

7.2: The Logic of a t -Distribution

Testing hypotheses using a t -distribution is similar to using a z -score distribution. In each of these distributions, samples are drawn from the populations they are meant to represent. When samples are drawn and used repeatedly to create summary statistics, those statistics together will tend to approximate the normal curve when either the distribution of population values are normal or if the sample sizes are sufficiently large. The larger the sample size, the closer the t -distribution will tend to be to a normal distribution. It is also important to note that t -statistics, like many other statistics, are intended for data which are drawn from the population through the process of random sampling. When data are not randomly sampled, the estimates yielded may be less reliable. Therefore, caution should be used when working with data which are not from random samples, despite the fact that these kinds of samples are quite common in the behavioral and social sciences.

Reading Review 7.1

1. What is the general hypothesis that can be tested using a two-tailed, one sample t -test? Provide both sentence and symbol formats.
 2. How many variables can be tested each time a one sample t -test is used?
 3. In what ways is a t -distribution similar to a z -distribution?
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