SOC 6024H – NETWORKS AND HEALTH

Winter 2019
Mondays, 11:10-2:00p, Dept. of Sociology room 41 and room 36

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DESCRIPTION

This course addresses the overlap between social network analysis and the sociology of health. Readings cover various topics, including the health benefits of social capital, network processes in health care and help-seeking, the putative social contagion of illness and health behaviours, the role of networks in shaping sexual health risks, and the role of networks in shaping health behaviours and outcomes at various points of the life course. Students will identify a topic that interests them and will write an empirical or theoretical article intended to advance the literature on networks and health. We will also hold several 'hands-on' lab sessions to demonstrate techniques for working with social network data.

Three main goals shape the course:

- Link the social network approach to key puzzles and theoretical perspectives in medical sociology (e.g., explaining health inequality, conceptualizing the role of social influence on health behaviours and outcomes).
- Introduce social network methods and applications for the study of health; working with network data; building familiarity with common techniques for visualizing networks and analyzing them
- Craft a manuscript related to networks and health that can be eventually revised for submission to a professional and academic journal.

MODES OF EVALUATION AND DISTRIBUTION OF MARKS

- Class participation (10%)
- Presentation and discussion leadership (10%)
- Reflection memos (10%)
- Final paper (50%)
- Peer-review exercise for final paper (10%)
- Presentation of work in progress (10%)

WEEKLY CLASS PARTICIPATION

Students are expected to complete each week's reading and to actively contribute to class discussion. An overall assessment (10% of course total) will reflect weekly participation. Elements of class participation include (a) attendance, (b) acknowledging diverse viewpoints, (c) offering observations to illustrate key concepts, (d) posing questions to clarify or to challenge a statement, (e) drawing linkages from assigned readings to other readings or perspectives, (f) building on others' contributions with additional information, (g) critiquing arguments in readings or made in class; (h) pointing to evidence that would extend an area of research.

PRESENTATIONS AND DISCUSSION LEADERSHIP

Starting in week 3, a different student or group of students (depending on course enrollment) will make a presentation and lead the discussion. Each student can expect to be a discussion leader several times during the semester. The presentations should include a *brief* summary and synthesis of the week's readings, but should ultimately push towards the "big picture" and help the class reflect on how the readings fit into the broader scope of the course. Rather than dissecting each article one-by-one, presentations should seek to integrate material from across the readings, drawing out commonalities, contrasts, points of agreement, and points of tension.

Here are some of the basic issues that should be addressed in your presentation: (1) what are the key research question(s) or issues that arise in the readings?; (2) what are the core conceptual or theoretical perspective(s)?; (3) what are the methodologies used?; (4) what are the key findings and/or arguments of the readings? Are they consistent or in tension?; (5) what was particularly interesting from one or more of the readings?; and (6) what are some critical insights or reflections that would be useful for class discussion and debate? These presentations will set the tone for our class discussion and should use presentation software to help everyone follow along. Evaluations will be based on how well you synthesize the week's readings, your effectiveness at presenting the content, and your capacity to lead the class in discussion.

PRESENTATION REFLECTION MEMOS

For weeks in which you are a discussion leader, you write a brief memo that *summarizes the key ideas in your presentation*, but also captures how the group discussion *expanded and refined your perspective on the readings*. For example, you may describe how the comments of your colleagues helped clarify or challenge your initial insights. Memos should be handed in the following week of class and should be no more than 2 double-spaced pages.

FINAL PAPER

By semester's end, students will complete a paper related to social networks and health. This paper can take several forms: (a) an original empirical analysis using qualitative or quantitative data; (b) a proposal for a research study which outlines a specific research question as informed by relevant literature, describes, in detail, the data needed to conduct such a study, and anticipates the expected outcomes and likely complexities of carrying out the research; or (c) a theoretical/conceptual article which attempts to re-think some aspect of our current understanding or forge new directions for research in networks and health.

Whatever option students select, the final paper should be between 6,500 and 10,000 words and must follow ASA formatting. The title page should indicate a target journal where you could send your paper (if option A or C is selected) or a grant funding opportunity (if option B is selected). Papers previously or simultaneously submitted to other classes are not acceptable, and papers should not duplicate research that you have already conducted.

The paper will be completed in *two stages*. First, students will submit a draft of their paper on March 25. This draft may be rough, but it must represent the core argument well enough to be read and critiqued by classmates. Your colleagues will serve as "peer reviewers", treating your paper as though it was a standard journal article submission and offering feedback akin to a journal referee (more details on this peer review process to come). Second, students will hand in a final paper which involves a response to peer review comments. Specifically, you will submit with your final paper a memo that articulates the major points of concern raised by your reviewer, including a description of how you responded to their comments and/or a rebuttal to their critiques. The final paper is due by 5:00 pm on April 19.

PEER REVIEW EXERCISE

In this course, you will serve as peer reviewer of your colleagues' work. Specifically, you will receive a rough draft copy of another student's paper (see above), randomly selected from the submissions due on March 25. You will have one week to conduct a formal peer review evaluation of the paper, following the instructions of leading journals in the field (e.g., *Journal of Health and Social Behavior*; *Social Science & Medicine; Social Networks*). The peer review is due the final week of class (April 1). The goal of this exercise is twofold. First, giving and receiving feedback will help everyone's work improve and should result in better final papers. Second, we will seek to simulate the journal submission/peer review process as a mode of professional socialization. To that end, we will spend some time throughout the semester talking about the peer review process and discussing best practices for this aspect of the academic life.

PRESENTATION OF WORK IN PROGRESS

On March 18, you will present your work in progress related to the final paper assignment. Presentations should be 10 minutes in length and allow 5-10 minutes for question and answer time.

COURSE SCHEDULE

WEEK 1, January 7

Social networks in the sociological study of health

The goals for this week are to introduce the study of networks and health and to survey the breadth of topics the network approach allows medical sociologists to study. Berkman et al. offer an integrative model of how social networks can influence health and propose a number of specific pathways that can be used to generate testable hypotheses. This reading will guide our

introduction to the course. We will focus on the distinction between social networks and other 'social' terms that have sometimes been used interchangeably in the study of health (e.g., social support, social cohesion, social engagement).

Reading:

Berkman, Lisa F., Thomas Glass, Ian Brissette, and Teresa E. Seeman. 2000. "From Social Integration to Health: Durkheim in the New Millennium." *Social Science & Medicine* 51(6):843–57.

Optional readings:

Smith, Kirsten P., and Nicholas A. Christakis. 2008. "Social Networks and Health." *Annual Review of Sociology* 34(1):405–29.

Thoits, Peggy A. 2011. "Mechanisms Linking Social Ties and Support to Physical and Mental Health." *Journal of Health and Social Behavior* 52(2):145–61.

"The Role of Social Networks in Adult Health"; see introduction and entire special issue in *Health Psychology* (Vol. 33, No. 6, 2014)

WEEK 2, January 14 (*meet in room 36*)

Core network concepts; working with full network data

This week will feature an overview of basic network terminology and concepts, including the distinction between whole and ego networks, directed vs. undirected graphs, operationalizations of network centrality and cohesion, and ways of detecting network clusters, transitivity, homophily, and reciprocity. The class will be structured as a "lab" session. We will introduce network concepts using UCINET, focusing on visualization and description of whole networks.

Reading:

Valente, Thomas W. 2010. *Social Networks and Health: Models, Methods, and Applications.* New York: Oxford.

Optional readings:

Borgatti, Stephen P., Martin G. Everett, and Jeffrey C. Johnson. 2013. *Analyzing Social Networks*. New York: Sage Publications.

Hanneman, Robert A. and Riddle, Mark. 2005. *Introduction to Social Network Methods*. Riverside, CA: University of Carolina, Riverside. Online textbook available at http://faculty.ucr.edu/~hanneman/nettext/.

This is a highly readable and thorough introduction to network analysis using the UCINET software package as developed by Steven Borgatti, Martin Everett, and Linton Freeman.

WEEK 3, January 21 *(first 45 mins. in room 36)*

Working with full network data (part II); practical considerations in doing network analysis

We will spend the first part of today's class finishing up demonstrations for working with network data in UCINET in the lab. This week we will also consider best practices for network data collection and storage, study the complexities of measuring high-quality network data, and discuss unique ethical implications of using the network approach. We will examine how each of these concerns intersects with the study of health. In the final 45 minutes of class, we will return to the lab to demonstrate how to conduct network analysis in R, an open-source statistical program featuring many specialized social network procedures.

Readings:

Marsden, Peter V. 2011. "Survey Methods for Network Data." Pp. 370-88. Sage Handbook of Social Network Analysis. John Scott and Peter J. Carrington, editors. Thousand Oaks, CA: Sage Publications.

adams, jimi and James Moody. 2007. "To Tell the Truth: Measuring Concordance in Multiply Recorded Network Data." *Social Networks* 29:44-58.

Klovdahl, Alden S. 2005. "Social Network Research and Human Subjects Protection: Towards More Effective Infectious Disease Control." *Social Networks* 27:119-137.

Optional readings:

Brashears, Matthew E. 2014. "'Trivial' Topics and Rich Ties: The Relationship Between Discussion Topic, Alter Role, and Resource Availability Using the 'Important Matters' Name Generator." *Sociological Science* 1: 493-511.

Eagle, David and Rae-Jean Proeschold-Bell. 2015. "Methodological Considerations in the Use of Name Generators and Interpreters." *Social Networks* 40:75–83.

WEEK 4, January 28

Social capital and health inequalities

This week features three readings connecting classic sociological concern with health inequality to network-based perspectives on social capital. The main argument of social capital theory in sociology is that people acquire important resources through their network ties. Where this intersects with health inequality is that people with advantaged positions in society—e.g., those with high socioeconomic status—tend to have more resource-rich networks and may be able to extract more from their existing network ties than can less advantaged people. To the extent that these advantages yield access to high-quality medical information, strong social support, or other health-enhancing benefits, we might expect social capital to be a mechanism that explains health inequality.

Readings:

Song, Lijun, and Nan Lin. 2009. "Social Capital and Health Inequality: Evidence from Taiwan." *Journal of Health and Social Behavior* 50(2):149–63.

Song, Lijun, and Tian-Yun Chang. 2012. "Do Resources of Network Members Help in Help Seeking? Social Capital and Health Information Search." *Social Networks* 34:658-669.

Song, Lijun, and Philip J. Pettis. 2018. "Does Whom You Know in the Status Hierarchy Prevent or Trigger Health Limitation? Institutional Embeddedness of Social Capital and Social Cost Theories in Three Societies." *Social Science & Medicine*. In press.

Optional readings:

Cattell, Vicky. 2001. "Poor People, Poor Places, and Poor Health: The Mediating Role of Social Networks and Social Capital." *Social Science & Medicine* 52(10):1501-1516.

Song, Lijun. 2011. "Social Capital and Psychological Distress." *Journal of Health and Social Behavior* 52(4):478–92.

WEEK 5, February 4

Network activation, help-seeking, and the management of health problems

This week's readings pick up the theme of the importance of resources embedded in social networks. Articles highlight the role of social networks in various elements of health care (e.g., diagnosis, treatment, long-term disease management). Two of the readings consider how network members are involved when people seek mental health care and continue to matter as treatment progresses. The third takes a common, but often-undiagnosed physical ailment—hypertension—as a case study of how talking with others about health is a key part of detecting and living with chronic illness.

Readings:

Perry, Brea L., and Bernice A. Pescosolido. 2015 "Social Network Activation: The Role of Health Discussion Partners in Recovery from Mental Illness." *Social Science & Medicine* 125:116-128.

Perry, Brea L. and Bernice A. Pescosolido. 2012. "Social Network Dynamics and Biographical Disruption: The Case of 'First-Timers' with Mental Illness." *American Journal of Sociology* 118:134–75.

Cornwell, Erin York, and Linda J. Waite. 2012. "Social Network Resources and Management of Hypertension." *Journal of Health and Social Behavior* 53(2):215–31.

Optional readings:

Pescosolido, Bernice A. 1992. "Beyond Rational Choice: The Social Dynamics of How People Seek Help." *American Journal of Sociology* 97(4):1096-1138.

Pescosolido, Bernice A., Carol Brooks Gardner, and Keri M. Lubell. 1998. "How People Get into Mental Health Services: Stories of Choice, Coercion and 'Muddling through' from 'First-Timers.'" *Social Science & Medicine* 46(2):275-286.

Schafer, Markus H. 2013. "Discussion Networks, Physician Visits, and Non-Conventional Medicine: Probing the Relational Correlates of Health Care Utilization." *Social Science & Medicine* 87:176-184.

Goldman, Alyssa W. and Benjamin Cornwell. 2015. "Social Network Bridging Potential and the Use of Complementary and Alternative Medicine in Later Life." *Social Science & Medicine* 140:69-80.

WEEK 6, February 11

Working with ego network data

We will spend this class in the lab to demonstrate how to work with ego-centric network data in Stata. We will introduce ways to manipulate these data so as to use network-based independent variables to predict health outcomes and test hypotheses using regression.

Optional reading:

Perry, Brea L., Bernice A. Pescosolido, and Stephen P. Borgatti. 2018. *Egocentric Network Analysis: Foundations, Methods, and Models*. Cambridge University Press, 2018.

NO CLASS FEBRUARY 18—READING WEEK

WEEK 7, February 25

Social influence and health

Social contagion is the idea that behaviors or information can spread between people as they interact. Over the past decade, social scientists Nicholas Christakis and James Fowler published a series of articles making the provocative claim that various aspects of physical and mental health, including obesity, smoking, depression, and loneliness, can spread through networks of people by up to three degrees of separation. That is, an individual's health can be influenced not only by their friends, but also by their friends' friends' friends—people that the focal individual may have never met. Despite its allure, the Christakis and Fowler thesis has been widely contested. Critics have noted numerous drawbacks to these studies, many of which the authors themselves acknowledge in their research. Our focus this week will be on these ongoing debates. We will also consider an article that uses a unique study design—co-presence of patients in a cancer ward—to sidestep some of the problems in earlier research on social influence/contagion.

Readings:

Christakis, Nicholas A., and James H. Fowler. 2007. "The Spread of Obesity in a Large Social Network over 32 Years." *New England Journal of Medicine* 357(4):370–79.

Christakis, Nicholas A., and James H. Fowler. 2013. "Social Contagion Theory: Examining Dynamic Social Networks and Human Behavior." *Statistics in Medicine* 32(4):556–77.

Thomas, A. C. 2013. "The Social Contagion Hypothesis: Comment on 'Social Contagion Theory: Examining Dynamic Social Networks and Human Behavior'." *Statistics in Medicine* 32(4):581–90.

Lienert, Jeffrey, Christopher S. Marcum, John Finney, Felix Reed-Tsochas, and Laura Koehly. 2017. "Social Influence on 5-year Survival in a Longitudinal Chemotherapy Ward Co-Presence Network." *Network Science* 5: 308-327.

Optional readings:

Christakis, Nicholas A., and James H. Fowler. 2008. "The Collective Dynamics of Smoking in a Large Social Network." *New England Journal of Medicine* 358(21):2249–58.

Cacioppo, John T., James H. Fowler, and Nicholas A. Christakis. "Alone in the Crowd: The Structure and Spread of Loneliness in a Large Social Network." *Journal of Personality and Social Psychology* 97(6):997-991.

Aral, Sinan, Lev Muchnik, and Arun Sundararajan 2009. "Distinguishing Influence-Based Contagion from Homophily-Driven Diffusion in Dynamic Networks." *Proceedings of the National Academy of Sciences* 106(51):21544-2159.

Wasserman, Stanley. 2013. "Comments on 'Social Contagion Theory: Examining Dynamic Social Networks and Human Behavior' by Nicholas Christakis and James Fowler." *Statistics in Medicine* 32(4):578–580.

WEEK 8, March 4

Networks and adolescent health—influence? selection? both?

Readings for this week apply many of the principles emphasized in preceding weeks—the potential for network connections to help or to harm, the difficulty in teasing out selection from influence—to a range of topics in the context of adolescence. The fact that adolescents attend schools provides an ideal opportunity for gathering whole network data (i.e., a given school comprises an easily defined population) and has made this stretch of the life course an area of lively research.

Readings:

Kreager, Derek A., and Dana L. Haynie. 2011. "Dangerous Liaisons? Dating and Drinking Diffusion in Adolescent Peer Networks." *American Sociological Review* 76:737–763.

Schaefer, David R., Olga Kornienko, and Andrew M. Fox. 2011. "Misery Does Not Love Company Network Selection Mechanisms and Depression Homophily." *American Sociological Review* 76(5):764–85.

McMillan, Cassie, Diane Felmlee, and D. Wayne Osgood. 2018. "Peer Influence, Friend Selection, and Gender: How Network Processes Shape Adolescent Smoking, Drinking, and Delinquency." *Social Networks* 55:86-96.

Optional readings:

Abrutyn, Seth, and Anna S. Mueller. 2014. "Are Suicidal Behaviors Contagious in Adolescence? Using Longitudinal Data to Examine Suicide Suggestion." *American Sociological Review* 79(2):211–27.

Kiuru, Noona, William J. Burk, Brett Laursen, Katariina Salmela-Aro, and Jari-Erik Nurmi. 2010. "Pressure to Drink but Not to Smoke: Disentangling Selection and Socialization in Adolescent Peer Networks and Peer Groups." *Journal of Adolescence* 33:801–812.

Lakon, Cynthia M., and Thomas W. Valente. 2012. "Social Integration in Friendship Networks: The Synergy of Network Structure and Peer Influence in Relation to Cigarette Smoking Among High Risk Adolescents." *Social Science & Medicine* 74(9):1407–1417.

Osgood, D. Wayne, Daniel T. Ragan, Lacey Wallace, Scott D. Gest, Mark E. Feinberg, and James Moody. 2013. "Peers and the Emergence of Alcohol Use: Influence and Selection Processes in Adolescent Friendship Networks." *Journal of Research on Adolescence* 23(3):500-512.

Schaefer, David R., Steven A. Haas and Nicholas J. Bishop. 2012. "A Dynamic Model of US Adolescents' Smoking and Friendship Networks." *American Journal of Public Health* 102(6):e12-e18.

WEEK 9, March 11

Sexual Networks

Sexual health, particularly as pertains to the spread of sexually-transmitted disease, has long been of central interest to social network analysts. Sexual activity can naturally be conceptualized as a tie between actors; thus knowing who has sex with whom gives us a straightforward social network. Much of the literature on sex and social networks comes out of the path-breaking National Longitudinal Study of Adolescent to Adult Health (Add Health) study, the set of data that was featured so prominently in many of last week's readings. One of the longstanding goals of this literature is to document and understand the structure of a sexual network. Knowing the system's structure, for instance, can help shape public health interventions (e.g., safer sex techniques) by targeting particular nodes that have unique influence on many others in the network.

Readings:

Bearman, Peter S., James Moody, and Katherine Stovel. 2004. "Chains of Affection: The Structure of Adolescent Romantic and Sexual Networks." *American Journal of Sociology* 110(1):44–91.

Morris, Martina. Anne E. Kurth, Deven T. Hamilton, James Moody, and Steve Wakefield. 2008. "Concurrent Partnerships and HIV Prevalence Disparities by Race: Linking Science and Public Health Practice." *American Journal of Public Health* 99(6)1023-1031.

adams, jimi, James Moody, and Martina Morris. 2013. "Sex, Drugs, and Race: How Behaviors Differentially Contribute to the Sexually Transmitted Infection Risk Network Structure." *American Journal of Public Health* 103(2):322–29.

WEEK 10, March 18

Works in Progress

This week will consist of 10 minute presentations on work in progress toward the final paper. Presentations should use slides to convey an overview of the paper topic, provide perspective on the research problem, sketch the general argument of the paper, show preliminary findings (if applicable), and outline next steps in the project. This is an opportunity for classmates to provide feedback and offer suggestions.

WEEK 11, March 25

Health and aging in network context

Health challenges are an important part of the aging process. Studies on health and aging has long recognized the importance of social relationships and social support for helping people prolong life and adapt to functional decline, but a new groundswell of research has begun to incorporate a more explicit social network approach, taking into account the structure and dynamics of people's social connections. Several readings for this week use ego-centric network data to explore the consequences of network change and diversity for senior's physical and mental well-being, while the third applies a network approach to the topic of caregiving for family members with dementia.

Readings:

Cornwell, Benjamin, and Edward O. Laumann. 2015. "The Health Benefits of Network Growth: New Evidence from a National Survey of Older Adults." *Social Science & Medicine* 125:94-106.

Ellwardt, Lea, Theo G. Van Tilburg, Marja J. Aartsen. 2015. "The Mix Matters: Complex Personal Networks relate to Higher Cognitive Functioning in Old Age." *Social Science & Medicine* 125:107-115.

Marcum, Christopher S., Sato Ashida, and Laura M. Koehly. 2019. "Primary Caregivers in a Network Context." *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*. In press.

Optional readings:

Litwin, Howard and Sharon Shiovitz-Ezra. 2006. "Network Type and Mortality Risk in Later Life." *The Gerontologist* 46(6):735-743.

Webster, Noah J. Toni C. Antonucci, Kristine J. Ajrouch, and Sawsan Abdulrahim. 2015. "Social Networks and Trust among Older Adults in Lebanon: The Mediating Role of Support and Trust." *Journal of Gerontology: Social Sciences* 70(1):155-166.

Koehly, Laura M., Sato Ashida, Ellen J. Schafer, and Amanda Ludden. 2014. "Caregiving Networks—Using a Network Approach to Identify Missed Opportunities." *Journals of Gerontology Series B: Psychological Sciences and Social Sciences* 70:143-154.

DRAFT OF RESEARCH PAPER DUE

WEEK 12, April 1

Networks in health policy and healthcare organizations

The connectivity of organizations can be understood with a social networks framework. This final week will consider how the structure of agencies, institutions, or other organizational actors affects the delivery of health care and shapes population health.

Readings:

Han, Lu, Mathias Koenig-Archibugi, and Tore Opsahl. 2018. "The Social Network of International Health Aid." *Social Science & Medicine* 206:67-74.

Weishaar, Heide, Amanda Amos, and Jeff Collin. 2015. "Best of Enemies: Using Social Network Analysis to Explore a Policy Network in European Smoke-free Policy." *Social Science & Medicine* 133:85-92.

Khosla, Nidhi, Jill Ann Marsteller, Yea Jen Hsu, and David L. Elliott. 2016. "Analysing Collaboration among HIV Agencies through Combining Network Theory and Relational Coordination." *Social Science & Medicine* 150:85-94.

PEER REVIEW EXERCISE DUE

FINAL PAPERS DUE APRIL 19 BY 5P