

### Occupational safety and health

# Occupational injuries, illnesses, and fatalities among women

*Women experienced fewer fatal and nonfatal injuries and illnesses than men during the 1992–2003 period; homicide was the leading source of fatal injuries for women, and musculoskeletal disorders were the primary source of nonfatal injuries and illnesses*

Anne B. Hoskins

Occupational fatalities and nonfatal injuries and illnesses are not shared between the sexes equally. Women had a lower share of injuries and illnesses than what their share of hours worked suggests. Although women represented almost half of the workforce in 2003, they experienced 8 percent of occupational fatalities and 35 percent of nonfatal injuries and illnesses. The qualitative aspects of workplace fatalities and nonfatal injuries and illnesses differed between the sexes as well. The source and nature of their work-related deaths are categorically different. This divergence between the sexes is explained partially by differences in employment by both occupation and industry.<sup>1</sup> Men and women have different kinds of jobs, and that translates into differences in how and why they are hurt or become sick at work.

## Fatal injuries

There were 5,575 fatal occupational injuries in 2003; 446 of which were incurred by women. (See table 1.) Given that women accounted for 47 percent of employed workers,<sup>2</sup> the female share of deaths was quite low. Women were much less likely to die on the job than men (0.7 deaths per 100,000 workers for women, compared with 6.9 deaths for every 100,000 workers for men). For women, the fatality rate has been low relative to men for the past 10 years. During the 1992–2003 period, the portion of workplace fatalities that were incurred by women varied between 7 percent in 1992 and 9 percent in 1995. As the total number of workplace fatalities has fallen

over the past decade, those incurred by women have declined at a similar pace.

During the 1990s, highway incidents and homicides accounted for the majority of fatal injuries to female workers. Although the number of female murder victims declined during this period, most of the fatal occupational injuries incurred by women in 2003 were still due to highway incidents or homicides. (See chart 1, page 33.) In fact, these two events alone accounted for almost 60 percent of the fatalities sustained by women for that year.

*Highway vehicle accidents.* Highway vehicle accidents, which accounted for 31 percent of the occupational fatalities sustained by women in 2003, surpassed homicides as the most prevalent event leading to a fatality. (See chart 2, page 33.) There has been a gradual increase in the proportion of female work-related deaths resulting from highway accidents over the past few years. From 1992 to 1996, highway accidents accounted for 26 percent of all female occupational fatalities, compared with an average of 32 percent from 1997 to 2001. Although the overall number of female victims of fatal occupational injuries declined in the decade prior to 2003, the number of injuries resulting from highway accidents over the same period was effectively the same. Excluding the series low (111 in 1992) and series high (171 in 1997), the number of fatal occupational injuries resulting from highway incidents incurred by females ranged from 130 to 149 during the study period.

Anne B. Hoskins is an economist in the Office of Compensation and Working Conditions, Bureau of Labor Statistics. E-mail: Hoskins.Anne@bls.gov.

**Table 1. Occupational fatalities of men and women, 1992–2003**

Year	Fatalities		
	Total	Men	Women
1992 .....	6,217	5,774	443
1993 .....	6,331	5,842	489
1994 .....	6,632	6,104	528
1995 .....	6,275	5,736	539
1996 .....	6,202	5,688	514
1997 .....	6,238	5,761	477
1998 .....	6,055	5,569	486
1999 .....	6,054	5,612	442
2000 .....	5,920	5,471	449
2001 .....	5,915	5,442	473
2002 .....	5,534	5,092	442
2003 .....	5,575	5,129	446

*Homicides.* Closely following highway accidents as the next most prevalent event leading to deadly injury was homicide, which accounted for 27 percent of the fatal occupational injuries sustained by women in 2003. In contrast, homicides represented less than one-tenth of fatalities to male workers. During 2003, there were 632 work-related murders. Women accounted for 119 of the victims. At roughly 19 percent, the female share was proportionally higher for work-related homicides than it was for fatalities in general. Although homicides accounted for more than a fourth of the fatal injuries sustained by women on the job, many more men were victims of homicide.

The majority of homicides for both sexes were shootings. Some 61 percent of female homicide victims and 81 percent of male homicide victims were killed with guns. Given that the vast majority of male victims were killed with guns, women accounted for proportionally more of the homicides for which the source was something other than a gun. For instance, half of the homicides from stabbings were incurred by women. Additionally, the 29 female stabbing victims represent almost 7 percent of the total number of female workplace fatalities.

Female work-related homicides differed from those incurred by men not only in the manner that the act was carried out, but also by the identity of the perpetrator. For one, female murder victims were much more likely to have been killed by a family member than were male victims. From 1997 to 2003, homicides carried out by a relative accounted for 10 percent of female cases and less than 1 percent of male cases. In contrast, male workers were the vast majority (85 percent) of victims killed during robberies. More than 40 percent of male homicide cases identified a robber as the perpetrator, versus 30 percent of female cases. For the instances in which the killer was either a current or former coworker, the victim was generally male. Just 18 of the 80 murder-victim cases in which a coworker was identified as the perpetrator were women. Despite the larger number of male fatalities, about the same proportion of homicides for each sex were committed by a coworker.

Generally, the number of homicides to female workers fell steadily during the last 12 years. (See table 2.) Excluding the 70 fatalities sustained by female workers in the 1995 Oklahoma City bombing, an annual mean of 174 women were murdered at the workplace between 1992 and 1998. This average decreased to 129 for the years 1999 to 2003.

As is true for all workers, the proportion of workplace fatalities to women that were a result of homicide also fell during the 1992 to 2003 period. In 1992, more than 40 percent of the women who died on the job were murder victims. In 2003, this proportion was considerably lower at just under 27 percent and, with the exception of 1995, the years in between exhibited a considerable downward trend in violence resulting in the death of female workers.

*Falls.* Of the 696 fatal occupational injuries resulting from falls in 2003, just 38 were sustained by women. This represents fewer than 6 percent of these workplace deaths, translating into a female share that is even smaller for falls than it is for occupational fatalities in general.

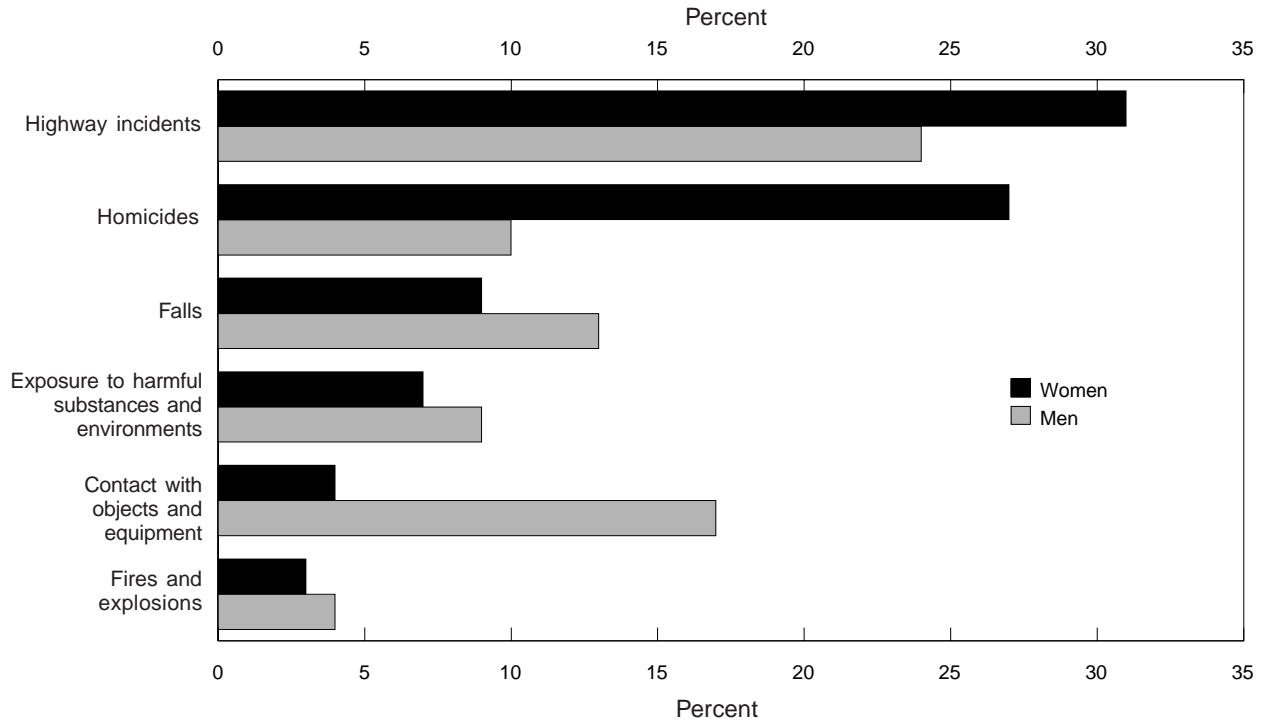
Women accounted for such a small portion of fatal occupational injuries due to falls largely because they were not employed in occupations where the bulk of the incidents took place. In 2003, the majority of workplace fatalities from falls occurred in the goods-producing sector and mostly in the construction industry. (See table 3, page 34.) Virtually all construction jobs are held by men—female employment in 2003 was less than 10 percent—especially those exposing workers to potentially dangerous situations. Of the fatalities that occurred in the service-providing sector for both sexes, the highest number of cases took place in landscaping services, which is also comprised of mainly male workers.

**Table 2. Occupational fatalities resulting from homicides, 1992–2003**

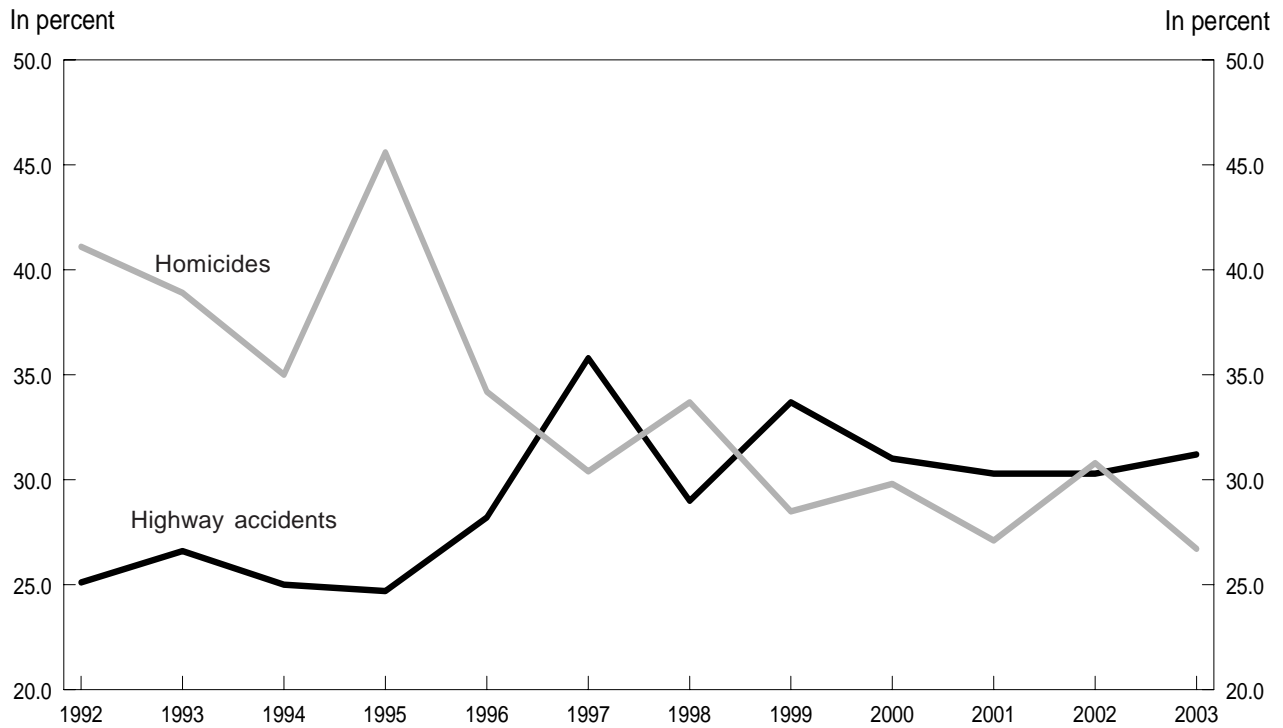
Year	All victims	Female victims
1992 .....	1,044	182
1993 .....	1,074	190
1994 .....	1,080	185
1995 .....	1,036	246
1996 .....	927	176
1997 .....	860	145
1998 .....	714	164
1999 .....	651	126
2000 .....	677	134
2001 .....	643	128
2002 .....	609	136
2003 .....	632	119

<sup>1</sup>This number includes fatalities sustained by female workers in the Oklahoma City bombing. Excluding those fatalities, there were 176 female homicide victims in 1995.

**Chart 1. Fatal work injury incidents varied between men and women, 2003**



**Chart 2. Female homicides and highway accidents as percents of total occupational fatalities, 1992–2003**



As opposed to the fatal falls sustained by men, hardly any of those incurred by women took place in the goods-producing sector. There were only five such instances in 2003 and none of them was construction related. For the most part, deadly falls sustained by women were distributed throughout the major service-producing industries. Health care-related services were the exception. Health services—including hospitals, nursing and personal care facilities, and home health care services—had slightly higher numbers of fall-related deaths relative to other private industries between the years 1999 to 2002. Additionally, in 2003, the health care and social assistance sector, which consists of hospitals, ambulatory health care services, and nursing and residential care facilities, reported the highest number of fall-related deaths to female workers.

Although fatal falls involving females have been few relative to men, there was an increase both in number and proportion in the years leading up to 2003. From 1994 to 1998, fewer than 6 percent of female fatalities resulted from falls. The average number of female occupational fatalities for those years was 28. From 1999 to 2003, the average annual percentage of female fatalities from falls was more than 8 percent, an average of 37 fall-related fatalities each year.

The growing proportion of fatalities resulting from falls was not unique to women. Men have experienced a rise over the past 10 years as well. From 1994 to 1998, 11 percent of male fatalities were due to falls, compared with 13 percent from 1999 to 2003. For both men and women, the increase in the percentage of occupational fatalities resulting from falls has been a result of two combining factors: a gradual decline in the number of fatalities overall and a slight rise in the number of fatalities due to falls.

### Nonfatal injuries

Although the gender gap is not as wide for nonfatal occupational injuries and illnesses with days away from work<sup>3</sup> as it is for fatalities, the female share is still low. In 2003, there were 459,090 female cases of work-related injuries and illnesses requiring at least one day away from work. This figure was slightly more than half as many as there were for men. Representing 35 percent of nonfatal cases, women were hurt or became ill less than their male counterparts.

The disparity between men and women in the number of nonfatal occupational injuries and illnesses has been an ongoing trend throughout the past decade. Since 1992, women have experienced only about half of the injuries and illnesses sustained by men. The gender difference persists, but the gap has narrowed in the past few years. Overall, the number of nonfatal injuries and illnesses has fallen substantially. Given that the number of nonfatal injuries and illnesses for women has fallen at a slower rate than it has for men, the female share has shown a slight increase. (See chart 3, page 36.)

*Occupation.* Much of why women experienced fewer nonfatal occupational injuries and illnesses over the 1992–2003 period can be explained by the kinds of jobs that women have. Generally, women do not work in professions that consistently have high numbers of injuries and illnesses. For instance, the occupational groups with the highest number of injuries and illnesses for 2003 were transportation and material movers; production workers; construction and extraction workers; and installation, maintenance and repair workers. Taken as a whole, the male-to-female employment ratio for these occupations was at least 5 to 1. (See table 4.) Here, men accounted for 86 percent of injuries and illnesses. In the case of construction and extraction occupations alone, where there were 35 male employees for every 1 female employee, 98 percent of injuries and illnesses were sustained by men.

Even though women suffer fewer workplace injuries and illnesses than men overall, there are specific occupations, such as nursing aides,<sup>4</sup> in which women account for a greater share. In fact, women sustained 62 percent of the nonfatal injuries and illnesses in service occupations for 2003. They also represented 57 percent of the people employed in these positions. Service occupations account for a large share of female work-related injuries and illnesses. Almost 40 percent of the injuries and illnesses sustained by women occurred in service occupations, yet only 20 percent of employed women held these jobs.

*Industry.* In goods-producing industries, women accounted for 15 percent of nonfatal injuries and illnesses for 2003, compared with 44 percent of the nonfatal injuries and illnesses in the service-providing industries. Given that more women were employed in the service-providing industries than men, they logically accounted for more of these injuries and illnesses. In fact, 87 percent of female occupational injuries and illnesses occurred in this area. Within these industries, cases in which the injured or ill worker was a woman were further

**Table 3. Occupational fatalities resulting from falls by industry, 2003**

Industry	Number of fatalities
Total .....	696
Private industry .....	662
Goods producing .....	446
Natural resources and mining .....	44
Construction .....	364
Manufacturing .....	38
Service providing .....	216
Trade, transportation, and utilities ...	65
Information .....	7
Financial activities .....	14
Professional and business services ..	69
Education and health services .....	19
Leisure and hospitality .....	24
Other services .....	17
Government .....	34

**Table 4. Employment and injuries and illnesses for the occupational groups reporting the most injuries and illnesses, 2003**

Occupation	Employed persons (In thousands)			Injuries and illnesses		
	Total	Men	Women	Total	Men	Women
Total .....	137,736	73,332	64,404	1,315,920	851,790	459,090
Transportation and material moving .....	8,320	7,049	1,270	259,920	222,130	35,220
Production .....	9,700	6,696	3,004	188,330	136,580	51,660
Construction and extraction .....	8,114	7,891	223	151,130	148,020	2,380
Installation, maintenance, and repair .....	5,041	4,830	211	109,780	104,940	4,210

concentrated, with 69 percent occurring in either trade, transportation, and utilities, or education and health services.

*Circumstances of female injuries.* In 2003, the leading sources of workplace injuries in women, with 36 percent of cases, were musculoskeletal disorders.<sup>5</sup> Musculoskeletal disorders are injuries or disorders of the muscles, nerves, tendons, joints, cartilage, or spinal discs. They are related to events such as bodily reaction, overexertion, and repetitive motion and do not include injuries caused by slips, trips, falls, motor vehicle accidents, or similar accidents.

*Event or exposure.* Almost half of the injuries and illnesses to female workers resulted from bodily reaction or exertion in 2003, compared with 40 percent for men. Some examples of these types of events are scanning groceries, overexertion from lifting, and typing. Many repetitive motion or overexertion injuries are classified as musculoskeletal disorders.

Falls, another major cause of injury in the workplace, represented one-fourth of the injuries and illnesses sustained by women in 2003. For this incidence, women were more on par with men and accounted for about 43 percent of all cases resulting from falls. Female injuries resulting from falls were proportional to the female presence in the workforce. The likelihood that a workplace injury to a man resulted from a fall is just slightly greater than it is for a woman.

The most noticeable difference between women and men when it comes to falls is that, although the number of falls on the same level for the two sexes was about the same, they accounted for a far greater share of these injuries to women. Falls to the same level were about 82 percent of all female injuries resulting from falls, whereas they were only a little more than half of male injuries and illnesses of this type.

Assaults and violent acts by another person represented 2 percent of female injuries and illnesses. Despite this small percentage, women accounted for roughly 61 percent of victims, and were more likely to be assaulted by another person while on the job than were men. The gender gap for these incidents does not seem to be narrowing. Since 1992,

women have consistently suffered the majority of these injuries. (See chart 4.) Although workplace assaults and violent acts on women declined between 2002 and 2003, there had been an increasing number of these incidents in the years prior and only a slight downward trend had occurred in the past 10 years.

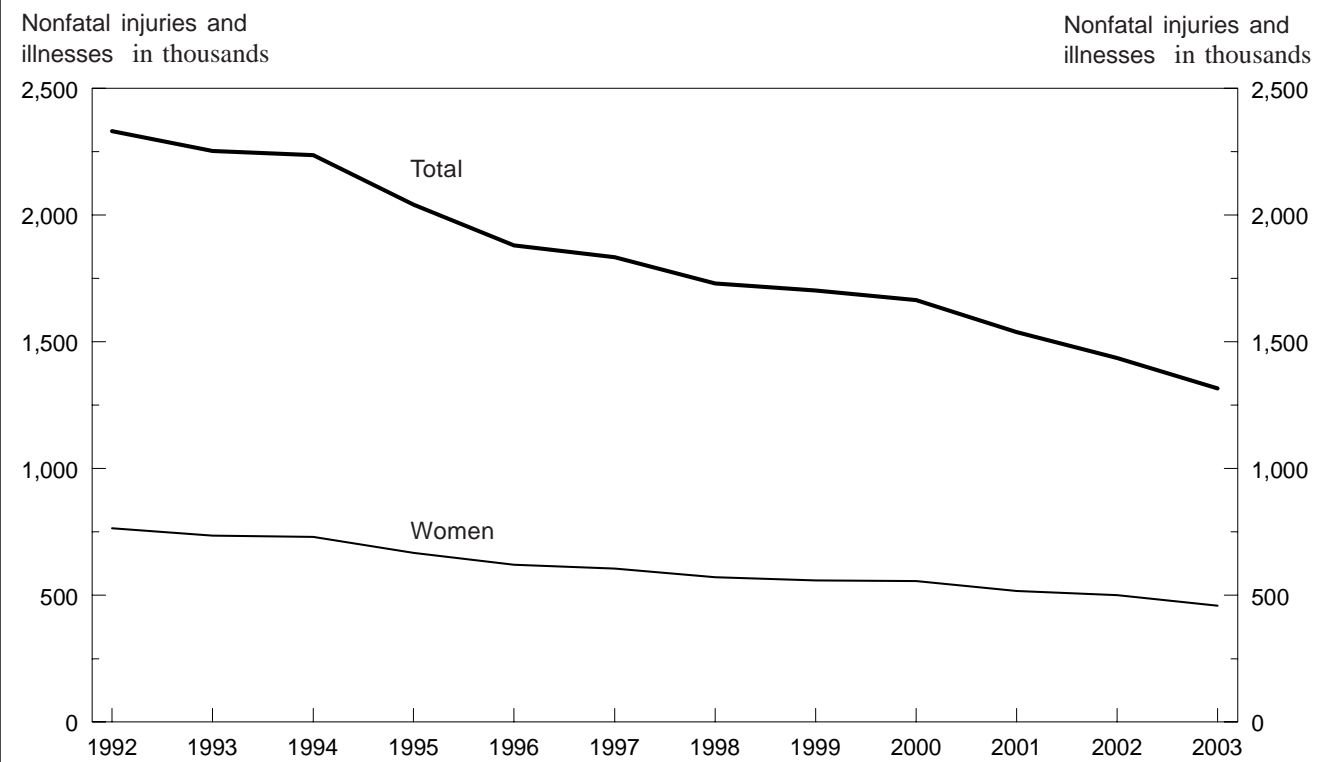
*Nature.* The most common type of injury for both sexes was sprains, strains, and tears, which accounted for 41 percent of male and 45 percent of female work-related injuries. The disparity between men and women here was negligible. Sprains, strains, and tears has remained within the interval of 42 percent to 44 percent of nonfatal injuries and illnesses for all workers since 1992, even while the overall number of nonfatal injuries and illnesses has dropped. Sprains, strains, and tears were 76 percent of all musculoskeletal disorders in 2003.

Some work-related injuries have been more commonly found in women. For example, women represented 68 percent of the carpal tunnel syndrome cases in 2003. For every year since 1992, women have accounted for at least two-thirds of all reported carpal tunnel syndrome cases. Even though the total number of these cases declined over the past decade, the proportion of cases that involve women has remained constant.

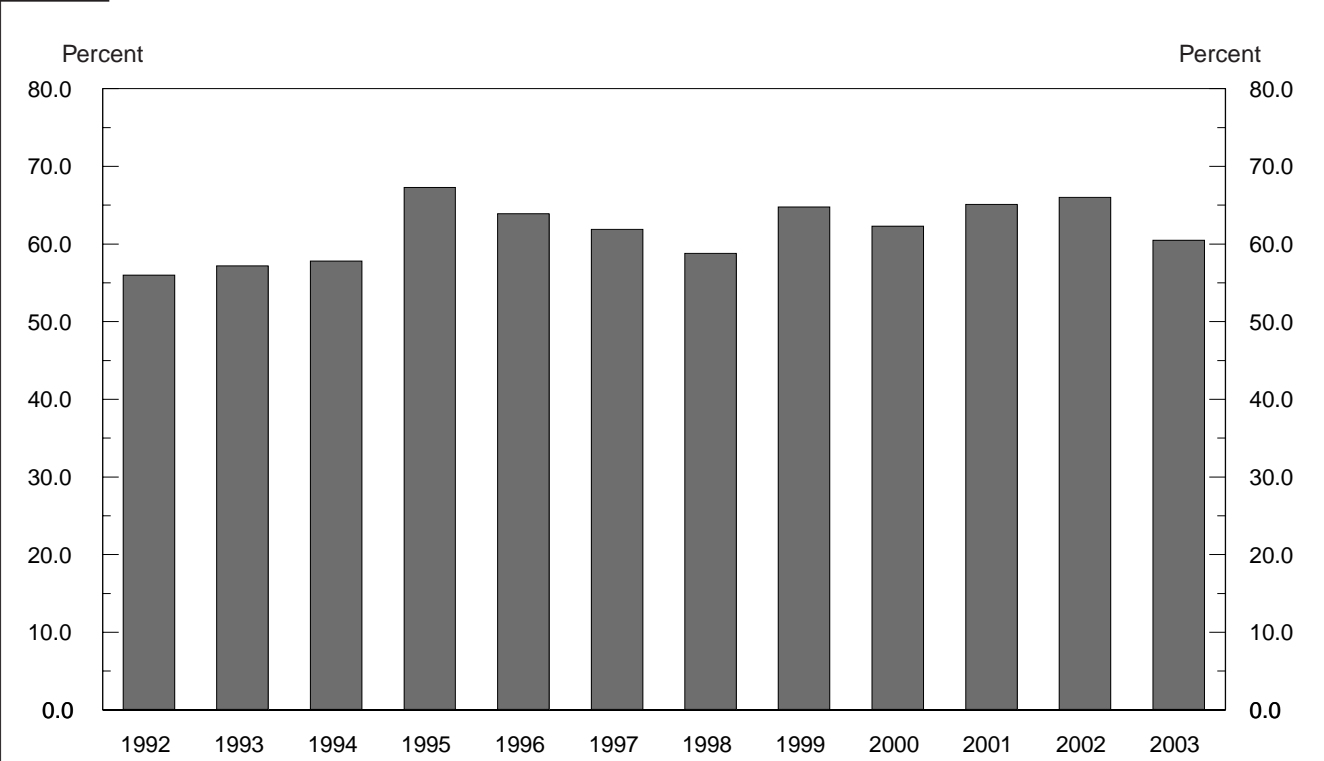
Tendonitis is another work-related injury found more often in women than in men. Women experienced 55 percent of the tendonitis cases in 2003 and maintained majority representation throughout the past decade. On a national scale, the number of reported cases of tendonitis is small. In 2003, there were 4,260 female cases; down from 15,130 in 1993. This difference reflects a more than 70-percent decrease. Moreover, the number of tendonitis cases for all workers has fallen almost as much: from 25,026 in 1993 to 7,730 in 2003. In all, there has been a large decrease in the number of work-related tendonitis cases reported over the past 10 years.

Like tendonitis, the number of reported anxiety, stress, and neurotic disorders is small. There were 3,820 cases in 2003, 64 percent of which involved women. For the past 10 years, women have accounted for more than half of all anxiety, stress, and neurotic disorders. However, in 2003, there was a 35-percent drop

**Chart 3. Nonfatal occupational injuries and illnesses, requiring days away from work, 1992–2003**



**Chart 4. Female percentage of all nonfatal assaults and violent acts by person, 1992–2003**



in the number of female cases from the previous year. This ended a 2-year increase in these types of disorders for women.

WOMEN HAVE EXPERIENCED far fewer occupational injuries and illnesses than their hours worked would suggest. Even more disparate in relation to employment hours was the female share of occupational fatalities. Female injuries, illnesses, and fatalities

are not only disproportionately low; they also differ from male cases qualitatively. In general, women have suffered from work-related injuries, illnesses, and fatalities unique to them. Many reasons for the differences between male and female occupational injuries, illnesses, and fatalities are hard to measure. However, much of this disparity can be explained by employment patterns within occupations and industries. □

## Notes

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<sup>1</sup> For an examination of women in the workplace, see *Women in the Labor Force: A Databook*, on the Internet at [www.bls.gov/cps/wlf-databook2005.htm](http://www.bls.gov/cps/wlf-databook2005.htm) (visited Oct. 4, 2005).

<sup>2</sup> Bureau of Labor Statistics, *Current Population Survey*. See table 9, on the Internet at [www.bls.gov/cps/home.htm#annual](http://www.bls.gov/cps/home.htm#annual) (visited Oct. 4, 2005).

<sup>3</sup> BLS uses days away from work as a proxy to measure the severity of the injury or illness. These cases require at least 1 day of recovery away from the worksite. Case characteristics, such as sex, are collected for injuries and illnesses with days away from work to provide demographic information.

<sup>4</sup> Women sustained 91 percent of the injuries and illnesses found in nursing aides, orderlies, and attendants in 2003.

<sup>5</sup> Includes cases in which the nature of injury is: sprains, strains, tears; back pain, hurt back; soreness, pain, hurt, except back; carpal tunnel syndrome; hernia; or musculoskeletal system and connective tissue diseases and disorders and when the event or exposure leading to the injury or illness is: bodily reaction/bending, climbing, crawling, reaching, twisting; overexertion; or repetition. Cases of Raynaud's phenomenon, tarsal tunnel syndrome, and herniated spinal discs are not included. Although these cases may be considered musculoskeletal disorders, the survey classifies these cases in categories that also include cases that are not musculoskeletal disorders.

More information on musculoskeletal disorders and their prevention, are available on the Internet at [www.osha.gov/SLTC/ergonomics/index.html](http://www.osha.gov/SLTC/ergonomics/index.html) (visited Oct. 6, 2005).