

## ARIELLE SCHMIDT SELYA

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### EMPLOYMENT

- ❖ **Assistant Professor**, Master of Public Health Program, University of North Dakota, 7/14 - present
- ❖ **NRSA Fellow**, Psychology Department, Wesleyan University, 1/14 – 6/14
- ❖ **Visiting Assistant Professor**, Psychology Department, Wesleyan University, Middletown, CT, 9/13 – 12/13
- ❖ **Research Associate**, Laboratory of Dr. Lisa Dierker, Psychology Department, Wesleyan University, Middletown, CT, 7/12 – 8/13

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### EDUCATION

- ❖ **Postdoctoral Fellow**, Laboratory of Dr. Lisa Dierker, Psychology Department, Wesleyan University, Middletown, CT, 11/10 – 6/12
- ❖ **Ph.D. in Neuroscience**, Integrative Neuroscience Program of Rutgers University, Newark NJ (under Dr. Stephen J. Hanson), 2005-2011, 3.8 GPA.
- ❖ **B.A. in Physics**, Cornell University, Ithaca, NY, 2001-2005, 3.2 GPA

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### PUBLICATIONS

#### Peer-Reviewed Journal Articles

Gabert-Quillen, C., **Selya, A.**, Delahanty, D. (*In press.*) Posttraumatic stress disorder symptoms mediate the relationship between trauma history and smoking status in college students. *Stress & Health*.

**Selya, A.S.**, Wakschlag, L., Dierker, L.C., Rose, J.S., Hedeker, D., Mermelstein, R.J. (2013). Exploring alternate mechanisms underlying the association between maternal smoking and the smoking behavior among young adult offspring. *Nicotine & Tobacco Research*, 15(11), 1873-1882.

Dierker, L., **Selya, A.**, Piasecki, T., Rose, J., Mermelstein, R. (2013). Alcohol problems as a signal for sensitivity to nicotine dependence and future smoking. *Drug & Alcohol Dependence*, 132(3), 688-693.

Rodriguez, P., Tasmiha, J., **Selya, A.** (2013). Muslims' emotional responses to the 9/11 anniversary. *Cognition & Emotion*, 27(5), 932-941.

**Selya, A.S.**, Dierker, L.C., Rose, J.S., Hedeker, D., Tan, X., Li, R., Mermelstein, R.J. (2013). Time-varying effects of smoking quantity and nicotine dependence on adolescent smoking regularity. *Drug & Alcohol Dependence*, 128(3), 230-237.

- Dierker, L. Kaparakis, E., Rose, J., **Selya, A.** and Beveridge, D. (2012). Strength in Numbers: A multidisciplinary, project-based approach to introductory statistics education. *Journal of Effective Teaching*, 12(2), 4-14.
- Rose, J.S., Lee, C.T., Dierker, L.C., **Selya, A.S.**, Mermelstein, R.J. (2012). Adolescent nicotine dependence symptom profiles and risk for future daily smoking. *Addictive Behaviors*, 37(10), 1093-1100.
- Selya, A.S.**, Rose, J.S., Dierker, L.C., Hedeker, D., Mermelstein, R. (2012). A practical guide to calculating Cohen's  $f^2$ , a measure of local effect size, from PROC MIXED. *Frontiers in Psychology*, 3:111, 1-6.
- Selya, A.S.**, Dierker, L.C., Rose, J.S., Hedeker, D., Mermelstein, R.J. (2012). Risk factors for adolescent smoking: parental smoking and the mediating role of nicotine dependence. *Drug & Alcohol Dependence*, 124, 311-318.
- Zhan, W., Dierker, L.C., Rose, J.S., **Selya, A.**, Mermelstein, R.J. (2012). The natural course of nicotine dependence symptoms among adolescent smokers. *Nicotine & Tobacco Research*, 14(12), 1445-1452.
- Rose, J.S., Lee, C.T., **Selya, A.S.**, Dierker, L.C. (2012). DSM-IV alcohol abuse and dependence criteria characteristics for recent onset adolescent drinkers. *Drug & Alcohol Dependence*, 124(1-2), 88-94.
- Lee, C., Rose, J.S., Engel-Rebitzer, E., **Selya, A.S.**, Dierker, L. (2011). Alcohol dependence symptoms among recent onset adolescent drinkers. *Addictive Behaviors*, 36(12), 1160-1167.
- Hanson, S.J, **Schmidt, A.** (2011). High-resolution imaging of the fusiform face area (FFA) using multivariate non-linear classifiers shows diagnosticity for non-face categories. *NeuroImage*, 54(2), 1715-1734. (as Arielle Schmidt)

#### Manuscripts in Progress

- Selya, A.S.**, Engel-Rebitzer, E., Dierker, L.C., Stephen, E., Rose, J.S., Otis, M. (*Under review*). Student mobility and school achievement: the potential impact on Adequate Yearly Progress (AYP) of schools within No Child Left Behind (NCLB).
- Selya, A.S.**, Updegrave, N., Rose, J.S., Dierker, L.C., Tan, X., Hedeker, D., Li, R., Mermelstein, R.J. (*Under review*). Nicotine-Dependence-Varying Effects of Smoking Events on Momentary Mood Changes among Adolescents.
- Dierker, L., Rose, J., **Selya, A.**, Piasecki, T., Hedeker, D., Mermelstein, R. (*Under review*). Depression and Nicotine Dependence across Increasing Levels of Smoking Exposure from Adolescence to Young Adulthood.

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#### TEACHING EXPERIENCE

- Digging the Digital Era: A Data Science Primer, Fall 2013. Developed and taught a hands-on course on current trends in “big data,” exploratory data analysis techniques, and data and textual analysis of social media, with a focus on Twitter, which students used for their semester-long individual projects.
- Independent Study in Data Mining, Spring 2013. Taught data mining methods to one student, and supervised application of these methods in his Master’s thesis in Psychology.

- Applied Data Analysis, Wesleyan University, Fall 2011, 2012, 2013; Summer 2013. Section instructor for classes of 13-20 undergraduate students. Teach introductory statistics and implementation in R, in the context of semester-long individual projects on research questions of students' choosing.
- QAC Summer Apprenticeship Program, Wesleyan University. Summer 2011-13. Instructor for approximately 35 undergraduate students (per year) on using R software for basic statistics. Additional topics included principal components analysis, multidimensional scaling, clustering analysis, mixed-effects models, and propensity score methods for causal inference.
- R tutorial for faculty, Wesleyan University, October 2012. Taught a 3-day informal workshop on the basics of using R software, running basic statistical analyses in R, and graphing in R, to 6 faculty members in the Psychology Department.
- Summer Workshop on a Project-Based Statistics Curriculum, Wesleyan University, June 14-15, 2012. Taught a session for an introduction to the software R, and the relevant syntax for an introductory statistics course.
- Neurobiology, Rutgers University. Spring 2008. TA for approximately 15 undergraduate students. Critiqued and graded several scientific writing assignments throughout the semester.
- Foundations of Neuroscience, Rutgers University. Spring 2007. TA for 8 doctoral students. Coordinated materials and presentations among lecturers, and led review sessions before exams.
- Introduction to Psychology, Rutgers University. Fall 2006. TA for 24 undergraduate students. Performed demonstrations and covered material supplementary to the lectures, and led review sessions before exams.

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## FUNDING

- ❖ 1F32DA033742-01A1, Ruth L. Kirschstein F32 NRSA award from NIDA (NIH), "System dynamics and dynamic systems modeling of adolescent smoking development." (*2 years' support approved; actual funding 1/1/2014 – 6/30/2014*)

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## CONFERENCES & PRESENTATIONS

### Invited Talks

- "Passion-Driven Statistics: a supportive, project-based, multidisciplinary introductory curriculum." Mini-course offered at the Mathematical Association of America's annual MathFest meeting, Hartford, CT, 8/2/2013 – 8/3/2014.
- "Using time-varying effect models (TVEM's) to examine smoking-related mood changes across nicotine addiction," Intensive Longitudinal Data (ILD) and Alcohol Research Meeting, The Methodology Center, Penn State University, 4/16/2013
- "Visual expertise in the fusiform face area (FFA) and lateral occipital cortex (LOC): a multivariate pattern analysis (MVPA) examination," Neuroscience Department, Smith College, 12/10/2012

- “*Pattern detection in fMRI data processing and implications for face processing*,” Natural Sciences and Mathematics lecture series, Wesleyan University, 9/30/2011
- “*Quantitative approaches to neuroscience and public health topics*,” laboratory of Dr. Hazhir Rahmandad, department of Industrial and Systems Engineering, Virginia Tech, 6/2/2011
- “*Visual processing strategies underlying expertise in the Fusiform Face Area (FFA) and Lateral Occipital Cortex (LOC)*,” public thesis defense, Center for Molecular and Behavioral Neuroscience, Rutgers University, 12/17/2010
- “*Holistic processing and cortical representation of faces and objects using nonlinear classifiers*,” public thesis proposal, Center for Molecular and Behavioral Neuroscience, Rutgers University, 7/1/2008
- “*High-resolution fMRI of 4 object categories in the FFA*,” laboratory of Dr. Bart Krekelberg, Center for Molecular and Behavioral Neuroscience, Rutgers University, 6/15/2007
- “*Cortical representation of faces and objects*,” End-of-Year presentation, Psychology Department, Rutgers University, 5/21/2007

#### Conference Presentations

**Selya, A.**, Updegrove, N., Dierker, L., Rose, J., Tan, X., Hedeker, D., Li, R., Mermelstein, R. (May 2013). Nicotine Dependence-Varying Effects of Smoking Events on Momentary Mood Changes among Adolescents. Paper presentation at the *Modern Modeling Methods* Conference, Storrs, CT.

**Selya, A.S.**, Dierker, L.C., Rose, J.S., Tan, X., Hedeker, D., Li, R., Mermelstein, R. (March 2013). Nicotine-dependence-varying effects of smoking events on changes in momentary positive and negative affect in adolescents. Abstract for poster presentation at the *Society for Research on Nicotine and Tobacco Research* Annual Meeting, Boston, MA.

Dierker, L.C., Rose, J.S., **Selya, A.S.**, Kaparakis, E., Beveridge, D. (January 2013). Course Curriculum and Laboratory Improvement (CCLI): An inquiry-based, supportive approach to statistical reasoning and application. Abstract for poster presentation at the NSF Transforming Undergraduate Education in STEM (TUES) Meeting, Washington, D.C.

**Selya, A.**, Dierker, L., Rose, J., Tan, X., Li, R., Hedeker, D., Mermelstein, R. (June 2012). Time-varying effects of nicotine dependence on adolescent smoking. Abstract for poster presentation the *Society for Prevention Research* Annual Meeting, Washington, DC.

**Selya, A.**, Dierker, L., Rose, J., Wakschlag, L., Mermelstein, R. (March 2012). Exploring alternate mechanisms underlying the association between prenatal tobacco exposure and adolescent smoking. Abstract for poster presentation at the *Society for Research on Nicotine and Tobacco* Annual Meeting, Houston, TX.

**Selya, A.**, Dierker, L., Rose, J., Tan, X., Li, R., Hedeker, D., Mermelstein, R. (March 2012). Time-varying effects of tobacco exposure, nicotine dependence, and parental

smoking regular smoking in adolescents. Abstract for poster presentation at the preconference workshop, "New Methods for Advancing Research on Tobacco Dependence" of the *Society for Research on Nicotine and Tobacco Annual Meeting*, Houston, TX.

**Schmidt, A.**, Grill-Spector, K., Hanson, S.J. High resolution imaging of object category diagnosticity using neural networks shows FFA is also diagnostic for nonface categories. *Society for Neuroscience 2007 Annual Meeting*, 526.4/CCC27. (As Arielle Schmidt)

**Schmidt, A.**, Hanson, C., Hanson, S.J. A Comparison of GLM and SVM in the analysis of fMRI data in individuals with autism. *Cognitive Neuroscience Society 2007 Annual Meeting*, 228 (G16) (as Arielle Schmidt)

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## REVIEWING ACTIVITIES

- Addiction
- American Journal of Epidemiology
- Frontiers in Psychology
- International Journal of Environmental Research and Public Health
- Journal of Adolescent Health
- Journal of Effective Teaching
- Journal of Studies on Alcohol and Drugs
- Nicotine & Tobacco Research
- Psychology of Addictive Behaviors
- Social Psychology and Psychiatric Epidemiology
- Substance Use and Misuse

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## PROFESSIONAL DEVELOPMENT

- *Summer Institute on Innovative Methods: Propensity Score Method for Causal Inference*, Penn State University, June 2012. A workshop on propensity score methods for causal inference, emphasizing its use with observational data.
- *Institute on Systems Science and Health*, System Dynamics Track, 2011. A workshop providing intensive instruction in systems science methodology to investigators researching public health topics. Funded by the Office of Behavioral and Social Sciences Research at NIH
- *Methodology Center Fall Retreat*, Penn State University, Fall 2010, 2011, 2012. An interdisciplinary workshop on novel methodological approaches and their potential contributions to research on HIV/AIDS (2010), smoking (2011), and alcohol use (2012).
- *Summer Workshop on Inquiry-Based Statistics Education*, Wesleyan University, July 2011. A workshop on theoretical and practical issues related to incorporating inquiry-based learning techniques in undergraduate, introductory-level statistics course.

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## TECHNICAL SKILLS

- Software: R, SAS, Vensim, MATLAB, Python, FSL
- Operating Systems: Windows, Linux (Ubuntu)

- Statistical methods: general linear models, mixed-effects/hierarchical models, time-varying effect models, structural equation modeling, survival analysis, propensity score methods, bootstrapping
- Exploratory/data mining techniques: principal components analysis (PCA), multidimensional scaling (MDS), hierarchical and k-means cluster analysis
- Machine learning techniques: statistical classifiers (Gaussian naive Bayes classifiers, linear and quadratic discriminant analysis, linear and nonlinear support vector machines, neural networks), cross-validation/prediction testing, classifier optimization, and visualization of model output
- Experiments: Experimental design and implementation, including fMRI design and MRI operation
- System dynamics: Developing stock-and-flow diagrams in Vensim, simulating and analyzing models

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#### **MEMBERSHIPS IN PROFESSIONAL SOCIETIES**

- Society for Prevention Research
- Society for Nicotine and Tobacco Research
- Cognitive Neuroscience Society
- Society for Neuroscience
- New York Academy of Sciences