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EVALUATION OF ORGANIZATIONAL JUSTICE INTERVENTION TO ALLEVIATE  
TYPE III VIOLENCE

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### **List of Terms and Abbreviations**

Negative Acts: NAQ

New York State: NYS

Participatory Action Research: PAR

Project Advisory Group: PAG

University of Maryland, Baltimore: UMB

## **Abstract**

Overview: Workplace violence is an important problem worldwide; the economic burden in the U.S. is estimated to be billions of dollars. A widespread and costly segment of this problem includes those actions that are perpetrated by a current or former fellow employee, so-called Type III violence. The purpose of this study was to assess the prevalence of Type III workplace violence in a large public sector workforce and to develop, implement and evaluate interventions to reduce its occurrence. For the purpose of this project, we defined Type III workplace violence as coworker conflict using standardize measures of “negative acts” and bullying.

Approach: The study was conducted in two phases; both were highly participatory. In phase I a Project Advisory Group assisted with the recruitment of State Government Agencies and the unions representing these workers, as well as the development, administration and completion of an email-based survey of approximately 12,000 state workers (72% response rate) employed in five State Government Agencies. The web-based survey included both subjective (self-labeling) and objective (a checklist of six negative acts) measures of bullying. Phase II involved interventions to address coworker conflict within a subset of agencies. The interventions included a three-hour conflict resolution training and the inclusion of three competencies on supervisors’ annual Performance Evaluation pertaining to managing conflict.

### Key Finding:

- 10.0% of the respondents indicated that they had been bullied at work during the prior six months; 7.6% and 2.4% reported being bullied occasionally and regularly, respectively.
- 52.3% of those who reported regular NAQ and 71.9% of those who reported regular bullying identified the perpetrator as a supervisor, top management, or both.
- Workers reporting coworker conflict reported that it negatively impacted their work, them personally, and their intention to remain in their current job, with a clear dose response relationship between severity of bullying and impact.
- Findings from the post-intervention survey included no reduction in NAQ (“negative acts”) and a slight increase in the frequency of bullying over the study period. However, improvements were documented in the perception of the work atmosphere in all units over the course of the project, with the intervention units demonstrating greater improvements on a number of measures of work atmosphere, as well as knowledge of policies and procedures post interventions.

### Conclusions:

Although we did not demonstrate a reduction in coworker conflict over the study period we documented improvements in measures of the work atmosphere, with a greater improvement among the intervention units. The participatory process that guided this project was highly successful in engaging labor and management partners and sustaining the initiative beyond the funded research project. The overall intensity of the intervention was limited by a number of factors, including the nature and demands of state government work, multiple collective bargaining agreements, as well as a culture that makes changes from the rank and file, not to mention outside researchers, challenging at best. In addition, intervention’s impact was diluted by ongoing Agency-wide efforts quality improvement efforts, including the implementation of changes to supervisors’ Performance Evaluation.

## *Section 1 of the Final Progress Report (2-page limit)*

### **Significant (Key) Findings**

All four study aims were accomplished as follows:

*To assess past six month prevalence of Type III workplace violence, associated circumstances and employer response to violence using a screening cross-sectional survey.*

- To establish the prevalence of coworker conflict in this population, we conducted a web-based survey and included both subjective (self-labeling) and objective (a checklist of six negative acts) measures of bullying. A total of 11,874 completed surveys were received (response rate of 71.8%). Overall, 10.0% of the respondents indicated that they had been bullied at work during the prior six months; 7.6% reported occasional bullying while 2.4% reported that they were bullied regularly.
- Workers employed in the institutional setting and in the agency that included a large number of “field-based” employees reported a prevalence of NAQ and bullying that was two to three-fold greater than reported in the administrative agencies. Qualitative descriptive data suggested that these workplaces were also at increased risk of Type II violence, suggesting the co-occurrence of both types of violence in highly demanding work settings with frequent contact with the public. Further study is needed to replicate and examine this finding.

*To describe organizational justice climate for Type III workplace violence prior to intervention in six New York state (NYS) agencies.*

- We found that 52.3% of those who reported regular negative acts (NAQ) and 71.9% of those who reported regular bullying identified the perpetrator as a supervisor, top management, or both. Our finding, that the position of the person(s) responsible for the behavior was predominantly reported to be of higher status in the organization (i.e. supervisors, top management), is consistent with the published literature.

*To develop and implement a workplace violence prevention policy and associated activities in three state agencies with a high prevalence of Type III workplace violence based on screening.*

- The second phase of the study involved developing, implementing and evaluating interventions to address coworker conflict identified in Phase I of the project. A series of potential interventions, informed by results of the earlier surveys and focus groups, were developed in partnership with management and unions representing State Agency workers. The interventions included a three-hour training in conflict resolution and the inclusion of three competencies on supervisors’ annual performance evaluation pertaining to managing conflict.

*To evaluate the impact of a workplace violence prevention program on organizational justice climate and the incidences and prevalence of Type III workplace violence by comparing intervention and control agencies.*

- The intervention was ongoing over the final two years of the project with the Conflict Resolution training completed six months prior to the final survey. Changes to the annual Performance Evaluation were made in late 2011 with implementation of these changes ongoing. The potential

impact of this system-wide change is unlikely to be realized for several years. The post-intervention survey conducted in early 2013 demonstrated no reduction in NAQ (“negative acts”) and a slight increase in the frequency of bullying over the study period. Improvements in the perception of the work atmosphere were noted across all units surveyed. When the intervention and comparison units were compared on a number of measures of work atmosphere, as well as knowledge of policies and procedures, intervention units were more likely to show improvements since 2011.

## Translation of Findings

- We found the prevalence of bullying similar to the rates reported in Europe and Scandinavia where the prevalence of “bullying” has been estimated to be between 5% and 30%.
- State Agency management and unions met on a quarterly basis throughout the project to evaluate ongoing efforts to reduce coworker conflict and to develop and measure feasible interventions to supplement existing Agency activities. These efforts led to the development of a “menu” of possible interventions of which a three hour conflict resolution training and changes to the performance evaluation were deemed feasible.
- The intervention was evaluated by means of an electronic survey conducted 6-12 months following the Conflict Resolution Training. The finding included that there was no reduction in NAQ (“negative acts”) and a slight increase in the frequency of bullying over the study period. However, improvements were documented in the perception of work atmosphere across all units surveyed. When the intervention and comparison units were compared on a number of measures of work atmosphere, as well as knowledge of policies and procedures, intervention units were more likely to show improvements since 2011 (post intervention).
- The overall intensity of the intervention was limited by a number of factors, including the nature and demands of state government work, multiple collective bargaining agreements, a system of promotion that is more focused on technical ability and tenure than ability to supervise or get along with others, as well as a culture that makes changes from the rank and file, not to mention outside researchers, challenging at best. In addition, the impact of the intervention was diluted by numerous ongoing Agency-wide efforts to improve the work environment, including changes to supervisors’ annual Performance Evaluation.

## Outcomes/ Impact

The following **potential** impact/outcomes resulted from this study:

- Workers reporting coworker conflict reported that it negatively impacted their work, them personally, and their intention to remain in their current job. A clear dose response relationship was noted across the measures of bullying such that nearly 50% of subjects of regularly bullying reporting “very much” for all three impacts. Employers should recognize the negative individual and organizational costs of coworker conflict and develop participatory programs to address it.
- The three-hour conflict resolution training and e-mail “boosters” sent to reinforced key messages from the training were well received by employees and may explain the improvement in the worker reported measures of the work atmosphere among intervention unit employees.
- The participatory process that guided this project was highly successful in engaging labor and management partners and sustaining the initiative beyond the funded research project.

## *Section 2 of the Final Progress Report*

### **Scientific Report**

#### Background:

Workplace violence is an enormous problem worldwide, one that has received increasing attention in the U.S. and elsewhere over the past decade. The economic burden of workplace violence in the U.S. is estimated to be billions of dollars, including lost wages, medical costs, support costs, lawsuits and other factors [1]. A widespread and costly segment of this problem includes those actions which are perpetrated by a current or former fellow employee, so-called Type III violence. A typology or classification rubric for workplace violence has been developed based on the relationship between the perpetrator and the target of workplace violence [2]. The rubric was conceptualized to include both fatal and non-fatal events, recognizing that while homicides are a leading cause of worker injury death, they are rare relative to non-fatal incidents. Type I refer to situations involving criminal intent (e.g. robbery), Type II includes those incidents involving a customer/client relationship with the worker (e.g. health care patient), while Type IV refer to domestic violence that spills over into the workplace. Type III incidents, the focus of this study, include physical assaults and even homicide, but much more commonly are psychological or emotional in nature. Type III workplace violence is associated with lost or decreased productivity, absenteeism, low employee morale, decreased job satisfaction, and increased turnover [3-4]. Workplace bullying, which refers to situations where an employee is repeatedly subjected to negative and aggressive behaviors at work, has been associated with higher levels of anxiety, depression, irritation and psychosomatic complaints [5-7].

#### Study aims:

- 1) To assess past six month prevalence of Type III workplace violence, associated circumstances and employer response to violence using a screening cross-sectional survey.
- 2) To describe organizational justice climate for Type III workplace violence prior to intervention in six New York state (NYS) agencies.
- 3) To develop and implement a workplace violence prevention policy and associated activities in three NY state agencies with a high prevalence of Type III workplace violence based on screening.
- 4) To evaluate the impact of a workplace violence prevention program on organizational justice climate and the incidences and prevalence of Type III workplace violence by comparing intervention and control agencies.

#### Methodology:

Using Participatory Action Research (PAR) methods, the research team convened a Project Advisory Group (PAG) to assist in study design, implementation, and the recruitment of subjects. A PAR framework recognizes and incorporates the legitimate and valuable input of the study subjects in all phases of the research process. PAR is particularly appropriate for the highly complex and dynamic world of work, where the worker's voice is critical to understanding the context and conditions of work and identifying opportunities for action. PAR theory and practice are based on an ethic of social justice [8,9] and as such draws on the expertise of all workplace partners including: workers, their union

representatives, and management in the pursuit of practical solutions to hazardous workplace conditions [10]. The ten-member PAG included representatives of state agencies and the unions that represent the majority of the workforce. The PAG helped refine the survey instrument, strategized about how to maximize survey response rate by assuring anonymity and access, and was instrumental in the recruitment of state agencies for the study. Ultimately, five state agencies agreed to participate. The number of participants per agency ranged from 420 to 4,325. The first of these, a small (420 respondents, 94.0% response rate) social service agency, was used as the pilot site and as such, these data are not included in this analysis. The four other agencies, ranging from 972 to 4325 respondents each, included two large agencies (Agency 1 and Agency 2) that are primarily administrative, but that also have service and regulatory functions, and a third large agency (Agency 3) that is divided between administrative, and field activities. Participants from the fourth agency (Agency 4) included employees of three large regionally-based semi-autonomous mental health centers that provide residential and/or outpatient care to the chronically mentally ill. Collectively, the agencies represent the major functions performed by state government; namely administrative, service, regulatory, field, and institutional services.

At each participating agency/facility, the project's coordinator met with a group of managers, workers, and union representatives to plan the administration of the survey. The goals were to maximize participation (response rate), protect respondents' confidentiality and anonymity, and minimize the disruption to the agency's operation. In most agencies, the majority of employees had a work e-mail account. A joint introductory e-mail/memorandum was sent to all employees by the management and union representatives. Then each employee received an e-mail from the Principal Investigator describing the project, the survey, and promising confidentiality and anonymity. The e-mail included a hyperlink that would connect the employee directly to the survey which was housed behind the university firewall. For those employees without work e-mail access, we provided paper copies of the survey with a stamped envelope in which they could directly return the completed survey to University of Maryland, Baltimore (UMB). Employees were also provided with contact information for a University-based member of the research team whom they could contact if they had a question or concern or a preference to not complete the survey online. Following the initial solicitation, one- and two-week reminder e-mails were sent.

#### Methods (Aims 1-4)

Using Participatory Action Research (PAR) methods, the research team convened a Project Advisory Group (PAG) to assist in study design, implementation, and the recruitment of subjects. A PAR framework recognizes and incorporates the legitimate and valuable input of the study subjects in all phases of the research process. PAR is particularly appropriate for the highly complex and dynamic world of work, where the worker's voice is critical to understanding the context and conditions of work and identifying opportunities for action. PAR theory and practice are based on an ethic of social justice [8-9] and as such draws on the expertise of all workplace partners including: workers, their union representatives and management in the pursuit of practical solutions to hazardous workplace conditions [10]. The ten-member PAG included representatives of state agencies and the unions that represent the majority of the workforce, as well as the Governor's Office of Employee Relations and the Organization of Management/Confidential Employees. Most of the PAG members also had significant experience dealing with workplace violence of all types. The PAG met 3-4 times per year, with additional telephone and e-mail communication from the research team.

The baseline survey was conducted in New York State which in 2009 enacted a comprehensive workplace violence prevention law, mandating that all public employers develop a program that addresses all aspects of workplace violence, including Type III. The current survey was conducted in late 2009 and early 2010. While the passage of the 2009 law enabled the research team to gain access to the workforce, in part because of the section of the law which mandates some form of annual workplace violence risk assessment, workplaces had not yet begun to implement the mandated program at the time of the survey.



Additionally, the only Type III acts covered by the law were physical attacks, or explicit threat of attack. All aspects of the study were approved by the University of Maryland Institutional Review Board.

#### Methods (Aims 1 and 2)

*Specific Aims (1) - To assess past six month prevalence of Type III workplace violence, associated circumstances and employer response to violence using a screening cross-sectional survey. (2) To describe organizational justice climate for Type III workplace violence prior to intervention in six New York state (NYS) agencies.*

The overall project PAG helped refine the survey instrument, strategized about how to maximize survey response rate by assuring anonymity, and was instrumental in the recruitment of state agencies for the study. Ultimately, five state agencies agreed to participate in the baseline survey. The number of participants per agency ranged from 420 to 4,592. The first of these, a small (420 respondents, 94.0% response rate) social service agency, was used as the pilot site and as such, these data are not included in this analysis. The four other agencies, ranging from 972 to 4325 respondents each, included two large agencies (Agency 1 and Agency 2) that are primarily administrative, but that also have service and regulatory functions, a third large agency (Agency 3) that is divided between administrative, and field activities. The fourth agency (Agency 4) included three large regionally-based semi-autonomous mental health centers that provide residential care to the chronically mentally ill. Collectively, the agencies represent the major functions performed by state government; namely administrative, service, regulatory, field, and institutional services.

At each participating agency/facility, the project's coordinator met with a group of managers, workers, and union representatives to plan the administration of the survey. The goals were to maximize participation (response rate), protect respondents' confidentiality and anonymity, and minimize the disruption to the agency's operation. In most agencies, the majority of employees had a work e-mail account. A joint introductory e-mail/memorandum was sent to all employees by the management and union representatives. Then each employee received an e-mail from the Principal Investigator describing the project, the survey, and promising confidentiality and anonymity. The e-mail included a hyperlink that would connect the employee directly to the survey which was housed behind the university firewall. For those employees without work e-mail access, we provided paper copies of the survey with a stamped envelope in which they could directly return the completed survey to UMB. Employees were also provided with contact information for a University-based member of the research team whom they could contact if they had a question or concern or a preference to not complete the survey online. Following the initial solicitation, one- and two-week reminder e-mails were sent.

#### Survey Measures

The questionnaire survey was six pages in length (paper version) and included questions assessing the extent, severity, and impact of Type III violence. The survey began with a six question battery derived from Einarson's Negative Act Questionnaire [11]. Next, employees were provided the following definition of bullying; "*Bullying can be described as having taken place when abusive behavior is repeated over a period of time and when the victim experiences difficulties in defending him or herself in this situation. It is not bullying if the incident does not occur repeatedly*" and asked if they had experienced workplace bullying in the previous six months. Those who reported any of the Type III behaviors, negative acts and/or bullying, were asked a series of questions including: the relative position within the organization of the perpetrator(s); the actions that were taken by the respondent; the organizational response; and the impact on the respondent. Additionally, all individuals were asked their awareness of relevant policies and practices at their workplace, and their assessment of the overall workplace atmosphere. The questions assessing work atmosphere were developed by one member of the study team and reviewed and modified by the PAG. Finally, individuals were asked a series of

demographic questions, though care was taken to ensure anonymity. As such, we did not ask employees' job title or organizational position but instead asked them the bargaining organization/union to which they belonged. The four bargaining units included: a union representing support and administrative workers; a union of professional and technical staff; a union of security officers; and non-unionized management-confidential employees. In addition to bargaining unit, we collected categorical information about tenure in the organization, and the department or division within the agency in which they worked.

Einarsen's 22 item list of negative acts [11] was utilized in the survey of our pilot agency. However, as plans were being developed to recruit other agencies, our PAG, which included management and union representation, expressed concern about many of the NAQ items which they perceived as more subjective, somewhat "minor", and even legitimate "progressive discipline" rather than negative acts. As a result of these discussions, the research team selected six of the 21 items (Cronbach's alpha = 0.90) for inclusion in the final survey tool. The wording of the six questions was modified where necessary to be linguistically and culturally relevant to the U.S. public sector workplace. The six negative acts selected were those judged to be most serious and included being: 1) ignored or shunned, 2) subjected to insulting/offensive remarks, 3) humiliated or ridiculed, 4) shouted or raged at, 5) subjected to excessive teasing/sarcasm, 6) intimidated /threatened.

Response categories for the NAQ and bullying questions varied slightly from those of Einarsen and Hoel [12]. Whereas they included six frequency levels, we collapsed their frequencies "yes, very rarely" and "yes, now and then" into one category labeled "at least once during the past six months". This change was made in response to our PAG's concern that the terms "very rarely" and "now and then" were ambiguous and potentially confusing. As per Hoel et al [13], our data analysis involves collapsing these five categories into three: no bullying (n=10,692); occasional bullying (n=896) defined as less than once per week; or regular bullying (n=286) defined as at least once per week).

In an effort to also evaluate the prevalence of and factors related to negative acts in the absence of self-identifying as a "victim of bullying", we further categorized those who reported "no" to the bullying question (n=10,692) into three categories. Those reporting one or more of the six negative acts at least weekly (but no "bullying") were categorized as "regular NAQ" (n=684); those reporting one or more negative act less than once per week in the past six months (but no "bullying") were categorized as "occasional NAQ" (n=3,315), and those who reported no NAQ (and no "bullying") in the past six months were categorized as "none" (n=6,693). This coding allowed us to evaluate the combined checklist and definition of bullying measures as five mutually exclusive categories.

#### Methods (Aims 3):

*To develop and implement a workplace violence prevention policy and associated activities in three NY state agencies with a high prevalence of Type III workplace violence based on screening.*

Three intervention and three comparison sites were initially selected. Criteria for selection of the intervention sites was 1) a strong labor and management team, 2) a high response rate for the baseline survey, and 3) a management team that was enthusiastic about the opportunity to develop and implement an intervention tailored to their worksite needs. The intervention sites included two large departments at one of the participating administrative State Agencies and two State Hospitals. Comparison sites were selected from among these same two large state agencies to be comparable to the type of work performed at the intervention sites.

A local PAG was developed at each site. The PAG reviewed baseline survey data, facilitated the conduction of focus groups in intervention units, reviewed their workplace violence prevention policy and developed a series of interventions deemed feasible and tailored to their particular work settings.

Phase II of the study involved developing, implementing and evaluating interventions to address coworker conflict identified in Phase I of the project. A series of potential interventions, informed by results of the earlier surveys and focus groups, were developed in partnership with management and unions representing workers. The interventions included a three-hour training in conflict resolution and the inclusion of three competencies on supervisors' annual performance evaluation pertaining to managing conflict.

For reasons of feasibility, two units within Administrative Agency were identified and selected to serve as intervention sites. Two comparable units were selected to serve as comparison sites. Selection criteria included the ability to form and maintain an active steering committee to guide the development and implementation of the intervention phase of the project. Comparison units were selected to be comparable to intervention units on the following characteristics: type of work performed, size of workforce, geographic location, baseline prevalence of bullying. In May of 2011, a questionnaire survey was offered to all employees (n=1,256) of those four work units and locations.

Early in 2012, the Administrative Agency piloted a three-hour conflict resolution training. The study team provided input into the design of the training which was offered and delivered by the Agency's training department with union trainers serving as co-trainers. Following the pilot training, the curriculum was revised and offered to the remainder of intervention unit employees. A series of e-mails reinforcing the training message ("boosters") were sent by the employer to the intervention site employees one to two months following the conclusion of the trainings. Additionally, posters were developed and distributed to the intervention sites, with key messages derived from the training.

An additional intervention that was administered agency-wide was an increased emphasis on supervisors' interpersonal skills and abilities to respond to workplace conflict. An important aspect of this was developing three core standards that were inserted into each supervisor's annual performance evaluation. Simultaneously, the Agency began computerizing the performance evaluations to facilitate ensuring that the evaluations were conducted annually and to begin to track the results in aggregate.

#### Methods (Aims 4):

*To evaluate the impact of a workplace violence prevention program on organizational justice climate and the incidences and prevalence of Type III workplace violence by comparing intervention and control agencies.*

Two subsequent surveys were conducted in two intervention and two comparison units of the Administrative Agency. The first of the two was conducted in 2011 to establish a pre-intervention baseline in the four study units. In the final year of the grant period, the Institutional intervention facility merged with a regional state hospital. The change in the structure and organization of work at the newly merged unit was anticipated to be so great as to overwhelm any impact of the planned intervention. Therefore, the institutional agencies were not included in the evaluation portion of the project.

In January 2013, the research team administered a web-based post-intervention questionnaire survey to employees at the intervention and comparison units (n=1140) of the administrative agency. The survey included the negative acts and bullying and work atmosphere questions from the prior surveys and included additional questions to aid in evaluating the impact of the intervention. The 2013 survey included questions from the 2009 and 2011 surveys to allow comparison of findings across the three time periods, as well as new questions related to the intervention. To be included in the analyses a completed survey had to, at minimum, include responses to the entire battery of six negative acts questions (survey items 1-6).

As with the earlier surveys, it was made available via a secure website behind the UMB firewall to maximize the participation rate while still ensuring the confidentiality of employees' responses. Staff were introduced to the survey in an e-mail sent by Tax & Finance which was co-signed by management and union representatives. The e-mail included an embedded unique "token" that enabled the employee to access the survey. These tokens also ensured that no employee could complete the survey more than once. A reminder e-mail was sent to all eligible Tax & Finance staff one week after the initial e-mail, and a second reminder e-mail was sent after another ten days had elapsed. The survey and methods had the approval of the University of Maryland Institutional Review Board.

### Analysis:

The surveys were analyzed using SPSS. In this report, we provide the number of responses (and percentages) for all possible responses to each question. We also provide the results of statistical tests assessing difference between groups using Chi-square and the significance level of the observed differences as indicated by a "p-values" or the probability that an observed difference is a random occurrence. P values less than 0.05 indicate that observed differences between groups are attributable to the study variable rather than a chance finding.

The internal consistency of selected survey questions was assessed using Cronbach's alpha. Pearson chi-square tests were used to compare differences between groups. P values <0.05 were considered statistically significant. All statistical analyses were conducted with Stata 10 (Stata Corporation, College Station, TX) and Statistical Package for Social Sciences (SPSS) (Version 19, IBM SPSS Inc., Chicago, IL).

### Results (Aims 1 and 2)

A total of 11,874 completed surveys (defined as responding to all six NAQ and the bullying question) were received from the four agencies. For three agencies, it was possible to calculate a precise response rate; the overall rate was 71.8% and the agency-specific rates ranged from 61.5% - 81.9%. At the fourth agency, the email distribution list included some former employees as well as employees who did not have access to email and as such there was uncertainty about the number of employees offered the survey. We received 4,325 completed surveys from this agency and estimate a response rate of at least 55-60%.

The overall sample was composed of 51.9% male; 85.3% white, and 59.8% greater than 45 years of age. As is typical of a unionized public sector workforce, more than half of the sample had been in their current job for more than five years. Despite the anonymity of the survey, many respondents chose to withhold some demographic data. Missing data among demographic variables ranged from 12% for age to 18% for race. Those who reported negative acts and/or bullying were more likely to not respond to demographic questions. The four agencies in our sample included the range of administrative, field, regulator, and human service functions typical of state public sector work. The workforce demographics varied by type of agency with a higher proportion of women, 66% employed in the mental health agency (Agency 4) compared with 27% women in the workforce providing a combination of administrative and field services (Agency 3). The four agencies also varied by age, race, and job tenure of their respective workforce.

The overall prevalence of reporting at least one of the six negative acts (NAQ) with any frequency in the past six months, irrespective of self-labeling as having been bullied, was 44.2%. Being ignored or shunned was the most frequently reported individual negative act; with 22.1% of respondents reported being subjected to the behavior less than weekly and 7.4% at least weekly. By contrast, 2.7%

reported “intimidation with threatening behaviors” and 2.7% reported “been shouted at or targeted with spontaneous anger (or rage)” at least once a week.

Overall, 10.0% of the respondents indicated that they had been bullied at work during the prior six months; 7.6% reported occasional bullying while 2.4% reported that they were bullied regularly. These data are consistent with the Hoel et al., [18] study of a large sample of U.K. workers where the prevalence of “occasional” and “regular” bullying was reported by 9.2% and 1.4%, of workers respectively. Many respondents reported experiencing negative acts, though they did not self-identify as victims of bullying. This included 5.8% of all respondents that reported regular NAQ (at least one NAQ at least weekly); and 27.9% that reported occasional NAQ (at least one NAQ less than weekly).

In our sample, coworker conflict varied somewhat by gender, race, age, job tenure, and bargaining unit, and by agency. The magnitudes of the differences were modest or negligible, though many of the differences achieved statistical significance due to the large sample size. Non-white workers and younger workers (<45 years old) were at somewhat greater risk of regular bullying, 3.0% vs. 2.3% and 2.4% vs. 2.2% respectively. Workers with a job tenure of one year or less (n=1724) were significantly less likely to report any form of conflict than those with greater job tenure. By bargaining unit, rates varied; with those unions representing workers in subordinate positions reporting a somewhat higher prevalence of regular bullying (range: 2.6 – 0.7). Compared with the two administrative agencies (Agency 1, 2), the prevalence of reported “regular bullying” was two to three-fold greater in the institutional agency (Agency 4) and in the agency that included a large number of “field-based” employees (Agency 3). The prevalence of regular NAQ and occasional bullying was elevated among employees of the institutional and field agencies. Although as noted above, the workforce across the four agencies varied by demographic characteristics, these differences are unlikely to explain the variation in the prevalence of bullying across agencies. The proportion of non-white workers was lower (12.8% and 11.1% respectively) in Agencies 3 and 4, compared to 14.7% for the total sample. In addition, the proportion of workers with less than one year job tenure was lower in these two agencies (6.0% and 12.2%) than among the total sample (15.6%). The proportion of workers belonging to the union representing support/administrative titles was 37.5% among the total sample, 48.9% in Agency 4 and 36.2% in Agency 3.

Those who reported at least one of the negative acts and/or being subjected to bullying were asked to identify the relative organizational position of the person(s) responsible for the most bothersome act. Respondents could select more than one individual. The fact that these percentages summed to more than 100% indicates that multiple bullies were involved in some of the bullying. Of note is that among those reporting regular NAQ, 30.6% identified the perpetrator as a coworker while among those who reported “regular bullying” a coworker was identified by only 20.7%. By contrast 52.3% of those who reported regular NAQ and 71.9% of those who reported regular bullying identified the perpetrator as a supervisor, top management, or both.

When asked to what extent the work conflict negatively impacted: their work, them personally, and their intention to remain in their current job, we found a clear dose response relationship across the measures of bullying with nearly 50% of subjects of regularly bullying reporting “very much” for all three impacts.

## Results (Aims 3 and 4)

### *Demographics*

Overall, 59% of the 2013 respondents were women compared to 57% in 2011. The fact that we did not include questions on race and age in the 2011 survey prevents us from comparing the survey

populations on these factors. Differences in survey population demographics between the 2009 and later surveys reflect the different sample population across time.

**Table 1– Survey Population Demographics**

	2009	2011 *	2013
	Number (%)	Number (%)	Number (%)
<b>Gender</b>			
Male	5656 (52)	343 (43)	248 (41)
Female	5232 (48)	459 (57)	357 (59)
<b>Race</b>			
Non-White	1490 (15)		123 (19)
White	8655 (85)		513 (81)
<b>Age</b>			
<= 45 years	4446 (40)		344 (55)
46-55 years	4288 (39)		166 (27)
>=56 years	2319 (21)		116 (18)
<b>Tenure in Current Job</b>			
<= 1 year	1724 (16)	65 (8)	91 (15)
2-5 years	3125 (28)	375 (47)	204 (32)
6-10 years	1824 (16)	115 (14)	133 (21)
11-20 years	1967 (18)	130 (16)	105 (17)
> 20 years	2440 (22)	120 (15)	98 (15)

\* Data not collected in 2011 survey

***Workplace Conflict – “negative acts” and “bullying”***

Questions 1-6 included a variety of workplace conflict-related items, described as “negative acts questions” or NAQ. For each of the questions, the respondents were asked the frequency which with the negative act had been experienced during the previous six months, ranging from “not in the past six months or never” to “daily or almost daily”.

When comparing responses across the three time periods, there was a slight increase in the percentage of reports of at least one negative act during the previous six months ranging from 39% in



2009 to 43% in 2013 (Table 2); however these changes were not statistically significant ( $p=0.229$ ). The relative frequency of reporting each of the six negative acts was essentially unchanged, as well.

**Table 2– Reporting of Negative Acts**

<b>Negative Acts Questions (during the prior six months at work, have you....)</b>	<b>2009 Survey Results N = 4191</b>	<b>2011 Survey Results N = 783</b>	<b>2013 Survey Results N=636</b>
	<b>Number (%)</b>	<b>Number (%)</b>	<b>Number (%)</b>
<b>Been ignored or shunned</b>	1124 (27)	197 (25)	172 (27)
<b>Had insulting/offensive remarks made about you</b>	921 (22)	193 (25)	166 (26)
<b>Been humiliated or ridiculed in connection with your work</b>	802 (19)	163 (21)	132 (21)
<b>Been subjected to excessive teasing and sarcasm</b>	548 (13)	115 (15)	86 (14)
<b>Been shouted at or targeted with spontaneous anger (or rage)</b>	497 (12)	97 (12)	81 (13)
<b>Been intimidated with threatening behavior</b>	401 (10)	83 (11)	78 (12)
<b>Reported at least one of the above negative acts</b>	1653 (39)	316 (40)	276 (43)

Staff were again asked about workplace bullying, defined “as having taken place when abusive behavior is repeated over a period of time and when the victim experiences difficulties in defending him or herself in this situation. It is not bullying if the incident does not occur repeatedly”. In the most recent survey (2013) 14% reported having been subjected to bullying at least once during the previous six months, higher than in both 2009 (7%) and 2011 (9%) although these differences were not statistically significant ( $p=0.096$ ). Five percent of respondents in 2013 indicated that this occurred at least once per

month, only somewhat higher than the 4% who reported this in each of the two prior surveys (Table 3). When we combined any frequency of bullying versus none in the past six months or never, the difference was statistically significant ( $p=0.013$ ).

**Table 3 – Reporting of Bullying**

<b>How often have you been subjected to bullying at work during the prior six months?</b>	<b>2009 Survey Results N = 3997</b>	<b>2011 Survey Results N = 777</b>	<b>2013 Survey Results N = 636</b>
	<b>Number (%)</b>	<b>Number (%)</b>	<b>Number (%)</b>
<b>Not in the past 6 months, or never</b>	<b>3707 (93)</b>	<b>704 (91)</b>	<b>548 (86)</b>
<b>Any Bullying</b>	<b>290 (7)</b>	<b>73 (9)</b>	<b>88 (14)</b>
<b>Daily or almost daily</b>	<b>21 (1)</b>	<b>4 (1)</b>	<b>3 (1)</b>
<b>More than once a week</b>	<b>32 (1)</b>	<b>6 (1)</b>	<b>10 (2)</b>
<b>More than once a month</b>	<b>68 (2)</b>	<b>19 (2)</b>	<b>19 (3)</b>
<b>At least once during the past 6 months</b>	<b>169 (4)</b>	<b>44 (6)</b>	<b>56 (9)</b>

***Awareness of Tax & Finance's Workplace Violence Policies and Practices***

All employees, not just those who reported having experienced Type 3 conflict, were asked their awareness of Tax & Finance's workplace violence policies and practices; respondents were asked to select "True", "False", or "Not sure" for each of the statements. Most employees were aware of these policies and practices, with statistically significant higher percentages in 2013 when compared with 2011 (Table 4).



**Table 4 – Awareness Workplace Violence Policies and Practices \***

<b>Workplace Violence Policies and Practices</b>	<b>2009 Survey Results N = 3829</b>	<b>2011 Survey Results N = 782</b>	<b>2013 Survey Results ** N = 636</b>	<b>p-value (2013 vs 2011)</b>
	<b>Number (%)</b>	<b>Number (%)</b>	<b>Number (%)</b>	
<b>I am aware of policies at my workplace concerning coworker, supervisor, or subordinate violence or psychological abuse</b>	<b>2849 (74)</b>	<b>558 (71)</b>	<b>552 (89)</b>	<b>&lt;0.001</b>
<b>It has been made very clear to all employees that coworker, supervisor, or subordinate violence and psychological abuse will not be tolerated</b>	<b>2847 (74)</b>	<b>557 (71)</b>	<b>521 (83)</b>	<b>&lt;0.001</b>
<b>Procedures and policies about coworker, supervisor, or subordinate violence and psychological abuse are consistently implemented throughout my organization</b>	<b>1778 (46)</b>	<b>370 (47)</b>	<b>429 (69)</b>	<b>&lt;0.001</b>

\* percentages are of the respondents from each work location who answered “True” to the questions pertaining to policies and practices

*Overall Work Atmosphere*

All three surveys includes a set of eight questions pertaining to Tax & Finance's overall work atmosphere. Examining overall changes in responses between 2011 and 2013, a number of statistically significant changes were noted (Table 5). Most notably 84% of respondents agreed with the statement that "employees treat each other with respect and fairness"; 55% agreed that "the organization as a whole values and cares about them"; the percentage of employees who "know there are procedures to voice a grievance if they have been treated unfairly" improved from 73 to 88%; and the percentage of employees who "speak up if they think there has been a problem" increased from 59% to 68%. By contrast, the percent who agreed with the statement "employees usually put up with a lot of tough treatment from those in authority" increased from 18% to 24%.

**Table 5 - Overall Work Atmosphere \***

<b>Overall Work Atmosphere</b>	<b>2009 Survey Results</b> <i>N = 3798</i>	<b>2011 Survey Results</b> <i>N = 783</i>	<b>2013 Survey Results</b> <i>N=636</i>	<b>p-value</b> <b>(2013 vs 2011)</b>
	<b>Number (%)</b>	<b>Number (%)</b>	<b>Number (%)</b>	
Employees are usually "treated with respect and fairness by their supervisors"	3061 (81)	633 (81)	526 (83)	0.082
Employees usually "are not listened to by their supervisors"	667 (18)	163 (21)	148 (24)	0.321
Employees "treat each other with respect and fairness"	3093 (81)	624 (80)	534 (84)	0.008
Employees who "believe the organization as a whole values and cares about them"	2257 (59)	379 (48)	345 (55)	0.009
Employees who believe that they "work in an atmosphere where employees often treat each other aggressively"	391 (10)	81 (10)	91 (14)	0.048
Employees who "know there are procedures to voice a grievance if they have been treated unfairly"	2840 (75)	569 (73)	554 (88)	<0.001
Employees usually "put up with a lot of tough treatment from those in	484 (13)	138 (18)	154 (24)	0.007

authority”				
Employees “speak up if they think there has been a problem”	2492 (66)		465 (59)	423 (68) 0.002

\* percentages are of the respondents from each work location who answered “True” to the questions pertaining to the overall work atmosphere.

#### ***Reporting & Investigation of Conflict***

Compared to 2011, significant improvements were noted in responses to questions asking whether they “*know how* to report a conflict with a *peer* (66 to 78%) and “*know how* to report a conflict with a *supervisor* (59 to 79%) (Table 6).

**Table 6 - Reporting & Investigation of Conflict**

Reporting & Investigation of Conflict	All Respondents 2011 N = 780	All Respondents 2013 N = 636	p-value (2013 vs 2011)
	Number (%)	Number (%)	
Employees who <i>know how</i> to report a conflict with a <i>peer</i> (% yes)	511 (66)	494 (78)	<0.001
Employees who <i>would</i> report a conflict with a <i>peer</i> (% yes)	347 (44)	276 (44)	0.795
Employees who believe a good faith effort would be made to deal with the <i>peer</i> conflict (% confident or very confident vs. not/little confident)	439 (56)	351 (56)	0.956
Employees who would work directly with the peer to resolve the problem (% comfortable or very comfortable)	415 (53)	339 (53)	0.974
Employees who <i>know how</i> to report a conflict with a <i>supervisor</i> (% yes)	457 (59)	503 (79)	<0.001
Employees who <i>would</i> report a conflict with a <i>supervisor</i> (% yes)	349 (45)	305 (48)	0.592
Employees who believe a good faith effort would be made to deal with the <i>supervisor</i> conflict (% confident or very confident vs. not/little confident)	363 (47)	316 (50)	0.094

### **Comparison of Intervention and Comparison Units (2011 and 2013)**

The following tables present findings from the comparison of the intervention and comparison unit responses in 2011 and 2013.

The proportion of employees reporting experiencing any negative acts did not differ significantly between intervention and comparison units between 2011 and 2013. However, there was an increase in reports of any bullying among both intervention and comparison sites between 2011 and 2013 with the difference among the invention sites greater and statistically significant. No difference was noted for monthly bullying (Table 7).

**Table 7 - Comparing exposure to NAQ and Bullying between 2011 and 2013 for intervention and comparison sites**

	2011		2013		Difference	
	Intervention	Comparison	Intervention	Comparison	Intervention	Comparison
	Number (%)	Number (%)	Number (%)	Number (%)	p-value	p-value
<b>Any NAQ</b>	<b>186 (39)</b>	<b>130 (43)</b>	<b>187 (43)</b>	<b>79 (43)</b>	<b>0.180</b>	<b>0.906</b>
<b>Any Bullying</b>	<b>46 (9)</b>	<b>31 (10)</b>	<b>60 (14)</b>	<b>23 (13)</b>	<b>0.034</b>	<b>0.384</b>
<b>Monthly Bullying*</b>	<b>20 (4)</b>	<b>10 (3)</b>	<b>20 (5)</b>	<b>9 (5)</b>	<b>0.061</b>	<b>0.594</b>

### ***Work Atmosphere***

When we compared responses from employees working in intervention and comparison units on eight measures of work atmosphere between the two time periods we found significantly significant improvements in intervention units for three measures and a decrement in one measures (“employees usually put up with a lot of tough treatment from those in authority”), while both intervention and comparison units showed improvement in two measures and no significant difference in two measures (Table 8).

**Table 8 -Overall Work Atmosphere, by intervention and comparison sites \***

	2011		2013		Difference	
	Intervention	Comparison	Intervention	Comparison	Intervention	Comparison
	Number (%)	Number (%)	Number (%)	Number (%)	p-value	p-value
Employees are usually “treated with respect and fairness by their supervisors”	396 (81)	249 (80)	370 (86)	144 (79)	0.027	0.819
Employees usually “are not listened to by their supervisors”	102 (21)	69 (22)	99 (23)	44 (24)	0.399	0.586
Employees “treat each other with respect and fairness”	384 (79)	249 (81)	369 (86)	151 (83)	0.006	0.548
Employees who “believe the organization as a whole values and cares about them”	227 (46)	157 (51)	247 (57)	90 (50)	0.001	0.762
Employees who believe that they “work in an atmosphere where employees often treat each other aggressively”	52 (11)	35 (11)	56 (13)	31 (17)	0.262	0.067
Employees who “know there are procedures to voice a grievance if they have been treated unfairly”	360 (73)	223 (72)	383 (89)	156 (86)	<0.001	0.001
Employees usually “put up with a lot of tough treatment from those in authority”	74 (15)	72 (23)	97 (23)	46 (25)	0.003	0.604

Employees “speak up if they think there has been a problem”	306 (62)	173 (56)	297 (69)	181 (65)	0.027	0.037
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\* percentages are of the respondents from each work location who answered “True” to the questions pertaining to the overall work atmosphere.

### ***Reporting and Investigation of Conflict***

A battery of seven questions was asked about reporting and investigation of conflict. Statistically significant improvements were found in the percentage of employees in both intervention and comparison sites who agreed with the following measures: *know how* to report a conflict with a *peer*, *know how* to report a conflict with a *supervisor*. No differences were found in the other five measures (Table 9).

**Table 9 - Reporting & Investigation of Conflict, by Intervention Status**

Reporting & Investigation of Conflict	2011		2013		Difference	
	Intervention	Comparison	Intervention	Comparison	Intervention	Comparison
	Number (%)	Number (%)	Number (%)	Number (%)	p-value	p-value
Employees who <i>know how</i> to report a conflict with a <i>peer</i> (% yes)	321 (66)	201 (66)	335 (79)	145 (79)	<0.001	0.001
Employees who <i>would</i> report a conflict with a <i>peer</i> (% yes)	211 (43)	145 (47)	187 (43)	82 (45)	0.966	0.777
Employees who believe a good faith effort would be made to deal with the <i>peer</i> conflict (% confident or very confident vs. not/little confident)	280 (57)	168 (54)	242 (56)	105 (57)	0.819	0.516
Employees who would work directly with the peer to resolve the problem (% comfortable or very comfortable)	259 (54)	168 (54)	221 (51)	107 (59)	0.606	0.321
Employees who <i>know</i>	293 (62)	178 (60)	340 (79)	148 (81)	<0.001	<0.001

<b>Reporting &amp; Investigation of Conflict</b>	<b>2011</b>		<b>2013</b>		<b>Difference</b>	
<i>how to report a conflict with a supervisor (% yes)</i>						
<b>Employees who would report a conflict with a supervisor (% yes)</b>	<b>218 (46)</b>	<b>143 (48)</b>	<b>210 (49)</b>	<b>93 (51)</b>	<b>0.413</b>	<b>0.594</b>
<b>Employees who believe a good faith effort would be made to deal with the supervisor conflict (% confident or very confident vs. not/little confident)</b>	<b>238 (49)</b>	<b>133 (43)</b>	<b>220 (52)</b>	<b>93 (52)</b>	<b>0.351</b>	<b>0.054</b>

There were no statistically significant differences in employees' perception of the recognition of their work over time or between intervention and comparison sites.

#### Discussion and Conclusions:

Since the conclusion of the baseline survey in 2009, management and unions have met on a quarterly basis to evaluate current Agency efforts to reduce coworker conflict and to develop feasible intervention measures to supplement existing Agency activities. These efforts led to the development of a "menu" of possible interventions of which a three hour conflict resolution training and changes to the performance evaluation were deemed feasible. In May 2011, prior to implementing these measures, a questionnaire survey was offered to all employees of the selected intervention and comparison work units. A report summarizing those results was sent later in 2011.

A three-hour conflict resolution training was offered to all employees of the intervention units in 2012. A total of 570 people were trained in the intervention units; this represents 92% of the 621 employees in those two units. The training was followed by a series of e-mail "boosters" sent to employees as well as the development and distribution of posters that reinforced key messages from the training.

The second element of the intervention was implemented Agency-wide and focused on supervisor skills and abilities to respond to workplace conflict. This involved the development of three core standards or competencies to be included in each supervisor's annual performance evaluation. Simultaneously, the Agency began computerizing the performance evaluations to facilitate ensuring that the evaluations were conducted annually and to begin to track the results in aggregate. This intervention occurred gradually, beginning in 2012 and continues to this time. The performance evaluation elements for higher level managers were modified first.

Early in 2013, following these intervention activities, another web-based questionnaire survey was offered to all employees at both the intervention and comparison units. The survey repeated the negative acts and bullying questions from the prior surveys and included additional questions to aid in evaluating the impact of the intervention. Survey responses were compared across the three time periods.

It should be noted that the 2009 survey was administered Agency-wide, while the 2011 and 2013 surveys were offered to the four units serving as intervention and control sites. For the purpose of this report we have presented findings from across all three surveys, but with a focus on changes between 2011 and 2013. Although the most concrete aspect of the intervention was the three-hour training delivered in the intervention units only, there were a number of important Agency-wide efforts during the four year project that undoubtedly had an impact beyond the intervention units.

Having provided this context, survey findings can be summarized as follows. We documented a slight increase in the percentage of reports of at least one negative act during the previous six months ranging from 39% in 2009 to 43% in 2013; however these changes were not statistically significant. We found that in the 2013 survey, 14% of employees reported having been subjected to bullying at least once during the previous six months, a proportion statistically higher than in both 2009 (7%) and 2011 (9%). The difference was statistically significant and somewhat greater among intervention units, but there was also an increase over time in comparison units.

We found statistically significant improvements in the overall work atmosphere between 2011 and 2013. Most notably there were significant increases in the percent of respondents who agreed with the statement that “employees treat each other with respect and fairness”; that “the organization as a whole values and cares about them”; who “know there are procedures to voice a grievance if they have been treated unfairly”, and who “speak up if they think there has been a problem” By contrast, the percent who agreed with the statement “employees usually put up with a lot of tough treatment from those in authority” increased, as well. Additionally, significant improvements were noted in responses to questions asking whether they “*know how* to report a conflict with a *peer* and “*know how* to report a conflict with a *supervisor*” between 2011 and 2013.

When we compared responses from employees working in intervention and comparison units on eight measures of work environment between the two time periods, we found significantly significant improvements in intervention units for three measures and a decrement in one measures (“employees usually put up with a lot of tough treatment from those in authority”), while both intervention and comparison units showed improvement in two measures and no significant difference in two other measures.

In summary, our survey results demonstrated no reduction in NAQ (“negative acts”) and a slight increase in the frequency of bullying over the study period. However, improvements were documented in the perception of work atmosphere across all units surveyed. When the intervention and comparison units were compared on a number of measures of work atmosphere, as well as knowledge of policies and procedures, intervention units were more likely to show improvements since 2011.

The interpretations of our survey findings are limited by a number of factors.

- First and foremost, the overall intensity of the intervention was limited by a number of factors, including the nature and demands of state government work, especially in an agency with the responsibilities of the STATE AGENCY, multiple collective bargaining agreements, a system of promotion that is more focused on technical ability and tenure than ability to supervise or get along with others, as well as a culture that makes changes from the rank and file, not to mention outside researchers, challenging at best.
- Response rate varied by units in 2011 and 2013, making comparison over time and by type of unit, more difficult. As such, the differences we documented over time and between units should be viewed cautiously.



- The effect of this intervention was diluted by numerous Agency-wide efforts to improve the work environment, including increased efforts to evaluate supervisors, in part, on their interpersonal skills
- The “macro” environment that includes financial pressures on all of state government, with reduced staffing, increased responsibility for remaining employees, and the stress that those changes may cause.

We found that the State Agency and the unions representing their employees were unusually open and committed to identifying problems and developing feasible strategies to improve the work environment and worker health and safety. We believe that the somewhat modest findings of the impact of the project interventions must be interpreted within the limitations of the reality of attempting to conduct such an ambitious project in the real world of government service. We strongly encourage the Agency and unions to continue their efforts to reduce co-worker conflict and bullying and to improve the work environment. These efforts are critical to managing the challenges facing the state workforce as it continues to experience severe budget deficits and a public that increasingly sees public sector workers as expendable.

## Publications

Lipscomb, J., London, M., McPhaul, K., El Ghaziri, M., Lydecker, A., Geiger-Brown, J., and Johnson, J. (In review). The Prevalence of Coworker Conflict, including Bullying, in the U.S. Public Sector Workforce.

El Ghaziri, M., Unick, G., J., Storr, C.L., M. Trinkoff, A.M., McPhaul, K., Johnson, J., and Lipscomb, J. (In review). Using an Item Response Theory Approach in Participatory Action Research Measuring Negative Acts and Bullying.

El Ghaziri, M., Lipscomb, J., Storr, C.L., McPhaul, K., London, Trinkoff, A.M., and Johnson, J. (In review). Understanding the Impact of Coworker Conflict in an Unionized U.S. Public Sector Workforce.

Lipscomb, J. and El Ghaziri, M. (2013). Workplace Violence Prevention: Improving Front-line Healthcare Worker and Patient Safety. *New Solutions, A Journal of Environmental and Occupational Health Policy*, 23 (2), 297-313. doi: 10.2190/NS.23.2.f

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Lipscomb, J., El Ghaziri, M., McPhaul, K., and London, M. (2012). Do Workplaces at Increased Risk for Patient – Related Workplace Violence have an Increased Risk of Co-worker Conflict and Bullying? In Needham, I., McKenna, A., Kingma, M., and Oud, N.(Eds.). *Proceedings from the Third International Conference on Violence in the Health Sector: Linking local initiatives with global learning*. Netherland:KAVANAH.

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El Ghaziri MG: [2013] Understanding the Impact of Coworker Conflict in an Unionized U.S. Public Sector Workforce and Comparative Psychometric Review of the Negative Act Questionnaire, Ph.D. Thesis, University of Maryland, Baltimore.

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**Inclusion Enrollment Report**

This report format should NOT be used for data collection from study participants.

Study Title: EVALUATION OF ORGANIZATIONAL JUSTICE INTERVENTION TO ALLEVIATE TYPE III VIOLENCE

Total Enrollment: 11,259 Protocol Number: \_\_\_\_\_

Grant Number: R01OH009072

PART A. TOTAL ENROLLMENT REPORT: Number of Subjects Enrolled to Date (Cumulative) by Ethnicity and Race				
Ethnic Category	Females	Males	Sex/Gender Unknown or Not Reported	Total
Hispanic or Latino	114	121	0	235 **
Not Hispanic or Latino	4,934	5,008	0	9,942
Unknown (individuals not reporting ethnicity)	409	673	0	1,082
<b>Ethnic Category: Total of All Subjects*</b>	5,457	5,802	0	11,259 *
Racial Categories				
American Indian/Alaska Native	46	56	0	102
Asian	193	245	0	438
Native Hawaiian or Other Pacific Islander	1	14	0	15
Black or African American	363	292	0	655
White	4,298	4,364	0	8,662
More Than One Race	147	158	0	305
Unknown or Not Reported	409	673	0	1,082
<b>Racial Categories: Total of All Subjects*</b>	5,457	5,802	0	11,259 *
PART B. HISPANIC ENROLLMENT REPORT: Number of Hispanics or Latinos Enrolled to Date (Cumulative)				
Racial Categories	Females	Males	Sex/Gender Unknown or Not Reported	Total
American Indian or Alaska Native	0	0	0	0
Asian	0	0	0	0
Native Hawaiian or Other Pacific Islander	0	0	0	0
Black or African American	32	40	0	72
White	66	63	0	129
More Than One Race	16	18	0	34
Unknown or Not Reported	0	0	0	0
<b>Racial Categories: Total of Hispanics or Latinos**</b>	114	121	0	235 **

\* These totals must agree.

\*\* These totals must agree.

## FEDERAL FINANCIAL REPORT

FINAL

1. Federal Agency and Organizational Element to Which Report is Submitted NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH			2. Federal Grant or Other Identifying Number Assigned by Federal Agency 5R01OH009072-5				
3. Recipient Organization (Name and complete address, including Zip code) UNIVERSITY OF MARYLAND, BALTIMORE, OFFICE OF RESEARCH AND DEVELOPMENT UNIVERSITY OF MARYLAND BALTIMORE 620 W LEXINGTON ST, 4TH FL BALTIMORE MD 212011508							
4a. DUNS Number 188435911	4b. EIN 1526002036A1	5. Recipient Account Number or Identifying Number 10007072		6. Report Type <input type="checkbox"/> Quarterly <input type="checkbox"/> Semi-Annual <input checked="" type="checkbox"/> Annual <input type="checkbox"/> Final	7. Basis of Accounting <input checked="" type="checkbox"/> Cash <input type="checkbox"/> Accrual		
8. Project/Grant Period From: (Month, Day, Year) 09/01/2006		To: (Month, Day, Year) 08/31/2012		9. Reporting Period End Date (Month, Day, Year) 08/31/2012			
10. Transactions				Cumulative			
(Use lines a-c for single or multiple grant reporting)							
Federal Cash (To report multiple grants, also use FFR Attachment):							
a. Cash Receipts				0.00			
b. Cash Disbursements				0.00			
c. Cash on Hand (line a minus b)				0.00			
(Use lines d-o for single grant reporting)							
Federal Expenditures and Unobligated Balance:							
d. Total Federal funds authorized				1,379,669.00			
e. Federal share of expenditures				1,331,538.03			
f. Federal share of unliquidated obligations				0.00			
g. Total Federal share (sum of lines e and f)				1,331,538.03			
h. Unobligated balance of Federal funds (line d minus g)				48,130.97			
Recipient Share:							
i. Total recipient share required				0.00			
j. Recipient share of expenditures				0.00			
k. Remaining recipient share to be provided (line i minus j)				0.00			
Program Income:							
l. Total Federal program income earned				0.00			
m. Program income expended in accordance with the deduction alternative				0.00			
n. Program income expended in accordance with the addition alternative				0.00			
o. Unexpended program income (line l minus line m or line n)				0.00			
11. Indirect Expense	a. Type	b. Rate	c. Period From	Period To	d. Base	e. Amount Charged	f. Federal Share
				g. Totals:	0.00	0.00	0.00
12. Remarks: Attach any explanations deemed necessary or information required by Federal sponsoring agency in compliance with governing legislation. The PI would like to request that the unobligated balance of \$48,130.97 be returned.							
13. Certification: By signing this report, I certify to the best of my knowledge and belief that the report is true, complete, and accurate, and the expenditures, disbursements and cash receipts are for the purposes and intent set forth in the award documents. I am aware that any false, fictitious, or fraudulent information may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 18, Section 1001)							
a. Typed or Printed Name and Title of Authorized Certifying Official Shari Swisher Director-SPAC					c. Telephone (Area code, number and extension) 410-706-2562		
					d. Email address sswisher@af.umaryland.edu		
b. Signature of Authorized Certifying Official					e. Date Report Submitted (Month, Day, Year) 04/15/2013		
					14. Agency use only:		

Standard Form 425  
OMB Approval Number: 0348-0061  
Expiration Date: 10/31/2011

Department of Health and Human Services  
**Final Invention Statement and Certification**  
(For Grant or Award)

DHHS Grant or Award No.

5R01OH009072

- A. We hereby certify that, to the best of our knowledge and belief, all inventions are listed below which were conceived and/or first actually reduced to practice during the course of work under the above-referenced DHHS grant or award for the period

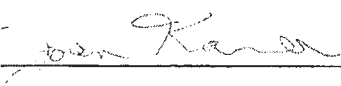
09/01/2006 through 08/31/12  
*original effective date* *date of termination*

- B. **Inventions** (Note: If no inventions have been made under the grant or award, insert the word "NONE" under Title below.)

NAME OF INVENTOR	TITLE OF INVENTION	DATE REPORTED TO DHHS
	NONE	

(Use continuation sheet if necessary)

- C. **Signature** — This block **must** be signed by an official authorized to sign on behalf of the institution.

Title Manager, Sponsored Programs Administration		Name and Mailing Address of Institution 620 West Lexington Street Room 4135 Baltimore, MD 21201
Typed Name Joan Kanner		
Signature 	Date 11/21/13	