

You may work with one other person on this assignment, submitting one report with both names, provided that both of you contribute substantially to the work.

***Emotional Support?***

In the mid-1980s sociologist Shere Hite undertook a study of women's attitudes toward relationships, love, and sex by distributing 100,000 questionnaires through women's groups. Of the 4500 women who returned the questionnaires, 96% said that they give more emotional support than they receive from their husbands or boyfriends. Around the same time, an ABC News/*Washington Post* poll surveyed a national random sample of 767 women, finding that 44% claimed to give more emotional support than they receive.

Consider the population of interest for both surveys to be all American women.

- a) Identify (in words) the parameter of interest for both polls.
- b) With each poll, determine a 90%, 95%, and 99% confidence interval for the parameter. Calculate one of these confidence intervals by hand, and feel free to use technology (applet, R, Minitab) for the others.
- c) Which poll has the smaller margin-of-error? Explain why this poll has the smaller margin-of-error.
- d) Which poll's results do you think are more representative of the truth about the population of all American women? Explain.
- e) Which polling method do you think is more likely to be biased in a particular direction? Explain your answer, and also indicate whether you think that poll's statistic is an overestimate or underestimate of the population parameter?
- f) Determine the sample size that would be needed to estimate the population parameter to within  $\pm 0.025$  with 95% confidence. Use both .5 and the statistic from the ABC News/*Washington Post* poll to perform this calculation, and comment on how your answers differ.
- g) Based only on your confidence intervals from the ABC News/*Washington Post* poll, does .5 appear to be a plausible value for the proportion of all American women who would answer "yes" to this question? Explain.
- h) Conduct a (normal-based) significance test of whether .5 is a plausible value for the proportion of all American women who would answer "yes" to this question, based on the data from the ABC News/*Washington Post* poll. Report the hypotheses, test statistic, and p-value. State your test decision at the  $\alpha = .10, .05, \text{ and } .01$  significance levels, and summarize your conclusion.