

SOCIOLOGY 126: HEALTH OF THE PUBLIC
FINAL EXAM 2014

Please answer **two** of the following four questions, **one from each pair (i.e., either 1A or 1B, plus either 2A or 2B)**. (Also, we have a fifth question that can be used to replace one question from either of the pairs, as outlined below.) We expect each essay to be no more than 8 pages. Please do not write more than 8 pages since verbosity is not appreciated, and, if it exceeds 10 pages, might harm your grade.

A good essay will advance an argument, or make the case for a point of view, rather than merely summarize the readings. Your essay should be as organized and as clear as possible. Your exam will be evaluated with reference to three criteria: (1) **organization**, (2) **argument**, and (3) **evidence**. A good answer addresses all parts of the questions (that is, be sure not to overlook any of the sub-questions).

You are **not** expected to do any other readings or research other than those assigned in class or discussed during lecture, though you are free to. **A good answer, however, will indeed refer to several readings in order to support your argument.** Some of the questions below make use of readings from outside the course, and require you to read something, but citations are provided.

The next page is a cover sheet for your essays. You must print out **that page only**, fill it out, sign at the bottom, and turn it in with your own hard copy print-outs of your exam answers.

CITATIONS AND PROPER USE OF SOURCES:

You **must** cite any readings or sources to which you refer and supply a list of references you cite or rely on at the end of **each** of your answers (the bibliography does not count towards the page limit). You may use either footnotes or parenthetical references (e.g., Smith, 2009) and you may follow any one of the standard citation/reference styles, as long as you follow it consistently and correctly throughout your essays. Don't forget that if you are quoting specific text or citing particular facts from within a long piece, you need to include page numbers. **Plagiarism and misuse of sources are serious offenses. Cutting and pasting from a study guide, especially without citing it, is a form of plagiarism and will not be tolerated.** We will be using electronic techniques to check for plagiarism. If you panic, email us and don't do something foolish.

COLLABORATION:

This exam must be your own effort; you may not get assistance from any other person or discuss your answers with anyone else. Any questions during the exam should be emailed to socy126@gmail.com; we will prepare a digest of daily questions and email them to the whole class; please review prior answers before sending new questions.

FORMATTING AND SUBMISSION:

- 12pt Times New Roman font, double spaced, 1" margins. (Don't play around with margins or font size; we know those tricks.)
- Begin each essay on a new page; use page numbers, starting at 1 for each essay.
- **You must use the cover sheet on the next page. Fill in the information at the top and sign at the bottom. In each essay header, write ONLY your Yale SID number and essay number in the top right hand corner, and the page number. We will deduct points if you fail to do this exactly.**
- To submit the hard copy, **paperclip** together three items: a) the cover page; b) first essay (**stapled by itself**); c) second essay (**stapled by itself**). Deliver the hard copy to the lobby of **17 Hillhouse Ave. between 10:00 am and 12:00pm on Sunday, May 4th** (go early – save yourself a wait in line!). **EXAMS WILL NOT BE ACCEPTED AFTER 12:00PM. We will also have an opportunity to turn in your exam early, on May 3rd, from 5:30-6:30 pm, in the same location.**
- **Upload ONLY** your exam (no cover page needed) to the cv2 website by **5 pm Sunday, May 4th** (it locks automatically at 5 pm); you can upload your exam before or after you deliver the hardcopy. **Uploading your exam is NOT a replacement for also turning in a hard copy, which is required.**
- Extensions will be given only for serious, documented problems.

The teaching fellows, and Professor Christakis, thank you for a great semester, and wish you good luck with this exam and a happy summer. We apologize for the seriously formal tone of these instructions, too.

Name (Last, First): _____

Yale SID: _____

TF/Day/Time (e.g., JT Kirk, M 5pm): _____

Essays selected (e.g., 1A, 2B, 3): _____

**SOCIOLOGY 126: HEALTH OF THE PUBLIC
COVER SHEET FOR FINAL EXAM**

****This cover sheet must be included with the hard copy of your exam****

Checklist for turning in the final exam*

- I have conducted a final check for typos, spelling/grammar mistakes, and incorrectly formatted references.
- My essays have the proper formatting (12pt Times New Roman font, double-spaced, 1" margins).
- Each of my essays begins on a separate page.
- Each of my essays has a list of references at the end (does not count in page limit).
- My essays have headers with my Yale ID, essay number, and page numbers only (not my name).
- Each essay is stapled separately.
- I have filled out this cover page, signed it, and attached it to my stapled essays with a paper clip.
- I am turning in the hard copies of my essays at the Lobby of 17 Hillhouse between 10 am and 12 pm on Sunday, May 4th, or between 5:30 and 6:30 pm on Saturday, May 3.
- I will remember to upload a copy of my essays (without the cover sheet) to the cv2 dropbox by 5 pm on Sunday, May 4th. I realize that uploading the essay is not a replacement for turning in a hardcopy.

*This is for your benefit only; you don't need to check off the boxes even though you do need to turn in this form (had enough fine print yet?). But keep in mind **we will deduct points if you don't follow the submission instructions exactly!**

You must sign the following before submitting your exam:

I acknowledge that I have carefully read the instructions for this exam. I certify that the attached essays are my own work, that I have not received help from anyone else on this assignment, and that I have adhered to Yale College's standards for using sources. I understand that any instances of plagiarism, misuse of sources, or inappropriate collaboration will result in my failing all or part of this exam as well as likely referral for possible additional sanctions.

Student Signature

Date

Print Name

Questions 1A and 1B (choose one)

1A. In *Enhancing Evolution: The Ethical Case for Making Better People*, John Harris identifies and responds to a variety of criticisms and counterarguments to his work by many eminent scholars. Imagine that two further scholars, Ivan Illich and Emily Martin, independently submit letters to a bioethics journal sharing their own perspectives on Harris's book. (The 7th chapter of *Enhancing Evolution* will be especially useful for this question.) The letters by Illich and Martin are published in the journal, along with a response/rebuttal from Harris, much like the selection "commentaries, retorts, rejoinders, and ripostes" that followed Bailar & Gornik's paper "Cancer Undefeated" in the *New England Journal of Medicine*. Write Illich's letter, Martin's letter, and Harris's response to both. Each author's piece should be 2-3 pages long.

1B. Read the *New Yorker* article "A Sudden Illness," about author Laura Hillenbrand's struggle with chronic fatigue syndrome (online for free at <http://www.cfids-cab.org/MESA/Hillenbrand.html>), as well as the following *New York Times* interview with her: <http://well.blogs.nytimes.com/2011/02/04/an-author-escapes-from-chronic-fatigue-syndrome/>.

A) Discuss how the social construction of disease and social/cultural iatrogenesis affect Hillenbrand's experience with chronic fatigue syndrome (CFS). In particular, consider the following questions:

- i. What lessons does Hillenbrand's experience suggest about the ability of clinical medicine to address symptoms that don't fit into preexisting disease categories?
- ii. How might Ivan Illich respond to the following two quotes from the article:

"Without my physicians' support, it was almost impossible to find support from others. People told me I was lazy and selfish."

"[M]y physicians had concluded that if my symptoms and the results of a few conventional tests didn't fit a disease they knew of, my problem had to be psychological."

B) Discuss how Hillenbrand's ability to cope with her disease through accessing alternative treatments, getting second opinions, and having a career that permits flexible work hours reflects Marmot's claim that autonomy and control over one's life are important mediators in the link between SES and health.

Questions 2A and 2B (choose one)

2A. In his last lecture, Prof. Christakis made the claim that we may be reaching the “end of medicine.” In the first (shorter) part of your essay, briefly outline why this is plausible, and summarize the argument Christakis made. In the second (longer) part of your answer, argue against this position. That is, articulate at least three reasons – supported by evidence – as to why, in your opinion, this is not a tenable position.

2B. In a 2010 study (Garcia, J. R., et al., “Associations between dopamine D4 receptor gene variation with both infidelity and sexual promiscuity,” PLoS One, 2010; 5(11)), scientists selected 181 college students (118 females, 63 males) at a midsized state university in the northeastern United States. They recorded demographic information about the students and also gave them a survey about their personal history of sexual behavior and intimate relationships as well as their sexual expectations and preferences. For instance, they measured the students’ history of sexual intercourse, their infidelity (“cheated on” a partner), and their promiscuity (“one night stands”). They also conducted tests on the students’ levels of impulsivity and ability to defer gratification.

They collected DNA from the group and, using genetic analysis, recorded differences in a specific gene, the human dopamine D4 receptor gene (DRD4) – that is, they were not engaged in a gene-hunting exercise (a GWAS – Genome-Wide Association Study), but rather they focused on a single, known gene. This gene codes for a type of receptor in the brain that interacts with the neurotransmitter dopamine, which has been associated with many neurological processes including motivation, pleasure, and learning.

They found that 77% of the students reported a history of sexual intercourse and that this did not differ across the groups with different gene variants (known as 7R+ and 7R-). But they did find large differences in the other measures: 7R+ individuals (those with the specific gene variant) were almost twice as likely to have engaged in “promiscuous sex” and, when they were unfaithful, they reported more than 50% more sex with other non-partners compared to the 7R- individuals (who did not have the specific gene variant). These results are represented in Figures 1 and 2 on the next page.

Assuming the findings are correct, answer the following questions using the information provided above and referring to material we’ve covered in class:

- In your opinion, should we regard infidelity and promiscuity as medical problems or disease states? Why or why not?
- What sorts of social factors (e.g., neighborhoods, networks, etc.) might explain individuals’ propensity to evince sexual promiscuity or infidelity? Explain how this illustrates the difference between structure and agency.
- Another lab repeats the analysis of these authors and finds no relationship between DRD4 and sexual behavior. Offer at least one possible explanation for the failure of the new lab to replicate the findings.
- As biotechnology progresses, physicians may be able to offer gene therapies to alleviate the effects of certain genes such as this one. What would Harris (author of *Enhancing Evolution*) have to say about this?

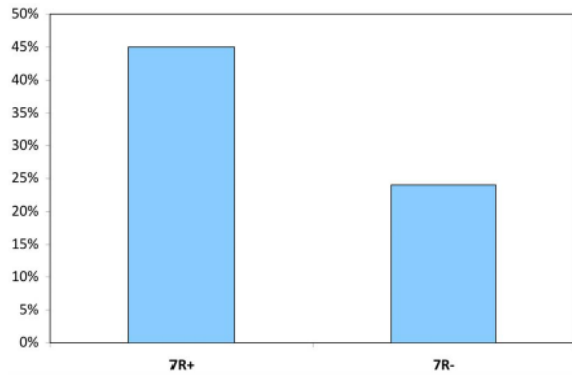


Figure 1. Percent who report promiscuous sexual experiences, by DRD4 genotype group.
doi:10.1371/journal.pone.0014162.g001

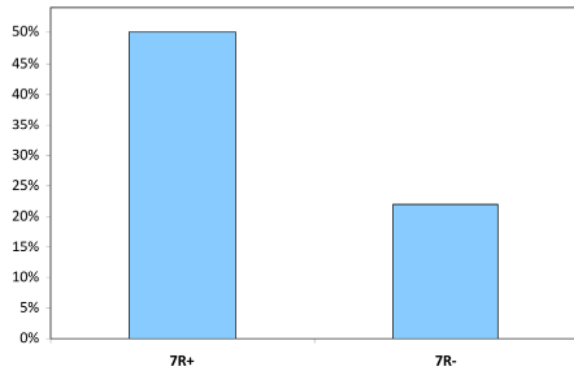


Figure 2. Percent who report extra-relationship sexual experiences, by DRD4 genotype group.
doi:10.1371/journal.pone.0014162.g002

Question 3 (ALTERNATIVE QUESTION)

Below is a challenging question that some students might wish to answer. If you choose this question, you can replace either question 1A or 1B, or question 2A or 2B. That is, you may use this question as a replacement for a question in either of the other two pairs of questions. (All students taking this exam must answer a total of just two questions.)

Over the course of the semester, we have read a number of papers describing social science experiments spanning a diverse set of topics and approaches, including the following:

- Volpp KG, *et al.*. A Randomized Controlled Trial of Financial Incentives for Smoking Cessation. *New England Journal of Medicine* 2009; 360: 699-709.
- Cohen S *et al.*. Social Ties and Susceptibility to the Common Cold. *JAMA* 1997; 277: 1940-1944.
- Centola D. The Spread of Behavior in an Online Social Network Experiment. *Science* 2010; 329: 1194-1197.
- Valente TW, Ritt-Olson A, Stacy A, Unger JB, Okamoto J, and Sussman S. Peer Acceleration: Effects of a Social Network Tailored Substance Abuse Prevention Program Among High-Risk Adolescents. *Addiction* 2007; 102: 1804-1815.
- Keizer K, Linderberg S, and Steg L. The Spreading of Disorder. *Science* 2008; 322: 1681-1685
- Leventhal T and Brooks-Gunn J. Moving to Opportunity: An Experimental Study of Neighborhood Effects on Mental Health. *American Journal of Public Health* 2003; 93: 1576-1582.
- Andersen RE, Franckowiak SC, Snyder J, Bartlett SJ, and Fontaine KR. Can Inexpensive Signs Encourage the Use of Stairs? Results from a Community Intervention. *Annals of Internal Medicine* 1998; 129: 363-369.
- Baicker K, *et al.* The Oregon Experiment—Effects of Medicaid on Clinical Outcomes. *New England Journal of Medicine* 2013; 368: 1713–1722

As these examples demonstrate, an experiment tests the relationship between an exposure and an outcome, controlling for confounding factors. Remember, an experiment must involve the random assignment of some group of people to something; it must have some sort of “control group.” These experiments have sometimes cost a lot of money to conduct (such as the Volpp and Baicker studies), but sometimes they have cost only a small amount. The studies by Keizer *et al* and by Andersen *et al* are especially instructive with respect to small-scale, inexpensive, but important experiments that can be done.

Design an experiment that could be conducted on a college campus (e.g., Yale), either online or offline, to evaluate the role of a social factor that affects some aspect of the abuse of prescription drugs by college students. The experiment must be inexpensive, like the Keizer and Andersen experiments, and hence must cost less than \$10,000 (not including the labor of the scientists doing the experiment) – that is, the \$10,000 can be used for supplies, hardware and software, technical consulting, subject payments, etc.. This amount is not a hard number; it’s just here to emphasize that your experiment should be cheap, like the Keizer and Andersen experiments.

Your answer should have the following components:

1) Research Question: What is the hypothesized relationship between the social factor (exposure) and the particular outcome you choose? Specify/define the social factor/exposure clearly. Also, state the health outcome clearly. You can be very liberal in what counts as both an exposure and an outcome here (related to prescription drug abuse). Be creative.

2) Hypothesis: Articulate the key hypothesis you are testing very clearly as a falsifiable statement. For example: “Exposing people to a sign encouraging the use of stairs increases subjects’ use of stairs, compared to people not exposed to such a sign.” Your study should focus on a single hypothesis.

3) Motivation and Background: Use the readings and lectures from the course to briefly set the stage for your experiment, outlining why the hypothesis is important, what is known about the general topic already, and what your study adds to the literature (i.e., what gap does it fill?). [perhaps 1 page]

4) Methods: In this section, describe your methods: What will you do? How many subjects do you think you will need, who are they, how they will be recruited, how they will be given/exposed to the intervention, how will both the exposure and outcome be observed or measured, and so on. If (by chance) you plan to write any apps or software to do such an experiment, briefly describe what you might do (obviously, most experiments would not require de novo software, nor do we actually expect you to write any software for this exam question!). [perhaps 2 pages]

5) Results: Briefly describe your expected results and how you might analyze them. For example, you might do a chi-squared test comparing the proportion of people exposed to the sign who take the stairs compared to the proportion of those who are not exposed to the sign who take the stairs. Note that we are NOT looking for a sophisticated statistical outline here. You could also provide a graph or table of hypothetical results as part of this section (although this is not required). [perhaps 1 page]

6) Briefly discuss any ethical considerations in your study, if any. Is there any potential harm to the participants? Harms to the community? Issues of data security and integrity?[perhaps 1/2 page]

7) Limitations: Briefly discuss any practical considerations that might make your study hard to conduct. Also discuss potential limitations to your conclusions. For example, how generalizable is your study? [perhaps 1/2 page]

8) Provide a very short conclusion. [perhaps 1/2 page]