

Analysis of Covariance (ANCOVA)

PSY 511: Advanced Statistics for
Psychological and Behavioral Research I

Goals

- ◉ When and Why do we use ANCOVA?
- ◉ Partitioning Variance
- ◉ Carrying out in SPSS
- ◉ Interpretation
 - Main Effects
 - Covariates

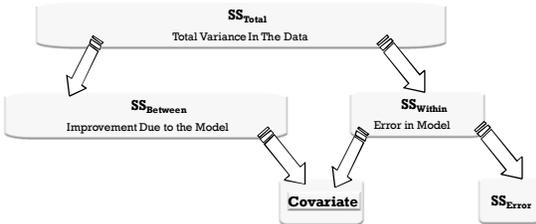
When And Why Do We Use ANCOVA?

- ◉ To test for differences between group means when we know that an extraneous variable may have an impact on the outcome variable
- ◉ Used to control known extraneous variables

Advantages of ANCOVA

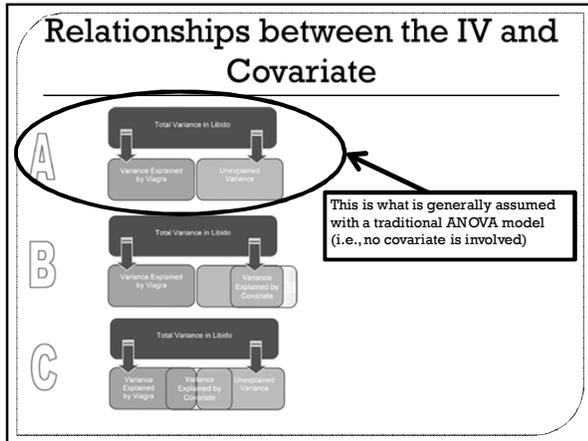
- Reduces Error Variance
 - The error variance in the model can be reduced by explaining some of the unexplained variance
- Greater Experimental Control
 - By controlling known extraneous variables, we gain greater insight into the influence of the predictor variable(s)

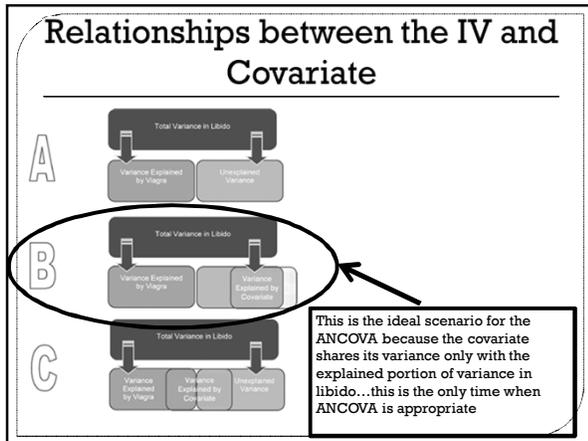
Partitioning of Variance

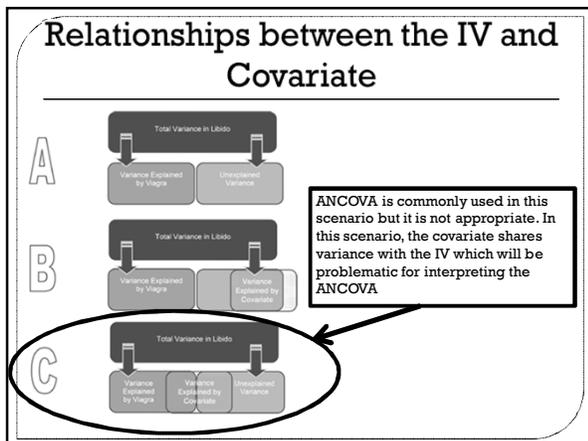


An Example

- Imagine that researchers wanted to test a new sexual stimulant drug called Viagra-2 (from one of your earlier homework assignments)
- Three groups of men were given various doses of the drug and asked to report their sexual desire
 - There are several possible confounding variables such as the sexual desire of their partners
- We can conduct the same study but measure the libido of their partners over the same time period following the dose of Viagra-2
 - DV = Participant's libido
 - IV = Dose of Viagra (Placebo, Low Dose, & High Dose)
 - Covariate = Partner's libido







Dose	Participant's Libido	Partner's Libido
Placebo	3	4
	2	1
	5	5
	2	1
	2	2
	7	7
	2	4
	4	5
Low Dose	7	5
	5	3
	3	1
	4	2
	4	2
	7	6
High Dose	5	4
	4	2
	9	1
	2	3
	6	5
	3	4
	4	3
	4	3
	4	2
	6	0
4	1	
6	3	
2	0	
6	1	
5	0	

Dose	Participant's Libido	Partner's Libido
Placebo	3.22 (1.79)	3.44 (2.07)
Low Dose	4.88 (1.46)	3.12 (1.73)
High Dose	4.85 (2.12)	2.00 (1.63)

