Example 2:

A random sample of 200 men and a random sample of 200 women were drawn and asked to name the candidate for whom they planned to vote. These data were obtained:

	Candidate Jones	*Candidate Barnes*
Men	$n = 80$	$n = 120$
Women	$n = 120$	$n = 80$

Inspection of the data in Example 2 suggests that Candidate Jones is a stronger candidate among women, while Candidate Barnes is a stronger candidate among men. If this pattern is true among all men and all women in the population, both candidates should take heed. For instance, Candidate Jones might consider ways to shore up her support among men without alienating the women, while Candidate Barnes might do the opposite.

However, only a random sample was surveyed in Example 2. Thus, before acting on the results of the survey, the candidates should consider how likely it is that the observed differences in preferences between the two groups (men and women) were created by random sampling errors (i.e., the assertion made by the null hypothesis). As it

turns out, for Example 2 the two-way chi-square test reveals that the probability that the null hypothesis is correct is less than 1 in 1,000 ($p < .001$). Thus, it is very unlikely that this pattern of differences is due to sampling errors. Thus, with a high degree of confidence, the candidates can rule out sampling error as an explanation for the pattern of differences between men and women.[3]

In Example 3 below, a sample from one population of participants was asked two questions, each of which provided nominal data.