Elliot M. **Tucker-Drob**

tuckerdrob@utexas.edu

Publications

Journal Articles

1. Clapp Sullivan, M. L., Schwaba, T., Harden, K. P., Grotzinger, A. D., Nivard, M. G., & Tucker-Drob, E. M. (2024). Beyond the factor indeterminacy problem using genome-wide association data. *Nature Human Behaviour*. https://doi.org/10.1038/s41562-023-01789-1
2. Raffington, L., Schneper, L., Mallard, T., Fisher, J., Vinnik, L., Hollis-Hansen, K., Notterman, D. A., Tucker-Drob, E. M., Mitchell, C., & Harden, K. P. (2023). Salivary epigenetic measures of body mass index and social determinants of health across childhood and adolescence. *JAMA Pediatrics*, *177*(10), 1047. https://doi.org/10.1001/jamapediatrics.2023.3017
3. Kun, E., Javan, E. M., Smith, O., Gulamali, F., Fuente, J. de la, Flynn, B. I., Vajrala, K., Trutner, Z., Jayakumar, P., Tucker-Drob, E. M., Sohail, M., Singh, T., & Narasimhan, V. M. (2023). The genetic architecture and evolution of the human skeletal form. *Science*, *381*(6655). https://doi.org/10.1126/science.adf8009
4. Yeung, H. W., Stolicyn, A., Buchanan, C. R., Tucker-Drob, E. M., Bastin, M. E., Luz, S., McIntosh, A. M., Whalley, H. C., Cox, S. R., & Smith, K. (2022). Predicting sex, age, general cognition and mental health with machine learning on brain structural connectomes. *Human Brain Mapping*, *44*(5), 1913–1933. https://doi.org/10.1002/hbm.26182
5. McCartney, D. L., Hillary, R. F., Conole, E. L. S., Banos, D. T., Gadd, D. A., Walker, R. M., Nangle, C., Flaig, R., Campbell, A., Murray, A. D., Maniega, S. M., Valdés-Hernández, M. del C., Harris, M. A., Bastin, M. E., Wardlaw, J. M., Harris, S. E., Porteous, D. J., Tucker-Drob, E. M., McIntosh, A. M., … Marioni, R. E. (2022). Blood-based epigenome-wide analyses of cognitive abilities. *Genome Biology*, *23*(1). https://doi.org/10.1186/s13059-021-02596-5
6. Grotzinger, A. D., Fuente, J. de la, Davies, G., Nivard, M. G., & Tucker-Drob, E. M. (2022). Transcriptome-wide and stratified genomic structural equation modeling identify neurobiological pathways shared across diverse cognitive traits. *Nature Communications*, *13*(1). https://doi.org/10.1038/s41467-022-33724-9
7. Raffington, L., Malanchini, M., Grotzinger, A. D., Madole, J. W., Engelhardt, L. E., Sabhlok, A., Youn, C., Patterson, M. W., Harden, K. P., & Tucker-Drob, E. M. (2022). An in-laboratory stressor reveals unique genetic variation in child cortisol output. *Developmental Psychology*, *58*(10), 1832–1848. https://doi.org/10.1037/dev0001393
8. Sabhlok, A., Malanchini, M., Engelhardt, L. E., Madole, J., Tucker-Drob, E. M., & Harden, K. P. (2021). The relationship between executive function, processing speed, and attention-deficit hyperactivity disorder in middle childhood. *Developmental Science*, *25*(2). https://doi.org/10.1111/desc.13168
9. Tucker-Drob, E. M., Fuente, J. de la, Köhncke, Y., Brandmaier, A. M., Nyberg, L., & Lindenberger, U. (2022). A strong dependency between changes in fluid and crystallized abilities in human cognitive aging. *Science Advances*, *8*(5). https://doi.org/10.1126/sciadv.abj2422
10. Durkee, P. K., Lukaszewski, A. W., Rueden, C. R. von, Gurven, M. D., Buss, D. M., & Tucker-Drob, E. M. (2022). Niche diversity predicts personality structure across 115 nations. *Psychological Science*, *33*(2), 285–298. https://doi.org/10.1177/09567976211031571
11. Dutra, N. B., Chen, L., Anum, A., Burger, O., Davis, H. E., Dzokoto, V. A., Fong, F. T. K., Ghelardi, S., Mendez, K., Messer, E. J. E., Newhouse, M., Nielsen, M. G., Ramos, K., Rawlings, B., Santos, R. A. C. dos, Silveira, L. G. S., Tucker-Drob, E. M., & Legare, C. H. (2022). Examining relations between performance on non-verbal executive function and verbal self-regulation tasks in demographically-diverse populations. *Developmental Science*, *25*(5). https://doi.org/10.1111/desc.13228
12. Gadd, D. A., Hillary, R. F., McCartney, D. L., Zaghlool, S. B., Stevenson, A. J., Cheng, Y., Fawns-Ritchie, C., Nangle, C., Campbell, A., Flaig, R., Harris, S. E., Walker, R. M., Shi, L., Tucker-Drob, E. M., Gieger, C., Peters, A., Waldenberger, M., Graumann, J., McRae, A. F., … Marioni, R. E. (2022). Epigenetic scores for the circulating proteome as tools for disease prediction. *eLife*, *11*. https://doi.org/10.7554/elife.71802
13. Domingue, B. W., Kanopka, K., Mallard, T. T., Trejo, S., & Tucker-Drob, E. M. (2021). Modeling interaction and dispersion effects in the analysis of gene-by-environment interaction. *Behavior Genetics*, *52*(1), 56–64. https://doi.org/10.1007/s10519-021-10090-8
14. Junkins, E. J., Potter, J. E., Rentfrow, P. J., Gosling, S. D., Potter, J., Harden, K. P., Tucker-Drob, E. M., Derringer, J., & Briley, D. A. (2021). Geographic variation in personality is associated with fertility across the united states. *Personality Science*, *2*. https://doi.org/10.5964/ps.7275

15. Becker, J., Burik, C. A. P., Goldman, G., Wang, N., Jayashankar, H., Bennett, M., Belsky, D. W., Karlsson Linnér, R., Ahlskog, R., Kleinman, A., Hinds, D. A., Agee, M., Alipanahi, B., Auton, A., Bell, R. K., Bryc, K., Elson, S. L., Fontanillas, P., Furlotte, N. A., … Okbay, A. (2021). Resource profile and user guide of the polygenic index repository. *Nature Human Behaviour*, *5*(12), 1744–1758. https://doi.org/10.1038/s41562-021-01119-3

16. Raffington, L., Belsky, D. W., Kothari, M., Malanchini, M., Tucker-Drob, E. M., & Harden, K. P. (2021). Socioeconomic disadvantage and the pace of biological aging in children. *Pediatrics*, *147*(6). https://doi.org/10.1542/peds.2020-024406

17. Cox, S. R., Harris, M. A., Ritchie, S. J., Buchanan, C. R., Valdés Hernández, M. C., Corley, J., Taylor, A. M., Madole, J. W., Harris, S. E., Whalley, H. C., McIntosh, A. M., Russ, T. C., Bastin, M. E., Wardlaw, J. M., Deary, I. J., & Tucker-Drob, E. M. (2021). Three major dimensions of human brain cortical ageing in relation to cognitive decline across the eighth decade of life. *Molecular Psychiatry*, *26*(6), 2651–2662. https://doi.org/10.1038/s41380-020-00975-1

18. Madole, J. W., Ritchie, S. J., Cox, S. R., Buchanan, C. R., Hernández, M. V., Maniega, S. M., Wardlaw, J. M., Harris, M. A., Bastin, M. E., Deary, I. J., & Tucker-Drob, E. M. (2021). Aging-sensitive networks within the human structural connectome are implicated in late-life cognitive declines. *Biological Psychiatry*, *89*(8), 795–806. https://doi.org/10.1016/j.biopsych.2020.06.010

19. Fuente, J. de la, Davies, G., Grotzinger, A. D., Tucker-Drob, E. M., & Deary, I. J. (2020). A general dimension of genetic sharing across diverse cognitive traits inferred from molecular data. *Nature Human Behaviour*, *5*(1), 49–58. https://doi.org/10.1038/s41562-020-00936-2

20. Van den Akker, A. L., Briley, D. A., Grotzinger, A. D., Tackett, J. L., Tucker-Drob, E. M., & Harden, K. P. (2021). Adolescent big five personality and pubertal development: Pubertal hormone concentrations and self-reported pubertal status. *Developmental Psychology*, *57*(1), 60–72. https://doi.org/10.1037/dev0001135

21. Buchanan, C. R., Muñoz Maniega, S., Valdés Hernández, M. C., Ballerini, L., Barclay, G., Taylor, A. M., Russ, T. C., Tucker-Drob, E. M., Wardlaw, J. M., Deary, I. J., Bastin, M. E., & Cox, S. R. (2021). Comparison of structural MRI brain measures between 1.5 and 3 t: Data from the lothian birth cohort 1936. *Human Brain Mapping*, *42*(12), 3905–3921. https://doi.org/10.1002/hbm.25473

22. Roe, M. A., Engelhardt, L. E., Nugiel, T., Harden, K. P., Tucker-Drob, E. M., & Church, J. A. (2021). Error-signaling in the developing brain. *NeuroImage*, *227*, 117621. https://doi.org/10.1016/j.neuroimage.2020.117621

23. Vogt, R. L., Zheng, A., Briley, D. A., Malanchini, M., Harden, K. P., & Tucker-Drob, E. M. (2021). Genetic and environmental factors of non-ability-based confidence. *Social Psychological and Personality Science*, *13*(3), 734–746. https://doi.org/10.1177/19485506211036610

24. Karlsson Linnér, R., Mallard, T. T., Barr, P. B., Sanchez-Roige, S., Madole, J. W., Driver, M. N., Poore, H. E., Vlaming, R. de, Grotzinger, A. D., Tielbeek, J. J., Johnson, E. C., Liu, M., Rosenthal, S. B., Ideker, T., Zhou, H., Kember, R. L., Pasman, J. A., Verweij, K. J. H., Liu, D. J., … Dick, D. M. (2021). Multivariate analysis of 1.5 million people identifies genetic associations with traits related to self-regulation and addiction. *Nature Neuroscience*, *24*(10), 1367–1376. https://doi.org/10.1038/s41593-021-00908-3

25. Malanchini, M., Engelhardt, L. E., Raffington, L. A., Sabhlok, A., Grotzinger, A. D., Briley, D. A., Madole, J. W., Freis, S. M., Patterson, M. W., Harden, K. P., & Tucker-Drob, E. M. (2020). Weak and uneven associations of home, neighborhood, and school environments with stress hormone output across multiple timescales. *Molecular Psychiatry*, *26*(9), 4823–4838. https://doi.org/10.1038/s41380-020-0747-z

26. Bosma, M. J., Cox, S. R., Ziermans, T., Buchanan, C. R., Shen, X., Tucker-Drob, E. M., Adams, M. J., Whalley, H. C., & Lawrie, S. M. (2021). White matter, cognition and psychotic-like experiences in UK biobank. *Psychological Medicine*, *53*(6), 2370–2379. https://doi.org/10.1017/s0033291721004244

27. Demange, P. A., Malanchini, M., Mallard, T. T., Biroli, P., Cox, S. R., Grotzinger, A. D., Tucker-Drob, E. M., Abdellaoui, A., Arseneault, L., Bergen, E. van, Boomsma, D. I., Caspi, A., Corcoran, D. L., Domingue, B. W., Harris, K. M., Ip, H. F., Mitchell, C., Moffitt, T. E., Poulton, R., … Nivard, M. G. (2021). Investigating the genetic architecture of noncognitive skills using GWAS-by-subtraction. *Nature Genetics*, *53*(1), 35–44. https://doi.org/10.1038/s41588-020-00754-2

Preprints

1. Raffington, L., Schneper, L., Mallard, T., Fisher, J., Vinnik, L., Hollis-Hansen, K., Notterman, D. A., Tucker-Drob, E. M., Mitchell, C., & Harden, K. P. (2023). *Measuring the long arm of childhood in real-time: Epigenetic predictors of BMI and social determinants of health across childhood and adolescence*. https://doi.org/10.1101/2023.01.20.524709

2. Kun, E., Javan, E. M., Smith, O., Gulamali, F., Fuente, J. de la, Flynn, B. I., Vajrala, K., Trutner, Z., Jayakumar, P., Tucker-Drob, E. M., Sohail, M., Singh, T., & Narasimhan, V. M. (2023). *The genetic architecture of the human skeletal form*. https://doi.org/10.1101/2023.01.03.521284

3. Domingue, B., Kanopka, K., Trejo, S., Rhemtulla, M., & Tucker-Drob, E. M. (2021). *Ubiquitous bias & false discovery due to model misspecification in analysis of statistical interactions: The role of the outcome's distribution and metric properties*. https://doi.org/10.31234/osf.io/932fm

4. deSteiguer, A. J., Raffington, L., Sabhlok, A., Tanksley, P., Tucker-Drob, E. M., & Harden, K. P. (2023). *Stability of DNA-methylation profiles of biological aging in children and adolescents*. https://doi.org/10.1101/2023.10.30.564766
5. Raffington, L., Schwaba, T., Aikins, M., Richter, D., Wagner, G. G., Harden, K. P., Belsky, D. W., & Tucker-Drob, E. M. (2022). *Associations of socioeconomic disparities with buccal DNA-methylation measures of biological aging*. https://doi.org/10.1101/2022.12.07.519438
6. Yeung, H. W., Stolicyn, A., Shen, X., Adams, M. J., Romaniuk, L., Thng, G., Buchanan, C. R., Tucker-Drob, E. M., Bastin, M. E., McIntosh, A. M., Cox, S. R., Smith, K. M., & Whalley, H. C. (2022). *Classification accuracy of structural and functional connectomes across different depressive phenotypes*. https://doi.org/10.1101/2022.11.22.22282621
7. Yeung, H. W., Stolicyn, A., Buchanan, C. R., Tucker-Drob, E. M., Bastin, M. E., Luz, S., McIntosh, A. M., Whalley, H. C., Cox, S. R., & Smith, K. (2022). *Predicting sex, age, general cognition and mental health with machine learning on brain structural connectomes*. https://doi.org/10.1101/2022.03.03.22271801
8. Hatoum, A. S., Colbert, S. M. C., Johnson, E. C., Huggett, S. B., Deak, J. D., Pathak, G. A., Jennings, M. V., Paul, S. E., Karcher, N. R., Hansen, I., Baranger, D. A. A., Edwards, A., Grotzinger, A. D., Tucker-Drob, E. M., Kranzler, H., Davis, L. K., Sanchez-Roige, S., Polimanti, R., Gelernter, J., … Agrawal, A. (2022). *Multivariate genome-wide association meta-analysis of over 1 million subjects identifies loci underlying multiple substance use disorders*. https://doi.org/10.1101/2022.01.06.22268753
9. Raffington, L., Tanksley, P., Vinnik, L., Sabhlok, A., Patterson, M. W., Mallard, T., Malanchini, M., Ayorech, Z., Tucker-Drob, E. M., & Harden, K. P. (2021). *Socially stratified DNA-methylation profiles are associated with disparities in child and adolescent mental health*. https://doi.org/10.1101/2021.09.17.21263582
10. Raffington, L., Tanksley, P. T., Sabhlok, A., Vinnik, L., Mallard, T., King, L. S., Goosby, B., Harden, K. P., & Tucker-Drob, E. M. (2021). *Socially stratified epigenetic profiles are associated with cognitive functioning in children and adolescents*. https://doi.org/10.1101/2021.08.19.456979
11. Fuente, J. de la, Grotzinger, A. D., Marioni, R. E., Nivard, M. G., & Tucker-Drob, E. M. (2021). *Multivariate modeling of direct and proxy GWAS indicates substantial common variant heritability of alzheimer's disease*. https://doi.org/10.1101/2021.05.06.21256747
12. Grotzinger, A. D., Fuente, J. de la, Davies, G., Nivard, M. G., & Tucker-Drob, E. M. (2021). *Transcriptome-wide and stratified genomic structural equation modeling identify neurobiological pathways underlying general and specific cognitive functions*. https://doi.org/10.1101/2021.04.30.21256409
13. Buchanan, C. R., Muñoz Maniega, S., Valdés Hernández, M. C., Ballerini, L., Barclay, G., Taylor, A. M., Russ, T. C., Tucker-Drob, E. M., Wardlaw, J. M., Deary, I. J., Bastin, M. E., & Cox, S. R. (2021). *Comparison of structural MRI brain measures between 1.5T and 3T: Data from the lothian birth cohort 1936*. https://doi.org/10.1101/2021.04.23.21256000
14. Howe, L. J., Nivard, M. G., Morris, T. T., Hansen, A. F., Rasheed, H., Cho, Y., Chittoor, G., Lind, P. A., Palviainen, T., Zee, M. D. van der, Cheesman, R., Mangino, M., Wang, Y., Li, S., Klaric, L., Ratliff, S. M., Bielak, L. F., Nygaard, M., Reynolds, C. A., … Davies, N. M. (2021). *Within-sibship GWAS improve estimates of direct genetic effects*. https://doi.org/10.1101/2021.03.05.433935
15. Grotzinger, A. D., Fuente, J. de la, Nivard, M. G., & Tucker-Drob, E. M. (2021). *Pervasive downward bias in estimates of liability scale heritability in GWAS meta-analysis: A simple solution*. https://doi.org/10.1101/2021.09.22.21263909

Books

Book Chapters

Professional Presentations

Joint Growth-Survival Modelling Reveals Distinct Developmental Pathways to Dementia

University of Southern California Schaeffer Center *2024*

Theoretical and Methodological Considerations in the Study of Cognitive Aging and Dementia

Center for Vital Longevity, UT Dallas *2023*

Theoretical and Methodological Considerations in the Study of Cognitive Aging and Dementia

The Deep Dementia Phenotyping (DEMON) Network *2023*

Theoretical and Methodological Considerations in the Epidemiology of Cognitive Aging and Dementia

National Institute on Aging Intramural Research Program — *2022*

Using Genome-Wide Data to Investigate the Joint Genetic Architecture of Psychiatric Disorders

Grand Rounds, Department of Psychiatry, University of Michigan — *2022*

Theoretical and Methodological Considerations in the Epidemiology of Cognitive Aging and Dementia

Center on Aging and Population Sciences and Population Research Center, University of Texas at Austin — *2022*

Theoretical and Methodological Considerations in the Epidemiology of Cognitive Aging and Dementia

Life Course Epidemiology course, Department of Epidemiology, Columbia University — *2021*

Using Genome-Wide Data to Investigate the Joint Genetic Architecture of Complex Traits

Russell Sage Foundation Summer Institute in Social-Science Genomics — *2021*

Theoretical and Methodological Considerations in the Epidemiology of Cognitive Aging and Dementia

Department of Epidemiology, Columbia University — *2021*

Using Genomic SEM to Apply Social Science Models to Genetic Data

Center For Demography Of Health And Aging, University of Wisconsin-Madison — *2021*

Conference Abstracts

Honors

Article of the Year Award for: Lövdén, M., Fratiglioni, L., Glymour, M. M., Lindenberger, U., & Tucker-Drob, E. M. (2020). Education and cognitive functioning across the lifespan. Psychological Science in the Public Interest, 21, 6-41. — *Nordic Mensa Fund, SE*

Mensa International Ltd — *2021*

Funding

Large-Scale Genomic Analysis of Aging-Related Cognitive Change Prior to Dementia Onset (PI) — *National Institute on Aging, RF1AG073593/R01AG073593*

Funding: — *2021 - 2026*

Dissecting the Multivariate Genetic Architecture of Psychiatric Diseases (PI) — *NIMH, R01MH120219*

Funding: $3,279,307 — *2020 - 2025*

Environmental, Genetic, and Epigenetic Mechanisms for Hormonal Change (Co-I) — *National Institute of Child Health and Human Development, R01HD092548*

Funding: $3,328,440 — *2019 - 2024*

Evaluating Longitudinal Changes in the Human Structural Connectome in Relation to Cognitive Aging (Administrative Supplement) (PI) — *National Institute of Aging, R01AG054628 02S1*

Funding: $343,141 — *2018 - 2023*

Evaluating Longitudinal Changes in the Human Structural Connectome in Relation to Cognitive Aging (PI) — *National Institute of Aging, R01AG054628*

Funding: $2,384,680 — *2017 - 2023*

Jacobs Foundation Advanced Research Fellowship (PI) — *Jacobs Foundation,*

Funding: $440,000 — *2018 - 2021*

Cortisol, Socioeconomic Status, and Genetic Influences on Cognitive Development (PI)

National Institute of Child Health and Human Development, R01HD083613

Funding: $2,970,899

2016 - 2021

Service

Psychological Bulletin

Washington DC, US

Consulting Editor

2020 - present

Center on Aging and Population Sciences (CAPS)

Austin, US

Faculty Council

2020 - present

Major Research Institutions

N/A, US

External Reviewer: Tenure and Promotion

2019 - present

The University of Texas at Austin

Austin, US

I organize free one-time methodological workshops on special topics that are not well-covered by existing course offerings at UT

2018 - present

National Institutes of Health

Bethesda, US

Reviewer/Ad Hoc Study Section Member: NMBH (2022), ZRG1 PSE L 90 (2021), ZRG1 PSE-Z(02) / N(07) (2020), BGES (2019), CHHD W (2018)

2018 - present

The University of Texas at Austin

Austin, US

Statistical advice for students who have previously completed my course in Structural Equation Modeling

2009 - present

Ad Hoc Reviewer: Selected Journals

N/A, US

Advances in Methods in Psychological Science, American Psychologist, American Sociological Review, Behavior Genetics, Biological Psychiatry, Cerebral Cortex, Child Development, Child Development Perspectives, Current Directions in Psychological Science, Demography, Developmental Psychology, Developmental Science, Journal of Child Psychology and Psychiatry, Journal of Experimental Psychology: General, Journal of Personality and Social Psychology, Molecular Psychiatry, Multivariate Behavioral Research, Nature, Nature Human Behaviour, Nature Neuroscience, Perspectives on Psychological Science, Proceedings of the National Academy of Sciences, Psychological Bulletin, Psychological Medicine, Psychological Review, Psychological Science, Psychology and Aging, Scientific Reports, Social Psychological and Personality Science, Translational Psychiatry

2009 - present

Mentorship for Undergraduate Research Interns

Austin, US

Students regularly work with data from the Texas Twin Project for independent research projects, e.g. as part of the Departmental Honors program, the Bridging Disciplines program, the Polymathic Scholars program, or the department's Summer Undergraduate Research Experience (SURE) program for traditionally underrepresented groups.

2009 - present

University of Texas at Austin

Austin, US

Search Committee for Director of the Social and Behavioral Statistics and Data Science (SBSDS) Hub

2023 - 2024

Diversity in Cognitive Aging Search Committee

Austin, US

2020 - 2021

Mentoring and Teaching

Mentoring

Camille Williams, Ph.D.

Co-Primary Research Mentor for UT Postdoctoral Trainee with K. P. Harden

2022 - present

Aditi Sabhlok

Dissertation Committee Member

2021 - present

Margaret Clapp

Primary Research Mentor for UT Graduate Student — *2020 - present*

Javier de la Fuente, Ph.D.

Primary Research Mentor for UT Postdoctoral Fellow/Research Scientist — *2019 - present*

James Madole

Co-Primary Research Mentor for UT Graduate Student with K. P. Harden — *2017 - present*

Aditi Sabhlok

Secondary Research Mentor for UT Graduate Student with K. P. Harden — *2017 - present*

Ted Schwaba, Ph.D., Assistant Professor at Michigan State University starting Fall 2023

Primary Research Mentor for UT Postdoctoral Fellow/Research Scientist — *2021 - 2023*

James Madole

Dissertation Co-Chair — *2021 - 2022*

Kelseanna Hollis-Hansen, Ph.D, currently Assistant Professor, UT Southwestern School of Public Health

Primary Research Mentor for UT Postdoctoral Fellow — *2020 - 2022*

Lucy King, Ph.D., currently Computational Social Scientist at IDEO

Primary Research Mentor for UT Postdoctoral Fellow — *2020 - 2022*

Laurel Raffington, Ph.D., currently Group Leader at Max Planck Institute for Human Development

Primary Research Mentor for UT Postdoctoral Fellow with K. P. Harden — *2019 - 2022*

Cherry Youn

Primary Research Mentor for UT Graduate Student — *2018 - 2022*

Travis Mallard, currently postdoctoral fellow at MGH/Harvard

Dissertation Committee Member — *2019 - 2021*

Andrew D. Grotzinger, currently Assistant Professor at University of Colorado Boulder

Primary Research Mentor for UT Graduate Student — *2015 - 2021*

Teaching

Psychology

Instructor for Structural Equation Modelling (PSY 384T) [one semester per year] — *2009 - present*

Psychology

Instructor for Individual Differences (PSY 345) [one semester per year] — *2009 - present*