Continuous, Binary, and Count Outcomes

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 1

Learning Objectives

Define continuous outcomes.

Define binary outcomes.

Define Poisson outcomes.

2

Learning Objectives

Learn to identify continuous, binary, and Poisson outcomes.

Describe the current status of binary and Poisson power and sample size methods and software.

3

Continuous outcomes are variables with "a potentially infinite number of possible values along a continuum."

Example: When do children first walk?

Participant	Age in months
1	11.0
2	11.5
3	8.0
4	12.3

Last, 2000, p.37

4

Binary outcomes are variables having only two possible values

Binary outcomes are often coded as 'dummy variables.'

Example: Did a student graduate from high school?

Outcome	Code
Graduate	1
Do not graduate	0

Last, 2000, p. 17

5

Some outcomes are in the form of counts

Example: How many car accidents occurred in Denver in the last two years?

Year	# Car Accidents
2015	320
2014	362

Last, 2000, p.136

6

Power and sample size methods for binary and count data are limited

There are many approximations.

Each approximation works for a limited variety of models.

The accuracy of power approximations can be poor for experiments with small sample sizes.

7

Power and sample size software for binary and count data is limited

Many pieces of software apply only to limited classes of models

There is no general software tool.

GLIMMPSE does not apply for binary and Poisson outcomes.

8

REVIEW OF LEARNING OBJECTIVES

9

Identify the following outcomes as continuous, binary, or count

BMI → Continuous
Steps per day → Count
High blood pressure → Binary
Number of heart attacks → Count
Drinks per week → Count
Weight → Continuous
Obesity → Binary

10

True or false? Statistical methods for binary and count power and sample size are well-developed and are as accurate as those used for continuous data.

TRUE

FALSE

11

Statistical software for binary and count power and sample size applies to many cases and is very accurate.

TRUE

FALSE

12


Questions?
13