

AMASS

AMASS 1: Thursday, November 15 | 8:30 AM–12:30 PM

Decision-Making Statistics for Researchers and Clinicians—We Are Ready to ROC!

Eric A. Youngstrom, Ph.D., University of North Carolina, Chapel Hill

Participants earn 4 continuing education credits.

Basic to Moderate level of familiarity with the material

Primary Topic: *Statistics (assessment)*

Key Word: *Assessment*



Bayes' theorem is three centuries old, but its time has finally arrived. Although Meehl, Dawes and others described how Bayesian methods would be helpful to be able to revise probability estimates of key clinical status (e.g., diagnosis, treatment responder, risk of dropout or self-harm) using assessments or risk factors, they have been slow to permeate psychological research, training, or practice. Improvements in technology make it feasible to gather more data from clients, score it in real time, and feed it into Bayesian algorithms. These methods have transformed weather forecasting, prediction of elections and sporting events, and now medicine. IBM Watson is using these tools to build dashboards to integrate information and guide care, and Evidence-Based Medicine has developed a range of low-tech tools (e.g., probability nomograms) and supporting software. Evidence-based assessment in psychology (Youngstrom, 2013) is melding these methods with traditional strengths of psychological assessment. This AMASS will walk through steps from start to finish twice: (a) from a research design and analysis perspective, and (b) from finding a study to applying the results to an individual case. Participants can vet their own data to see if it is suitable for these analyses, and we will work through annotated examples. The research-oriented segment will cover optimal research design, checking assumptions, applying receiver operating characteristic analyses (ROC), considerations in choosing cut-points, and using logistic regression to adjust for covariates and test for moderators (Youngstrom, 2014). The clinical application segment will focus on finding studies, triaging them quickly for clinical validity and relevance, and then applying results to cases (including using free online tools to convert traditional effect sizes into ones more helpful in clinical decision-making). The focus will be on enhancing clinical utility of research reporting.

This session is designed to help you:

- Recognize statistical methods and alternate effect sizes that enhance the clinical utility of results;
- Apply Receiver Operating Characteristic analyses and supporting statistical methods to real data, and how to present the results effectively;
- Convert traditional effect sizes (e.g., r , Cohen's d) into ones that are more clinically useful for decision making (e.g., Areas Under the Curve; diagnostic likelihood ratios);
- Apply research results to guide interpretation of clinical findings to update probabilities for a specific client;

- Explain how ROC and Bayesian methods connect with machine learning and other statistical methods that are getting used with big data in other disciplines.

Recommended Readings:

- Jenkins, M. M., & Youngstrom, E. A. (2016). A randomized controlled trial of cognitive debiasing improves assessment and treatment selection for pediatric bipolar disorder. *Journal of Consulting & Clinical Psychology, 84*, 323-333. doi:10.1037/ccp0000070
- Swets, J. A., Dawes, R. M., & Monahan, J. (2000). Psychological science can improve diagnostic decisions. *Psychological Science in the Public Interest, 1*, 1-26. doi:10.1111/1529-1006.001
- Youngstrom, E. A. (2013). Future directions in psychological assessment: Combining Evidence-Based Medicine innovations with psychology's historical strengths to enhance utility. *Journal of Clinical Child & Adolescent Psychology, 42*, 139-159. doi:10.1080/15374416.2012.736358
- Youngstrom, E. A. (2014). A primer on Receiver Operating Characteristic analysis and diagnostic efficiency statistics for pediatric psychology: We are ready to ROC. *Journal of Pediatric Psychology, 39*, 204-221. doi:10.1093/jpepsy/jst062
- Youngstrom, E. A., Halverson, T. F., Youngstrom, J. K., Lindhiem, O., & Findling, R. L. (2017). Evidence-based assessment from simple clinical judgments to statistical learning: Evaluating a range of options using pediatric bipolar disorder as a diagnostic challenge. *Clinical Psychological Science*.
- Youngstrom, E. A., Van Meter, A., Frazier, T. W., Hunsley, J., Prinstein, M. J., Ong, M.-L., & Youngstrom, J. K. (2017). Evidence-based assessment as an integrative model for applying psychological science to guide the voyage of treatment. *Clinical Psychology: Science and Practice*. doi:10.1111/cpsp.12207

AMASS 2: Thursday, November 15 | 1:00 PM – 5:00 PM

Affective Science for Clinical Scientists: Theory, Design, and Methodological Tools for Investigating Emotion Processing and Emotion Dysregulation

Karin Coifman, Ph.D., Kent State University

Participants earn 4 continuing education credits.

Basic to Moderate level of familiarity with the material

Primary Topic: *Research Methods and Statistics*

Key Words: *Emotion Regulation, Research Methods, Measurement*



Emotion-related disorders (e.g., depression, anxiety, stress, and some personality disorders) include some of the most common, burdensome, and costly diseases worldwide. Central to these disorders are patterns of rigid or inflexible emotion processing

and dysregulation. Indeed, increasingly theorists point to emotion processing problems as a cause or maintaining factor across affective diseases.

Unfortunately, direct assessment of emotion is complex. Emotion processing is largely outside of awareness and multidimensional, with responses manifesting behaviorally and physiologically with only loose coupling. Moreover, it is increasingly clear that patients have marked biases in emotion reporting and conceptualization (e.g., Kashdan, et al, 2015), notwithstanding established memory biases, so that reliance on self-report instruments has limitations. Accordingly, there is a need for increased attention to research design and measurement when seeking answers to the important clinical questions that drive improved assessment and intervention.

For individuals interested in studying emotional processes and regulation in clinical samples, this AMASS will facilitate an understanding of the complexity of affective phenomena, including the evolutionary origins and the relative uniqueness of overlapping constructs (affect v. emotion or mood; emotional reactivity v. recovery and regulation). Attendees will learn methodological and design parameters to study emotional constructs, including how to index specific behavioral and physiological indicators in the lab and in daily life. This includes demonstrations and materials to facilitate research planning (e.g., selecting emotion stimuli). Finally, attendees will learn specific methodological and statistical techniques to extract data representing three cutting-edge constructs highly relevant in clinical science: (a) emotion differentiation; (b) emotion polarity, and variability; (c) emotion inflexibility or rigidity. In each instance, measurement materials, design examples, and relevant syntax (with de-identified practice data) will be provided.

This session is designed to help you:

- Recognize the distinctness of overlapping affective phenomena and related research constructs, including: affect v. mood v. emotion; and reactivity v. recovery v. regulation;
- Utilize design parameters and tools to index emotion responding in lab elicitation paradigms;
- Utilize design parameters and tools to index emotion and related behavior in daily life via experience sampling paradigms;
- Employ techniques (including statistical and methodological tools) to index the following constructs: (a) emotion differentiation or granularity; (b) emotion lability, polarity, and variability; and (c) emotion inflexibility or rigidity.

Recommended Readings

Coifman, K.G., Flynn, J.J. & Pinto, L.A. (2016). When context matters: Negative emotions predict psychological health and adjustment. *Motivation & Emotion*, 40(4), 602-624.

Coifman, K.G., Berenson, K., Rafaeli, E. & Downey, G. (2012). From negative to positive and back again; Polarized affective and relational experiences in borderline personality disorder. *Journal of Abnormal Psychology*, 121(3), 668-679.

Ebner-Priemer, U., & Trull, T.J. (2009). Ecological momentary assessment of mood disorders and mood dysregulation. *Psychological Assessment*, 21(4) 463-475.

Kashdan, T.B., Barrett, L.F. & McKnight, P.E. (2015). Unpacking emotion differentiation, transforming unpleasant experience by perceiving distinctions in negativity. *Current Directions in Psychological Science*, 24(1), 10-16.

Lench, H.C., Flores, S.A., & Bench, S.W. (2011). Discrete emotions predict changes in cognition, judgment, experience, behavior and physiology: A meta-analysis of experimental emotion elicitation. *Psychological Bulletin*, 137(5), 835-855.

Rosenberg, E.L. (1998). Levels of analysis and the organization of affect. *Review of General Psychology*, 2(3), 247-270.