

# Invisible Women: Data Bias in a World Designed for Men

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## Preface

The gender data gap isn't just about silence. These silences, these gaps, have consequences. They impact on women's lives every day. Impact can be relatively minor. Shivering in offices set to male temperature norm, for example, or struggling to reach a top shelf set at a male height norm. Irritating, certainly. Unjust, undoubtedly.

## Introduction: The Default Male

The article reported on an academic paper called 'The phylogenetic roots of human lethal violence', which claimed to reveal that humans have evolved to be six times more deadly to their own species than the average mammal.

This is no doubt true of our species overall - but the reality of human-on-human lethal violence is that it is overwhelmingly a male occupation: a thirty-year analysis of murder in Sweden found that nine out of ten murders are committed by men. This holds with statistics from other countries, including Australia, the UK and the US. A 2013 UN homicide survey found that 96% of homicide perpetrators worldwide are male. So is it humans who are murderous, or men? And if women aren't on the whole murdering, what are we to think of female 'phylogenetics'?

In gender-inflected languages the generic masculine remains pervasive. Job vacancies are still often announced with masculine forms - particularly if they are for leadership roles. A recent Austrian study of the language used in leadership jobs ads found a 27:1 ratio of masculine to 'gender-fair forms' (using both the male and female term). The European Parliament believes it has found a solution to this problem, and since 2008 has recommended that '(m/f)' be added on the end of job ads in gender-inflected languages. The idea is that this makes the generic masculine more 'fair' by reminding us that women exist. It's a nice idea - but it wasn't backed up by data. When researchers *did* test its impact they found that it made no difference to the exclusionary impact of using the generic masculine on its own - illustrating the importance of collecting data and *then* creating policy.

The world's 'fastest-growing language', used by more than 90% of the world's online population, is emoji. This language originated in Japan in the 1980s and women are its heaviest users: 78% of women versus 60% of men frequently use emoji. And yet, until 2016, the world of emojis was curiously male.

Male and female options now exist for all professions and athletes. It's a small victory, but a significant one.

To be fair, it's not an entirely unreasonable assumption: often it really is a he. A 2007 international study of 25,439 children's TV characters found that only 13% of non-human characters are female (the figure for female human characters was slightly better, although still low at 32%). An analysis of G-rated (suitable for children) films released between 1990 and

2005 found that only 28% of speaking roles went to female characters - and perhaps even more tellingly in the context of humans being male by default, women made up only 17% of crowd scenes.

Incidentally, according to the US Bureau of Labor Statistics, the coal mining industry, which during the 2016 election became the shibboleth for (implicitly male) working-class jobs, provides 53,420 jobs in total, at a median annual wage of \$59,380. Compare this to the majority female 924,640-strong cleaning and housekeeper workforce, whose median annual income is \$21,820. So who's the real working class?

Analysis of how gender affected support for Trump revealed that 'the more hostile voters were toward women, the more likely they were to support Trump'. In fact, hostile sexism was nearly as good at predicting support for Trump as party identification.

## Part 1: Daily Life

### Chapter 1: Can Snow-Clearing be Sexist?

We lack consistent, sex-disaggregated data from every country, but the data we do have makes it clear that women are invariably more likely than men to walk and take public transport. In France, two-thirds of public transport passengers are women; in Philadelphia and Chicago in the US, the figure is 64% and 62% respectively.

Women do 75% of the world's unpaid care work and this affects their travel needs. A typical female travel pattern involves, for example, dropping children off at school before going to work; taking an elderly relative to the doctor and doing the grocery shopping on the way home. This is called 'trip-chaining', a travel pattern of several small interconnected trips that has been observed in women around the world.

Hospital admissions databases are dominated by pedestrians, who are injured three times more often than motorists in slippery or icy conditions and account for half the hospital time of all traffic-related injuries. And the majority of these pedestrians are women.

The mayor of Barcelona, Ada Callou, has shown similar determination to give her city back to pedestrians, creating what are called *superilles* or 'superblocks' - squared-off sections of the city with low speed limits open only to local traffic, with roads where pedestrians have equal priority with cars.

## Part 2: The Workplace

### Chapter 3: The Long Friday

By the end of the day, 24 October 1975 came to be known by Icelandic men as 'the long Friday'.

Globally, 75% of unpaid work is done by women, who spend between three and six hours per day on it compared to men's average of thirty minutes to two hours. This imbalance

starts early (girls as young as five do significantly more household chores than their brothers) and increases as they get older.

Of course most male bosses in heterosexual relationships won't have a full-time wife at home, because most women can't afford to quit work entirely. Instead, women accommodate their care responsibilities by going part-time. In the UK, 42% of women compared to 11% of men work part-time, and women make up 75% of part-time workers. And part time work is paid less per hour than full-time work - in part because it's rare that a high-level post is offered as a job-share or with flexible working hours. Women end up working in jobs below their skill level that offer them the flexibility they need - but not the pay they deserve.

In the UK, 90% of single parents are women. In the US the figure is over 80%. In Bovasso's case, her male colleagues were able to just check their calendar and accept or decline. And most of them accepted. In fact, not only did they accept, they also booked the hotel next to the restaurant, so they could drink. And unlike her sitter, this cost was claimable on company expenses.

The implicit bias is clear: expense codes are based on the assumption that the employee has a wife at home taking care of the home and the kids. This work doesn't need paying for, because it's women's work, and women don't get paid for it. Bovasso sums it up: 'You can get \$30 for takeout if you work late (because your wife isn't there to cook you dinner) or \$30 for Scotch if you want to drink your face off, but you can't get \$30 for a sitter (because your wife is at home with the kids).' In the event, Bovasso was able to get her company to cover the cost of her childcare - but as she points out, 'these have been exceptions I've had to ask for'. Which is women all over: always the exception, never the default.

## Part 3: Design

### Chapter 7: The Plough Hypothesis

The trouble with traditional stoves is that they give off extremely toxic fumes. A woman cooking on a traditional stove in an unventilated room is exposed to the equivalent of more than a hundred cigarettes a day. According to a 2016 paper, in countries from Peru to Nigeria, toxic fumes from stoves are between twenty and a hundred times above World Health Organization guideline limits, and globally they cause three times more deaths (2.9 million) every year than malaria. This is all made worse by the inefficiency of traditional stoves: women who cook on them are exposed to these fumes for three to seven hours a day, meaning that, worldwide, indoor air pollution is the single largest environmental risk factor for female mortality and the leading killer of children under the age of five.

### Chapter 9: A Sea of Dudes

*Margin Note page 174: pelvic floor train*

But in 2010, Stoffregen made a discovery. 'I was sort of fooling around in the literature and I came across some results that I didn't know about,' and which showed that there are sex differences in body sway. 'These are small subtle differences. You can't just watch somebody and see them, but in terms of the subtle quantitative details of how the body moves back and forth, there are in fact reliable sex differences. And as soon as I saw this, I mean, I'm talking the *minutel* saw this I knew that oh, OK, now I have something to say about the sex difference in motion sickness. Because my whole story about motion sickness is that it's related to the control of the body.' Since then, Stoffregen has also discovered evidence that 'women's postural sway changes across the menstrual cycle'. And this is significant because 'a woman's susceptibility to motion sickness changes across the menstrual cycle. And those two things link up, believe it or not.'

## Part 4: Going to the Doctor

### Chapter 11: Yentl Syndrome

Women (particularly young women) may in fact present without any chest pain at all, but rather with stomach pain, breathlessness, nausea and fatigue. These symptoms are often referred to as 'atypical', a designation to which the *British Medical Journal* took exception...

A 2016 *BMJ* paper refers to recent work from Edinburgh which showed that the 'normal' diagnostic threshold for troponin (a protein released into the blood during heart damage) may be too high for women. And it's not just about 'standard' levels for biomarkers being incorrect in women, we also need to establish new female-specific biomarkers.

## Part 6: When it Goes Wrong

### Chapter 16: It's Not the Disaster that Kills You

This can also be an issue in post-disaster zones: following the Philippines' 2013 typhoon in which 4 million people were left homeless, an estimated 1,000 women were giving birth every day, with almost 150 of them expected to experience life-threatening conditions. Birthing facilities and equipment had been destroyed by the typhoon, and women were dying. But when the United Nations Population Fund asked donor nations for funds to pay for hygiene kits, staff at temporary maternity wards and counselling for rape victims, the response was 'lukewarm', with only 10% of the amount needed being raised.