

The *Science* of Psychology

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PSY 3500

$dS \geq 0$

**BECAUSE
SCIENCE!**

$a^2 + b^2 = c^2$

9 Science-Backed Steps To Have The Best Sleep Of Your Life -- Tonight



Believe it or not, there are plenty of things you can do today that'll increase your odds of sleeping better tonight and waking up refreshed tomorrow. Here are nine simple, science-backed strategies to try.

PUBLIC HEALTH

For Many College Students, Hunger 'Makes It Hard To Focus'

July 31, 2018 · 9:00 AM ET

MICHELLE ANDREWS

FROM **KHN**



No Amount Of Alcohol Is Good For Your Health, Global Study Says

August 24, 2018 · 3:42 PM ET

SAMANTHA RAPHELSON



A new global study published in *The Lancet* says that no amount of alcohol is good for your overall health.

Peter Forest/Getty Images for Starz

Countless scientific studies have espoused the idea that a glass of red wine a day can be good for the heart, but a new, sweeping global study [published in *The Lancet*](#) on Friday rejects the notion that any drinking can be healthy.

No amount of alcohol is safe, according to The Global Burden of Diseases study, which analyzed levels of alcohol use and its health effects in 195 countries from 1990 to 2016.

While the study's authors say that moderate drinking may safeguard people against heart disease, they found that the potential to develop cancer and other diseases offsets these potential benefits, as do other risks of harm. The report urges governments to revise health guidelines to suggest lower levels of consumption.

Is Alcohol Good for Your Health?

A new study suggests that women who consume one drink a day may be healthier than those who don't

Cynthia Sass

Topics: [alcohol](#)



A new study finds that women who consume one alcoholic drink a day at mid-life may be healthier when older when compared to those who don't drink at all. The researchers looked at alcohol intake during middle age in more than 120,000 women. After controlling for other factors like smoking, weight and family history of heart disease, they found that regular, moderate drinking during middle age is tied to "successful aging," which they define as having no major diseases, like heart disease or diabetes, and no major brain or physical impairments at age 70 and beyond. In this study, women who drank one-third to one drink a day had about a 20 percent greater chance of successful aging compared to non-drinkers. In fact, those who drank five to seven days a week had an almost 50 percent greater chance of successful aging in comparison to teetotalers.

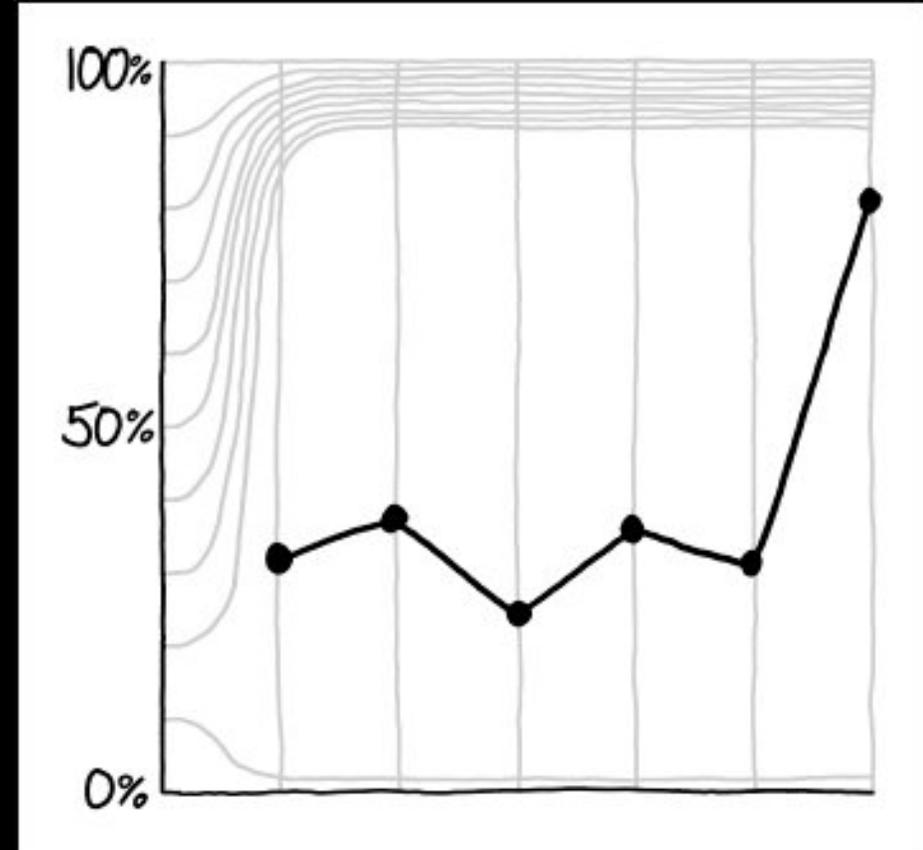
So does this mean you should start enjoying a [cocktail](#) with dinner each night? Not necessarily, since even moderate alcohol consumption is tied to an increased risk of breast cancer. One study found that

Science is a *Method*

It is NOT a nebulous force that you must trust.

As a general rule, you should NOT trust it.

BE SKEPTICAL!



PEOPLE HAVE WISED UP TO THE "CAREFULLY CHOSEN Y-AXIS RANGE" TRICK, SO WE MISLEADING GRAPH MAKERS HAVE HAD TO GET CREATIVE.

Science is a *Method*

Helps us avoid problems that come with our natural heuristics

- e.g. confirmation bias, hindsight bias



Science is a *Method*

A series of steps to help us do the best we can to find out things we don't yet know.

It is *not* always useful.



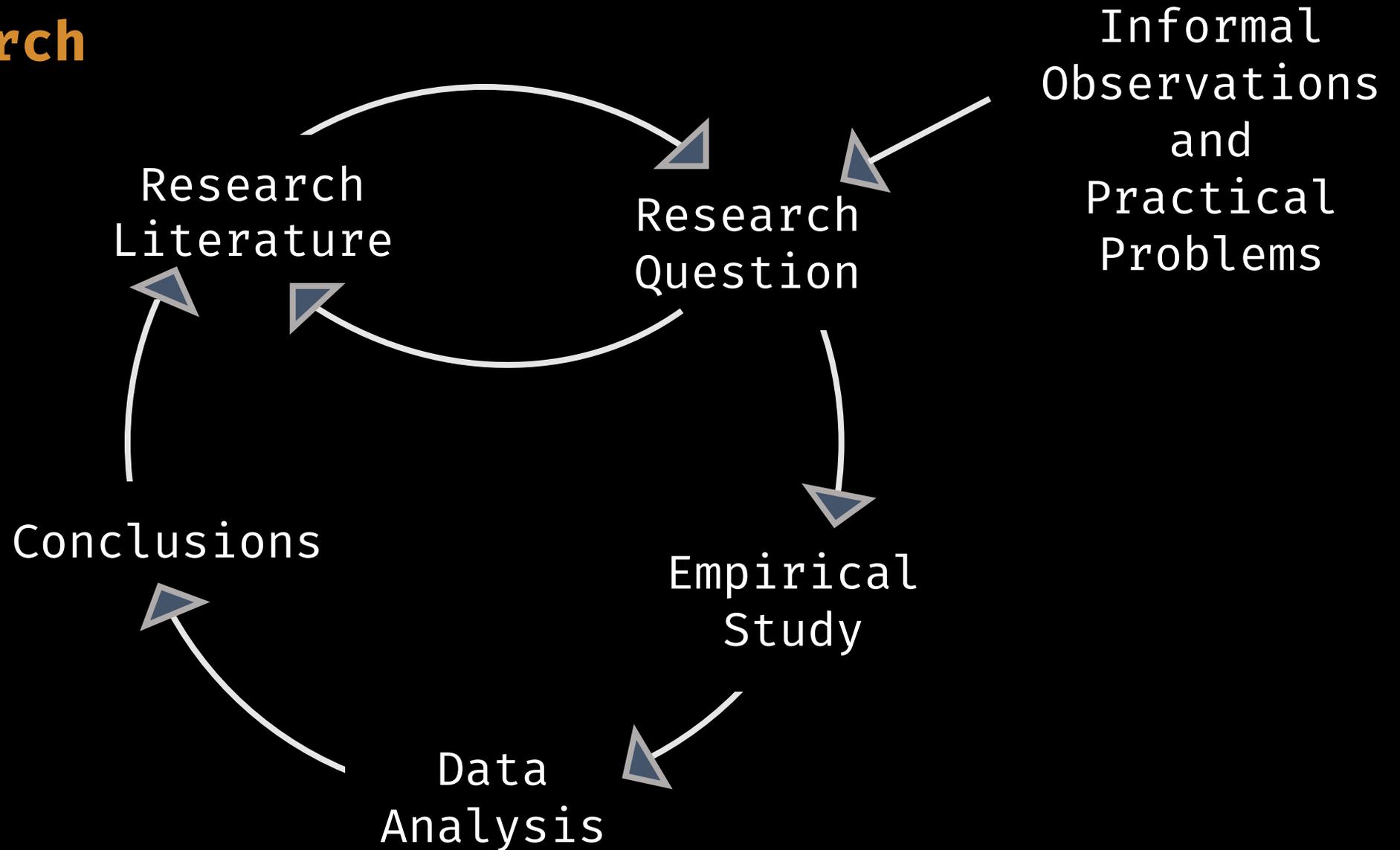
Goals of Science

- To describe behavior
- To predict behavior
- To determine the cause of behavior
- To understand or explain behavior

Beyond Intuition and Authority: The Scientific Method

- **Observation** - the systematic noting and recording of events.
- **Measurement** - quantifying an event or behavior.
- **Experimentation** - demonstration that observed events will occur again under a particular set of conditions.
- *Thinking should be objective, organized, and rational.*

The Research Cycle



Basic & Applied Research

- **Basic research** answers fundamental questions about the nature of behavior.
- **Applied research** addresses issues in which there are practical problems and potential solutions.
- **Program Evaluation** is a type of applied research that evaluates the effectiveness of social reforms and programs.

Choosing a Research Topic

- What are you interested in?
- To get an idea:
 - Look in the literature in the field and beyond
 - Everyday observation
 - Talk with people

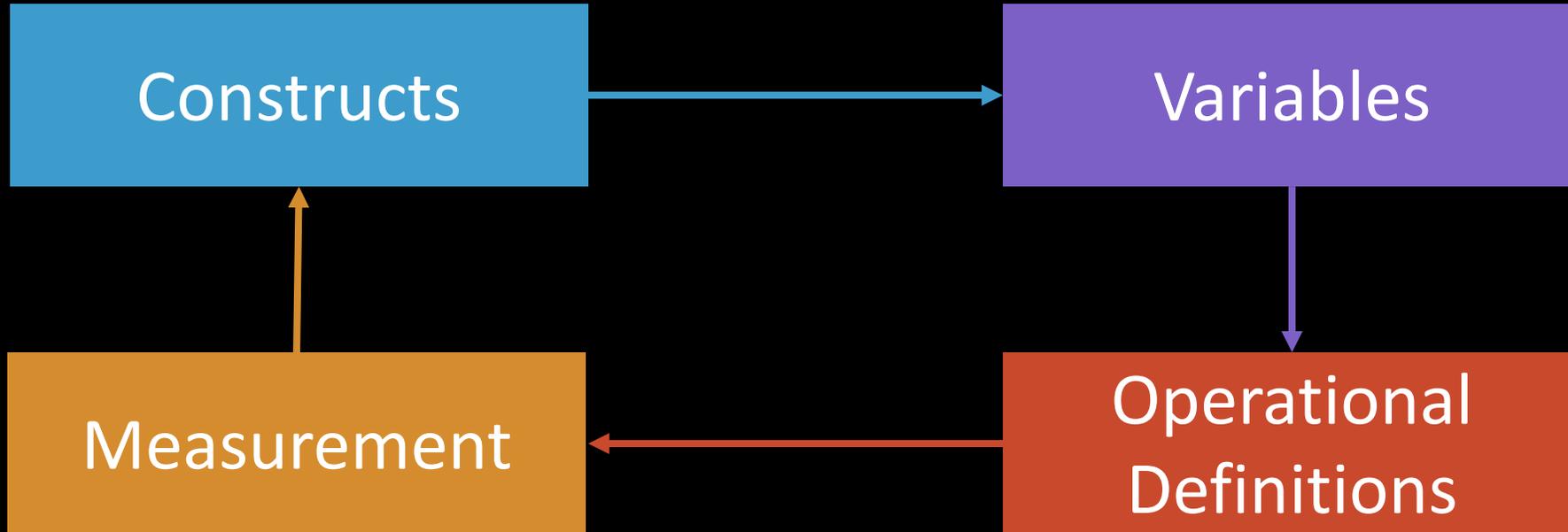
You know you have a good idea when:

- The idea is **interesting** to you.
- The idea has **not been studied** in the past or was studied poorly.
- Answering the question will **be useful (actionable)** for the development of a theory or practical application.
- The idea is **doable**.

What do you expect to find: Hypotheses

- **Hypothesis:** A statement about a specific idea to be tested.
 - Most often, a hypothesis makes a statement about the relationship between two variables or about what will happen under a particular condition.
 - Hypotheses should include **predictions** about specifically what the researcher expects to find.

How do you test a hypothesis?



Constructs

- **Construct:** a representation of a phenomenon (e.g., self-esteem, achievement).
- Constructs are the abstract concepts that behavioral scientists discuss in their theories and research questions.

Variables

- **Variable:** a concrete representation of a construct.
 - A single construct may have many variables.
 - A study usually has two variables and will often include a larger subset of different values, levels or subcategories.

Independent and Dependent Variables

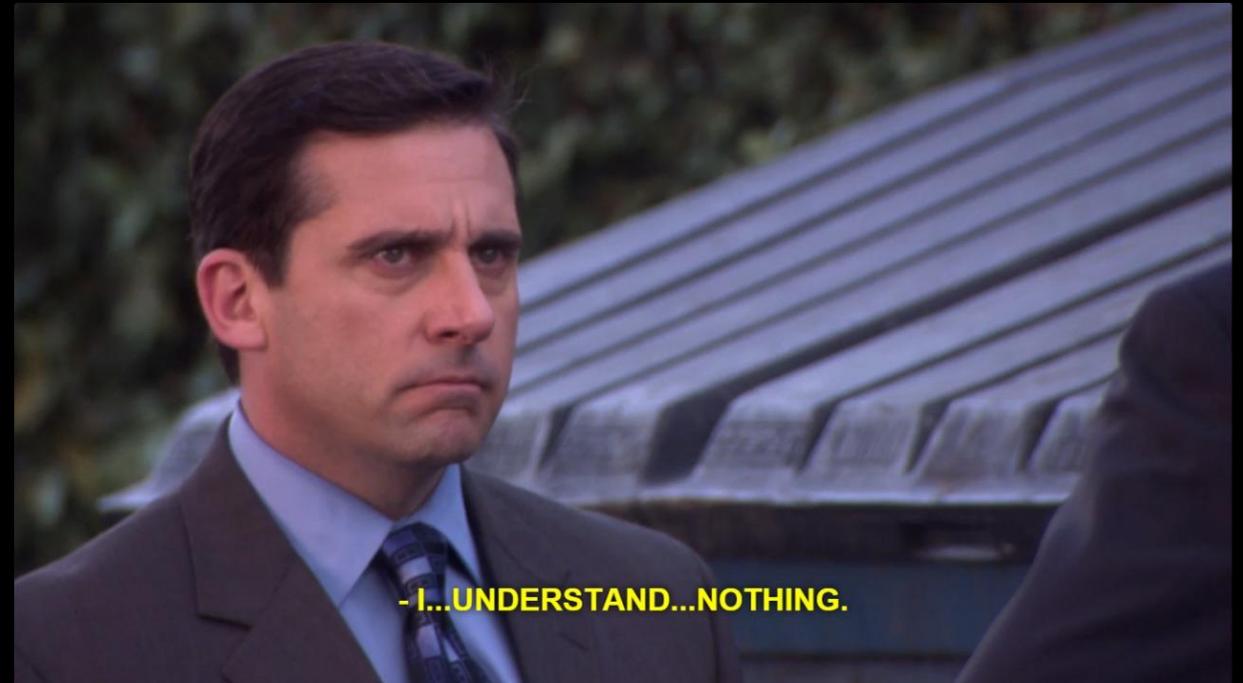
- **Independent Variable (IV):** The variable that the researcher manipulates or determines ahead of time. The independent variable is thought of as the “cause” variable.
- **Dependent Variable (DV):** The variable that is measured and thought to be affected by the independent variable. The DV often is what we are trying to change.
- *The DV depends on the IV.*

Operationalization

- **Operationalization:** refers to identifying in concrete terms how the variable will be measured, manipulated, or studied.
 - Creating an operational definition means applying concrete terms to an abstract concept.
 - No single operationalization can provide the one and only true measure of a theoretical construct.

Proof...?

- Science rarely can provide **proof**
- Usually provides **evidence**
- Be alright with **uncertainty**



Publication

- Disseminating methods and results is an essential part of science
 - Build upon previous findings
 - Publication is how this is done

Open Access:

<https://www.youtube.com/watch?v=L5rVH1KGBCY>

Exercise

- Identify a construct of interest
- Identify the variable(s)
- Operationally define the variable