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Women and Accidents: The Need to Separate Gender Database

Fernanda Cruz Rios*a, Wai K. Chongb, David Grauc

*PhD student, School of Sustainable Engineering and the Built Environment, Arizona State University, 660 S College Ave., Tempe AZ 85281, United States

bAssociate Professor, School of Sustainable Engineering and the Built Environment, Arizona State University, 660 S College Ave., Tempe AZ 85281, United States
cAssistant Professor, School of Sustainable Engineering and the Built Environment, Arizona State University, 660 S College Ave., Tempe AZ 85281, United States

Abstract

As female’s participation in the US labor force continues to grow, there is a need to separate workplace injuries suffered by men and women. Statistics showed that women faced different types of injuries compared to men, especially on workplace violence. For example, women faced more fatality from workplace violence, and murders by personal acquaintances than men. The authors’ study shows that women faced different types of workplace hazards and the risks have been increasing over the past years. Some analysis suggests that some jobs better protect women and the others. The study also finds that there is a lack of understanding of the different safety issues each gender faces, and the lack of data or separation of data between genders. This paper focuses on the main events of fatal and nonfatal injuries among women in all industries, especially on homicides and assaults to shed lights on the gender gaps on safety issues and the need for more gender-specific research and data.

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* Corresponding author. Tel.: +1-520-328-7755.
E-mail address: fcrios@asu.edu
1. Introduction

The number of women in the global labor force increased by 126% between 1960 and 1997 [1]. In 2014, women were accounted for 47% of the total labor force in the United States (U.S.), compared to 39% in 1974 [2]. This corresponds to 68.6 million of women employed in 2014 [2]. The U.S. Department of Labor projected that there will be 92 million women in the workforce by 2050 [3]. While women’s share of the U.S. labor force in the present days is only three percentage points lower than men’s, women are still underrepresented in certain industries and occupations.

Although both men and women are exposed to workplace safety and health hazards, the risks of exposure differ by the nature and characteristics of events, causes and agendas. The risks and exposures could be different between the genders, and thus the relevant preventive measures could be different. Although women suffered from different and unique workplace injuries, fatalities, and illnesses [4], there is a lack of comprehensive gender-specific data on this subject. There is also a lack of gender-specific policies to address the differences between the genders.

The most prominent example of gender inequality in workplace safety and health is workplace violence (WPV). WPV is one of the leading causes of fatal and nonfatal injuries among women in the U.S [6], but very few studies addressed this issue [7]. Although men also suffered from WPV, the cases reported by women did not share similar particularities than men. For instance, between 1997 and 2010, about 25% of incidents involving women were killed in the workplace by relatives or personal acquaintances compared to only 3% of male incidents involving male [6]. However, more than 70% of the U.S. workplaces did not have formal program or policy against WPV [8].

Gender-specific workplace safety and health data will especially be valuable for non-traditional occupations in which women are underrepresented since the currently available data are not representative of the female workers’ population. Women accounted for less than ten percent of the workforce in the construction industry. Most of them worked in office and managerial positions while less than 3% of women were tradeswomen [9]. The incidents on site thus did not reflect actual female casualties. The types of risks and characteristics of injuries/illnesses that women suffered are not well-represented by the safety and health data for the Construction Industry. Very little data and information could be found on nonfatal injuries of tradeswomen, and their workplace challenges are still not properly addressed by owners, contractors, co-workers, and health and safety regulations.

This paper identifies the urgency for a more detailed gender-specific workplace injuries and illnesses data as a means of improving the current regulations to achieve an equally safe and healthy workplace for men and women. The study will first present an overview of past studies and data on women’s workplace safety and health issues. The data analysis section presents data collected from the BLS and Equal Employment Opportunity Commission (EEOC). The analysis focus in the followings: 1) nonfatal workplace injuries by different genders in all industries, 2) fatal workplace injuries by different genders in all industries, and 3) workplace violence against women in all industries, particularly homicides and physical assaults.

2. Objectives

This study aims to prove that 1) women face unique challenges in workplace safety, and 2) the current published data on workplace injuries by industry often do not represent the women’s reality due to their misrepresentation in several industries, such as Construction.

3. Background

The rise in the women’s participation after the 1960s was the most prominent factor that contributed to the growth and development of the U.S. labor force [3]. Similar rise on female workforce also happened globally, as the World Bank estimated that the women’s numbers in the workforce had increased by 126% between 1960 and 1997 [1]. According to the most recent World Bank data [12], women made up over 44% of the estimated global working population of the nonagricultural sector. The share of women varies from countries to countries, e.g. 13-14% (Qatar and Saudi Arabia) and 53-54% (Latvia and Moldova). The U.S. ranked 36th position among the 99 listed countries. In 2014, 68.6 million of women were employed in the U.S. The Bureau of Labor Statistics projects that this number will rise to 92 million by 2050, corresponding to 48 percent of the labor force [3]. Labor force participation rate
among women has been steadily increasing through years, from 39% in 1974 to 47% in 2014 [2]. While women’s participation share in the labor force is nearly equal to that of men’s, some professions are still falling behind, e.g. construction workers, engineers. Also, despite sharpen increases in the 1980s to the early 1990s and a less substantial growth from the 1990s till recently, women’s earnings still falls behind that of the men’s [13]. In 2013, the median of the full-time female workers’ earnings equaled 82% of the median of full-time male workers [14].

Both men and women are exposed to workplace hazards such as toxic chemicals, repetitive movements and heavy loads, dangerous equipment, extreme temperatures, and psychological stressors. However, safety management should address gender issues as the biological, psychological, and environmental between men and women are different. For instance, women are often physically smaller than men and ergonomics solutions and personal protective equipment (PPE) designed for men may not address women [10]. Additionally, women face different types of harassment and discrimination and that the psychological conditions of female workers especially in non-traditional occupations, causing stress and lack of focus at work [10] [15] [5]. An example of the environmental difference between men and women are the exposure to substances that can have undesirable effects on pregnancy or breastfeeding [5] [10]. Women have the tendency to suffer from different workplace injuries, fatalities, and illnesses as a result [4]. Despite these differences that might seem obvious, there is a lack of substantial research and resources to address the women’s safety and health in the workplace. For instance, although the BLS collects gender-based data, they are often not analyzed or reported in detail, which would contribute to the betterment of women’s hazards prevention strategies [5].

Finally, the fact that women tend to be less paid in comparison to men has consequences in the health in safety for female workers. Besides of the stress that underpayment cause in female workers, another consequence is the women’s trend to pursuing non-traditional and better-paid careers mainly occupied by men, such as engineering and technical jobs [16]. Although this shift is extremely positive in the gender equality’s point of view, women in non-traditional jobs are significantly more subject to harassment (including sexual harassment) and discrimination. Harassment and discrimination in turn affect women’s health, productivity and also safety, as it may lead to verbal threats, rapes, and other forms of workplace violence.

Violence is the second leading cause of both workplace injuries among women in the U.S. [6]. However, very few studies addressed Workplace Violence (WPV) among women [7]. WPV can be divided into four categories: criminal intent (type I), customer/client (type II), co-worker (type III), and personal relations (type IV). From 1997 to 2010, WPV type I accounted for 57% of the homicides among women while types II and III accounted for 7% and 11% respectively. Studies found that “type IV” events did not often occur at the workplace. However, these studies failed to detail the differences between and within genders [7]. For example, between 1997 and 2010, about 25% of the affected women (against 3% of men) were killed by relatives or other personal acquaintances at the workplace [6]. Still, less than 30% of the U.S. workplaces address workplace violence in formal programs or policies [8]. Besides of representing a safety risk for workers in both genders, WPV also had financial impacts on both employers and employees. The cost to employers related to lost work (e.g. medical insurance and benefits) were estimated to be around $250,000 per incident [17]. A study estimated that victims lost more than $55 million of wage loss annually due to days away from work caused by the violence [18].

The safety and health issues highlighted above have been keeping women away from various industries that remain dominated by men, such as Construction. In the year of 2010, the construction industry had far less women’s representation at the workforce than the other occupations in the U.S., except mining [19]. The total representation among women remained stagnant since 2010 and female workers’ participation rate had never passed 10 percent in the industry. Moir et al. (2011) wrote a very insightful and comprehensive literature review focused in tradeswomen issues. They concluded the following: “…women have been kept out and pushed out of the trades through discriminatory apprenticeship practices, overt discrimination from employers, sexual harassment on the job site and during training, and the lack of enforcement of legal policies that are now over three decades old.” [11]

In addition to Moir et al.’s findings, the authors of this paper studied other publications focused in safety and health issues surrounding women in the Construction Industry. This analysis raised seven main points of concern: 1) Ergonomics (e.g. musculoskeletal disorders caused by poor lifting techniques and equipment designed for fitting the average-sized man) [5] [6] [10] [15]; 2) Protective clothing and tools not designed to fit women [10] [19]; 3) Lack of clean and well-maintained sanitary facilities [5] [10] [19]; 4) Overcompensation (i.e. tradeswomen often felt they
had to prove themselves to their co-workers and supervisors by doing more and not asking for help) [15] [5]; 5) Psychological stressors (e.g. isolation, job insecurity, harassment and sexual harassment) [10] [15] [5]; 6) Reproductive hazards (i.e. chemical, physical, or biological agents that can negatively affect pregnancy and breastfeeding) [5] [10]; and 7) Lack of adequate training and mentoring by co-workers motivated by gender discrimination [5] [15] [10].

The peculiarities of the construction workplace such as the issues listed above have been used to justify the industry’s failures in the implementation of gender equality [11]. Despite the presence of gender-related health and safety issues in construction occupations (and in all industries), very often they are misrecognized by the female workers. They tend to accept their situations as the natural order of the things, which contributes to the reproduction of the gender inequality [20] [21]. Giving voice to tradeswomen and the female workers from all industries can be a powerful form of helping them to recognize their rights and fight for gender equality in the workplace. The first step for giving them voice is being aware of the challenges and risks that they face in the workplace, especially being aware of the uniqueness of these issues. For this reason, authorities such as the U.S. Department of Labor must start to analyze and report detailed gender-related data on workplace injuries and illnesses. There is an urge for workplace safety and health issues data that are truly representative of the female population in the labor force.

4. Methods

The outcomes of this are mostly from the analyses of the U.S. Bureau of Labor Statistics (BLS) on workplace injuries [6]. The analyses were separated by gender and events for all industries, however, there were no available data in BLS that separates gender, event, and industry. The most recent data from the Census of Fatal Occupational Injuries (CFOI 2013) were used. The BLS database for nonfatal cases involving days away from work provided data from 2011 to 2013. This study then analyzed workplace violence data: homicides (by gender and aggressor), and nonfatal assaults (by industry sector). Homicides data from 1997 to 2010 were used while nonfatal assaults were analyzed for 2010 (no published data were found for the other years). When more detailed gender-specific data are available for all industries, more statistical analyses will be able to shed light on the particularities of workplace violence among women in each industry, and whether they significantly differ. This descriptive analysis will open the way for such exploratory research on the subject.

5. Data Analysis

Nonfatal workplace injuries by gender, all industries

Figures 1 and 2 represent the trend of nonfatal injuries by the event, from 2011 to 2013 and for women and men, respectively. Data before 2011 was not available. In the three years’ period, however, there is a trend highlighting the gaps between men and women. Overexertion and bodily reaction, in addition to contact with object or equipment were the most significant causes of nonfatal injuries for both genders. However, falls, slips, and trips were more frequent among women than men. Conversely, transportation incidents injured a higher rate of men. The events’ rates for nonfatal injuries may vary between genders, but the trends are similar in the past years for both men and women. The only exception is violence: the rate of injuries caused by violent acts has decreased among men, but increased among women. Regulations and managers must recognize this diversity and act accordingly, creating and implementing safety norms and standards that make the workplace a safer environment for women. The next section analyzes data from fatal injuries (homicides) and makes the workplace violence among women even more evident.
Fatal workplace injuries by gender, all industries

Women’s fatal injuries were accounted for only 7% of total fatal injuries in 2013. The small samples do not accurately represent the risks that women faced. The data shows that fatal violent events occurred are twice as frequently among women than men. Figure 3 highlights the gaps. Transportation incidents are the leading cause of fatal injuries in all industries and they share a similar proportion of total fatalities between genders (41% of men and 42% of women), and fires and explosions are accounted for the smaller rate (3% for both genders). Other events present more significant differences between gender. For example, the rate of deaths caused by contact with objects and equipment was more than twice among men (16% of men and 7% of women died in 2013). The cause of this difference may be the larger number of men working in occupations that handle dangerous equipment. Data on employment by gender and occupation from BLS suggest that women tend to work more in office and managerial positions, and only a few work in service occupations. Also, violence and other injuries by persons or animals handled 16% of male’s deaths and 32% of women’s deaths in all industries. Violence was the fourth cause of fatal injuries among men, and second among women.
Workplace violence against women, all industries

Homicides

The BLS provides aggregate data on homicides from 1997 to 2010. Table 1 shows the workplace homicide’s rates by gender and aggressors’ relationship with the victim. The rates are based on the share of the total number of homicides by gender. Although women were accounted for 19% of the total number of homicides, the murders caused by relatives and personal acquaintances are respectively 13 and six times more frequent among women than men, and the majority of the aggressors are spouses and boyfriends, girlfriends, ex-boyfriends, and ex-girlfriends. For this reason, statistics related to domestic violence are misrepresented in the aggregate data (all genders) on homicides by industry or occupation.

Table 1: Workplace homicides by gender and aggressor (1997-2010). Data collected from the BLS.

<table>
<thead>
<tr>
<th>Aggressor</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robbers and other assailants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Robber</td>
<td>41.32%</td>
<td>31.18%</td>
</tr>
<tr>
<td>Total</td>
<td>79.64%</td>
<td>56.63%</td>
</tr>
<tr>
<td>Work associates</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-worker, former co-worker</td>
<td>10.10%</td>
<td>11.22%</td>
</tr>
<tr>
<td>Customer, client</td>
<td>7.18%</td>
<td>6.94%</td>
</tr>
<tr>
<td>Total</td>
<td>17.28%</td>
<td>18.15%</td>
</tr>
<tr>
<td>Relatives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spouse</td>
<td>0.29%</td>
<td>12.55%</td>
</tr>
<tr>
<td>Other relative</td>
<td>0.76%</td>
<td>1.81%</td>
</tr>
<tr>
<td>Total</td>
<td>1.04%</td>
<td>14.35%</td>
</tr>
<tr>
<td>Other personal acquaintances</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boyfriend, ex-boyfriend, girlfriend, ex-girlfriend</td>
<td>0.26%</td>
<td>8.32%</td>
</tr>
</tbody>
</table>
Nonfatal assaults

This section analyzes the data published by BLS for the year of 2010, on reported assaults and violent acts by persons, by nature, gender, and industry sector. The data is reported in the private sector, state government, and local government. Table 2 presents the rates of reported assaults and violent acts by sector and gender. The most violent sector for men is the state government sector while the local government industries reported the highest rate of violent assaults on women. This difference itself is already a proof of how the genders must be distinctly treated when publishing data and creating safety regulations and programs. It is also noticeable that, except for the local government sector, women suffer about two times more nonfatal violent assaults than men in the workplace.


<table>
<thead>
<tr>
<th>Sector</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private sector</td>
<td>2.31</td>
<td>4.88</td>
</tr>
<tr>
<td>State Government</td>
<td>192.58</td>
<td>47.73</td>
</tr>
<tr>
<td>Local Government</td>
<td>73.049</td>
<td>135.251</td>
</tr>
</tbody>
</table>

1 These rates represent the number of reported injuries per 10,000 full-time workers and were calculated following the methodology used by the BLS. Each rate equals to \( \frac{N}{EH} \times 20,000,000 \), where \( N \) = number of injuries, \( EH \) = Total hours worked by all employees in the respective sector (e.g. Number of employees in private sector *40 hours/week * 50 weeks), and 20,000,000 is the base for 10,000 employees working 40 hours a week for 50 weeks a year. The employment data were collected from the U.S. Equal Employment Opportunity Commission, for the year of 2010 [9].

6. Conclusions and Recommendations

This paper presented and compared reported data on fatal and nonfatal workplace injuries suffered by men and women, focusing in WPV. It analyzed the variations of injuries’ cause, aggressor, and industry sector for each gender. All the presented data confirm both hypothesis of this study: women do face unique challenges in workplace safety, and these challenges are complicated to be identified and analyzed in detail due to the lack of published data classified by gender. The central recommendation of this paper is to make these data available. The BLS allows to access data with the combinations of work characteristics and industry, work characteristics and event, and work characteristics and occupation but does not allow to combine work characteristics, event, occupation, industry, and other variables. Also, the State and Local Government should consider the most frequent injuries that happen especially in these sectors and reinforce the proper prevention measures. Employers must provide training, monitoring, and support specifically destined to female workers’ health and safety issues. Furthermore, hiring more female workers is essential to reduce the women’s isolation in the workplace that contributes both to the increase of injuries and decrease of injuries’ reporting. Finally, more recommendations will be possible when detailed data by gender is available and deeper analyses can be performed.

7. References


