I've a Research Question: Now What?

STATISTICAL RESOURCES @ OFFICE OF RESEARCH CONSULTING (ORC)

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FEBRUARY 11, 2016

Objectives

Targeted Audiences: Master's and Beginning Doctoral Students

➢ Learn basics of how to determine appropriate statistical procedures for data analysis.

➢ Become aware of the services provided and resources available at ORC.

➢ Get your questions answered.

"Is It a Good Research Question?"

❑ Is it answerable?

❑ Are my variables measurable?

❑ Does my research question reflect the research paradigm I am interested in?

    * Quantitative

    * Qualitative

    * Mixed Methods

Determine Appropriate Statistical Procedures for Data Analysis

HOW DO I GET MY RESEARCH QUESTION(S) ANSWERED?

Know Your Variables

➢ Identify your independent variable (IV) and dependent variable (DV).

➢ What are the scale of measurement of my variables?
  ◦ Nominal, Ordinal, Ratio, Interval
  ◦ Continuous variables
  ◦ Dichotomous variables
  ◦ Discrete variables

Know the Number of Variables You Have

➢How many independent variable(s) and levels of the DV(s)?
- Single IV (two levels)
- Multiple IVs (two or more IVs with two or more levels)

➢How many dependent variable(s)?
- Single DV
- Multiple DVs

Know What You Want the Variables to Tell You

➢Descriptive statistics (what are the characteristics of my data?)

➢Inferential statistics (Can my sample results can be inferred or generalized to my population of interest?)

Know What You Want To Do with the Variables

Compare Group Means of the DV

➢ One nominal IV and One continuous DV
- Compare sample mean to population mean – Single sample t-test
- Compare two independent sample means – Independent sample t-test
- Compare dependent sample means – Dependent sample t-test

➢ Two or more nominal IVs and One continuous DV
- Compare multiple group means – Factorial ANOVA
- Compare dependent sample means – Repeated-measures ANOVA

Know What You Want To Do with the Variables

Examine Correlation between Two Variables

◦ Correlational analysis – Pearson's r (continuous variables/data)

-- Spearman's rho (ranked variables/data)

Predict Effects of IV(s) on the DV(s)

◦ Simple regression (one DV and one IV/predictor)

◦ Multiple regression (one DV and two or more IVs/predictors)

Examples

1. Is the mean age of female patients significantly different from males?

2. Is the mean age of those who got HIV-AIDS through male-to-male sex significantly different from those who got it through IV-drug use?

3. Is the mean age of HIV-AIDS patients is changing with time? vs.
Is the mean age patient who were diagnosed between 1980-1989 different from those diagnosed between 1990-99?

4. Is the mean age of patients varies between ethnic groups? vs.
Is the mean age of White patients different from Blacks and Hispanics?

Examples

5.Do students vary in mean happiness scores based on grade levels (4) and/or ethnicities (3)?

6. Is there a difference in students' science achievement based on gender and instructional style?

7. After attending counseling, do subjects' levels of anxiety decreases or increase?

8. Do college students' grades increase or decrease over their college career?

9. Is there a relationship between parenting style and their children's academic achievement?

Examples

10. Is physical fitness predictive of motor skills in young children?

11. Are inhibition, working memory, fundamental motor skills predictive of reading achievement of children of low SES backgrounds?

What Does ORC Do?

SERVICES & RESOURCES @ OFFICE OF RESEARCH CONSULTING (ORC)

ORC Mission

Support the research needs of faculty and graduate students with grants, research, dissertations, classwork, and statistical understanding.

What Office of Research Consulting Does

➤ Collaborating on grant applications

➤ Assisting with data analysis for funded grant projects (contact us for our schedule of fees)

➤ Improving statistical understanding of students and faculty,

➤ Providing seminars and support on latest developments in data analysis and research methods, and

➤ Archiving publicly available national and international data.

Student FAQ

https://www.coe.unt.edu/office-research-consulting/faq#studentfaq

Upcoming Events

Brown Bag Series

January 27th – I've finished my PhD: now what?

February 24th – An Introduction to Using SPSS & Excel in Statistics

March 30th – An Introduction to NVivo

April 27th – Publishing and Becoming a Productive Scholar

All sessions are held on Wednesday, 11:30 AM – 12:20 PM, at MH209 or 308

Upcoming Events

2016 TARDIS (The Advances Research Designs Symposium)

Topic: Introduction to Bayesian

Date: September 9th, 2016

Time: 9:00am-4:00pm

Must register

(http://www.coe.unt.edu/orc)

How To Contact Office of Research Consulting?

http://www.coe.unt.edu/office-research-consulting

Matthews Hall 313

940-565-4414

Coe-orc@unt.edu

Conferences to Attend

http://sera-edresearch.org/

Student-centered

Methods-focused presentations

Low cost

Held in/close to Texas

Online Resources

Learn SPSS: http://www.ats.ucla.edu/stat/spss/default.htm

Learn R: Online community

Standards for reporting social research:
http://www.aera.net/Portals/38/docs/12ERv35n6_Standard4Report%20.pdf

Effect size reporting:
http://people.cehd.tamu.edu/~bthompson/eff_bib.htm

Video Series

Good intro tutorials

➤ Geoff Cumming's video series: https://www.youtube.com/watch?v=WF010lCQ4YA

WISE applet: http://wise.cgu.edu/

Hyperstat: http://davidmlane.com/hyperstat/

Online Courses

https://www.coursera.org/

https://www.edx.org/

http://ocw.mit.edu/index.htm

http://online.stanford.edu/courses

Other UNT resources

http://www.unt.edu/rss/