

Does Social Inequality Make Us Sick?

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All animals are equal, but some animals are more equal than others. George Orwell.

MODULE SUMMARY

A core topic in sociology is inequality. Many sociologists study the causes and consequences of inequality. In class we have talked a lot about the causes. Discrimination and unequal opportunities for people of different genders, races, and social classes are among the most important. But, what are the consequences of inequality? Does inequality really matter? Does it somehow “get under our skin” and make us sick?

Many medical sociologists study the health consequences of inequality. Their studies find that women, racial minorities, and persons of low socioeconomic class have worse health and die at younger ages. Perhaps social inequality really does make us sick.

In this module, you will conduct your own study. You will examine whether one type of social inequality (the level of education a person achieves) predicts one type of health consequence (physical disability).

LEARNING OBJECTIVES:

Skill

- Examine social inequality in the U.S. using real world data
- Test hypotheses using quantitative data from the U.S. Census
- Identify independent and dependent variables
- Describe the types of information collected in the decennial U.S. Census
- Learn software for analyzing census data
- Create and interpret tables and figures produced by data analysis software
- Summarize the results of a sociological analysis in a way that policymakers can use
- Identify the strengths and weaknesses of quantitative data analyses in sociology

Substance

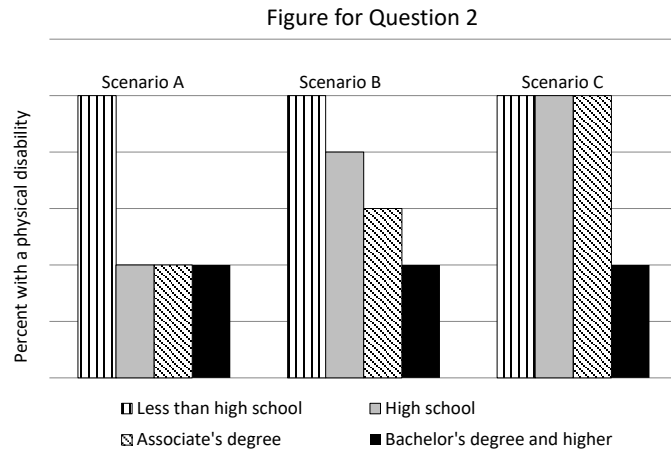
- Use sociological theories to develop hypotheses about inequality
- Apply sociological theories about race, gender, and social class
- Use demographic data to understand the association between inequality and health
- Explain how sociological knowledge can inform public policy

PART 1: PRE-MODULE ASSESSMENT QUESTIONS

1. Suppose that a sociologist asks the following research question: “Does achieving higher levels of education improve one’s health?”

What are the independent and dependent variables? Circle the correct answer:

- a. Education is the IV and health is the DV
 - b. Education is the DV and health is the IV
 - c. Both education and health are DVs
 - d. Both education and health are IVs
2. In the figure to the right, which scenario best represents the relationship between education level and physical disability?
- a. Scenario A
 - b. Scenario B
 - c. Scenario C



3. Which of the following statements is correct:
- a. Women are more likely than men to have a physical disability
 - b. Blacks adults are more likely than white adults to have a physical disability
 - c. Education is just as beneficial for the physical ability of women as it is for men
 - d. Education is just as beneficial for the physical ability of black adults as it is for white adults
 - e. None of the statements are correct
 - f. All of the statements are correct

Use the following table to answer questions 4 and 5.

		Age					<i>Total</i>
		25-34	35-44	45-54	55-64	65+	
Health	Bad	2.8%	5.5%	9.2%	16.1%	31.1%	12%
	Good	97.2%	94.5%	90.8%	83.9%	68.9%	88%
	<i>Total</i>	100%	100%	100%	100%	100%	

4. Among adults aged 25-34, 2.8% of them are in bad health. True or False?
5. Among adults in bad health, 31.1% of them are 65 and older. True or False?

PART 2: THE SOCIOLOGICAL IMPORTANCE OF EDUCATIONAL ATTAINMENT

Before we get started, let's watch a TEDx talk by Professor David Baker from the Pennsylvania State University. Professor Baker discusses how the rise of education levels in the United States and around the world during the 20th century had numerous consequences for society and for individuals. We will watch the TEDx talk in class. You can find the TED talk here:
<https://www.youtube.com/watch?v=sv3CLr84UJU>

PART 3: DESIGN THE STUDY

An Overview of the Scientific Method

As social scientists, one of our goals is to test research questions and hypotheses. The table below contains an overview of the scientific method which we will use throughout this module.

State research question:

What is the independent variable? What is the dependent variable?

- Variable: a concept that has more than one possible attribute
 - Color is a variable; blue is an attribute
 - Marital status is a variable; divorced is an attribute
 - Income is a variable; \$50,000 is an attribute
- Independent variable: it causes, effects, creates, influences something
 - If smoking causes cancer, then smoking behavior is an independent variable
- Dependent variable: it is caused by, affected by, created by, influenced by something
 - If smoking causes cancer, then cancer diagnosis is a dependent variable

State hypotheses:

What do you expect and why?

Collect and evaluate data:

What kind of data are "good" data? How will you judge whether it is good or not?

Spuriousness and causality:

Does the independent variable really *cause* the dependent variable? How can we know?

State and disseminate conclusions:

Summarize your findings and disseminate them in scholarly journals, newspaper article, etc.

Limitations:

What could we do better? What is still missing from the study?

PART 3A: DEFINE THE RESEARCH QUESTIONS AND HYPOTHESES

Research Question #1:

Are people with more education in better health than people with less education?

Use what you have learned in class to state your hypothesis: _____

PART 3B: IDENTIFY THE INDEPENDENT AND DEPENDENT VARIABLES

What is the independent variable? Briefly explain your answer. _____

What is the dependent variable? Briefly explain your answer. _____

PART 3C: FIND DATA TO ADDRESS THE RESEARCH QUESTIONS

We will use data from the 2000 U.S. Census. We will analyze the data using a program called WebCHIP4. It is available online at <http://ssdan.net/datacounts/>

PART 3D: DEFINE THE INDEPENDENT VARIABLE

The 2000 U.S. Census asked people the following question about their educational attainment.

Figure 1.
Reproduction of the Question on Educational Attainment From Census 2000

9 What is the highest degree or level of school this person has COMPLETED? Mark ONE box. If currently enrolled, mark the previous grade or highest degree received.

- No schooling completed
- Nursery school to 4th grade
- 5th grade or 6th grade
- 7th grade or 8th grade
- 9th grade
- 10th grade
- 11th grade
- 12th grade, **NO DIPLOMA**
- HIGH SCHOOL GRADUATE** — high school DIPLOMA or the equivalent (for example: GED)
- Some college credit, but less than 1 year
- 1 or more years of college, no degree
- Associate degree (for example: AA, AS)
- Bachelor's degree (for example: BA, AB, BS)
- Master's degree (for example: MA, MS, MEng, MEd, MSW, MBA)
- Professional degree (for example: MD, DDS, DVM, LLB, JD)
- Doctorate degree (for example: PhD, EdD)

Source: U.S. Census Bureau, Census 2000 questionnaire.

How can we use this data? Is it important to consider all of the education levels that the census collected? Or should we only consider, say, college graduates versus everyone else? Should we only consider high school non-completers versus everyone else? Other options? Why is this an important decision?

PART 3E: DEFINE THE DEPENDENT VARIABLE

In this assignment we will focus on one measure of health called physical disability. According to the 2000 U.S. Census, 19.3% of people had a long-lasting disability.¹ In other words, almost 1 out of every 5 people. The probability of having a disability increases with age but many young people in their 20s and 30s have a disability as well.

Disability is a complex concept to define and measure. For example, it can include emotional, physical, and cognitive disabilities. Because it is so complex, the census asks several questions about it. In 2000, it asked the following questions:

Figure 1.
Reproduction of the Questions on Disability From Census 2000

16 Does this person have any of the following long-lasting conditions:		
	Yes	No
a. Blindness, deafness, or a severe vision or hearing impairment?	<input type="checkbox"/>	<input type="checkbox"/>
b. A condition that substantially limits one or more basic physical activities such as walking, climbing stairs, reaching, lifting, or carrying?	<input type="checkbox"/>	<input type="checkbox"/>
17 Because of a physical, mental, or emotional condition lasting 6 months or more, does this person have any difficulty in doing any of the following activities:		
	Yes	No
a. Learning, remembering, or concentrating?	<input type="checkbox"/>	<input type="checkbox"/>
b. Dressing, bathing, or getting around inside the home?	<input type="checkbox"/>	<input type="checkbox"/>
c. (Answer if this person is 16 YEARS OLD OR OVER.) Going outside the home alone to shop or visit a doctor's office?	<input type="checkbox"/>	<input type="checkbox"/>
d. (Answer if this person is 16 YEARS OLD OR OVER.) Working at a job or business?	<input type="checkbox"/>	<input type="checkbox"/>

Source: U.S. Census Bureau, Census 2000 questionnaire.

¹ These estimates are for individuals aged five and older who are not institutionalized (for example, living in a prison) and not in the military. The estimates and the table to the left were taken from a report titled "Disability Status: 2000" which can be found online at: <https://www.census.gov/prod/2003pubs/c2kbr-17.pdf>

We will focus on physical disability for this module. It is measured in question 16b.

What are the pros and cons of using question 16a rather than another question(s)? _____

If you could design the census question(s) about disability, what would you ask? _____

PART 4: DATA ANALYSIS

Research Question 1:

Are higher-educated people less likely than lower-educated people to have a physical disability?
*(*we replaced "health" with "disability" because the census only collects data on disability*)*

Step 1: Find the dataset

- Go to <http://ssdan.net/webchip/webchip4/>
- On the left side of the screen, click the "Choose dataset" pulldown menu. Scroll down until you find the category "census2000." Under that category, click on the dataset called "disabl2k."

Step 2: Select the independent and dependent variables

- Under the heading "Choose Variables", click on the "Row" pull-down menu. Scroll down until you find the dependent variable. It is called "physdis." Highlight it and click on it.
- Click on the "Column" pull-down menu. Scroll down until you find the independent variable. It is called "educ." Highlight it and click on it.

Step 3: Create a table of percentages

- Under the heading "Generate Table", click on the "percent down" button. We use this option because in step 2 we told the software that our independent will be shown in the columns (columns go up and down, rows go across).
- Step 4: Interpret the results by answering the questions below.

Use the results from WebCHIP4 software to fill out the table:

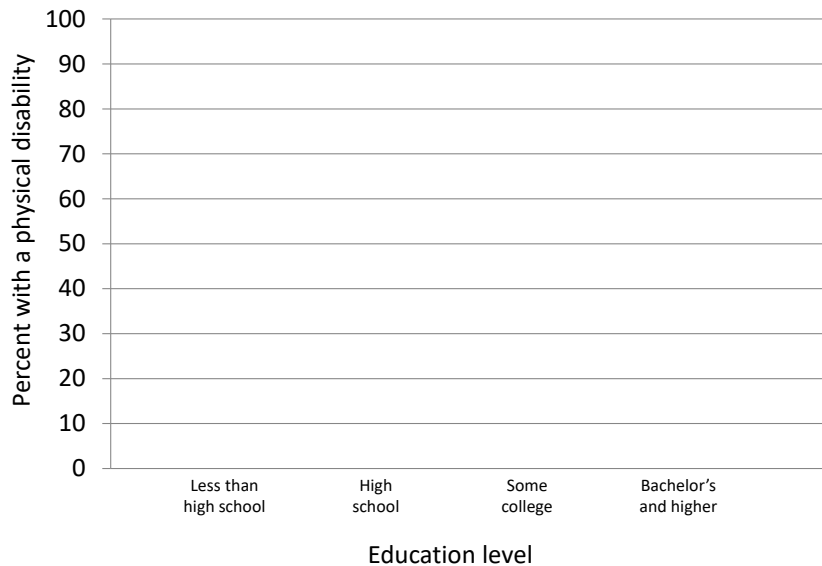
	Less than high school	High school	Some college	Bachelor's and higher
Percent of people with a physical disability				
Percent of people without a physical disability				
Total	100%	100%	100%	100%

Use the table above to answer the following questions:

- Among adults who did not graduate high school, what percent have a disability? _____
- Among adults who graduated high school, what percent have a disability? _____
- Among adults with some college education, what percent have a disability? _____
- Among adults with a bachelor's degree, what percent have a disability? _____

Using data in the table, can you answer the following question: What percent of people with a physical disability have a high school degree? _____

Sometimes it is easier to see patterns by looking at a figure rather than a table. Create a figure called a “box plot” by putting the data from the table above into the figure below. We will demonstrate how to do this in class.



Describe the pattern that you see in the figure: _____

What is the main conclusion that you draw from this analysis? _____

What do you think explains the relationship between education and disability? _____

Can we conclude that education causes better health? Please explain your answer. _____

Why is this an important sociological question? _____

Describe the results you get in WebCHIP4 when you select education as the row, physical disability as the column, and percent across as the table: _____

Describe the results you get in WebCHIP4 when you select education as the row, physical disability as the column, and percent down as the table: _____

PART 6: ADD RACE TO THE RESEARCH QUESTION

Research Question #3:

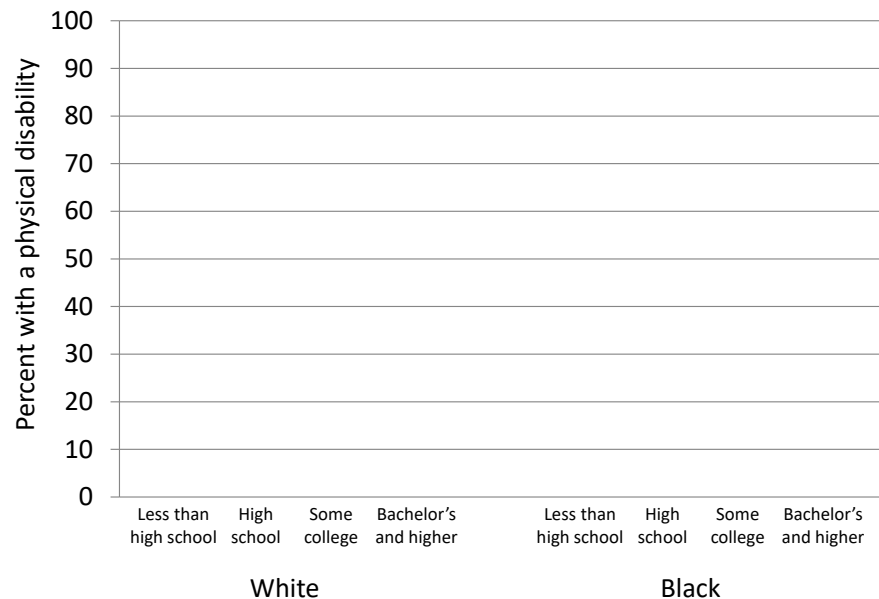
Does education similarly improve the physical ability of white and black adults?

Use what you have learned in class about race to state your hypothesis: _____

Use the WebCHIP4 software to analyze the census data and fill out the table below.

	Less than high school	High school	Some college	Bachelor's and higher
Percent of white adults with a physical disability				
Percent of black adults with a physical disability				

Use the data in the table above to create a bar chart for white and black adults below.



What differences between white and black adults, if any, do you see? _____

Can you explain why those differences exist? _____

If you wanted to test your explanation, how could you do this? _____

What is the main conclusion that you draw from this analysis? _____

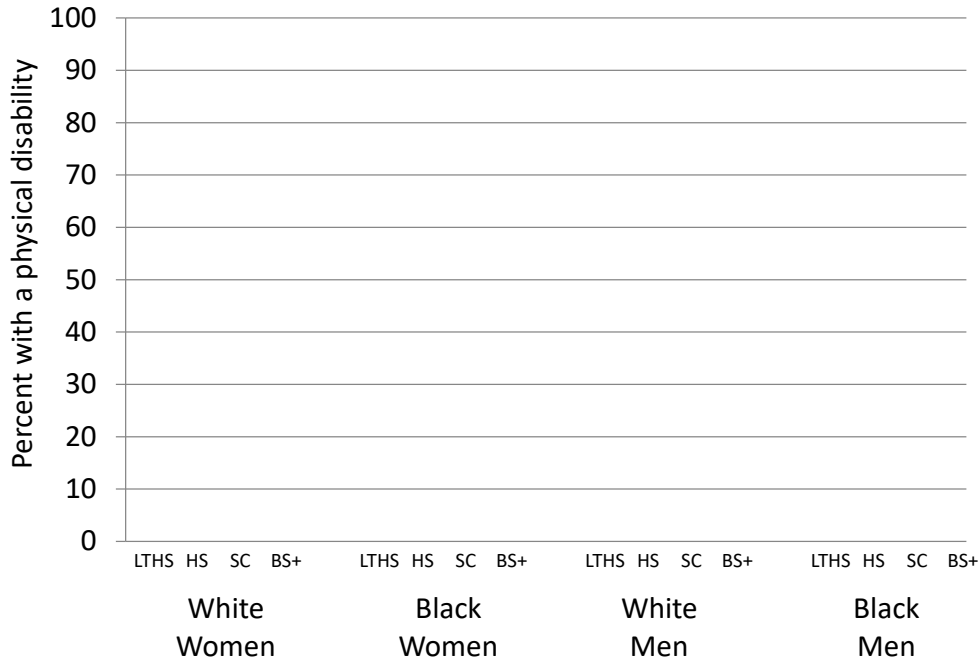
PART 7: ADD GENDER AND RACE TO THE RESEARCH QUESTION

Research Question #3:

Among white women, black women, white men, and black men, whose health benefits the most from education?

Use what you have learned in class about gender and race to state your hypothesis: _____

Use the WebCHIP4 software to analyze the census data and create the bar chart below.



LTHS = less than high school; HS = high school; SC = some college; BS+ = bachelor's or higher

What differences and patterns do you see? _____

Can you explain why those differences and patterns exist? _____

Among the 16 bars in the figure, who is MOST likely to have a physical disability? Use your sociological knowledge to try and explain this finding. _____

Among the 16 bars in the figure, who is LEAST likely to have a physical disability? Use your sociological knowledge to explain this. _____

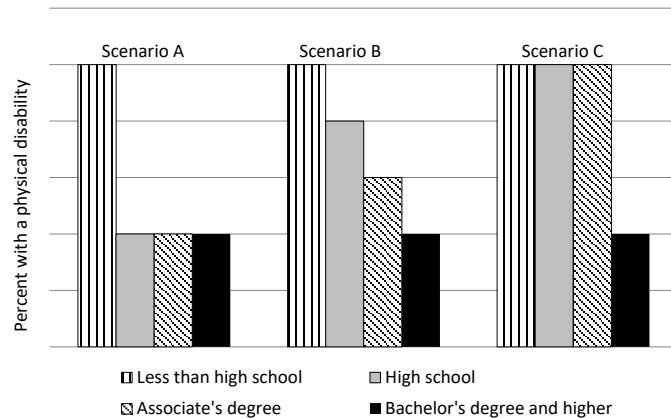
PART 8: POST-MODULE ASSESSMENT

1. Suppose that a sociologist asks the following research question: “Does achieving higher levels of education improve one’s health?”

What are the independent and dependent variables? Circle the correct answer:

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- Education is the DV and health is the IV
- Both education and health are DVs
- Both education and health are IVs

Figure for Question 2



2. In the figure to the right, which scenario best represents the relationship between education level and physical disability?
- Scenario A
 - Scenario B
 - Scenario C

3. Which of the following statements is correct (circle all that apply):
- Women are more likely than men to have a physical disability
 - Black adults are more likely than white adults to have a physical disability
 - Education is just as beneficial for the physical ability of women as it is for men
 - Education is just as beneficial for the physical ability of black adults as it is for white adults
 - None of the statements are correct
 - All of the statements are correct

Use the following table to answer questions 4 and 5.

		Age					Total
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	Total	100%	100%	100%	100%	100%	

- Among adults aged 25-34, 2.8% of them are in bad health. True or False?
- Among adults in bad health, 31.1% of them are 65 and older. True or False?

PART 9: WRITTEN ASSIGNMENT

Write a short page paper that reflects on the sociological analyses that we conducted during this module. The paper should be 2 pages, typed, double-spaced, with 12-point Times New Roman font and 1-inch margins on all sides.

The paper should contain two main parts:

- (1) Part one should summarize the main findings from the analysis. It should integrate sociological concepts such as socioeconomic status, gender, race, and inequality. Be sure to describe the three most important things that you learned from the analysis.
- (2) Part two should summarize your experience in conducting the data analysis. For example, did you find it frustrating? Boring? Exciting? Will it be useful for you in other parts of your life? Did it pique your interest in sociology? Why or why not?