

Study Guide Chapter 3 and

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## **Chapter 8**

1. When to use a  $t$  test for a single sample and how it differs from  $Z$ -test in Chapters 5 & 6
2. How the variance of a sample (smaller variance) differs from the variance of a population (larger variance) and know how to compute an unbiased ( $SS/df$ , where  $df = N - 1$ ) estimate of the population variance and the standard deviation of the distribution of means  $S^2_M = S^2/N$
3. What a  $t$  distribution is and how it differs from a normal distribution
4. How to compute a  $t$  score (Step 4) and compare it to the cutoff scores on a  $t$  table (Step 3, based on  $df$  and  $p$  value)
5. When to use a  $t$  test for dependent means ( $\text{Sample Mean} - 0/S_M$ ) and how it differs from a  $t$  test for a single sample ( $\text{Sample Mean} - \text{Population Mean}/S_M$ )
6. understand the assumptions of the  $t$  test: Normality
7. Key Words for  $t$ -test for dependent means: Means are dependent, Paired-Samples from SPSS, Within-subjects Designs, Repeated Measures, Matched Designs
8. Within Subjects Designs: Powerful designs, measurements are correlated
9. Why do we use the  $t$  distribution? What is the main reason?
10. A social psychologist is interested in whether people harbor more regret over their regrettable actions or their regrettable inactions. He asks a sample of participants to indicate the intensity of their biggest regret of action and their biggest regret of inaction and computes a difference score (action minus inaction) for each participant. The mean difference score is 1.75 and the standard deviation of the distribution of means of difference scores is 0.70. Thus, the  $t$  score for a  $t$  test of dependent means is .

## **Chapter 9**

1. What is a  $t$  test for independent means is and how it differs from a  $t$  test for dependent means
2. Key words: Measurements are independent (not related), used for Between Subjects Designs
3. Appropriate comparison distribution for a  $t$  test for independent means (Distribution of Differences Between Means)
4. How to compute a pooled estimate of the population variance ( $S^2_{\text{pooled}}$ ), based on a weighted average of both samples, and why one does so? Based on  $dfs$  from groups with uneven  $N$
5. How to compute the variance and standard deviation of each distribution of means and the variance and standard deviation of the distribution of differences between means;
6. know the shape and characteristics of the distribution of differences between means;
7. know how to compute a  $t$  score for a  $t$  test for independent means
8. Understand the assumptions for the  $t$  test for independent means
9. Assumptions of the  $t$ -test for Independent Means: (1) Normality (2) Homoschedasticity =

### Homogeneity=Equality of Variances

10. You conduct a study in which 6 participants are assigned to the experimental group and 11 participants are assigned to the control group. The population variance estimate based on the experimental group is 9.0 and the population variance estimate based on the control group is 12.0. The pooled estimate of the population variance is?
  
11. Suppose a research wanted to compute a  $t$  test in which the first sample mean was 45.60, the second sample mean was 37.38, and the standard deviation of the distribution of differences between means was 3.0. In this case, the  $t$  score would be?