Brandeis-Harvard Methods Workshop: Applying Group-Based Trajectory Modeling in Health Outcomes Research

Lecturer:

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Lesson Objectives

1. Overview the concept, capacities, and applications of group-based trajectory models (GBTM)

2. Describe the key framework of conducting group-based trajectory models

3. Understand the basic functions of group-based trajectory models using Stata

4. Discuss the extensions and challenges of using GBTM

Recommended Readings:

1. Nagin DS, Odgers CL. Group-based trajectory modeling in clinical research. Annu Rev Clin Psychol. 2010;6:109-38.
2. Nagin DS: Group-Based Modeling of Development. Cambridge, Harvard University Press, 2005.
3. Nagin DS. Analyzing developmental trajectories: a semiparametric group-based approach. Psychological Methods 1999; 4:137-157.
4. Nagin DS. Group-based trajectory modeling: an overview. Ann Nutr Metab. 2014;65(2-3):205-10.
5. Roeder K, Lynch K, Nagin DS. Modeling uncertainty in latent class membership: a case study in criminology. Journal of the American Statistical Association 1999;94:766-776.
6. Jones BJ, Nagin DS, Roeder K. A SAS procedure based on mixture models for estimating developmental trajectories. Sociological Methods and Research 2001;29:374-393.
7. Jones BL, Nagin DS. Advances in group-based trajectory modeling and an SAS procedure for estimating them. Sociological Methods and Research 2007;35:542-571.
8. Jones, B.L., Nagin, D.S., 2013. A Note on a Stata Plugin for Estimating Group-based Trajectory Models. Sociological Methods & Research 42, 608–613.
9. Traj: group-based modeling of longitudinal data. http://www.andrew.cmu.edu/user/bjones/
10. Hickson RP, Annis IE, Killeya-Jones LA, Fang G. Opening the black box of the group-based trajectory modeling process to analyze medication adherence patterns: An

example using real-world statin adherence data. Pharmacoepidemiol Drug Saf. 2020 ;29(3):357-362.

11. Lo-Ciganic WH, Gellad WF, Gordon AJ, Cochran G, Zemaitis MA, Cathers T, Kelley D, Donohue JM. Association between trajectories of buprenorphine treatment and emergency department and in-patient utilization. Addiction. 2016 May;111(5):892-902. doi: 10.1111/add.13270. Epub 2016 Jan 30. PMID: 26662858.

12. Zhou L, Bhattacharjee S, Kwoh CK, Tighe PJ, Reisfield GM, Malone DC, Slack M, Wilson DL, Chang CY, Lo-Ciganic WH. Dual-trajectories of opioid and gabapentinoid use and risk of subsequent drug overdose among Medicare beneficiaries in the United States: a retrospective cohort study. Addiction. 2020 Jul 10. doi: 10.1111/add.15189. Epub ahead of print. PMID: 32648951.