

BY
NUMBERS

The Statistics of Sexual Behaviour

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First published in Great Britain in 2015 by
PROFILE BOOKS LTD
3 Holford Yard
Bevin Way
London WC1X 9HD
www.profilebooks.com

Published in association with Wellcome Collection

**wellcome
collection**

Wellcome Collection
183 Euston Road
London NW1 2BE
www.wellcomecollection.org

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1 3 5 7 9 10 8 6 4 2

Typeset in Palatino by MacGuru Ltd
info@macguru.org.uk

Printed and bound in Great Britain by
CPI Group (UK) Ltd, Croydon CR0 4YY

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A CIP catalogue record for this book is available from the British Library.

ISBN 978 1 78125 329 8
eISBN 978 1 78283 099 3



Mixed Sources

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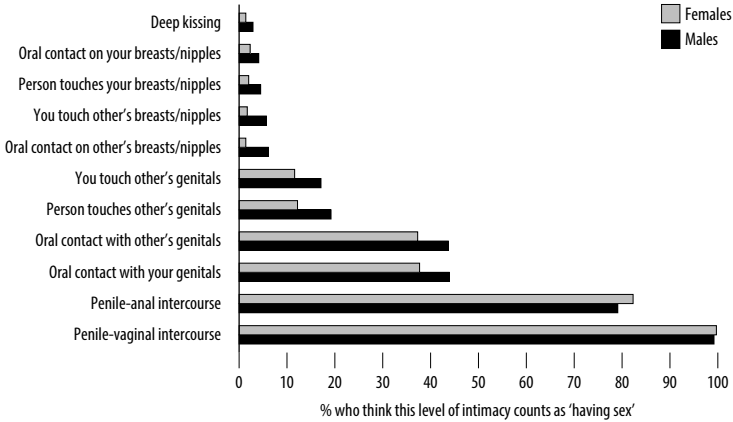
PUTTING SEX INTO NUMBERS

Does oral sex count as 'having sex'?

Bill Clinton famously claimed on 26 January 1998 that 'I did not have sexual relations with that woman, Miss Lewinsky', a claim later repeated in a court deposition. It then became known that he had received oral sex from Monica Lewinsky. So did he or didn't he have sexual relations with her?

60%: the proportion of US students who thought that oral sex did not count as 'having sex'

What counts as 'having sex' might seem like a matter of individual opinion, but when Clinton was impeached for perjury in December 1998 – only the second time this had happened to a US President – it assumed national importance. In the same month the editor of the *Journal of the American Medical Association*, George Lundberg, fast-tracked a paper by researchers from the Kinsey Institute for Research in Sex, Gender and Reproduction Studies which was then published a month later in January 1999, just before the Senate impeachment hearing.¹ In 1991 over a thousand students had been randomly sampled from Indiana University, and

Figure 1: **What 599 US students thought of as 'having sex' in 1991**

599 (58%) agreed to complete a history of their sexual activity and actually turned up to do so.[†]

As part of the sex history, the students were asked, 'Would you say you "had sex" with someone if the most intimate behaviour you engaged in was ...' – Figure 1 shows the responses. Just about everyone considered vaginal intercourse was 'sex' – the few men who answered 'no' are presumably waiting for some extraordinary activity before they feel they have gone all the way. At the other extreme, only a few considered that kissing breasts counted as sex. Around one in seven thought that 'sex' had occurred if genitals were touched, while 40% thought oral sex alone was 'sex', which means 60% thought it wasn't. So more than half would agree with President Clinton's claim of innocence.

Statisticians, contrary to popular opinion, are also human beings, and so I am fascinated by the special role that sex plays in our individual lives and society as a whole. Sex occupies a strange boundary between public and private: as President Clinton found out, sex can dominate news headlines

[†] That response rate may not sound great, but keep a mental note of it to compare with some other efforts.

yet (usually) goes on in private. We can speculate endlessly about the sex lives of others, but anyone trying to find out what is really going on will face a seriously challenging task.

But there are all sorts of reasons why we might want to know about sexual behaviour. It shapes the societies we live in: demographers, who study changes in population, want to know about sexual activity, and the use of contraception and abortion, so they can predict how many babies will be born and to whom. As we will see later, sexual activity may even shape the gender ratio of a population. Doctors and health researchers want to know what people get up to, and what precautions they take, in order to work out the chances of diseases being transmitted, and to plan the medical services for the unlucky ones. Psychologists may want to know about the quality of sexual activity and people's satisfaction with their lives. Psychiatrists want to identify and treat disorders, and pharmaceutical companies will want to develop and promote new treatments.

And the rest of us may be simply curious as to where we lie in the extraordinary range of human behaviour. Am I having too much? Not enough? With the right person? Did I start early, or late? Are my experiences different? Or at least, are they *really* different?†

Our sexual behaviour has a profound effect on how we live our lives: how society views you, whom you marry, whether you stay together, your health, whether you have children – all of these are shaped by sex. We are right to be curious. And we are right to wonder whether what we are told about sex – from government statistics to old wives' tales – is really what the numbers say.

†Of course, we have to face the prospect of finding out that everyone is having more sex than us. And that includes our partner.

How can we know what is going on behind closed doors?

To enjoy (or possibly suffer) any of the results of sex, you first have to have it. 'How much sex is going on?' seems like a simple enough question, but a moment's pause reveals that it is open to a variety of interpretations. We've already seen that people have widely varying ideas about what qualifies as 'sex'. We've left behind (although not that far behind) the time when sex between people of the same gender was not only socially stigmatised but actually illegal, so we can include same-sex sex. But what about solo sex? Whether or not you think that masturbation 'counts', later on we will count masturbation.

And when we are counting up sexual activities, do we include the (illegal) under-16s and the (legal) over-70s? And then there are different countries and cultures, and even the season can be important – we will see that Christmas holidays may be a particularly busy time.

So this simple question of 'how much sex' is already not so simple, and that's before we ask ourselves: how on earth are we going to find out?

A strictly scientific approach might install CCTV in a randomly selected set of bedrooms. This would not only make staggeringly dull viewing for most of the time but would also miss those sudden bursts of passion in the shower or the shed. So maybe we could put head-cams on some willing volunteers? Unfortunately, anyone who signed up to this experiment is hardly likely to be a representative sample of the population, and I doubt whether the study would get through a research ethics committee (although we are going to meet some very bizarre studies that presumably someone approved). And even if it did, this monitoring might encourage unusual performance, whether hesitancy or exhibitionism – the so-called 'Hawthorne' effect, when just scrutinising an activity changes what is done. Just think of *Big Brother*.

There are other, more reliable methods, though none of these is perfect. Whatever the sexual activity, someone, somewhere has tried to count it, but a running theme throughout the book will be the doubtful quality of many of the numbers that have gained headlines in the past: there's a lot of shabby statistics out there that keep on getting recycled. So in an attempt to provide some degree of order, I shall often give numbers a 'star rating' that says how reliable I think they are. Let's start in the top drawer.

4: numbers that we can believe*

We can get concrete evidence of some of the consequences of sex by counting babies, or treatments for diseases or other 'official statistics'. As it's a legal obligation to register a birth or marriage or abortion, these numbers should be reliable. So, for example, we can be confident that in England and Wales:

- 48% of births in 2012 were formally 'illegitimate'.
- In 1973, one in twenty 16-year-old girls got pregnant.
- For every 20 girls born, 21 boys are born.
- The peak rate for divorce is seven years after marriage.
- In 1938, half of brides under 20 were pregnant when they got married.

I shall label these as 4* numbers, which are so accurate that we can, to all intents and purposes, believe them. And we'll have a look at all these fine numbers later.

3: numbers that are reasonably accurate*

Nobody (yet) is under any compulsion to answer intrusive questions about their sex life, and so we are never going to be able to get 4* data about private activities. So we have to ask thousands of people about their behaviour and opinions, and try to do it well enough to be able to trust the answers.

It makes a big difference how the people are chosen. Suppose I want to know what proportion of people have sex before they are 16. I tell you that out of 1,000 young people, 300 say they did (this is about the current British estimate). If these 1,000 people had been chosen at random, with every one in the population having an equal chance of being chosen, then a bit of statistical theory will show that we can be 95% confident the true underlying proportion of young people who had sex before 16 lies between 27% and 33%:[†] this relatively small margin of error is due to the play of chance in whom we happened to ask.

But if these 1,000 young people had been interviewed, say, coming out of clubs on a Saturday night, or had responded to an online survey in a lads' magazine, then I would have no idea what the error might be, except to suspect it might be large. Instead of pure random error, we have systematic bias. And it is this kind of bias that is so important in statistics about sex.

So try this little quiz. You have a sex life. Even if it's nothing to write home about, or so exotic that you would never write to anyone about it, you can still be a valuable data point for a researcher. If you were told the results would be confidential, would you feel happy answering questions about how often you had sex, what precisely you got up to, how many partners you had had, whether and how often you masturbated, and so on, if –

1. You were stopped in the street by someone from a market research company?
2. You were sent a questionnaire in the post?
3. A website for a magazine put up an online questionnaire, asking for volunteers?
4. You were part of an online consumer panel, and

[†]For the technically minded, this is based on $p \pm 2\sqrt{p(1-p)/n}$, where $p = 0.3$ and $n = 1000$.

this was one of the jobs offered to you for a small payment?

5. You were contacted by telephone by a market research company?
6. You were contacted by researchers wanting to interview you at home?

Would it make a difference if the survey were funded by a drug company or a condom manufacturer? Or if you were told it would contribute towards planning health services? And would it make any difference if you were paid, say, £15?

All these methods have been tried. But if none of these would incite you to participate, then you would be a missing data point. And if your reluctance to participate was in any way related to your sex life, then you would be biasing the results.

But there are good surveys, such as the British National Survey of Sexual Attitudes and Lifestyles (Natsal), properly conducted using random sampling and making repeated attempts to get information from individuals, using methods shown to maximise truthful reporting. And most of their results I would label as 3* numbers: reasonably reliable, with errors that are unlikely to make a substantial difference.[†]

For example, some Natsal statistics about Britain which we'll look at later include:

- The age at which the average woman first had sex dropped from 19 for those born around 1940 to 16 for those born around 1980.
- The average opposite-sex couple aged 16 to 44 had sex three times in the last four weeks.
- Around 70% of 25- to 34-year-olds had oral sex last year.

[†]I will rate a number as 3* if I judge that it is accurate to within a relative 25% up or down, so that a claimed proportion of 12% could actually be anywhere between 9% and 15%.

- One in five 16- to 24-year-old women has had a sexual experience with another woman.

2: numbers that could be out by quite a long way*

The next level of numbers tend to come from surveys that have not used random sampling, but where effort has been put into finding volunteers who cover a wide range of experience. Alfred Kinsey, perhaps the most famous sex researcher, obsessively collected 15,000 detailed sex histories in 1940s' America. Some of Kinsey's headline statistics that brought him notoriety, and which we'll meet in Chapter 4, included:

- 37% of men had had a homosexual experience resulting in orgasm.
- 50% of husbands had had extramarital sex.
- 50% of women were not virgins when they got married.
- 70% of men had had sex with prostitutes.
- 17% of men brought up on farms had had sexual contact to orgasm with an animal.

I would rate many of his results as 2*, which means they might be used as very rough ballpark figures, but the details are unreliable.[†]

1: numbers that are unreliable*

Even further down the scale come numbers that may be so biased as to be essentially useless as generalisable statistics, even if they do portray valid, and vivid, experiences. The

[†] Technical note: please feel happy to ignore all this. I shall take this as meaning that the true answer may be up to double, or as low as half, what is claimed. Proportions p should be changed to odds $p/(1-p)$, and the doubling and halving applied on the odds scale. For example a 2* proportion of 50% would be transformed to odds of $0.50/0.50 = 1$, doubled and halved to odds of 0.5 and 2, then transformed back to proportions of 0.33 and 0.66. So the true answer might be between 33% and 66%.

classic examples are the surveys carried out by Shere Hite, which were crucially important in the women's movement of the 1970s and 1980s. For her 1976 *Hite Report on Female Sexuality* she distributed 100,000 copies of her questionnaire to women's groups, chapters of the National Organization for Women, abortion rights groups, university women's centres and so on, followed up with advertisements for respondents in women's magazines.² She obtained 3,019 responses. This is a low response rate of 3% from a highly selected group, though to her credit Hite did not make much of the statistics, instead arguing from copious quotes that many women were dissatisfied with a mechanical male approach to sex, and that orgasm could be more easily achieved by masturbation than penetration. This report had a powerful influence on views of female sexuality in the 1970s.

Hite returned in 1978 with *The Hite Report on Male Sexuality* (7,239 responses out of 119,000 questionnaires),³ and in 1987 with *Women and Love*, based on 100,000 questionnaires and 4,500 responses.⁴ This time she heavily promoted her statistics, which included:

- 84% of women were emotionally unsatisfied with their relationships.
- 95% reported forms of 'emotional and psychological harassment' from their men.
- 70% of women married for more than five years were having affairs.

She received harsh criticism. *TIME* magazine put her on the cover but said the report was a 'male-bashing diatribe', while the Chairman of the Harvard Department of Statistics, Don Rubin, said 'So few people responded, it's not representative of any group, except the odd group that chose to respond.'⁵ Unfortunately Hite continued to defend her

† Her statistics not only seemed rather implausible and out of line with other surveys, but were also just too neat to be true. Take, for

statistics as ‘representative’ when this was clearly not the case, and this provided a weapon for those who did not like her essential, and arguably very reasonable, conclusion: many women did not find their men communicative and loving, and thought they were too focused on the mechanics of sex. In any case, the statistical criticisms had limited impact: the lengthy personal stories (*Women and Love* runs to over 900 small-print pages) chimed with women’s experiences and the books were best-sellers.

Although Hite’s messages seem plausible, I would label her statistics as 1*: inaccurate.[†] Other 1* statistics that we will come across include the claim that single people in Los Angeles have sex 130 times a year, and that prostitution contributed £5.7 billion to the UK economy in 2012.

o:* numbers that have just been made up

We now get to the rock-bottom; numbers that get trotted out as part of an argument or to entertain, but have no supporting evidence. The sort of thing you might hear in the pub, on a radio phone-in or in Parliament. Some examples we shall deal with later include:

- Men think of sex every seven seconds.
- The average amount of time spent kissing in a lifetime is 20,160 minutes.

example, her conclusion that ‘70% of women married five years or more are having sex outside their marriages’ – when broken down by ethnicity, the proportions quoted were White (70%), Black (71%), Hispanic (70%), Middle Eastern (69%), Asian American (70%), Other (70%). Such close agreement in proportions, particularly when some of the subgroups are very small, is essentially impossible.

[†] Technical note: I interpret 1* as meaning the true answer could well be more than double or half what is claimed, so a reported average of 4 sexual partners could in fact be greater than 8 or fewer than 2. An odds scale is used for proportions, so for a claimed proportion of 50%, the true answer could be greater than 66% or less than 33%.