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CURRICULUM VITAE

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EDUCATION

Master of Applied Statistics, 2016
The Pennsylvania State University, University Park, PA

Bachelor of Science, Biochemistry, 2007
Southern Methodist University, Dallas, TX

EMPLOYMENT

02/2020 – Present	Biostatistician III	Department of Biostatistics Vanderbilt University Medical Center, Nashville, TN
06/2017 – 01/2020	Biostatistician II	Department of Biostatistics Vanderbilt University Medical Center, Nashville, TN
08/2016 – 06/2017	Biostatistician II	Center for Research on Men's Health Vanderbilt University, Nashville, TN
02/2016 – 05/2016	Intern	Office of the Vice Provost for Research Vanderbilt University, Nashville, TN
08/2015 – 05/2016	Teaching Assistant	Department of Statistics The Pennsylvania State University, University Park, PA
08/2015 – 12/2015	Statistical Consultant	Statistical Consulting Center The Pennsylvania State University, University Park, PA
05/2015 – 08/2015	Intern	Research & Development West Pharmaceutical Services, Inc., Exton, PA
07/2011 – 05/2012	Research Assistant	Brain, Language, and Computation Lab The Pennsylvania State University, University Park, PA
08/2009 – 05/2011	Research Assistant	Department of Chemistry The Pennsylvania State University, University Park, PA

PUBLICATIONS

Peer-Reviewed Journal Articles

1. "Lower cerebral oxygen utilization is associated with Alzheimer's disease-related neurodegeneration and poorer cognitive performance among apolipoprotein E ε4 carriers." WH Robb, **OA Khan**, H Ahmed, J Li, EE Moore, FE Cambronero, KR Pechman, D Liu, KA Gifford, BA Landman, MJ Donahue, TJ Hohman, AL Jefferson. Manuscript submitted for publication in *Journal of Cerebral Blood Flow and Metabolism*.
2. "Elevated aortic pulse wave velocity relates to longitudinal grey and white matter changes." CW Bown, **OA Khan**, D Liu, KR Pechman, EE Moore, FE Cambronero, JG Terry, S Nair, LT Davis, KA Gifford, BA Landman, TJ Hohman, JJ Carr, AL Jefferson. Manuscript submitted for publication in *JAMA Neurology*.
3. "Axonal injury partially mediates associations between increased left ventricular mass index and white matter damage." EE Moore, **OA Khan**, N Shashikumar, KR Pechman, D Liu, SP Bell, S Nair, JG Terry, KA Gifford, AW Anderson, BA Landman, K Blennow, H Zetterberg, TJ Hohman, JJ Carr, AL Jefferson. Manuscript submitted for publication in *Stroke*.
4. "Subclinical compromise in cardiac strain relates to smaller cerebral grey matter volumes in older adults." HA Kresge, **OA Khan**, D Liu, JG Terry, S Nair, FE Cambronero, KA Gifford, KE Osborn, KR Pechman, SP Bell, BA Landman, TJ Wang, TJ Hohman, JJ Carr, AL Jefferson. Manuscript submitted for publication in *PLOS One.*
5. "Lower cardiac output relates to longitudinal cognitive decline in aging adults." CW Bown, R Do, **OA Khan**, D Liu, FE Cambronero, EE Moore, KE Osborn, DK Gupta, KR Pechman, LA Mendes, TJ Hohman, KA Gifford, AL Jefferson. *Frontiers in Psychology*, 11:2973, 2020. doi:10.3389/fpsyg.2020.569355
6. "Cerebrospinal fluid biomarkers of neurodegeneration, synaptic dysfunction, and axonal injury relate to atrophy in structural brain regions specific to Alzheimer's Disease." EE Moore, KA Gifford, **OA Khan**, D Liu, KR Pechman, LMY Acosta, SP Bell, M Turchan, BA Landman, K Blennow, H Zetterberg, TJ Hohman, AL Jefferson. *Alzheimer's & Dementia*, 16(6):883-895, 2020. doi:10.1002/alz.12087
7. "Cerebrospinal fluid and plasma neurofilament light relate to abnormal cognition." KE Osborn, **OA Khan**, HA Kresge, CW Bown, D Liu, EE Moore, KA Gifford, LMY Acosta, SP Bell, TJ Hohman, K Blennow, H Zetterberg, AL Jefferson. *Alzheimer's & Dementia: Diagnosis, Assessment & Disease Monitoring*, 11:700-709, 2019. doi:10.1016/j.dadm.2019.08.008
8. "Increased blood pressure visit-to-visit variability in patients with systemic lupus erythematosus: association with inflammation and comorbidity burden." T Reese, AL Dickson, MM Shuey, JS Gandelman, A Barnado, KA Barker, JE Neal, **OA Khan**, WD Dupont, CM Stein, CP Chung. *Lupus*, 28(8):954-960, 2019. doi:10.1177/0961203319856988
9. "Increased incidence of resistant hypertension in patients with systemic lupus erythematosus: a retrospective cohort study." JS Gandelman, **OA Khan**, MM Shuey, JE Neal, E McNeer, A Dickson, A Barnado, L Wang, P Anandi, WD Dupont, CM Stein, CP Chung. *Arthritis Care & Research*, 2019. doi:10.1002/acr.23880

10. “Subclinical compromise in cardiac strain relates to lower cognitive performances in older adults.” HA Kresge, **OA Khan**, MA Wagener, D Liu, JG Terry, S Nair, FE Cambronero, KA Gifford, KE Osborn, TJ Hohman, KR Pechman, SP Bell, TJ Wang, JJ Carr, AL Jefferson. *Journal of the American Heart Association*, 7(4), 2018. doi:10.1161/JAHA.117.007562
11. “Synthesis of 4,4-disubstituted-4H-benzo[d][1,3]oxathiin-2-ones, a new class of compounds.” S Kamila, **O Khan**, H Zhang, ER Biehl. *Synthetic Communications*, 36:1419-1429, 2006. doi:10.1080/00397910500522140
12. “Regioselective one pot synthesis of 2-alkyl/aryl-4H-benzo[1,4]thiazine-3-one via microwave irradiation.” S Kamila, B Koh, **O Khan**, H Zhang, ER Biehl. *Journal of Heterocyclic Chemistry*, 43(6):1641-1646, 2006. doi:10.1002/jhet.5570430632

Whitepapers

1. “Understanding statistics for quality by design: a technical document series.” **OA Khan**. *West Pharmaceutical Services, Exton, PA*, 2015.

Manuscripts in Preparation

1. “Cerebrospinal fluid matrix metalloproteinases, tissue inhibitors of metalloproteinases, and cognition” in collaboration with S Meier
2. “Mediation analysis of cardiac strain, brain atrophy, and cognition” in collaboration with HA Kresge
3. “Subjective cognitive decline questionnaire validation” in collaboration with KA Gifford
4. “Circle of Willis and cerebral blood flow” in collaboration with FE Cambronero

SELECTED SOFTWARE

1. rVMAP: The rVMAP package is intended to improve the efficiency and reproducibility of data processing and statistical analysis for the Vanderbilt Memory and Alzheimer's Center’s Vanderbilt Memory and Aging Project (VMAP). rVMAP is intended for internal use and contains 1) functions that are commonly used in statistical analysis for VMAP research, and 2) scripts to automate the highly complex quarterly download, merge, processing, derivation, validation, and version control of a master dataset consisting of approximately 8,000 variables at 5 different time points for 336 participants.
2. ddictR: The ddictR package helps the user create a codebook to accompany sharing of a cross-sectional or longitudinal dataset. The package includes functionality to take a dataframe and user-specified metadata to generate a document with plots, summary statistics, derivation details, etc. for each variable.
3. VMAPDataExplorer: VMAPDataExplorer is a web application written in Shiny for interactive exploration of the Vanderbilt Memory and Aging Project (VMAP) dataset. Building on the functionality of the rVMAP and ddictR packages, this Shiny app allows any user to apply custom-defined inclusion/exclusion criteria to generate summary statistics, univariate and bivariate plots, statistical tests for group differences, and more for any variable in the dataset.

This app allows collaborators, students, and colleagues to get commonly requested information without having to submit a formal request for an analytical report.

TEACHING (AS ASSISTANT)

2018, Department of Public Health, Vanderbilt University School of Medicine, Nashville, TN

- PUBH 5502: Biostatistics I (Graduate Level)

2015 – 2016, Department of Statistics, The Pennsylvania State University, University Park, PA

- STAT 897D: Applied Data Mining and Statistical Learning (Graduate Level)
- STAT 597F: Statistical Collaboration for Forensic Science (Graduate Level)
- STAT 500: Introduction to Applied Statistics (Graduate Level)
- STAT 496C: Beginning Topics in R Statistical Language (Undergraduate Level)
- STAT 496D: Intermediate Topics in R Statistical Language (Undergraduate Level)

2013 – 2014, Department of Chemistry, The Pennsylvania State University, University Park, PA

- CHEM 213: Laboratory in Organic Chemistry (Undergraduate Level)
- CHEM 213B: Laboratory in Organic Chemistry with Bioorganic Focus (Undergraduate Level)

2007, Department of Chemistry, Southern Methodist University, Dallas, TX

- BIOL/CHEM 5310: Biological Chemistry: Macromolecular Structure and Function (Graduate Level)

OUTREACH

- 2019, Volunteer and Mentor: Scientist on Site Program, Adventure Science Center, Nashville, TN

CERTIFICATIONS

- January 2017, American Statistical Association (ASA) Accredited Graduate Statistician (GStat)
- January 2015, SAS Certified Base Programmer (Certificate No: BP046186v9)

PROFESSIONAL MEMBERSHIPS

- American Statistical Association
- International Biometric Society, Eastern North American Region (ENAR)