

# Overview of Nursing Research

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**For ANCC and AANP Non-clinical Study**

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# No Guarantees In Life

- Reviewing this information does not guarantee you'll pass either the ANCC or AANP certification tests.
- The author guarantees that this information is as complete and accurate as possible, based on the resources listed at the end of this presentation.
- Indemnification: By reviewing this information, you agree to hold the author harmless for any and all possible errors or outdated information that may have inadvertently found its way into this presentation.

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# Who am I?

- My name is Julie Nyhus but everyone calls me Joolz. I'm a nurse practitioner and freelance health and medical writer.
- A few places I've published include EBSCO (they own CINAHL), Nursing2020, Nursing Made Incredibly Easy, and The American Journal of Nursing. Online I've published on Medical Daily, [WeHaveKids.com](http://WeHaveKids.com), [RegisteredNursing.org](http://RegisteredNursing.org), [NursePractitionerOnline.com](http://NursePractitionerOnline.com), and [NurseGrid.com](http://NurseGrid.com).
- I am the owner of [NPRush.com](http://NPRush.com), a website that supports new nurses and nurse practitioners. Be sure to stop by and get your FREE PDF downloads.
- I am the author of [The Beginner's Guide to Nursing, What They Didn't Tell You In Nursing School](#). Get your FREE PDF copy [here](#).
- I love my patients and clinic days working as an occupational health NP at Community Health Services in Northwestern Indiana.
- Finally, I am a wife, momma, and amazing badass rocking 10 years without evidence of cancer!

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# Download Handouts

- Power point handouts
- PDF of nursing research definitions

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# What is nursing research?

“A systematic inquiry designed to develop trustworthy evidence about issues of importance to nurses and their clients.”

(Polit & Beck, 2014)

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# Data Sources in Research

## Primary Sources

- Also known as **original research**, written by the researcher who conducted the study
- Where **first-hand** data comes from
- Preferred data source
- Use for literature reviews

## Secondary Sources

- Second-hand data, not original work
- Descriptions of original research written by someone other than the researchers
- Offers quick overview of the literature and bibliography
- Not a substitute for primary resources

## Non-research References

- Case study: involves an in-depth analysis of one individual, group, or social unit
- Opinion articles: reflects the author's view of a subject, often written by experts
- Clinical anecdotes: a shared experience, mostly drawn from clinical practice, in which lessons are shared

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# Common Definitions

**Institutional Review Board:** The IRB is unique to the U.S. It's a group within an institution who reviews proposed and ongoing studies in light of ethical considerations. They have the authority to approve, reject, or require modifications from research proposals.

**Vulnerable Populations:** MIPPSE: mental retardation, infants/children, pregnant women, prisoners, suicidal, economically disadvantaged

**Minor:** Age less than 18 years

**Emancipated minor:** When someone who is under 18-years-old is free from the control of a parent/guardian. They must have a legal court document stating they are emancipated, be involved in active military duty, or be legally married/divorced

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# Informed Consent in Research

Key points of informed consent:

- A person can pull out at anytime without penalty or consequence
- Minors and vulnerable populations have additional informed consent needs
- Consent for minors/vulnerable populations should:
  - Inform what is expected of them
  - Inform of risks and discomforts now and in the future
  - Inform benefits now and in the future
  - Inform on alternatives to the study
  - Inform of rewards/compensation
  - Inform on how the resulting data will be used and on the confidentiality/security of their identity
  - Include the contact information for the research team (phone number or email)
- Consent comes before assent! Assent keeps parents/guardians from forcing a child to be part of a research study.



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# Median and Mode

- **MEDIAN** - think middle! The value that divides the data set in the middle, separating the higher half from the lower half of the data set, is the median.

To find the median, arrange the data set from greatest to least.

The middle value is the median.

If there is an even number in the order set, find the median by taking an average (mean) of the two middlemost values.

- **MODE** - the value that appears most often in a data set

To find the mode, look for the value that appears most often in the set

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# Hypothesis

- **HYPOTHESIS:** a proposed explanation for something.

The opposite of a null hypothesis.

- **NULL HYPOTHESIS:** Null means NO . . . there is no significant difference (no relationship and no association) between the variables or the populations in the study.

A rejected null hypothesis = the results of the study are NOT due to chance.

The null hypothesis is the statement the researcher is testing.

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# Significance

- **SIGNIFICANCE LEVEL:** Statistical significance measures whether a result is likely due to chance or to some other factor.

When a finding is significant, it simply means you can feel confident that it's real, not that you just got luck (or unlucky) in choosing the sample.

The significance level is an expression of how rare your results are, under the assumption that the null hypothesis is true.

It is usually expressed as a "p-value."

The lower the p-value, the less likely the results are due purely to chance.

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# p-value

- **p-value:** used in statistical testing. Indicates the probability that the results are due to chance.

A small p-value (typically  $\leq 0.05$ ) indicates strong evidence against the null hypothesis, so you reject the null hypothesis. In other words, the results are NOT due to chance. You REJECT the null hypothesis.

A large p-value ( $> 0.05$ ) indicates weak evidence against the null hypothesis, so you fail to reject the null hypothesis. In other words, you KEEP the null hypothesis.

Example: A significance level of  $p < 0.05$  means there is less than a 5% chance that the results are caused by a fluke. It also means there's a 95% chance that the results are NOT due to a fluke. Therefore, if there's strong evidence (or 95%) that the results are NOT due to chance, then you can confidently reject the null hypothesis—which means you are saying the results of the study are NOT due to chance.

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# Statistical Terms

**Control Group:** Defined as the **group** in an experiment or study that does not receive treatment by the researchers and is used as a benchmark to measure how the other tested subjects do.

**N:** The **symbol 'N'** (capital N) represents the total number of individuals or cases in the population or sample.

**n:** The **symbol 'n'** (lower case n) represents the number of subjects in the group or sample.

**Variable:** May also be called a **data item**. Examples of variables are age, sex, business income and expenses, country of birth, capital expenditure, class grades, eye color, or vehicle type. Anything that can be numbered, counted, or measured.

**Independent Variable:** Sometimes known as the predictor variable or experimental variable—it is the variable that is being manipulated in an experiment in order to observe the effect it has on the dependent variable.

**Dependent Variable:** Also called the response variable because it is the result or response of the independent variable.

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# Qualitative Studies

**QUALITATIVE:** Seeks to find causal or correlational relationships.

Examples:

- Causal: cumulative tobacco use and lung cancer
- Correlational: tobacco smoke exposure and childhood asthma morbidity

Qualitative research:

- Asks broad questions and identified phenomena and concepts
- Gathers information in 'words' vs numerical data
- Is inductive (a process of reasoning where generalizations are made based on specific information/studies)

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# Quantitative Studies

**QUANTITATIVE:** Is exploratory in nature.

Quantitative research:

- Uses observation and interviewing to gather data in a systematic way
- Is measurable and numerical. Statistics are used to evaluate and discuss the data
- Is deductive (a process of reasoning where general or broad information is used to solve a specific problem)

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# Inductive vs Deductive Reasoning

- **INDUCTIVE REASONING:** A type of logical thinking that involves forming generalizations based on specific incidents you've experienced, observations you've made, or facts you know to be true or false.
- **DEDUCTIVE REASONING:** A type of logical thinking that relies on a general statement or hypothesis—sometimes called a premise or standard—held to be true. The premise is used to reach a specific, logical conclusion.

A common example is the if/then statement. If  $A = B$  and  $B = C$ , then **deductive reasoning** tells that  $A = C$ .



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# Research Types

- **PROSPECTIVE:** Has a specific time frame from RIGHT NOW (in the present) to the future. It is used to explore data going forward (vs. looking back in time). Prospective designs can collect and evaluate data either qualitatively or quantitatively.
- **RETROSPECTIVE** (Ex post facto): Has a specific time frame of THE PAST (not the present). These studies look back in time at events that have already happened. They analyze existing data either qualitatively or quantitatively. Examples are *chart reviews* or *event recall*.
- **LONGITUDINAL STUDIES:** Has a time from that is LONG-TERM. These studies follow the same subjects through years or decades to observe and measure the same variables over time. A popular example of a longitudinal study is the Framingham Heart Study.

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# Research Designs

**EXPERIMENTAL DESIGN:** This is the “Gold Standard” in research design.

Random sampling is used for selecting research subjects who are then divided into a treatment group and a control group. Data collected are numerical and statistical testing is used to evaluate and report data.

**QUASI-EXPERIMENTAL DESIGN:** Similar to experimental design except there is no random sampling.

Research subjects are chosen by conveniences and are called a convenience sample.

**CASE STUDY:** An in-depth study of one person or case.

**COHORT STUDY:** A study of a group of subjects who share one or more characteristics.

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# Specific Studies

## **DESCRIPTIVE STUDIES**

- Also known as surveys
- Measures and describes attributes of a group or phenomenon
- No correlations described between variables
- Uses numbers and statistics to analyze/evaluate data

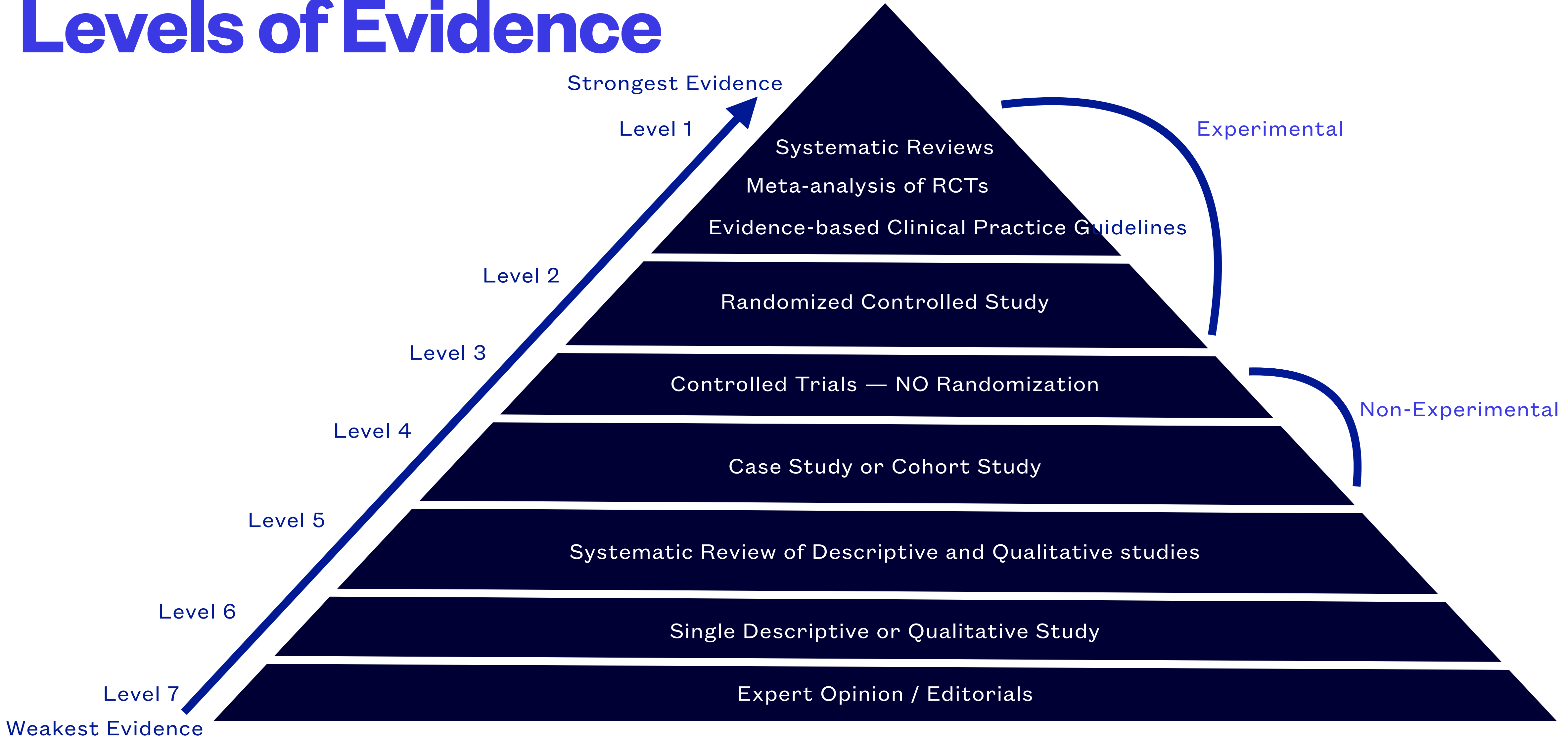
## **CORRELATIONAL STUDIES**

- Measures and describes relationships between variables
- Uses numbers and statistics to measure and evaluate data

## **CROSS-SECTIONAL STUDIES**

- Evaluates relationships between groups

# Levels of Evidence



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# How to Evaluate Levels of Evidence

**FIRST:** Find the STRONGEST answer within the 3 examples given to you.

Look for key words: meta analysis, systematic review, evidence-based, RCT (randomized controlled trial), experimental groups. Or specific databases: Medline, CINAHL.

**SECOND:** Find the WEAKEST evidence within the examples.

Look for key words: expert opinion, editorial

**THIRD:** Whatever is left over, goes into the middle.

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# Thank You

- Thanks for taking the time to view this video. If you have questions or comments, please contact me at [julie@nprush.com](mailto:julie@nprush.com)
- Follow me on Medium @nyhusjulie
- Follow me on Twitter @joolzfnp
- Join me on Instagram — joolzfnp
- Connect on Facebook [The Beginner's Guide to Nursing](#)
- Connect on LinkedIn [Julie Nyhus MSN, FNP-BC](#)

*Remember, you're not alone in the greatest profession on earth.*

*Please reach out, I'd love to know what other areas of nursing you need help with!*

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