

## IMPACT OF HAZARDS ON THE SAFETY AND HEALTH OF WOMEN IN NONTRADITIONAL OCCUPATIONS

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### Abstract

With the increasing number of women entering nontraditional occupations (NTOs), concerns about their health and safety are growing. As such, this descriptive-relationship study determined the demographic profile and occupational hazards that influenced the safety and health problems of 180 women engaged in NTOs in Ilocos Norte. A three-part structured questionnaire adapted from Indicator Tool, Workplace Violence Guide, and Basic Health Questionnaire collected the needed data.

The overall means showed that the women never experienced workplace violence, sexual harassment, and strained relationships. Likewise, they completely understood their job roles and often exerted job control. They also agreed that organizational changes were communicated and managed and they received social support from their managers and peers. Moreover, they derived relatively favorable satisfaction, security, and rewards. However, they perceived their jobs to be seldom demanding and moderately stressful. They were also seldom exposed to ergonomic and physical hazards and seldom experienced musculoskeletal disorders and burnout, but they never experienced accidents. Pearson's correlation ( $r$ ) revealed significant relationships between occupational hazards and safety and health concerns. In particular, demands, relationships, sexual harassment, workplace violence, work-related stress, ergonomic hazards, and physical hazards were associated with accidents, musculoskeletal disorders, and burnout. These findings imply that special attention are needed in controlling exposure to hazards in the workplace and proactive initiatives in establishing protective measures for the women.

Hence, employers should create their own occupational safety and health unit tasked to develop, disseminate, and implement policies and programs emphasizing on prevention that minimize exposures to hazards and risks.

**Keywords:** *hazard, health, nontraditional occupation, safety, working conditions*

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## Introduction

Women are indispensable contributors to global and national economies. In 2012, participation rate of Filipino women was 50% which was 28.5% of the labor force. That is less than the 78.5% participation rate of men (Asian Development Bank, 2013). According to the Bureau of Labor Statistics, women's share in wage employment in the non-agricultural sector from 1995 to 2011 was consistently below 50% with the highest share posted in 2006 and 2010 (42%) and lowest in 1996 (39%). This denotes that through the years, men have remained to have a higher share than women. Nevertheless, the overall trend showed that women's participation has been slightly increasing over time, indicating that the traditional roles of women as homemakers and child-rearers have gradually changed (Department of Labor and Employment-Bureau of Labor Statistics, 2013).

Empowerment of women is being vigorously promoted in the Philippines. Republic Act 7172 (also known as Women in Development and Nation Building Act) recognizes the role of women in nation building and ensures the fundamental equality of men and women before the law. However, women workers have continued to be concentrated in traditionally female-dominated occupations even recently. Thus, a key focus is to increase women's representation in nontraditional occupations (NTOs). As defined by the U.S. Department of Labor Women's Bureau (2013), an NTO for women is one in which women comprise 25% or less of total employment and is often thought of as 'men's job'. Women's share of employment in male-dominated occupations based on the 2012 Annual Averages of the U.S. Department of Labor showed 24.5% farmers, ranchers, and other agricultural managers, 18.9% miscellaneous agricultural workers, 18.5% security guards and gaming

surveillance officers, 13.7% civil engineers, 12.6 police and sheriff's patrol officers, 9% electrical and electronics engineers, 4.5% construction trade helpers, 4.5% mechanical engineers, and 3.4% firefighters (U.S. Department of Labor Women's Bureau, 2013). In the Philippines, online or published statistics of women working in NTOs from national agencies like DOLE and Philippine Statistics Authority are not available.

Nowadays, many programs assist women to explore and enter the world of NTOs. Increasing women's access to those jobs is a compelling strategy for family economic self-sufficiency since it is one high-wage option that enables families to move out of poverty (Wider Opportunities for Women, 2015). Low wages and incomes that accompany occupational segregation by gender are an increasingly important contributor to poverty and inequality in society as a whole (Messing & Ostlin, 2006).

As women continue to make inroads in male-dominated occupations, they encounter new safety and health hazards, which may either change or add to their existing occupational experience. The serious health and safety problems unique to them have a circular effect. Failing to recognize the risks for women can lead to deficiencies in workplace prevention programs (Messing & Boutin, 1997; Messing et al. (1998), cited in Messing (2000). Hence, the occupational health system must be responsive to sexual differences (biological differences in anatomy and physiology) and gender differences (differential effects due to the socially-determined roles, attitudes, relative power, and influence) of workers in order to improve women's occupational health (Fishman et al, 1999). It is imperative to systematically collect sex-disaggregated data on exposure to occupational hazards and risks.

Hazards and risks are not the same thing. A hazard potentially causes harm or adverse effects (to individuals as health effects or to organizations as property or equipment losses). Meanwhile, a risk is the likelihood that illness, injury or even death might result because of the hazard. The hazards commonly encountered in the workplace are categorized as psychosocial, ergonomic, and physical. The psychosocial hazards arise from the worker's failure to adapt to an alien psychosocial environment. Frustration, lack of job satisfaction, insecurity, poor human relationships, and emotional tension are some of the psychosocial factors, which may undermine both physical and mental health of the workers. On the other hand, ergonomic hazards include repetitive and forceful movements, vibration, temperature extremes, and awkward postures that arise from improper work methods and improperly designed workstations, tools, and equipment. Meanwhile, physical hazards can be one of the following types: heat and cold, light, noise, vibration, ultraviolet radiation, and ionizing radiation.

The Management Standards developed by the Health and Safety Executive (HSE) represent a set of conditions that reflect high levels of health, well-being, and organizational performance. These conditions are split into six discrete but related areas, or potential stressors: demands, control, support, relationships, role, and change. Demands include issues such as workload, work patterns, and the work environment. Control refers to how much a person has in the way he/she does a certain work. Support covers the encouragement, sponsorship, and resources provided by the organization, line management, and colleagues. On the other hand, relationship includes promoting teamwork to minimize conflict and dealing with unacceptable behavior. Meanwhile, job role pertains to whether people understand their role within the organization and whether

the organization ensures that the person does not have conflicting roles. Additionally, change pertains to how organizational change (large or small) is managed and communicated in the organization (Kerr, McHugh, & McCrory, 2009). These six key areas of work design, if not properly managed, are associated with poor health and well-being, lower productivity, and increased sickness and absence (Cousins et al, 2004; MacKay et al, 2004).

Prevention of stress, harassment, and violence in the workplace is gaining attention nowadays. Work-related stress is not an illness, but a state that develops because a person is unable to cope with the demands being placed on them. And if stress becomes too excessive and prolonged, mental and physical illnesses may develop (HSE, 2007). Sexual harassment, on the other hand, is intimidation, bullying or coercion of a sexual nature, or the unwelcome or inappropriate promise of rewards in exchange for sexual favors. It includes a range of behavior from seemingly mild transgressions and annoyances to actual sexual abuse or sexual assault (Boland, 2002). In contrast, workplace violence includes threatening behavior, verbal or written threats, verbal abuse, and physical attacks [Canadian Centre for Occupational Health and Safety (CCOHS), 2015].

If these occupational hazards are not properly addressed by the management and the workers themselves, these hazards may lead to safety and health concerns like accidents, musculoskeletal disorders, and burnout. An accident is an unexpected and unplanned occurrence, including acts of violence, arising out of or in connection with work, which results in one or more workers incurring a personal injury, disease or death (ILO, 2000). Meanwhile, musculoskeletal disorders (MSDs) could be structural damage, inflammation, or pain that results from injuries to nerves, tendons, muscles,

blood vessels, or other supportive tissues associated with the musculoskeletal system (National Research Council, 2001). On the other hand, burnout is a prolonged response to chronic emotional and interpersonal stressors on the job. Its dimensions include exhaustion, cynicism, and inefficacy. Ultimately, these hazards influence the health of the workers and their productivity in generating outputs.

At present, reliable information on work-related safety and health concerns in the Philippines is scarce due to the limitations in reporting systems. Thus, this study identified the occupational hazards (psychosocial, ergonomic, and physical hazards), and determined the prevalence of safety and health concerns (accidents, musculoskeletal disorders, and burnout) among women in NTOs. Moreover, it determined the relationships between the variables.

The identification of hazards that can significantly affect safety and health of the workers, particularly women, can be utilized in designing timely interventions and programs, like regular workplace assessment and those that minimize women workers' exposure to hazards and risks to protect and ensure their safety.

### **Methodology**

The study utilized a descriptive-relational research design, which determined the demographic profile and occupational hazards (independent variables), as well as safety and health concerns (dependent variables) of women employed in NTOs together with their relationships.

The study was conducted in the 21 municipalities and two cities of Ilocos Norte. However, most of the data sources were recruited in Laoag City, Batac City, and San Nicolas due to their fast-growing economies; thus, more women were employed in these

areas. Specifically, the respondents served their respective workplaces for at least one year, done field or on-site tasks, and were fit and healthy. Excluded were women on leave, with disabilities, and physically injured. A written informed consent was obtained from the respondents. Likewise, they were informed that no risks would be involved in their participation, which is voluntary and confidential, and without remuneration.

A three-part structured questionnaire that was content-validated by experts gathered the needed data. Items on demands, control, manager and peer support, role, relationships, and organizational changes were adopted from the Health and Safety Executive Indicator Tool, a 35-item survey containing seven subscales. The alpha reliabilities for the seven subscales ranged from 0.78 to 0.92 (Kerr, McHugh, & McCrory, 2009). Also adapted were items on musculoskeletal conditions and burnout from the Basic Health and Work Questionnaire (Weel & Fortuin, 1998), and workplace violence from the Work Rage in the Workplace Prevention Guide (CCOHS, 2013).

Moreover, it used 5-point Likert scales, namely: a) frequency scale from never to always (for items on roles, content, control, manager support, demand, working relationship, sexual harassment, workplace violence, ergonomic hazards, physical hazards, accidents, MSDs, and burnout); b) agreement scale from strongly disagree to strongly agree (for items on control, manager support, peer support, and organizational change); c) situation scale from very poor to very good (items on job security and rewards, and job satisfaction); and d) stressful scale from extremely stressful to not at all stressful (for items on work-related stress), with responses coded 1 to 5, respectively. In deriving the scores, the numerical values for the items were realigned - 1 indicating the most unfavorable working condition and 5, the most favorable.

Thus, items under demand, relationships, sexual harassment, workplace violence, ergonomic hazards, physical hazards, accidents, MSDs, and burnout had their scoring reversed. Descriptive statistics and Pearson's correlation were used for data analysis using SPSS for Windows, version 13.0 (SPSS Inc., Chicago, IL). Statistical significance was based on  $p$  value  $< 0.05$ .

## Results and Discussion

### *Demographic Profile*

All in all, 183 out of 220 women (83.18%) employed in NTOs in Ilocos Norte participated in this study. Specifically, 75 agriculturists and agronomists, 44 policewomen, 16 engineers, 13 construction aides, 10 firefighters, 10 jail officers, 8 foresters, and 7 security guards were included as samples.

Among the groups of respondents, the foresters were the oldest ( $\bar{x}$ =51.50 years) and had the longest working experience ( $\bar{x}$ =28.63 years old). On the other hand, security guards were the youngest ( $\bar{x}$ =31.57 years old) and had the shortest working experience ( $\bar{x}$ =7.20 years). Most of the respondents worked on an average of five days per week and eight hours per day as legally mandated. A big majority (71.93%) of the respondents were married considering their mean ages fell within the marriageable age of Filipino women. Likewise, majority (68.93%) were college graduates and some pursued their graduate studies (27.12%). That suggests competitiveness of women even in NTOs as they obtained higher levels of formal education.

### *Occupational Hazards*

As reflected in Table 1, the respondents were seldom exposed to ergonomic and physical hazards. In terms of psychosocial hazards, they never experienced workplace violence, sexual harassment, and strained work relationships.

Moreover, they always understood their roles within the organization, which were not conflicting at all. Additionally, they often exerted control on what to do and how to do their work. They agreed that organizational changes were communicated and managed and they received social support from their managers and peers. Likewise, they were satisfied, secured, and rewarded. They also perceived their jobs to be seldom demanding and moderately stressful.

### *Psychosocial Hazards*

**Workplace violence.** On the whole, the respondents **never (4.91)** suffered from violence in the workplace. That trend was most evident among the firefighters and jailers and least evident among the security guards. This contradicts the findings of the CCOHS (2015) that correctional officers or jailers, social services employees, public work employees, and municipal housing inspectors tend to be more at risk with workplace violence. On the other hand, Ben-Ezra, Essar, and Saar (2006) and Grosswald (2004) found security guards to be at increased risk of experiencing workplace violence due to their shift working hours and the needs to interact with various people. Moreover, most security guards spend constant contact with the public, therefore, they are more at risk of physical and verbal violence and stress related to the emotional side of the work (Centre de Sociologie de la Santé, 2004).

Specifically, the women never experienced physical harm (4.98), physical assault or attack (4.97), verbal or written threats (4.91), and verbal abuse (4.77). Moreover, majority of the respondents (76.57%) perceived their workplace to have low risk for violence. Nonetheless, they reported 55 sporadic incidences of violence in the form of verbal abuse (36), verbal or written threats (12), physical harm (4), and physical assault (3). According to the same respondents, their offenders were coworkers

Table 1. Occupational hazards, and safety and health concerns across the NTO sectors

OCCUPATIONAL HAZARD	NON-TRADITIONAL OCCUPATION										Overall Mean	Descriptive Interpretation
	Agriculturist	Policewomen	Engineers	Construction aides	Jailers	Firefighters	Foresters	Security guards				
Psychosocial Hazard												
Experiencing workplace violence	4.91	4.90	4.88	4.94	4.95	5.00	4.94	4.75	4.91	4.91	Never	
Experiencing sexual harassment	4.74	4.91	4.92	4.72	5.00	4.90	5.00	4.26	4.81	4.81	Never	
Understanding job roles	4.75	4.73	4.66	4.23	5.00	4.92	4.77	4.63	4.72	4.72	Always	
Having strained relationships	4.49	4.35	4.18	4.08	4.58	4.35	4.63	3.86	4.37	4.37	Never	
Enjoying peer support	4.24	4.07	3.96	3.80	4.50	4.80	3.54	3.76	4.14	4.14	Agreed	
Deriving work satisfaction	4.06	4.24	3.69	4.08	4.50	4.45	4.22	3.57	4.10	4.10	Good	
Enjoying security and rewards	3.90	4.30	3.45	3.98	4.63	4.75	3.99	3.36	4.03	4.03	Good	
Relying management support	3.88	3.64	3.73	3.78	4.38	4.22	3.58	3.91	3.84	3.84	Agreed/Often	
Exerting job control	3.81	3.53	3.36	3.22	3.62	3.79	2.94	3.29	3.59	3.59	Often	
Managing organizational change	3.72	3.40	3.60	3.41	3.97	3.60	3.42	3.29	3.59	3.59	Agreed	
Experiencing job demands	3.34	3.62	3.23	3.62	4.29	3.46	3.26	3.30	3.47	3.47	Seldom	
Suffering work-related stress	3.12	3.38	3.26	3.25	3.90	3.50	3.00	3.14	3.27	3.27	Moderately stressful	
Ergonomic Hazard	3.61	3.83	3.90	3.71	4.49	3.66	3.92	3.47	3.75	3.75	Seldom	
Physical Hazard	4.08	4.16	3.57	4.37	4.68	4.41	4.72	3.21	4.12	4.12	Seldom	
<b>Safety &amp; Health Concern</b>												
Work accident	4.62	4.60	4.49	4.69	4.87	4.54	4.95	4.55	4.63	4.63	Never	
Burnout	3.62	3.81	3.60	3.87	4.50	4.00	4.03	3.18	3.75	3.75	Seldom	
Musculoskeletal disorder	3.38	3.66	3.24	3.37	4.38	3.68	3.96	3.00	3.52	3.52	Seldom	
4.21-5.00	Strongly agree	Very good	Not at all stressful									
3.41-4.20	Agree	Good	Mildly stressful									
2.61-3.40	Neutral	Fair	Moderately stressful									
1.81-2.60	Disagree	Poor	Very stressful									
1.00-1.80	Strongly disagree	Very poor	Extremely stressful									

(14), superiors (11), clients (7), and others (2). They also cited working alone or with a small number of co-workers (71.68%), working in a community-based setting (66.24%), and working late at night or early in the morning (55.35%) as attributable factors. It is notable that among the verbal abuse victims, only 13 reported it orally (10) and textually (3) for fear of losing their jobs.

**Sexual harassment.** Generally, the respondents had **never (4.81)** been sexually harassed. This evidence was most frequently reported by the foresters and jailers and least disclosed by the security guards. According to the Centre de Sociologie de la Santé (2004), the fact that women security guards are a minority would increase the chances that they suffer from sexual harassment. Sexual harassment is more common where a single gender predominates than it is in those where there is a balanced proportion of men and women. Messing and Ostlin (2006), cited in Paoli and Merlie (2001), claimed that women usually suffer from discrimination and sexual harassment more often than men, especially if they get employed in NTOs.

Specifically, the women were never threatened by sexual gestures (4.89), touched maliciously (4.81), and received sexual jokes (4.75) from their colleagues.

**Job Roles.** Overall, the respondents always understood their work roles, which were not conflicting at all. Such perception was primarily shared by the jailers. Meanwhile, the same trend was least evident among the construction aides. The jailers are cognizant of their role in keeping the security of the jail and in ensuring the safety of the prisoners. On the other hand, the construction aides reported directly to several engineers in their worksite and worked with construction workers performing tasks such as carpentry, plasterwork, paving, scaffolding and tiling

and blocking. According to Maslach et al. (2001), role conflicts arise when information about job performance is inadequate, or job demands conflict with one another.

Specifically, the women were always clear on performing their duties and responsibilities (4.85), realizing the overall aim of the organization through their work (4.75), getting their job done (4.69), meeting work expectations (4.64), and achieving department goals and objectives (4.64).

**Relationships.** On the whole, the respondents **never (4.38)** experienced work conflict and questionable behavior. There was a marked manifestation of this trend towards the foresters and least evident among the security guards. This deviates with the findings of Karacan (2011) that private security guards have good relation with their superiors and get along well with other employees in the workplace.

Specifically, the women never experienced harassment like bullying (4.67) and malicious words or behavior (4.58). Moreover, they seldom observed friction or anger (4.06) and strained relationships (3.95) among them.

**Peer support.** On the whole, the respondents **agreed (4.14)** that they received social support from their co-workers. That trend was most evident among the firefighters and least evident among the foresters. Specifically, the women agreed that they received the respect they deserved (4.13), listened to their work-related problems (4.09), and received needed help and support from them (4.04).

**Satisfaction.** Generally, the respondents rated work satisfaction as **good (4.10)**. This evidence was particularly disclosed by the foresters. Further, the jailers were particularly satisfied in terms job security, working conditions, and equitable

pay among others. In contrast, the security guards were least satisfied as they are underpaid considering the risk that goes with their responsibilities. According to the Centre de Sociologie de la Santé (2004), security guards have atypical time spent at work, which goes beyond the usual work schedule.

Specifically, the women were satisfied with the leadership (4.20), coworkers (4.15), and available information or knowledge (4.12) in their organizations.

**Security and rewards.** Overall, the respondents had favorably perceived (4.03) their sustainably gainful employment and the incentives given to them. Such perception was primarily shared by the firefighters. Meanwhile, the same trend was least evident among the security guards who claimed that their wage was not commensurate to the nature of their work, salary increases were irregular, and advancement opportunities were limited. Most organizations use a military type of ranking in terms of advancement in position and salary (U.S. Department of Labor, 2009), which negatively affects their operations.

Specifically, the women had favorable opportunity to expand their knowledge and experience (4.24). Additionally, they enjoyed opportunities for further training (4.18), tenurial security (3.99), and wage increase (3.79).

**Manager support.** Generally, the respondents agreed (3.84) that they received social support from their managers. There was a marked manifestation of this trend among the jailers and least evident among the foresters. Since the tasks performed by the jailers were very critical in maintaining prisoner security and protecting the public, management was supportive in ensuring effective performance of their tasks.

Specifically, the women agreed that their line managers encouraged them to perform satisfactorily (3.98), listened to

concerns that upset or annoy them (3.98), and supported them in emotionally-demanding situations (3.77). Likewise, they were often supported in solving work problems (3.90) and given responsive feedback (3.76).

**Job control.** The respondents often (3.59) exerted control doing their work. That trend was most evident among the agriculturists and least evident among the foresters. Agriculturists often had control of their time, because it is relatively flexible. Inasmuch as they had field work most of the time, they did not need to regularly report to their offices five days a week. In contrast, the foresters had to comply with environmental regulations in managing, preserving, and safeguarding public and private forested lands for financial, leisure, and conservation purposes.

The women agreed that their work schedule can be flexible (3.79). Likewise, they often had flexibility in their work speed (3.57) and the manner of doing their work (3.48). Moreover, they sometimes had a choice in deciding what to do (3.24) and when to take a break (3.09).

**Organizational change.** On the whole, the respondents agreed (3.59) that organizational change was managed and communicated in their institutions. This evidence was strong among the jailers and weak among the security guards. Jailers had been involved in organizational changes affecting the handling of prisoners. On the other hand, the security guards mentioned that they were not involved during the planning stages, rather, they simply followed the implemented changes in their organizations.

In fact, the women agreed that when changes are infused, they understood how those are operationalized (3.75). Likewise, they were consulted about these changes (3.69). However, they remained neutral in terms of having sufficient opportunities to

question managers about work changes (3.22).

**Job demands.** Overall, the respondents **seldom (3.47)** experienced issues on their workload, work patterns, and work environment. Such perception was primarily shared by the jailers. Meanwhile, the same trend was minimally disclosed by the engineers. The jailers never perceived their work as never demanding as they were given sufficient time to do assigned tasks. Meanwhile, the engineers sometimes found their work demanding as they spent 40 hours weekly. At times, deadlines or design standards bring extra pressure to the job, requiring engineers to work beyond the usual schedule (Kosky, Balmer, Keat, & Wise, 2012). Moreover, engineers consider many factors in the design process, from the costs and expected lifetime of a project to government regulations and potential environmental hazards such as earthquakes and fire (US Department of Labor, 2008).

Specifically, the women seldom had unachievable deadlines (3.9), demands from other groups to work on things that are hard to combine or accomplish (3.87), unrealistic time pressure (3.84), neglected tasks (3.84), insufficient breaks (3.72), and pressure on working for long hours (3.58). Likewise, they sometimes worked intensively (2.62) and often had to work quickly (2.58).

**Work-related stress.** In general, the respondents found their jobs to be **moderately stressful (3.27)**. There was a marked manifestation of this trend towards the jailers and least evident among the foresters. Foresters found their work to be moderately stressful because they sometimes experienced demanding workload and sometimes had control over their work. Despite the palpable job stress, less than half of the respondents reported that their employers initiated moves to reduce work stress.

## Ergonomic hazards

On the whole, the respondents were **seldom (3.75)** exposed to ergonomic hazards. That trend was most evident among the engineers and least evident among the security guards. The security guards seldom experienced inconvenience brought about by prolonged standing and sitting, or by sustained position in their work area.

The other groups of respondents never experienced reaching up high (4.25) and bending down regularly (4.22). Likewise, they seldom experienced lifting or carrying objects (4.17), prolonged standing (3.70), working in sustained position (3.54), doing repetitive movements (3.51), and sitting for several hours (3.47).

## Physical hazards

On the whole, the respondents were **seldom (4.12)** exposed to physical hazards which prompted the majority (59.2%) of them to suggest improvement in their working conditions. This evidence was highly disclosed by the foresters and minimally reported by the security guards. The security guards were sometimes exposed to physical hazards such as excessive heat and noise as they were often situated in populated places. Notably among the agriculturists, there were concerns about electrical outlets, as well as exposure to fumes, chemicals or intoxicating substances.

On the other hand, the other respondents women never suffered from the effects of mechanical vibrations (4.43) and exposure to fumes, chemicals, or toxic substances (4.35). Meanwhile, some others seldom raised their voice regularly in order to be heard (4.19) and experienced too much noise during work (3.64).

## Safety and Health Concerns

As reflected in Table 1, the overall means showed that the respondents had

never experienced work accidents. However, they seldom experienced MSDs and burnout.

**Work accidents.** Overall, the respondents **never (4.63)** suffered from work-related injuries. Such perception was primarily shared by the foresters because they stayed in their offices most of the time. Meanwhile, the engineers faced risks from heavy mechanical equipment or vehicles as they worked on the site. Coinciding to the ILO (2013) report, engineers are exposed to injury caused by falling objects, by stepping on sharp objects, and by impact and collision with sharp or protruding objects.

Additionally, the women workers had never experienced gunshot wounds (4.90), falling (4.77), being hit by hard objects (4.73), burning (4.68), stumbling over loose objects (4.61), slipping (4.54), and cutting body parts (4.44). Some of the agriculturists though reported cases of sporadic incidences of drowning, insect bites, and allergies.

**Burnout.** Generally, the respondents **seldom (3.75)** experienced burnout. There was a marked manifestation of this trend towards the jailers and least evident among the security guards. The security guards sometimes experienced burnout as they have to work days, nights, and weekends in succession causing physical and mental exhaustion. Contributory to their experience of burnout are unrealistic or unachievable demands, poor physical environment, lack of authority, lack of encouragement, and limited opportunities to use their skills or initiatives.

Specifically, the other groups seldom suffered from the following: poor concentration/focus (4.08), disrupted sleep (3.98), listlessness (3.84), drowsiness (3.83), and exhaustion (3.42).

**Musculoskeletal disorders.** On the whole, the respondents **seldom (3.52)** suffered from musculoskeletal symptoms.

That trend was most evident among the jailers and least evident among the security guards. The security guards sometimes experienced MSDs as they spend most of their day either sitting (behind a counter or in a guardhouse) or standing (either at a single post or patrolling buildings and grounds). Prolonged periods of sitting down may cause pain in the upper back and upper extremity. Regularly standing up may result in painful feet, swollen legs, varicose veins, low back pain, and neck and shoulder stiffness.

Similarly, other groups of respondents seldom experienced pain or stiffness in their middle or upper back (3.66), hip, leg or foot (3.65), low back (3.61), neck (3.57), and shoulder, arm or hand (3.51). According to the Occupational Safety and Health Administration (2008), MSDs typically affect the back, neck, shoulders, and upper limbs but less often they affect the lower limbs. Upper extremity pain or stiffness is related to the use of computers at work. Meanwhile, lower extremity pain or stiffness is due to prolonged standing, as well as frequent lifting and carrying where the larger and stronger muscles of the hip, leg, and foot are activated both for maintenance of stable erect posture and execution of movements.

### ***Relationships between Socio-demographic Characteristics and Safety and Health Concerns***

As shown in Table 2, no significant relationships exist between socio-demographic characteristics and safety and health concerns of the women in NTOs. In other words, the incidence of accidents, MSDs, and burnout can happen to women workers regardless of their age, civil status, educational attainment, occupation, length of service, and working days and hours.

Table 3 shows significant positive relationships between occupational hazards (psychosocial, ergonomic, and physical) and safety and health concerns (accidents,

MSDs, and burnout) among women workers engaged in NTOs.

**Occupational hazards and accidents.** Significant positive relationships were found among psychosocial (particularly roles, control, demands, relationships, sexual harassment, and workplace violence), ergonomic, and physical hazards and occupational accidents. Among these, physical hazards had the strongest influence on workplace accidents.

Similarly, job roles and accidents ( $r=.154$ ) were significantly related. This implies that women workers clearly understand their duties and responsibilities and know how to get their job done are least likely prone to any accidents. Moreover, a significant relationship was found between control and accidents ( $r=.174$ ). This suggests that women who are empowered in doing their work tend to have low risk for accidents. According to Swaen et al (2004), low decision latitude could lead to injury due to occupational accident.

Furthermore, job demands had positive relationship with accidents ( $r=.280$ ). This means that as the work demands increase, the prevalence of accidents also increases. This concurs with Swaen et al's (2004) claim that high psychological and emotional job demands pose a risk in the form of injury and accident. If a work schedule is full and workers are counted on to do more than their share, accidents are possible, because they have to push themselves too hard for too long, most especially if they have outputs to deliver. In addition, work relationship was positively related with accidents ( $r=.367$ ). This implies that promoting positive and acceptable behavior among the workers tends to lower the risk for accidents.

Moreover, accidents had positive relationship with sexual harassment ( $r=.162$ ) and workplace violence ( $r=.363$ ). This

suggests that minimal exposure to or absence of sexual harassment and workplace violence decreases the risk for accident. That is so, because exposure to the same may lead to mental torture and emotional anguish that diminish concentration, predisposing women to workplace accidents.

Likewise, ergonomic hazards were positively related with accidents ( $r=.290$ ). This implies that ergonomic hazards are associated with accidents. Prolonged sitting or standing, sustained postures, and repetitive movements may affect body muscles and joints resulting to discomfort, pain and fatigue, thus, a worker becomes less alert and more likely to act unsafely.

Similarly, physical hazards had positive relationship with accidents ( $r=.377$ ). This suggests that uncontrolled cold and heat, improper lighting, and excessive noise, vibration, and radiation in the physical environment are associated with accidents. Morabito, et al (2006) found that hot weather conditions represent a risk factor for work-related accidents in Italy during summer. In addition, Cheng et al. (2010) found that accidents tend to occur when certain combinations of hazards exist – especially working in high places without protective measures, losing balance when in motion, forgetting to use protective equipment, as well as having insufficient experience and injurious contact with unstable structure.

**Occupational hazards and musculoskeletal disorders.** Psychosocial (specifically roles, demands, relationships, sexual harassment, workplace violence, stress, peer support, security and rewards, and satisfaction), ergonomic and physical hazards were significantly associated with MSDs; ergonomic hazards having the strongest influence.

Pearson's  $r$  revealed that job roles have significant relationship with MSDs

**Table 2.** Relationships between the socio-demographic characteristics of women employed in NTOs and their safety and health concerns

SOCIO-DEMOGRAPHIC CHARACTERISTIC	ACCIDENT		MSD		BURNOUT	
	r-value	p	r-value	p	r-value	p
Age	.044	.589	.015	.859	-.022	.786
Civil status	.052	.489	.058	.446	.005	.263
Educational attainment	-.085	.253	.084	.263	.084	.256
Occupation	-.041	.580	.043	.563	.112	.132
Length of service (years)	-.002	.978	-.035	.658	-.025	.747
No. of days per week	.038	.609	-.006	.931	-.089	.231
No. of hours per day	.059	.434	.069	.366	.084	.265

**Table 3.** Relationships between the occupational hazards of the women employed in NTOs and their safety and health concerns

OCCUPATIONAL HAZARD	ACCIDENT		MSD		BURNOUT	
	r-value	p	r-value	p	r-value	p
Psychosocial hazards						
Job roles	.154*	.037	.222**	.003	.053	.478
Job control	.174*	.018	.086	.254	.056	.451
Job demand	.280**	.000	.328**	.000	.468**	.000
Work relationships	.367**	.000	.189*	.011	.355**	.000
Sexual harassment	.162*	.028	.172*	.021	.214*	.004
Workplace violence	.363**	.000	.165*	.028	.310**	.000
Work-related stress	.114	.129	.287**	.000	.211**	.004
Manager support	.064	.391	.114	.127	.173*	.019
Peer support	.017	.823	.203**	.007	.112	.131
Organizational change	-.013	.866	.137	.068	.069	.355
Security and rewards	.131	.078	.228**	.002	.252**	.001
Satisfaction	.112	.130	.273**	.000	.373**	.000
Ergonomic hazards	.290**	.000	.603**	.000	.464**	.000
Physical hazards	.377**	.000	.365**	.000	.364**	.001

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

( $r=0.222$ ). This suggests that women workers who have more defined roles tend to experience less MSDs.

Moreover, MSDs correlated positively with demands ( $r=0.328$ ) and stress ( $r=0.287$ ). This implies that demands and stress increase the prevalence of MSDs. This concurs with the findings of Zakerian and Subramaniam (2009) that people who face high demands and stress reported high musculoskeletal discomfort. Likewise, work relationship has significant relation with MSDs ( $r=0.189$ ). According previous studies (Sobeih et al., 2006; Woods, 2005), negative social interactions are associated with MSDs.

Sexual harassment has significant relationship with MSDs ( $r=.172$ ) implying that absence or minimal exposure to sexual harassment lessens the incidence of MSDs. This is supported by studies of the European Commission (1998) that muscular pain and back-neck trouble were consequences of sexual harassment. Moreover, a Swedish national study showed that 18% of the harassed women reported headaches and muscle aches (Swedish Work Environment Authority, 2006).

Workplace violence has positive relationship with MSDs ( $r=.165$ ). That concurs with the findings of Miranda, et al (2006), who reported that violence at the workplace increases the risk of musculoskeletal pain. Further, work-related stress positively correlated with MSDs ( $r=.342$ ). This is similar to the findings of Min Gi, et al (2013) that stress resulted to MSDs among Korean male firefighters.

Likewise, peer support and MSDs ( $r=0.203$ ) were significantly related, implying the existence of harmonious and caring relationship among workers reduce the incidence of MSDs. This was reinforced by the findings of Sobeih, et al (2006) that poor social support at work are associated with MSDs. Likewise, MSDs significantly correlated with security and more promising

rewards ( $r=.228$ ) and satisfaction ( $r=.273$ ). This means that higher satisfaction and better security and rewards in the workplace tend to lower the risk of MSDs. According to the Centre de Sociologie de la Santé (2004), satisfaction and motivation have an impact on the workers' well-being and physical and mental health.

Meanwhile, MSDs were found to be significantly related with ergonomic hazards ( $r=0.603$ ) and physical hazards ( $r=0.365$ ). Admittedly, ergonomic risk factors (such as repetition, force, posture) and poor working environment (such as excessive light and noise, extreme temperatures, ultraviolet radiation) are the major contributors to MSDs.

#### **Occupational hazards and burnout.**

Psychosocial (particularly demands, relationships, sexual harassment, workplace violence, stress, management support, security and rewards, and satisfaction), ergonomic, and physical hazards were significantly related with burnout. Specifically, job demands had the strongest influence.

Job demand correlated positively with burnout ( $r=0.468$ ), as long periods of high demands without adequate time to rest and recharge could lead to burnout. According to Gibson, et al (1991), workers experience more burnout when they work for more hours per week and have high workloads. Other studies have shown that workers with highly demanding jobs and low job control had burnout symptoms.

As likewise shown in Table 3, work relationships influenced burnout ( $r=0.355$ ). This implies that workers would experience less burnout when organizations promote positive work relationships to avoid conflict. Furthermore, work-related stress was positively related with burnout ( $r=0.211$ ). In many organizations today, almost everyone is doing more in less time; hence, pressures can build up. Low value work, flawed work processes, and excessive performance

expectations also contribute to negative stress, which, if unresolved, can lead to burnout (Ceridian Corporation, 2007).

Furthermore, management support was associated with burnout ( $r=0.173$ ). Empirical studies confirm social support from colleagues, supervisors, clients, and family is associated with less burnout. Moreover, security and rewards correlated positively with burnout ( $r=.252$ ). This is supported by the findings of Lingard and Sublet (2003), which assert that when rewards provided by an organization fall short of what one feels she deserves, burnout may develop.

Likewise, job satisfaction was associated with burnout ( $r=.373$ ). This concurs with the findings of Salehi and Gholtash (2011) that inadequate job satisfaction has a negative effect on burnout. Moreover, the meta-analysis of Faragher, et al (2005) found that employees with low levels of job satisfaction are most likely to experience emotional burnout, to have reduced self-esteem, and to have high anxiety and depression levels. Many people spend a considerable proportion of their waking hours at work. If their work is failing to provide adequate personal satisfaction — or even causing actual dissatisfaction — they are likely to be feeling unhappy or unfulfilled for a long period of each working day. Those individuals are more vulnerable to the lowering of general mood and self-worth while at work, culminating in mild levels of depression and/or anxiety. If those remain unresolved for any length of time, they may eventually lead to emotional exhaustion, particularly if the individual is unable to control her feelings from spilling over into her home or social life.

Lastly, burnout had significant relationship with sexual harassment ( $r=0.214$ ), workplace violence ( $r=0.310$ ), ergonomic hazards ( $r=0.464$ ) and physical hazards ( $r=0.364$ ). When these job stressors are allowed to predominate over time can contribute largely to burnout.

## Conclusions and Recommendations

The women engaged in NTOs were exposed to psychosocial, ergonomic, and physical hazards in the workplace. In terms of psychosocial hazards, they never experienced workplace violence, sexual harassment, and strained relationships. They were also clear of their job roles and often had control over their work. Likewise, they received social support from their managers and peers. Further, they derived satisfaction, security, and rewards from their work. However, they perceived their jobs to be seldom demanding and moderately stressful. Moreover, they were seldom exposed to ergonomic and physical hazards. Lastly, they never had work-related accidents but seldom experienced MSDs and burnout.

Meanwhile, no significant relationships were evident between socio-demographic characteristics and safety and health concerns. However, there were positive relationships between occupational hazards (psychosocial, ergonomic, and physical) and safety and health concerns (accidents, musculoskeletal disorders, and burnout).

Inasmuch as hazards are significantly associated with safety and health, hazards in the workplace must be given due attention. Efforts are needed to be done by the agency heads, line managers, and workers to establish protective measures for women working in NTOs.

Further, the agency heads should establish occupational safety and health units tasked to develop, disseminate, and implement policies and programs that minimize exposure to hazards and risks activities, with emphasis on prevention. Moreover, the agency heads should institutionalize the assessment of regular hazard and risk activities in the workplace. In addition, the line managers should start initiating changes in the working conditions of the women workers in order to lessen

demands, stress, and eventually reduce ergonomic and physical hazards. The line managers should also encourage more responsive social support, better work relationships, and safer physical environment for them.

Furthermore, the women workers should actively participate in all the initiatives undertaken by line managers to reduce work-related stress. Lastly, other researchers can conduct a follow-up study that will determine the factors, which predict safety and health problems in the workplace.

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