationship. In the past year, 30 participants (1.5%) reported being hit, slapped, kicked, pushed, or otherwise physically hurt by a current or former intimate partner. Sexual violence in the past year was reported by 0.6% (n=11) of participants. Emotional abuse or sexual harassment was slightly more prevalent, with 2.42% of participants (n=48) reporting an experience of IPA within the past year.

Table 6. Respondent Experiences of Violence & Abuse

Variable	Category	Percent
Physical Intimate Partner Violence	None	80.9
	Less than 1 year ago	1.5
	1-5 years ago	3.7
	6-10 years ago	3.7
	More than 10 years ago	9.7
Sexual Intimate Partner Violence	None	92.4
	Less than 1 year ago	0.6
	1-5 years ago	1.6
	6-10 years ago	1.5
	More than 10 years ago	4.0
Emotional Intimate Partner Abuse	None	77.1
	Less than 1 year ago	2.4
	1-5 years ago	5.8
	6-10 years ago	4.9
	More than 10 years ago	9.7
Childhood Abuse	Childhood Physical Abuse	17.87
	Childhood Sexual Abuse	17.99
	Witnessing IPV	10.29

Trauma History

Latent class analysis was used to examine patterns of the following nine types of violence among the 1503 female nurses in the baseline sample: (1) childhood physical abuse, (2) childhood sexual abuse, (3) physical abuse between parents/guardians during childhood, (4) psychological intimate partner violence (IPV), (5) physical IPV, (6) sexual IPV, (7) adult physical or sexual assault by a non-intimate partner, (8) physical WPV, and (9) psychological WPV. Multivariate analyses were then used to examine associations between patterns of violence and nurses' demographic characteristics and mental health problems. The best model consisted of 6-classes characterized by the following probabilities: low violence (class 1: 56%), high physical and psychological WPV (class 2: 16%), high childhood physical

abuse (class 3: 8%), high psychological and physical IPV (class 4: 12%), high psychological IPV, and physical and psychological WPV (class 5: 5%), and high childhood physical and sexual abuse, and psychological and physical IPV (class 6: 3%). Classes 1 and 6 had the lowest and greatest prevalence of mental health problems respectively. Findings document distinct patterns of violence among nurses and associated characteristics. Interventions for treating mental health problems associated with violence are warranted in order to improve female nurses' mental health and occupational functioning.

Almost one third (31.9%; N =480) reported having experienced physical WPV and 448 (29.9%) reported having experienced psychological WPV. The reported prevalence of childhood abuse was as follows: 270 (18.0%) physical abuse, 258 (17.2%) sexual abuse, and 139 (9.3%) physical abuse between caregivers/guardians. The prevalence of IPV was as follows: 329 (22.0%) psychological, 267 (17.8%) physical, and 114 (7.6%) sexual. Adult assault by a non-intimate partner was reported by 195 (13.3%) participants. Of the nine forms of violence examined, 481 women (33.5%) reported experiencing none, 326 (22.7%) had experienced one, and 630 (43.8%) reported experiencing two or more forms of violence. One fifth of participants had a positive screen for depression (20.6%). Fifty three women had a positive screen for PTSD (5.9%).

Our hypothesis that there would be multiple distinct patterns of violence and significant associations between patterns of violence and participants' mental health was supported. Results from the latent class analysis revealed six distinct classes of violence among the female nurses sampled. The probabilities of experiencing the nine types of violence examined varied by class and ranged from low probabilities of violence (class1-low all) to high probabilities of four types of violence (class 6-childhood and romantic). As hypothesized, several of the classes were comprised of high violence within specific contexts. For example, class 2 was characterized by WPV, class 3 was characterized by childhood violence, and class 4 was characterized by romantic violence. While these classes were characterized by violence occurring within a specific context, they were also characterized by moderate to high probabilities of multiple types of violence within that context. For example, the childhood class was characterized by high probabilities of childhood physical abuse and moderate probabilities of childhood sexual abuse while the romantic class was characterized by both high psychological and physical IPV and the workplace class was characterized by high probabilities of psychological and physical WPV. This demonstrates that, even within particular contexts, violence tends to co-occur.

We hypothesized that there would be a class characterized by high violence across contexts, particularly childhood and romantic. Class 6 reflected that hypothesis, and results revealed another class characterized by high violence across workplace and romantic contexts (class 5). Class 5 had significantly higher rates of depression and PTSD compared to the low all class. While not statistically different from the workplace class, the workplace and romantic class had nearly ten percent greater rates of depression and nearly three times the rates of PTSD than those reported in the workplace class suggesting more mental health problems among the class with high probability of romantic violence in addition to WPV.

Interestingly, no classes were characterized by high probabilities of sexual IPV or assault by a non-intimate partner. However, class 5 (workplace and romantic) and class 6 (childhood and romantic) were characterized by moderate probabilities of sexual IPV and assault by a non-intimate partner. Also, as hypothesized, there were significant differences between class membership and nurses' mental health problems including depression in the last week and lifetime PTSD with the greatest rates of depression and PTSD reported among the childhood and romantic class.

The most common form of violence reported in this sample of women was WPV with approximately a third of the women reportedly having experienced physical and/or psychological WPV. These reports underscore the need to examine and prevent this type of violence in this population of healthcare workers. Furthermore, results suggest that there may be two patterns of nurses experiencing WPV including one that has low probabilities of experiencing violence during childhood or by an intimate or non-intimate partner and another pattern of nurses experiencing WPV and moderate to high levels of IPV and assault by a non-intimate partner.

Results from this analysis suggested greater lifetime violence is related to nurses' poorer distal and proximal mental health. As such, interventions for treating traumatic stress and other adverse mental health problems associated with violence among female nurses are warranted in order to improve the mental health and occupational functioning of this important population of female health workers.

Table 7. Results from Regression Analyses of the Associations Between Latent Classes of Violence & Poor Mental Health

Class	Depression(Past Week ^b)		Lifetime PTSD ^c	
	Odds	95% CI	Odds	95% CI
1: Low Violence ^a (56% of sample)	1.0	--	1.0	--
2: Workplace (15.6%)	1.4 [†]	1.0-2.1	1.7	0.6-4.7
3: Childhood (7.9%)	1.9*	1.1-3.1	2.6 [†]	0.9-7.4
4: Romantic (12.3%)	1.8**	1.2-2.7	3.0*	1.3-7.2
5: Workplace & romantic (5.1%)	2.3**	1.3-4.0	5.4**	1.8-16.1

6: Childhood abuse & romantic (3%)	3.6**	1.8-7.0	6.6**	2.1-20.7
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^aClass 1 is the referent group; ^bAfter controlling for age and race (N=1384); ^cAfter controlling for age, race, and sampling stratification (case control; N=908)

[†] $p < .10$; * $p < .05$; ** $p < .01$

PTSD and IPV

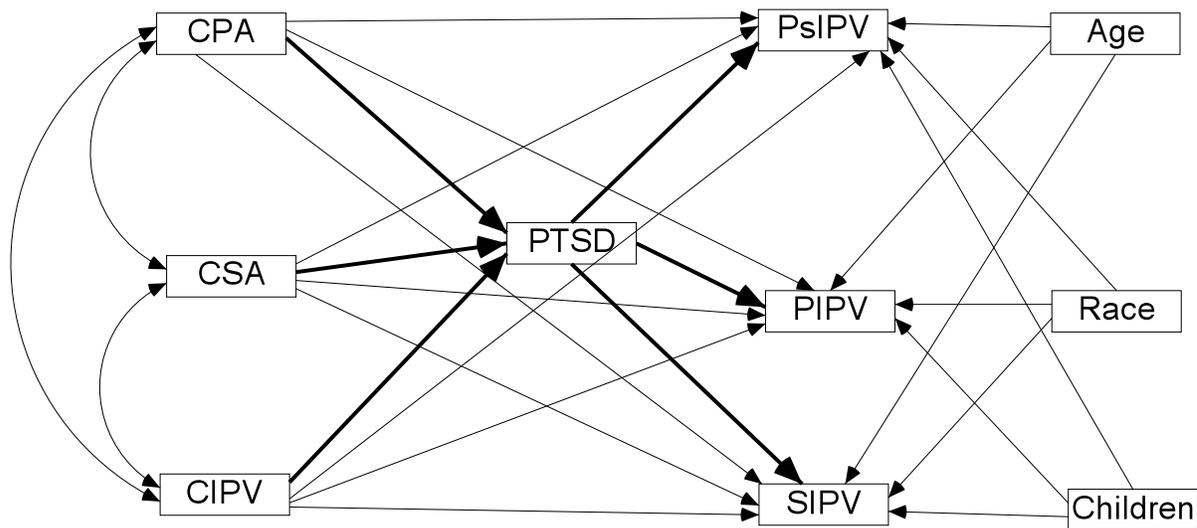
This analysis examined whether Posttraumatic Stress Disorder (PTSD) mediated the relationships between childhood trauma (sexual abuse, physical abuse, and violence between parents) and intimate partner violence (IPV) (psychological, physical, and sexual). Participants were 1150 female nurses and nursing personnel. Path analytic findings revealed PTSD partially mediated the relationships between childhood sexual abuse and psychological IPV and childhood sexual abuse and sexual IPV. PTSD did not mediate the relationship between other types of childhood trauma and IPV. Although cross sectional in nature, this study adds to the literature indicating PTSD as a risk factor for revictimization in the form of adult IPV among women. Screening for and treatment of PTSD among female child sexual abuse survivors may prevent future IPV victimization.

Eighty-nine women had missing data on the variables of interest for this analysis and were removed, leaving a final sample size of 1150. Forty-eight of the women with missing data were missing data regarding their age. Analyses were run to compare whether there were significant differences between participants with and without missing data on dependent and demographic variables, including age, education, marital status, race, age, income and whether women had children. Participants with missing data were significantly more likely to be non-white and have lower household income.

Correlations between dichotomous variables were based upon the Phi coefficient while those between a dichotomous and continuous variable were based upon the Point Biserial coefficient. Data was exported from SPSS 15 to Mplus Version 5 (Muthen & Muthen, 2007) in order to use path analysis to test 1) direct paths linking types of childhood trauma with types of IPV (dichotomous outcomes) and 2) indirect paths linking types of childhood trauma to types of IPV through PTSD in one model. The conceptual model being tested is shown in Figure 1.

The influence of the baseline stratification (positive versus negative exposure to WPV) on the dependent variables (PTSD, psychological IPV, physical IPV, and sexual IPV) was controlled for in the path analysis. Weighted least squares parameter estimates were used to estimate parameters in the model. Model fit was based upon the fit statistics Comparative Fit Index (CFI) (nonsignificant chi square) and Tucker-Lewis Index (TLI) (values greater than .95) and root mean square error of approximation (RMSEA) (below .06)

Figure 3. Conceptual Model of the Associations Between Types of Childhood Trauma and Types of Intimate Partner Violence



Bold lines are the hypothesized mediation relationships.

CPA=childhood physical abuse; CSA= childhood sexual abuse; CIPV=IPV between parents/caregivers during childhood;

PsIPV=psychological IPV; PIPV= physical IPV; SIPV=sexual IPV

Participants in this analysis were between 18-71 years old (M = 38.86; SD = 11.32) and predominately White (65.2%). Half had children (50.0%). The majority were married (54.3% Married; 28.4% Never married; 8.8% Divorced; 4.6% unmarried couple 2.3% Separated; 1.4% widowed).

The prevalence of women in this sample reporting childhood trauma, adult IPV, and PTSD is as follows: 23.4% (n=269) reported lifetime psychological IPV, 19.4% (n=223) reported lifetime physical IPV, and 8.3% (n=96) reported lifetime sexual IPV. In regards to childhood trauma, 18.1% (n=208) of the sample reported having experienced childhood physical abuse, 17.3% (n=199) reported CSA, and 10.4% (n=120) reported IPV between their parents or caregivers during childhood. Seventy women (6.1%) endorsed three items on the PC-PTSD indicating presence of PTSD.

As hypothesized, childhood physical abuse, childhood sexual abuse, and IPV during childhood were each significantly associated with psychological, physical, and sexual IPV (Table 8). Furthermore, PTSD was significantly associated with all three types of childhood trauma variables and all three types of IPV.

Table 8: Correlations Matrix for Variables of Interest (N=1150)

Variable	Correlations											
	1	2	3	4	5	6	7	8	9	10	11	
1. Psychological IPV	--											
2. Physical IPV	.58**	--										
3. Sexual IPV	.38**	.31**	--									
4. PTSD	.15**	.08*	.16**	--								
5. Childhood physical abuse	.16**	.14**	.14**	.08*	--							
6. Childhood sexual abuse	.20**	.21**	.20**	.11**	.26**	--						
7. Parents/Caregivers IPV	.11**	.14**	.09**	.09**	.36**	.18**	--					
8. Age	.11**	.13**	.03	-.03	.06	.04	.01	--				
9. Race	-.02	.06*	.00	.01	.07*	.05 [†]	.13**	-.04	--			
10. Children	.06*	.07*	.02	.02	-.01	.07*	.01	.21**	.15**	--		
11. Baseline Stratification	.14**	.12**	.11**	.05 [†]	.12**	.10**	.03	.04	-	-	--	
									.15**	.02		

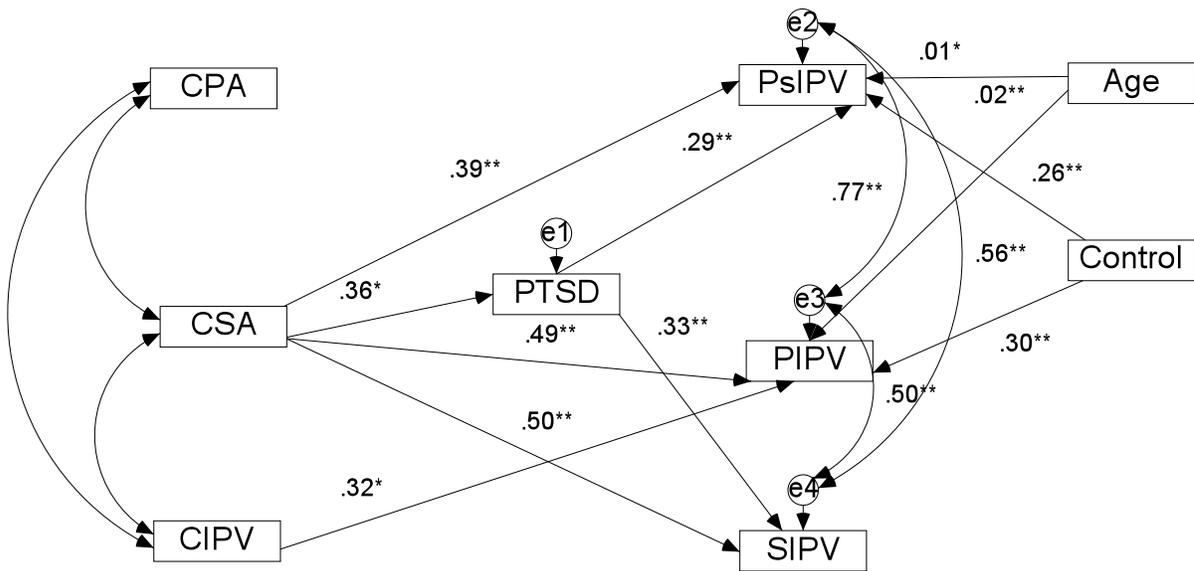
** $p < .01$; * $p < .05$; [†] $p < .10$

The path model tested had good model fit $\chi^2(3) = 2.72, p = .44, CFI = .1.00; TFI = 100,$ and RMSEA .00. The final model is presented in Figure 2. Childhood sexual abuse, but not childhood physical abuse or IPV between caregivers during childhood, was significantly associated with PTSD ($p < .05$). PTSD was significantly associated with psychological IPV ($p < .01$) and sexual IPV ($p < .00$); however, when controlling for other variables in the model, PTSD was not significantly associated with physical IPV as was hypothesized. There were significant direct relationships between CSA and all three types of IPV and also between IPV between caregivers during childhood and physical IPV.

These findings suggest PTSD partially mediated the relationships between CSA and psychological IPV and CSA and sexual IPV. Contrary to our hypothesis, PTSD did not mediate the relationship between childhood physical abuse and all three types of IPV, nor between parents/caregivers IPV and experiencing IPV as an adult.

This research suggests that it is the effects of CSA (e.g., PTSD), not the abuse itself, that is predictive of psychological and sexual victimization in adulthood by an intimate partner; this is similar to the relationship between CSA and adult sexual assault. These findings provide evidence that revictimization in adulthood by an intimate partner is a very complex process with many intermediate pathways and offers insight of potential clinical relevance. As many authors have pointed out, the abuser holds sole responsibility for abusive behavior. Yet, gaining an understanding of the mechanisms by which childhood trauma increases the risk for future victimization empowers vulnerable victims of childhood trauma to work through the mental health consequences of their abuse and may allow them to break the cycle of violence in their own lives. As researchers gain a greater understanding of the mechanisms and mental health sequelae underlying IPV, it is necessary to re-conceptualize the relationship between childhood trauma and intimate partner revictimization. Rather than placing the cause for abuse on deficiencies in the character of the victim, it is possible to point to clearly identifiable and treatable mental health consequences of childhood trauma. Recognizing and addressing psychological impairment through appropriate screening and referral mechanisms may offer victims of childhood trauma protection against experiencing violence as an adult.

Figure 4. Final Model



CPA=Childhood Physical Abuse; CSA= Childhood Sexual Abuse; CIPV= IPV between parents/caregivers during childhood;

PsIPV=Psychological IPV; PIPV= Physical IPV; SIPV=Sexual IPV

More complex multivariate analysis of all waves of data are currently underway. The following manuscripts are anticipated to be ready for submission within the next 6-8 months:

Workplace Violence: Prevalence and Risk Factors in the Safe at Work Study

(expected to be submitted for review Feb, 2010)

Testing Posttraumatic Stress as a Mediator of Childhood Trauma and Adult Intimate Partner Violence

(expected to be resubmitted for review Feb, 2010)

Workplace Violence and Burnout among Nurses and Nursing Personnel: Prevalence, Risk Factors and Implications for Mental Health

(expected by July 2010)

A Mixed Methods Examination of Workplace Violence Against Nursing Personnel

(by May, 2010)

Precipitating factors for violence by geriatric patients: mixed methods, prevalence, and job title as a risk factor

(by July, 2010)

Workplace violence and nursing personnel: depression, productivity and job change

(by July, 2010)

Mental Health Outcomes after WPV – combination variable of PTSD, depression, SF-8

(by July, 2010)

Publications:

Bracken MI, Messing JT, Campbell JC, La Flair L, Kub J: [2009] Intimate Partner Violence and Abuse among Female Nurses and Nursing Personnel: Prevalence and Risk Factors. *Issues in Mental Health Nursing*, in press.

Cavanaugh CE, Messing JT, Fowler B, La Flair L, Kub J, Agnew J, Fitzgerald S, Bolyard R, Campbell JC: [2009] Patterns of Childhood Abuse, Intimate Partner Violence, Assault by a Non-Intimate Partner, and Workplace Violence Among Female Nurses: A Latent Class Analysis. *Psychological Trauma: Theory, Research, Practice, and Policy*, submitted for review.

Presentations at Scientific Conferences

1. Lareina La Flair, Jill Theresa Messing, Jacquelyn Campbell, Jacqueline Agnew, Sheila Fitzgerald, Joan Kub,

Barbara Fowler. (2009, October). The Relationship between Workplace Violence and Burnout among Nursing

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2. Lareina La Flair, Jill Theresa Messing, & Jacquelyn Campbell. (2009, April). Health and Job Instability. Presentation at Academy on Violence and Abuse Scientific Conference 2009, Bloomington, MN.

3. Lareina La Flair, Jill Theresa Messing, Jackie Campbell. (2009, May). Abused Men/Women who have ended

Domestic violence. Presentation at Society for Prevention Research 2009, Washington, DC.

4. Jill Theresa Messing, Jacquelyn Campbell, Lareina La Flair & C. Cavanaugh. (2009, May). Pathways: Prior

Abuse to Current IPV. Presentation at Society for Prevention Research 2009, Washington DC.

5. Joan Kub, Sheila Fitzgerald, Jill Theresa Messing, Richelle Bolyard, Jacqueline Agnew, Daniel Sheridan, Cathleen

Lindauer, Jo Deaton, Connie Ross, & Jacquelyn Campbell. (2009, February). Department Matters: A Mixed Methods

Examination of Workplace Violence against Nursing Personnel. Presentation at Southern Nursing Research Society

2009 Annual Conference, Baltimore, MD.

6. Callie Vincent. (2009, February). Psychological Workplace Violence and Depression Rates in Nurses.

Presentation at Student Poster Presentation Southern Nursing Research Society 2009 Annual Conference,

Baltimore, MD.

7. Jacquelyn Campbell, Jill Theresa Messing, Joan Kub, Sheila Fitzgerald, Jacqueline Agnew,

Daniel Sheridan & Richelle Bolyard (2008, October). Workplace violence against

nursing personnel: Prevalence and risk factors. Presentation at the International

Conference on Workplace Violence in the Health Sector, Amsterdam, the Netherlands.

8. Jacqueline Agnew, Sheila Fitzgerald, Jill Theresa Messing, Joan Kub, Barbara Fowler, Richelle

Bolyard & Jacquelyn Campbell (2008, October). Workplace violence: Job-related

consequences for nursing personnel. Presentation at the American Public Health

Association 136th Annual Meeting and Expo, San Diego, CA.

9. Jacquelyn Campbell, Joan Kub, Jill Theresa Messing, Sheila Fitzgerald, Jacqueline Agnew,

Richelle Bolyard, Deborah Trautman, Daniel Sheridan, Cathleen Lindauer, Jo Deaton

(2008, October). Workplace Violence Against Nursing Personnel: Prevalence and Health

Outcomes. National State of the Science Congress on Nursing Research, Washington

D.C.

10. Jill Theresa Messing, Jacquelyn Campbell, Michelle Kanga, Joan Kub, Daniel Sheridan,

Richelle Bolyard, Sheila Fitzgerald, Jackie Agnew (2008, July). Intimate Partner

Violence (IPV) among nursing personnel: Prevalence and Risk Factors in the Safe at

Work Study. Presentation at the International Family Violence and Child Victimization

Conference, Portsmouth, NH.

11. Jacquelyn Campbell, Jill Theresa Messing, Richelle Bolyard, Joan Kub, Lareina LaFlair, Michelle Kanga, Noelle Dunson (2008, July). Pathways from Prior Experiences of Violence to Current Abuse. Invited presentation at the International Family Violence and Child Victimization Conference, Portsmouth, NH.

12. Jacquelyn Campbell, Joan Kub, Sheila T. Fitzgerald, Jacqueline Agnew, Barbara Fowler, Richelle Bolyard, Jill Theresa Messing, Callie Vincent, Gyasi Moscou-Jackson, Julianne McKeever, Cathy Lindauer (2008, July). The Contribution of Childhood Sexual Abuse and Workplace Violence to Mental and Physical Health Outcomes among Nurses and Nursing Personnel. Presentation at the International Council on Women's Health Issues (17th Congress), Gaborone, Botswana.

13. Michelle Kanga, Jill Theresa Messing, Jacquelyn Campbell, Joan Kub, Sheila Fitzgerald, Jacqueline Agnew, Dan Sheridan, Richelle Bolyard, Callie Vincent (2008, May). The Impact of Workplace Violence on Nursing Policy. Poster Presentation at Baltimore Research Day, Johns Hopkins University, Baltimore, MD.

14. Sheila T. Fitzgerald, Jill Theresa Messing, Michele Bracken, Joan Kub, Richelle Bolyard, Barbara Fowler, Jacqueline Agnew, & Jacquelyn Campbell (2007, November). Workplace Violence in Nursing Personnel: Findings from the Safe at Work Baseline Survey. Presentation for the Annual Meeting and Exposition, American Public Health Association, Washington D.C.

15. Jill Theresa Messing, Jacquelyn Campbell, Joan Kub, Jacqueline Agnew, Sheila T. Fitzgerald, Barbara Fowler, Daniel J. Sheridan, & Richelle Bolyard (2007, November). Workplace Violence in Nursing Personnel: Findings from the Baseline Questionnaire. Presentation

for the Sixth International Conference on Urban Health, Baltimore, Maryland.

10. Michele Bracken, Jill Theresa Messing, Joan Kub, Sheila T. Fitzgerald, Daniel J. Sheridan, & Jacquelyn Campbell (2007, October). Health and Employment Outcomes of Workplace Domestic Violence for Nursing Personnel. Presentation for the 15th International Nursing Conference of the Nursing Network on Violence Against Women International, Ontario, Canada.

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