Epid 827 - Social Epidemiology: Design and Interpretation

Instructor: Whitney R. Robinson, Ph.D
Department of Epidemiology
UNC Gillings School of Global Public Health
2104B McGavran-Greenberg Hall
campus mail address: Epidemiology, CB#7435

Usual Time and Place: Thursday 2:00 – 3:50 pm
Room: McGG 2302

Course overview: The seminar-style course will identify methodological challenges common in social epidemiology. Next, the course will introduce and critique study designs and analytic techniques commonly used to address these challenges. In addition, this semester will include a special emphasis on deconstructing recent important research, such as documentation of decreasing life expectancy in the U.S., income inequality and declining economic mobility, and modeling racial/ethnic differences (or lack thereof) in police use of force in encounters with civilians.

Learning objectives:
- To identify how the field of epidemiology researches the social determinants of health differently than other disciplines, such as sociology, psychology, or health policy
- To identify the methodological challenges that are addressed by different study designs and analyses used in social epidemiology
- To apply methods from the field of social epidemiology to research questions of interest to the student

COURSE STRUCTURE: Most sessions will consist of short lectures from respected interdisciplinary researchers, followed by structured discussions of selected scientific publications relevant to the lecture. Readings will be available on Sakai or PubMed. To facilitate high-quality discussions, all assigned readings should be completed prior to class. Come to class ready to evaluate the quality of readings and explain in what situations a technique or concept would apply to research questions of interest to you.

Course Requirements & Grading Criteria

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<tr>
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<th>% of Grade</th>
<th>Due Date</th>
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<tbody>
<tr>
<td>Class participation</td>
<td>30%</td>
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<tr>
<td>Presentation 1: research question &amp; challenge</td>
<td>30%</td>
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<td>Presentation 2: Two approaches for addressing challenge</td>
<td>40%</td>
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<td>Course evaluations (online)</td>
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<td>last 3 weeks of class</td>
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Students will be provided with at least 15 minutes of class time to complete the evaluation on the last day class is scheduled to meet.

Assignment formatting for papers and presentation:
Presentation slides should be saved using this standardized file name format: YY_MM_DD_Epid827_last-name_assignment (e.g., 17_03_08_Epid827_Robinson_presentation1.ppt).

Submitting assignments:
* Submit assignments (e.g., presentation slides) electronically via Sakai. Sakai will not accept assignments after the posted deadline.
* In fairness to those who meet the deadlines, late assignments may be penalized 10% per day.
* If you are unable to submit an assignment by the deadline, please e-mail me as soon as possible, preferably at least 36 hours ahead of time.

**Honor code:** The University of North Carolina at Chapel Hill has had a student-administered honor system and judicial system for over 100 years. The system is the responsibility of students and is regulated and governed by them, but faculty share the responsibility. If you have questions about your responsibility under the honor code, please bring them to your instructor or consult with the office of the Dean of Students or the *Instrument of Student Judicial Governance*. This document (the *Instrument*), adopted by the Chancellor, the Faculty Council, and the Student Congress, contains all policies and procedures pertaining to the student honor system. Your full participation and observance of the honor code is expected.

**Required readings:** listed in table below

**Optional readings:**

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<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Speaker</th>
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<tbody>
<tr>
<td>Jan 12</td>
<td>TOPIC: What is social epidemiology for?</td>
<td>Whitney Robinson, PhD Asst prof, UNC Epidemiology</td>
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<td>Introduction to course</td>
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<td></td>
<td>Discuss progressive class project – mid-semester presentation &amp; final presentation</td>
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<td>Discuss preferred topics for 4 TBD class sessions</td>
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<td></td>
<td>Discuss readings</td>
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<td>Jan 19</td>
<td>What kind of cause are you looking for?</td>
<td>Whitney Robinson, PhD Asst prof, UNC Epidemiology</td>
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<td>Intra-population versus inter-population variation</td>
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<td>Jan 26</td>
<td>Introduction to publically available online data resources AKA Big Data in Social Epidemiology</td>
<td>Rebecca (Becky) Tippett, PhD Carolina Population Center</td>
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<td>Feb 2</td>
<td>Qualitative research</td>
<td>Louie Rivers III, PhD NCSU Dept of Forestry and Environmental</td>
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<tr>
<td>Date</td>
<td>Topic</td>
<td>Resource</td>
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<td>Feb 9</td>
<td>Spatial Analysis</td>
<td>Veronica Escamilla, PhD Carolina Population Center</td>
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<td>Feb 16</td>
<td>Studying health effects of neighborhoods</td>
<td>Sandra Albrecht, PhD Asst Prof, UNC Nutrition</td>
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<td>Feb 23</td>
<td>Study Design and Analysis for Racial Inequalities Research</td>
<td>Whitney Robinson, PhD Asst prof, UNC Epidemiology</td>
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<tr>
<td>Mar 2</td>
<td>U.S. Income Inequality: new measures and new findings</td>
<td>Ted Mouw, PhD UNC Sociology</td>
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<td>Mar 9</td>
<td>Class presentations 1: Present a research question of interest &amp; the biggest methodologic challenge or limitation of previous research (e.g., measurement bias, confounding, selection bias, positivity, generalizability)</td>
<td>students</td>
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<td>Mar 16</td>
<td>Spring break</td>
<td>No class</td>
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<td>Mar 23</td>
<td>Case study of instrumental variable analysis in an international setting</td>
<td>Asia Maselko, PhD Assoc Prof, UNC Epidemiology</td>
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<td>Mar 30</td>
<td>TBD</td>
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<td>Apr 6</td>
<td>TBD</td>
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<td>Apr 13</td>
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<td>Apr 20</td>
<td>Class presentations 2: Evaluate two attractive approaches for addressing the methodologic challenge discussed in presentation 2, finally choosing one and justifying that decision</td>
<td>students</td>
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<td>April 27</td>
<td>TBD</td>
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AFTER CLASS VOTE, PLANNED TOPICS FOR TBD sessions:

1) Declining US life expectancy rates and increasing mortality rates

2) Epidemiologic approaches to evaluating health effects of policy: difference-in-difference analysis or regression discontinuity analysis

3) Weighting, sampling and selection bias in social epidemiology
   a) Case study: Impacts of different weighting strategies in the election polling
   b) Case study: Hysterectomy’s impact on Stroke risk in the CARDIA study
   c) In-class exercise to deconstruct a selection-bias DAG

4) Statistical Discrimination/Unintended Consequences of well-intentioned policy:
   a. HPV vaccine targets most prevalence HPV subtypes, which may be those least common among racial minorities
   b. Using of credit reports to exclude candidates: differential effects on Black and White men in the U.S.
READINGS (Tentative reading list in GRAY)

Jan 12 What is Social Epidemiology?
Speaker: Whitney Robinson, PhD
Optional:

Jan 19 What kind of cause are you looking for? Intra-population versus inter-population variation
Speaker: Whitney Robinson, PhD
Optional:

Jan 26 Introduction to publicly available online data resources AKA Big Data in Social Epidemiology
Speaker: Rebecca Tippett, PhD
Checking out the following resources beforehand will help you get up to speed:
- IPUMS - https://www.ipums.org/ – specifically IPUMS-USA, but also IPUMS-CPS
- Social Explorer - http://www.socialexplorer.com/

Feb 2 - Qualitative Methods
Speaker: Louie Rivers III, PhD
- NSF proposal and 2 figures: “IBSS: Participatory Ensemble Modeling to Study the Multiscale Social and Behavioral Dynamics of Food Security in Dryland West Africa”

Feb 9 Spatial Analysis
Speaker: Veronica Escamilla, PhD

**Feb 16 Studying Health Effects of Neighborhoods**
Speaker: Sandra Albrecht, PhD

**Optional:**

**Feb 23 Study Design and Analysis For Racial Inequalities Research**
Speaker: Whitney Robinson, PhD

**Optional:**

**Mar 2 U.S. Income Inequality: new measures and new findings**
Speaker: Ted Mouw, PhD

**Mar 9 Class presentations**

**FUTURE READINGS TBD**