**Emma C Johnson, PhD**

**Research Assistant Professor** Phone: (828) 778 3398

Department of Psychiatry – 8134 Email: emma.c.johnson@wustl.edu

Washington University School of Medicine Website: [emmacjohnson.com](http://emmacjohnson.com/)

4560 Clayton Ave, Suite 1000 [Google Scholar profile](https://scholar.google.com/citations?user=eGBHEm0AAAAJ&hl=en&authuser=2)

St. Louis, MO 63110

**Education**

**PhD, Psychology - Behavioral, Psychiatric, and Statistical Genetics**

University of Colorado Boulder Aug 2017

Boulder, CO

*Advisor*: Matthew Keller, Ph.D.

*Dissertation*: “The genetic etiology of schizophrenia and other complex traits: novel insights from existing genome-wide datasets”

**MA, Psychology - Behavioral, Psychiatric, and Statistical Genetics**

University of Colorado Boulder April 2016

Boulder, CO

**BSPH, Biostatistics**

**BA, Biology**

University of North Carolina at Chapel Hill May 2013

Chapel Hill, NC

**Positions**

**Research Assistant Professor**

Department of Psychiatry July 2022 - current

Washington University School of Medicine

St. Louis, MO

**Instructor**

Department of Psychiatry Dec 2020 – July 2022

Washington University School of Medicine

St. Louis, MO

**Postdoctoral Research Associate**

Department of Psychiatry Sept 2017 - Dec 2020

Washington University School of Medicine

St. Louis, MO

*Mentor:* Arpana Agrawal, Ph.D.

*Research Foci:* Genetics of substance use disorders; genetic overlap and sources of comorbidity amongst substance use disorders and other psychiatric conditions

**Grant Support**

Active

**NIDA K01DA051759**

4/1/21 - 3/31/26

“Identifying genetic sources of comorbidity between cannabis and schizophrenia using genome-wide and integrative omics data”

Role: PI

Cannabis involvement is heritable and is more common in those with psychosis-related behaviors and schizophrenia, but the contributions to this comorbidity remain unclear. This K01 application aims to better understand the specific variants, genes, and biological pathways that underlie these behaviors, incorporate multi-omics data from human and rodent studies to prioritize variants for functional follow-up studies, and examine whether polygenic risk for comorbid cannabis use disorder and schizophrenia predicts psychosis-related behaviors in population- based and/or high-risk samples.

**BBRF Young Investigator Grant**

1/15/21 - 1/14/23

“The Impact of Prenatal Cannabis Exposure on Placental Epigenetics – Implications for Newborn Brain and Socio-Emotional Development”

Role: PI

This young investigator grant proposal seeks to supplement an ongoing study of marijuana use among pregnant mothers by evaluating associations between marijuana use during pregnancy, placental epigenetic signatures, and psychiatrically-relevant child outcomes. This multimodal project adopts highly innovative and integrative approaches that traverse levels of analysis (i.e., epigenetic signatures in placental tissue, newborn/infant MRI and cognitive and emotion assessment) to inform our understanding of the interactive molecular, neural, and behavioral mechanisms underlying prenatal marijuana exposure and psychopathology risk.

**CDC grant subcontract: U01 DD001297-01-00**

7/1/22 - 6/30/26

“Study to Explore Early Development (SEED) Follow Up Studies, Components A,B,D & E”

Role: PI of subcontract with Johns Hopkins (named as PI after Dr. Constantino’s transfer to Emory University)

The work proposed here, SEED Follow-up Studies (SEED FU), will maximize the impact of extant SEED data through analyses that characterize ASD phenotypes and assess the potential interplay between genetic and modifiable risk factors.

*Past*

**NIAAA F32AA027435**

12/1/18 - 11/30/20

“Identifying Contributions to the Genetic Correlation Between Alcohol Use Disorders and Schizophrenia”

Role: PI

This fellowship proposes intensive training in bioinformatics and cutting-edge statistical genetics methods via workshops and hands-on mentoring, with the goal of better understanding the genetic influences underlying the common comorbidity of alcohol dependence and schizophrenia.

**AFSP Young Investigator Innovation Grant**

11/1/19 - 10/31/21

**“**Elucidating the Polygenic Architecture Underlying Suicidal Thoughts and Behaviors”

Role: PI

This grant aims to elucidate the genetic etiology of suicidal thoughts and behaviors, their polygenic overlap with death by suicide, depression, risk-taking, and cognitive vulnerability, and to examine the role of individual liability for problematic drinking and familial risk for alcoholism, over and above family history of suicide, in the development of suicidal thoughts and behaviors.

**Awards and Honors**

2021 NIDA-NIAAA Early Career Investigator Showcase awardee

2019 Early Career Investigator Program - Oral Presentation Award winner (*WCPG meeting 2019*)

2019 Early Career Investigator Program - Travel Award (*WCPG meeting 2019*)

2019 RSA Memorial Award (*RSA meeting 2019)*

2019 Junior Investigator Travel Award *(RSA meeting 2019)*

2018 Travel Award – Pathway to Drugs meeting (*Copenhagen, DK*)

2017 Reviewer’s Choice Abstract *(ASHG 2017 Meeting)*

2016 Graduate School Domestic Travel Grant *(CU Boulder)*

2015 Behavior Genetics Association Travel Award

2012 Summer Undergraduate Research Fellowship *(UNC Chapel Hill)*

2009-2013 Irving Jacob Reuter Award of The Community Foundation of Western NorthCarolina *(Full scholarship for undergraduate education)*

**Invited Talks**

May 2022: “Using genome-wide approaches to understand the genetic etiology of suicide-related behaviors and substance use disorders”, presented as part of the American Foundation for Suicide Prevention’s inaugural Research Connection+ event (<https://researchconnectionplus.attendease.com/> )

May 2021: “Genetics of substance use and related traits: insights, complexities, and challenges”, presented at the Institute for Behavioral Genetics mini-conference *(virtual keynote due to COVID-19 circumstances)*

April 2020: “Using a variety of genome-wide methods to investigate the shared genetic underpinnings of alcohol use disorder and schizophrenia”, presented at the Center for Studies on Addiction 2019-2020 seminar series at the University of Pennsylvania. *(virtual seminar due to COVID-19 circumstances)*

**Publications (56)**

# Indicates paper where I served as mentor

**Johnson EC**, Paul SE, Baranger D, et al. Characterizing alcohol expectancies in the ABCD Study: associations with sociodemographic factors, the immediate social environment, and relevant polygenic scores. *Behavior Genetics* (accepted) Preprint: <https://doi.org/10.21203/rs.3.rs-2126779/v1>

# Colbert SMC, … **Johnson EC**. Polygenic contributions to suicidal thoughts and behaviors in a sample ascertained for alcohol use disorders. *Complex Psychiatry* (accepted) Preprint:<https://doi.org/10.1101/2022.08.18.22278943>

Hatoum AS, Colbert SMC, **Johnson EC,** et al. Multivariate genome-wide association meta-analysis of over 1 million subjects identifies loci underlying multiple substance use disorders. *Nature Mental Health* (accepted) Preprint: <https://doi.org/10.1101/2022.01.06.22268753>

**Johnson EC,** Colbert SMC, et al. Associations between cannabis use, polygenic liability for schizophrenia, and cannabis-related experiences in a sample of cannabis users. *Schizophrenia Bulletin* (2022) <https://doi.org/10.1093/schbul/sbac196>

Bogdan R, Hatoum AS, **Johnson EC,** Agrawal A. Genetically Informed Neurobiology of Addiction: An Integration of Neuroimaging and Genomic Studies. *Nature Neuroscience Reviews* (2021) <https://doi.org/10.1038/s41583-022-00656-8>

# Colbert SMC, **Johnson EC.** Commentary on Lannoy et al.: The continued value of within-family designs in addiction and psychiatric research. *Addiction* (2022) <https://doi.org/10.1111/add.16040>

# Colbert SMC, Keller MC, Agrawal A, **Johnson EC**. Exploring the relationships between autozygosity, educational attainment, and cognitive ability in a contemporary, trans-ancestral American sample. *Behavior Genetics.* (2022) <https://doi.org/10.1007/s10519-022-10113-y>

Baranger DAA, Paul SE, Colbert SMC, Karcher NR, **Johnson EC,** et al. Association of Mental Health Burden with Prenatal Cannabis Exposure from Childhood to Early Adolescence: Longitudinal Findings from the Adolescent Brain Cognitive Development (ABCD) Study. *JAMA Pediatrics*. Published online September 12, 2022. <https://doi.org/10.1001/jamapediatrics.2022.3191>

Deak J, et al. **[middle author]** Genome-wide association study in individuals of European and African ancestry and multi-trait analysis of opioid use disorder identifies 19 independent genome-wide significant risk loci. *Molecular Psychiatry* (2022) <https://doi.org/10.1038/s41380-022-01709-1>

Hatoum AS, Winiger EA, Morrison CL, **Johnson EC**, Agrawal A. Characterization of the genetic relationship between the domains of sleep and circadian-related behaviors with substance use phenotypes. *Addiction Biology* (2022) <https://doi.org/10.1111/adb.13184>

Lai D, **Johnson EC**, Colbert SMC, et al. Evaluating risk for alcohol use disorder: polygenic risk scores and family history. *Alcoholism: Clinical and Experimental Research* (2021) <http://doi.org/10.1111/acer.14772>

# Paul SE, … **Johnson EC**. Associations between cognition and polygenic liability to substance involvement in middle childhood: Results from the ABCD Study. *Drug and Alcohol Dependence* (2021) <https://doi.org/10.1016/j.drugalcdep.2022.109277>

Huggett SB, **Johnson EC**, et al. Genes identified in rodent studies of alcohol intake are enriched for heritability of human substance use. *Alcoholism: Clinical and Experimental Research* (2021) <https://doi.org/10.1111/acer.14738>

Hatoum, A.S., **Johnson, E.C.,** Colbert, S.M.C. et al. The addiction risk factor: A unitary genetic vulnerability characterizes substance use disorders and their associations with common correlates. *Neuropsychopharmacology* (2021). <https://doi.org/10.1038/s41386-021-01209-w>

# Colbert SMC, … **Johnson EC**. Exploring the genetic overlap of suicide-related behaviors and substance use disorders. *AJMG Part B: Neuropsychiatric Genetics* (2021) <https://doi.org/10.1002/ajmg.b.32880>

Colbert SMC, Funkhouser SA, **Johnson EC,** Hoeffer CA, Ehringer MA, Evans LM. Differential shared genetic influences on anxiety with problematic alcohol use compared to alcohol consumption. *AJMG Part B: Neuropsychiatric Genetics* (2021) <https://doi.org/10.1002/ajmg.b.32874>

Kapoor M, Chao M, **Johnson EC**, et al. Multi-omics integration analysis identifies novel genes for alcoholism with potential link to neurodegenerative diseases. *Nature Communications* 12, 5071 (2021). <https://doi.org/10.1038/s41467-021-25392-y>

Karcher NR, Paul SE, **Johnson EC**, et al. Psychotic-like experiences and polygenic liability in the ABCD Study. *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging* (2021) <https://doi.org/10.1016/j.bpsc.2021.06.012>

**Johnson EC**, et al. Investigation of convergent and divergent genetic influences underlying schizophrenia and alcohol use disorder*. Psychological Medicine* (2021) <https://doi.org/10.1017/S003329172100266X>

Hatoum AS, **Johnson EC**, Agrawal A, Bogdan R. Brain Structure and Problematic Alcohol Use: A Genetic Quasi-Experimental Test of Plausible Causation. *Brain Imaging & Behavior* (2021) <https://doi.org/10.1007/s11682-021-00482-z>

Hatoum AS, et al. [**middle author**] Genetic Liability to Cannabis Use Disorder and COVID-19 Hospitalization. *Biological Psychiatry: Global Open Science* (2021) <https://doi.org/10.1016/j.bpsgos.2021.06.005>

Hatoum AS, **Johnson EC**, et al. Polygenic Risk Scores for Alcohol Involvement Relate to Brain Structure in Substance-Naive Children: Results from the ABCD Study. *Genes, Brain and Behavior* 2021; 20:e12756. <https://doi.org/10.1111/gbb.12756>

Sherva R, et al. [**middle author**] Genome-wide association study of phenotypes measuring progression from first cocaine or opioid use to dependence reveals novel risk genes. *Exploration of medicine.* (2021) <https://doi.org/10.37349/emed.2021.00032>

**Johnson EC**, Aliev F, et al. Associations Between Suicidal Thoughts and Behaviors and Genetic Liability for Cognitive Performance, Depression, and Risk-taking in a High-risk Sample. *Complex Psychiatry* (2021) <https://doi.org/10.1159/000517169>

Palmer RHC, **Johnson EC**, Won H, Polimanti R, et al. Integration of Evidence across Human and Model Organism Studies: A Meeting Report. *Genes, Brain and Behavior.* 2021; 20:e12738. <https://doi.org/10.1111/gbb.12738>

Bountress, K., et al. [**middle author**] Potential Causal Effect of PTSD on AUD and Alcohol Consumption: A Mendelian Randomization Study. *Alcoholism: Clinical and Experimental Research,* 45, 1616– 1623<https://doi.org/10.1111/acer.14649>

**Johnson EC**, Hatoum AS, et al. The relationship between cannabis and schizophrenia: a genetically informed perspective. *Addiction* (2021). <https://doi.org/10.1111/add.15534>

Baumeister SE, Baurecht H, …. **Johnson EC**, Hung RJ. Cannabis use, pulmonary function, and lung cancer susceptibility: A Mendelian randomization study. *Journal of Thoracic Oncology* (2021) <https://doi.org/10.1016/j.jtho.2021.03.025>

Deak JD, **Johnson EC.** Genetics of substance use disorders: A review. *Psychological Medicine* (2021). <https://doi.org/10.1017/S0033291721000969>

Linnér RK, Mallard TT, et al. **[middle author]** Multivariate genomic analysis of 1.5 million people identifies genes related to addiction, antisocial behavior, and health. *Nature Neuroscience* (2021).

Mallard TT, Savage JE, **Johnson EC,** et al. Item-level genome-wide association study of the Alcohol Use Disorders Identification Test in three population-based cohorts. *American Journal of Psychiatry (*2021*).*

**Johnson EC\*,** Demontis, D\*, Thorgeirsson TE\*, et al. A large-scale genome-wide association study meta-analysis of cannabis use disorder. *The Lancet Psychiatry* (2020). (\*joint first authorship) <https://doi.org/10.1016/S2215-0366(20)30339-4>

Meyers J, Chorlian D, Bigdeli T, **Johnson EC,** et al., The Association of Polygenic Risk for Schizophrenia, Bipolar Disorder, and Depression with Neural Connectivity in Adolescents and Young Adults: Examining Developmental and Sex Differences. *Translational Psychiatry.* (2020)

Paul SE, Hatoum AS, Fine JD, **Johnson EC,** et al. Associations Between Prenatal Cannabis Exposure and Childhood Outcomes: Results from the ABCD Study. *JAMA Psychiatry* (2020). <htttps://doi:10.1001/jamapsychiatry.2020.2902>

Reynolds, T., **Johnson EC,** Huggett, S.B. et al. Interpretation of psychiatric genome-wide association studies with multispecies heterogeneous functional genomic data integration. *Neuropsychopharmacology* (2020). <https://doi.org/10.1038/s41386-020-00795-5>

Barr PB, Ksinan A, Su J, **Johnson EC**, et al. Using polygenic scores for identifying individuals at increased risk of substance use disorders in clinical and population samples. *Translational Psychiatry* (2020). <https://doi.org/10.1038/s41398-020-00865-8>

Zhou H, et al. [**middle author** of 26] Meta-analysis of problematic alcohol use in 435,563 individuals identifies 29 risk variants and yields insights into biology, pleiotropy and causality. *Nature Neuroscience* (2020) <https://doi.org/10.1038/s41593-020-0643-5>

**Johnson EC**, Chang Y, Agrawal A. An Update on the Role of Common Genetic Variation Underlying Substance Use Disorders. *Current Genetic Medicine Reports* (2020). <https://doi.org/10.1007/s40142-020-00184-w>

Polimanti R, Walters RK, **Johnson EC**, et al. Leveraging genome-wide data to investigate differences between opioid use vs. opioid dependence in 41,176 individuals from the Psychiatric Genomics Consortium. *Molecular Psychiatry* (2020). <https://doi.org/10.1038/s41380-020-0677-9>

Munn-Chernoff M, **Johnson EC,** et al. Shared Genetic Risk between Eating Disorder- and Substance-Use-Related Phenotypes: Evidence from Genome-Wide Association Studies. *Addiction Biology* (2020). <https://doi.org/10.1111/adb.12880>

Cox JW, Sherva RM, Lunetta KL, **Johnson EC**, et al. Genome-Wide Association Study of Opioid Cessation. *J. Clinical Medicine*. <https://doi.org/10.3390/jcm9010180>

**Johnson EC**\*, Sanchez-Roige S\*, et al. Polygenic contributions to alcohol use and alcohol use disorders across population-based and clinically ascertained samples. (\*joint first authorship) *Psychological Medicine*. (2020) <https://doi.org/10.1017/S0033291719004045>

Evans LM, **Johnson EC,** Melroy-Grief WE, et al. The role of *a priori-*identified addiction and smoking gene sets in smoking behaviors. *Nicotine & Tobacco Research*. <https://doi.org/10.1093/ntr/ntaa006>

Meyers JL, Chorlian DB, **Johnson EC,** et al. Association of Polygenic Liability for Alcohol Dependence and EEG Connectivity in Adolescence and Young Adulthood. *Brain Sciences*. <https://doi.org/10.3390/brainsci9100280>

Salvatore JE, et al. **[middle author]** Sibling Comparisons Elucidate the Associations between Educational Attainment Polygenic Scores and Alcohol, Nicotine, and Cannabis. *Addiction*. <https://doi.org/10.1111/add.14815>

Border R, **Johnson EC,** Evans LM, Keller MC (2019) Measurement error cannot account for failed replications of historic candidate gene-by-environment hypotheses: Response to Vrshek-Schallhorn et al. *American Journal of Psychiatry.* <https://doi.org/10.1176/appi.ajp.2019.19040374r>

Lai D, Wetherill L, Kapoor M, **Johnson EC,** et al. (2019) Genome-wide association studies of the self-rating effects of ethanol (SRE). *Addiction Biology*. <https://doi.org/10.1111/adb.12800>

Wetherill L, Lai D, **Johnson EC,** et al. (2019) Genome-wide association study identifies loci associated with liability to alcohol and drug dependence that is associated with variability in reward-related ventral striatum activity in African- and European-Americans. *Genes, Brain and Behavior*. <https://doi.org/10.1111/gbb.12580>

Meyers JL, Salvatore JE,Aliev F., **Johnson EC,** et al. (2019) Psychosocial moderation of polygenic risk for cannabis involvement: The role of trauma exposure and frequency of religious service attendance. *Translational Psychiatry*. [10.1038/s41398-019-0598-z](https://dx.doi.org/10.1038%2Fs41398-019-0598-z)

**Johnson EC,** St. PierreC.L., Meyers J., et al. (2019) The genetic relationship between alcohol consumption and aspects of problem drinking. *Alcoholism: Clinical and Experimental Research.* <https://doi.org/10.1111/acer.14064>

Border R, **Johnson EC,** Evans LM, Smolen A, Berley N, Sullivan PF, Keller MC. (2019)No support for historic candidate gene or candidate gene-by-interaction hypotheses for major depression across multiple large samples. *American Journal of Psychiatry.* <https://doi.org/10.1176/appi.ajp.2018.18070881>

**Johnson EC,** Tillman R, Aliev F, et al. (2018) Exploring the relationship between polygenic risk for cannabis use, peer cannabis use, and the longitudinal course of cannabis involvement. *Addiction.* <https://doi.org/10.1111/add.14512>

Walters RK, Polimanti R, **Johnson EC,** et al. (2018) Transancestral GWAS of alcohol dependence reveals common genetic underpinnings with psychiatric disorders. *Nature Neuroscience*. <https://doi.org/10.1038/s41593-018-0275-1>

**Johnson EC,** Evans LM, Keller MC. (2018) Relationships between estimated autozygosity and complex traits in the UK Biobank. *PLOS Genetics.* <https://doi.org/10.1371/journal.pgen.1007556>

**Johnson EC,** Border R, Melroy-Greif W, De Leeuw CA, Ehringer MA, Keller MC. (2017) No evidence that schizophrenia candidate genes are more associated with schizophrenia than non-candidate genes. *Biological Psychiatry*. <http://dx.doi.org/10.1016/j.biopsych.2017.06.033> (\*see commentary on this paper: <https://doi.org/10.1016/j.biopsych.2017.09.004>)

**Johnson EC,** Bjelland DW, Howrigan DP, et al. (2016) No Reliable Association Between Runs of Homozygosity and Schizophrenia in a Well-Powered Replication Study. *PLoS Genetics.* <https://doi.org/10.1371/journal.pgen.1006343>

**Preprints and in prep (3)**

# Indicates paper where I served as mentor

# Colbert SMC, Wendt F, Pathak G, Keller MC, Polimanti R, **Johnson EC**. Declining autozygosity over time: an exploration in over 1 million individuals from three large and diverse cohorts. *Submitted to AJHG.* Preprint: <https://doi.org/10.1101/2022.10.13.512166>

Xu H, Toikumo S, Crist RC, Glogowska K, Deak JD, Gelernter J, **Johnson EC,** Kranzler HR, Kember RL. Multi-trait Analysis of GWAS (MTAG) of Substance Use Traits Identifies Novel Genetic Loci and Phenomic Associations. *(under review)* Preprint: <https://doi.org/10.1101/2022.07.06.22277340>

Colbert SMC, Norton S, **Johnson EC**, Bogdan R, Agrawal A. Genetic contribution of C-Reactive Protein to the relationship between cannabis and diseases with inflammatory signatures. *In preparation.*

**Book Chapters**

Colbert SMC, **Johnson EC**. Genetic explanations for the association between cannabis and schizophrenia. (*in review;* 2021). In D’Souza D., Castle D., and Murray R. (Eds.), *Marijuana and Madness, 3rd Ed.* Cambridge, England: Cambridge University Press.

**Selected Oral Presentations**

*Associations between cannabis use, polygenic liability for schizophrenia, and adverse cannabis-related experiences.* (June 2022) Presented as part of symposium “Genomic structural equation modeling and polygenic score approaches to understanding substance use and related behaviors” at the BGA 2022 meeting (Los Angeles, CA)

*Exploring the relationships between autozygosity, educational attainment, and cognitive ability in a contemporary, trans-ancestral American sample.* (June 2022)Presented at the BGA 2022 meeting (Los Angeles, CA)

*Shared Genetic Influences Underlying Cannabis Use disorder, Psychosis-Like Experiences, and Schizophrenia*. (December 2021) Presented as part of a panel on “Cannabis and Psychosis: Clinical features, Risk for Relapse and Potential Mechanism” at the ACNP 2021 meeting (San Juan, Puerto Rico)

*The relationships between cannabis, tobacco, and schizophrenia: a genetically informed perspective.* (January 2021) Presented at the NIDA-NIAAA Mini-Convention: Early Career Investigator Showcase (virtual meeting)

*Measures of consumption versus disordered substance use: evidence of different genetic architectures*.(January 2020) Presented at the NIDA Genetics and Epigenetics Cross-Cutting Research Team Meeting (Rockville, MD)

*Genome-wide cross-disorder analyses of schizophrenia and alcohol use disorder in more than 350,000 individuals reveals schizophrenia’s genetic overlap with disordered drinking but not drinks per week.* (October 2019) Presented at the XXVII World Congress of Psychiatric Genetics meeting. (Anaheim, CA) \*Early Career Investigator Program Oral Presentation Award winner

*Genome-wide association study of cannabis use disorder: results from European and trans-ancestral meta-analyses.* (October 2019) Presented at the XXVII World Congress of Psychiatric Genetics meeting. (Anaheim, CA)

*Polygenic contributions to alcohol use and alcohol use disorders across population-based and clinically ascertained samples****.*** (September 2019)Presented at the 17th European Society for Biomedical Research on Alcoholism Meeting. (Lille, France)

*Investigating the genetic overlap of alcohol use disorders and schizophrenia****.*** (June 2019) Presented at the Research Society on Alcoholism 42nd Annual Scientific Meeting. (Minneapolis, MN)

*Examining 25 classic schizophrenia candidate genes in the context of GWAS data - evidence for relevance?* (May 2016) Presented at the Institute for Behavioral Genetics Annual Mini-conference.

*Runs of homozygosity in the PGC2 data – no reliable association with schizophrenia.* (June 2015) Presented at the 45th Annual Behavioral Genetics Association Meeting (San Diego, CA)

**Selected Poster Presentations**

*Associations Between Suicidal Thoughts and Behaviors and Genetic Liability for Cognitive Performance, Depression, and Risk-taking in a High-risk Sample.* (October 2020). Presented at the World Congress of Psychiatric Genetics (virtual).

*Exploring the relationship between polygenic risk for cannabis use, peer cannabis use, and the longitudinal course of cannabis involvement.* (October 2018). Presented at the World Congress of Psychiatric Genetics (Glasgow, Scotland).

*A broad survey of the relationship between autozygosity and fitness-related and sociodemographic traits in the UK Biobank* (October 2017). Presented at the American Society of Human Genetics Meeting. (Orlando, FL) \*Reviewer’s Choice Abstract - scored in top 10% of poster abstracts

*No evidence that the most studied candidate genes for schizophrenia are more relevant to schizophrenia than random sets of genes.* (October 2016). Presented at the American Society of Human Genetics Meeting. (Vancouver, B.C.)

*Runs of homozygosity in the PGC2 data – no reliable association with schizophrenia.* (October 2015). Presented at the XXIIIrd World Congress of Psychiatric Genetics. (Toronto, CA)

*Lasting consequences of binge drinking: effect of adolescent alcohol exposure on autoshaping in rats.* (November 2012). Presented at State of North Carolina Undergraduate Research and Creativity Symposium.

**Membership in Professional and Academic Organizations**

2018-present Research Society on Alcoholism

2016-present American Society of Human Genetics, Behavioral Genetics Association

2013 Carolina Research Scholars

**Professional Development**

May 2019 *NIDA Addiction Genetics and Epigenetics “Data Jamboree”*

Oak Ridge National Laboratory

Mar. 2015 *The 2015 International Workshop on Statistical Genetic Methods for Human Complex Traits*

Institute for Behavioral Genetics, Boulder, CO

Aug. 2012 SAS Certified Clinical Trials Programmer

May 2012-Aug. 2012 Summer Programming Intern, Biogen Idec, Inc.

Research Triangle Park, North Carolina

*Mentor*: Christopher Kania, M.A.

**Teaching Experience**

***Workshops***

Washington University in St. Louis

* Summer 2018 Interface of Psychology, Neuroscience, and Genetics Workshop

Teaching Assistant for Drs. Arpana Agrawal and Ryan Bogdan

***Graduate Courses***

Washington University in St. Louis

* Fall 2018 - current GEMS 5483 - Human Genetic Analysis

Guest Lecturer

University of Colorado Boulder

* Fall 2016 PSYC 5541 - Special Topics: R Programming Course

Co-Teaching Assistant for Dr. Matthew Keller

***Undergraduate Courses***

Washington University in St. Louis

* Fall 2019 - current PSYC 345 - Genes, Environment, and Human Behavior

Instructor

University of Colorado Boulder

* Spring 2014 PSYC 2606 - Social Psychology

Teaching Assistant for Dr. Brett King

* Fall 2013 PSYC 3101 - Statistics and Research Methods in Psychology

Teaching Assistant for Dr. Matthew Jones; taught two lab sections

**Service**

2021 Member, BGA IDEA Task Force

2021 Member, planning committee for PGC Day at WCPG 2021

2020 - Consultant, Sarah Paul’s NRSA F31 grant “Trajectories of Alcohol Involvement from Middle Childhood to Early Adulthood: A Multimodal Investigation”

2019 - PGC Data Receiving Committee representative for the PGC SUD group

2019 Member, Lindsay Michalski’s dissertation committee

2017 - Ad Hoc Reviewer - Biological Psychiatry; American Journal of Psychiatry; Psychological Medicine; American Journal of Medical Genetics Part B: Neuropsychiatric Genetics; Schizophrenia Bulletin; Journal of Abnormal Psychology; Addiction; Molecular Psychiatry; Behavior Genetics; Journal of Child Psychology and Psychiatry; ACER; Addictive Behaviors; Frontiers: Neurology; Genes, Brain, and Behavior; Human Molecular Genetics

2016 Member, IBG Annual Mini-Conference coordinating committee

**Methods & Skills**

* R (skilled), Python (proficient), Excel (proficient)
* Experienced at working in a Unix/Linux environment and working on remote computing clusters
* Competent at handling large and complex datasets (e.g., imputed genome-wide datasets with 10 million+ genetic variants for 300,000+ individuals)
* Skilled at using typical statistical genetic software (Plink, GCTA, Genomic SEM, PRS-CS, etc.)
* Expertise with a variety of behavioral and statistical genetics methodology including: genome-wide association studies, estimates of autozygosity and other population genetics approaches, causal inference models, polygenic risk score analyses

**References**

Arpana Agrawal, Ph.D. (*Postdoctoral mentor)*

Professor

Department of Psychiatry

Washington University School of Medicine

660 S. Euclid, CB 8134

Saint Louis, MO 63110

314-286-1778

[arpana@wustl.edu](mailto:arpana@wustl.edu)

Howard Edenberg, Ph.D. (*PGC SUD co-chair*)

Professor

Department of Biochemistry and Molecular Biology

Indiana University School of Medicine

635 Barnhill Drive  
Medical Science, Room 4063E

Indianapolis, IN 46202

(317) 274-2353

[edenberg@iu.edu](mailto:edenberg@iu.edu)

Matthew Keller, Ph.D. (*PhD advisor*)

Professor

Department of Psychology and Neuroscience

University of Colorado, Boulder

Muenzinger D347B

Boulder, CO 80309

303-492-5799

[matthew.c.keller@colorado.edu](mailto:matthew.c.keller@colorado.edu)

Rohan Palmer, Ph.D. (*K01 co-mentor)*

Associate Professor

Department of Psychology

Emory University

36 Eagle Row

Atlanta, GA 30322

404-727-7340

[rohan.palmer@emory.edu](mailto:rohan.palmer@emory.edu)