Are Women Really More Talkative Than Men?

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Sex differences in conversational behavior have long been a topic of public and scientific interest (*1*, *2*). The stereotype of female talkativeness is deeply engrained in Western folklore and often considered a scientific fact. In the first printing of her book, neuropsychiatrist Brizendine reported, "A woman uses about 20,000 words per day while a man uses about 7,000" (*3*). These numbers have since circulated throughout television, radio, and print media (e.g., CBS, CNN, National Public Radio, *Newsweek*, the *New York Times*, and the *Washington Post*). Indeed, the 20,000-versus-7000 word estimates appear to have achieved the status of a cultural myth in that comparable differences have been cited in the media for the past 15 years (*4*).

In reality, no study has systematically recorded the natural conversations of large groups of people for extended periods of time. Consequently, there have not been the necessary data for reliably estimating differences in daily word usage among women and men (*5*). Extrapolating from a reanalysis of tape-recorded daily conversations from 153 participants from the British National Corpus (*6*), Liberman recently estimated that women speak 8805 words and men 6073 words per day. However, he acknowledged that these estimates may be problematic because no information was available regarding when participants decided to turn off their manual tape recorders (*4*).

Over the past 8 years, we have developed a method for recording natural language using the electronically activated recorder (EAR) (*7*). The EAR is a digital voice recorder that unobtrusively tracks people's real-world moment-to-moment interactions. It operates by periodically recording snippets of ambient sounds, including conversations, while participants go about their daily lives. Because of the covert digital recording, it is impossible for participants to control or even to sense when the EAR is on or off. For the purpose of this study, the EAR can be used to track naturally spoken words and to estimate how many words women and men use over the course of a day.

In the default paradigm, participants wear the EAR for several days during their waking hours. The device is programmed to record for 30 s every 12.5 min. All captured words spoken by the participant are transcribed. The number of spoken words per day can then be estimated by extrapolating from a simple word count, the number of sampled sound files, and the recording time per sound file.

We addressed the question about sex differences in daily word use with data from six samples based on 396 participants (210 women and 186 men) that were conducted between 1998 and 2004. Five of the samples were composed of university students in the United States, and the sixth, university students in Mexico. Table 1 provides background information on the samples along with estimates for the number of words that female and male participants spoke per day (*8*).

The data suggest that women spoke on average 16,215 (SD = 7301) words and men 15,669 (SD = 8633) words over an assumed period of, on average, 17 waking hours. Expressed in a common effect-size metric (Cohen's d = 0.07), this sex difference in daily word use (546 words) is equal to only 7% of the standardized variability among women and men. Further, the difference does not meet conventional thresholds for statistical significance (P = 0.248, one-sided test). Thus, the data fail to reveal a reliable sex difference in daily word use. Women and men both use on average about 16,000 words per day, with very large individual differences around this mean.

A potential limitation of our analysis is that all participants were university students. The resulting homogeneity in the samples with regard to sociodemographic characteristics may have affected our estimates of daily word usage. However, none of the samples provided support for the idea that women have substantially larger lexical budgets than men. Further, to the extent that sex differences in daily word use are assumed to be biologically based, evolved adaptations (*3*), they should be detectable among university students as much as in more diverse samples. We therefore conclude, on the basis of available empirical evidence, that the widespread and highly publicized stereotype about female talkativeness is unfounded.

Table 1. Estimated number of words spoken per day for female and male study participants across six samples. N = 396. Year refers to the year when the data collection started; duration refers to the approximate number of days participants wore the EAR; the weighted average weighs the respective sample group mean by the sample size of the group.

Sample	Year	Location	Duration	Age range (years)	Sample size (N)		Estimated average number (SD) of words spoken per day	
					Women	Men	Women	Men
1	2004	USA	7 days	18–29	56	56	18,443 (7460)	16,576 (7871)
2	2003	USA	4 days	17–23	42	37	14,297 (6441)	14,060 (9065)
3	2003	Mexico	4 days	17–25	31	20	14,704 (6215)	15,022 (7864)
4	2001	USA	2 days	17–22	47	49	16,177 (7520)	16,569 (9108)
5	2001	USA	10 days	18–26	7	4	15,761 (8985)	24,051 (10,211)
6	1998	USA	4 days	17–23	27	20	16,496 (7914)	12,867 (8343)
					Weighted average		16,215 (7301)	15,669 (8633)

References and Notes

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8. Details on methods and analysis are available on *Science* Online.

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Supporting Online Material

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References

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