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## Education and Training

- 09/1989-06/1993 National Taiwan University  
Bachelor of Science
- 09/1994-12/1999 Indiana University at Bloomington  
Doctorate of Philosophy in Educational Psychology  
Dissertation title: Analysis of Longitudinal Data with Missing Values  
Advisor: David MacKay
- 09/1999-08/2003 University of Florida  
Doctorate of Philosophy in Statistics  
Dissertation title: Statistical Analysis of Rater Effects  
Advisor: Malay Ghosh
- 09/1999-04/2002 Department of Clinical & Health Psychology at University of Florida  
Postdoctoral training  
Mentor: Alexandra Quittner

## Certification and Licensure

- 08/1995 Certificate of Completion, training program on the use of National Center for Education Statistics (NCES) databases, U.S. Department of Education
- 04/2003 Certificate of Completion, training course on SAS Macro Language, SAS Institute
- 04/2003 Certificate of Completion, training course on SAS Macro Programming, SAS Institute
- 07/2010 Certificate of Completion, graduate summer session course on successful scientific writing, Department of Epidemiology, University of Michigan
- 02/2012 Certificate of Completion, Responsible Conduct of Research (RCR) for K Awardees Workshop, Michigan Institute for Clinical & Health Research (MICHR), University of Michigan.
- 10/2018 Certificate of Completion, American Heart Association Basic Life Support (CPR & AED) Program.

## **Academic, Administrative, and Clinical Appointments**

09/2002-12/2003 Investigator  
Frank Porter Graham Child Development Institute  
University of North Carolina at Chapel Hill

07/2003-12/2003 Research Assistant Professor  
Department of Psychology  
University of North Carolina at Chapel Hill

09/2004-12/2004 Lecturer  
Department of Statistics  
University of Michigan at Ann Arbor

01/2005-08/2013 Director of Data Management & Study Statistician  
Michigan Longitudinal Study  
University of Michigan at Ann Arbor

01/2005-08/2008 Research Investigator  
Addiction Research Center & Substance Abuse Section  
Department of Psychiatry  
University of Michigan at Ann Arbor

09/2008-07/2014 Research Assistant Professor  
Addiction Research Center & Substance Abuse Section  
Department of Psychiatry  
University of Michigan at Ann Arbor

01/2012-06/2020 Faculty Affiliate  
The Methodology Center  
Pennsylvania State University

08/2014-05/2015 Tenure Track Associate Professor  
Department of Epidemiology and Biostatistics  
Indiana University-Bloomington

09/2015-04/2019 Tenure Track Associate Professor  
Department of Health Behavior and Biological Sciences  
University of Michigan at Ann Arbor

05/2019-08/2021 Tenure Track Associate Professor  
Department of Health Promotion & Behavioral Sciences  
Department of Biostatistics & Data Science  
University of Texas Health Science Center at Houston

09/2021-present Tenured Professor  
Department of Health Promotion & Behavioral Sciences  
Department of Biostatistics & Data Science  
University of Texas Health Science Center at Houston

## **Consulting Positions**

01/2004-12/2004 Statistical Consultant  
Neurology Department  
University of North Carolina at Chapel Hill

## Honors and Awards

12/1991 Fu Si-Nian Scholarship, National Taiwan University  
04/2009 Research Scientist Development Award, National Institutes of Health  
04/2019 Honored Instructor Award, University of Michigan

## Research Interests

1. Substance use prevention and intervention
2. Developmental psychopathology & longitudinal analysis
3. Analysis of data from ecological momentary assessment (EMA) & wearable devices
4. Psychometrics
5. Bioinformatics

## Active Grants

NIH/NIDA (R01 DA049154)

Title: Methodology and Measurement for Examining Short-term and Long-term Effects of E-cigarette and Polysubstance Use

Role: Contact Principal Investigator (MPI: Hsien-Chang Lin)

Funding period: 08/2019-06/2024 (\$2,562,946)

NIH/NHLBI (K01 HL166439)

Title: Exploring longitudinal and momentary effects of internalizing behaviors and family functioning in the development of obesity in Hispanic adolescents

Role: Mentor (PI: Alejandra Fernandez)

Funding period: 09/2023-08/2028

## Completed Grants

NIH/NIDA (R01 DA035183)

Title: Measurement and Methodology for Daily Patterns of Drug Use and Related Behaviors

Role: Principal Investigator

Funding period: 07/2013-09/2018 (\$2,575,884)

NIH/NIAAA (K01 AA016591)

Title: New Statistical Methodology to Establish Construct Validity for Childhood Risk

Role: Principal Investigator

Funding period: 04/2009-08/2014 (\$791,249)

NIH/NINR (R01 NR016123)

Title: Measuring Approaches to Partnership Success (MAPS)

Role: Co-Investigator (MPI's: Barbara Brush, Barbara Israel, & Laurie Lachance)

Funding period: 08/2016-05/2021 (\$2,856,253)

NIH/NIAAA (T32 AA007477)

Title: Multidisciplinary Alcoholism Research Training Program  
Role: Mentor (PI: Frederic Blow)  
Funding period: 07/2016-06/2020

NIH/NIDA (R01 DA035811)  
Title: Intergenerational Transmission of Drug Use in an Urban Sample  
Role: Co-Investigator (PI: Marc Zimmerman)  
Funding period: 09/2013-06/2018 (\$3,282,226)

NIH/NICHD (R01 HD062565)  
Title: Youth Empowerment Solutions for Positive Youth Development  
Role: Co-Investigator (PI: Marc Zimmerman)  
Funding period: 09/2010-07/2016 (\$3,183,711)

NIH/NIAAA (R37 AA07065)  
Title: Family Study of Risk for Alcoholism Over the Life Course  
Role: Co-Investigator (PI: Robert Zucker)  
Funding period: 02/2003-07/2013

## **Pending Grants**

NIH/NIEHS (R01)  
Title: Understanding pediatric health risks of secondhand aerosol exposure: a real-world study of the impact of adult e-cigarette use  
Role: Contact Principal Investigator (MPI: Wei-Chung Su)  
Submission date: 2/2024

NIH/NCI (R34)  
Title: Harnessing technology to engage young adults in vaping cessation treatment: developing a just-in-time adaptive intervention  
Role: Contact Principal Investigator (MPI: Megan Piper)  
Submission date: 10/2023

NIH/NCI (R01)  
Title: A remote randomized controlled trial of e-cigarette cessation for young adults  
Role: Mentor & Co-Investigator (PI: Emily Hébert Arsers)  
Submission date: 10/2022  
Resubmission date: 7/2023

## **Bibliography** (\*Correspondence/senior authorship; †Student/trainee authorship)

### Publications on Mental Health or Substance Use in Peer-Reviewed Journals

1. Quittner, A. L. & **Buu**, A. (2002). Effects of tobramycin solution for inhalation on global ratings of quality of life in patients with cystic fibrosis and pseudomonas aeruginosa infection. *Pediatric Pulmonology*, 33, 269-276.

2. Quittner, A. L., **Buu**, A., Messer, M. A., Modi, A. C., & Watrous, M. (2005). Development and validation of the Cystic Fibrosis Questionnaire (CFQ) in the United States: a health-related quality of life measure for cystic fibrosis. *Chest*, *128*, 2347-2354.
3. Greenwood, R. S., Tupler, L. A., Whitt, J. K., **Buu**, A., Dombeck, C. B., Harp, A. G., Payne, M. E., Eastwood, J. D., Krishnan, K. R. R., & MacFall, J. R. (2005). Brain morphometry, T<sub>2</sub>-weighted hyperintensities, and IQ in children with neurofibromatosis type 1. *Archives of Neurology*, *62*, 1904-1908.
4. Glass, J. M., Adams, K. M., Nigg, J. T., Wong, M. M., Puttler, L. I., **Buu**, A., Jester, J. M., Fitzgerald, H. E., & Zucker, R. A. (2006). Smoking is associated with neurocognitive deficits in alcoholism. *Drug and Alcohol Dependence*, *82*, 119-126. PMID: PMC2261373
5. \***Buu**, A., Mansour, M., Wang, J., Refior, S.K., Fitzgerald, H.E., & Zucker, R.A. (2007). Alcoholism effects on social migration and neighborhood effects on alcoholism over the course of 12 years. *Alcoholism: Clinical and Experimental Research*, *31*, 1545-1551. PMID: PMC2464456
6. Jester, J.M., Nigg, J.T., **Buu**, A., Puttler, L.I., Glass, J.M., Heitzeg, M.M., Fitzgerald, H.E., Zucker, R.A. (2008). Trajectories of childhood aggression and inattention/hyperactivity: Differential effects on substance abuse in adolescence. *Journal of the American Academy of Child and Adolescent Psychiatry*, *47*, 1158-1165. PMID: PMC2783202
7. Glass, J.M., **Buu**, A., Adams, K.M., Nigg, J.T., Puttler, L.I., Jester, J.M., & Zucker, R.A. (2009). Effects of alcoholism severity and smoking on executive neurocognitive function. *Addiction*, *104*, 38-48. PMID: PMC2734473
8. Martel, M.M., Pierce, L., Nigg, J.T., Jester, J.M., Adams, K., Puttler, L.I., **Buu**, A., Fitzgerald, H., & Zucker, R.A. (2009). Temperament pathways to childhood disruptive behavior and adolescent substance abuse: testing a cascade model. *Journal of Abnormal Child Psychology*, *37*, 363-373. PMID: PMC2659729
9. \***Buu**, A., DiPiazza, C., Wang, J., Puttler, L.I., Fitzgerald, H.E., & Zucker, R.A. (2009). Parent, family, and neighborhood effects on the development of child substance use and other psychopathology from preschool to the start of adulthood. *Journal of Studies on Alcohol and Drugs*, *70*, 489-498. PMID: PMC2696289
10. \***Buu**, A., Wang, W., Wang, J., Puttler, L.I., Fitzgerald, H.E., & Zucker, R.A. (2011). Changes in women's alcoholic, antisocial, and depressive symptomatology over 12 years: a multilevel network of individual, familial, and neighborhood influences. *Development and Psychopathology*, *23*, 325-337. PMID: PMC3075809
11. \***Buu**, A., Wang, W., Schroder, S.A., Kalaida, N.L., Puttler, L.I., & Zucker, R.A. (2012). Developmental emergence of alcohol use disorder symptoms and their potential as early indicators for progression to alcohol dependence in a high risk sample: a longitudinal study from childhood to early adulthood. *Journal of Abnormal Psychology*, *121*, 897-908. PMID: PMC3560403
12. \***Buu**, A., Li, R., Walton, M.A., Yang, H., Zimmerman, M.A., & Cunningham, R.M. (2014). Changes in substance use-related health risk behaviors on the timeline follow-back interview as a function of length of recall period. *Substance Use & Misuse*, *49*, 1259-1269. PMID: PMC4077947
13. \***Buu**, A., Dabrowska, A., Mygrants, M., Puttler, L.I., Jester, J.M., & Zucker, R.A. (2014). Gender differences in the developmental risk for onset of alcohol, nicotine, and

- marijuana use and the effects of nicotine and marijuana use on alcohol outcomes. *Journal of Studies on Alcohol and Drugs*, 75, 850-858. PMID: PMC4161704
14. Jester, J.M., Wong, M.M., Cranford, J.A., **Buu**, A., Fitzgerald, H.E., & Zucker, R.A. (2015). Alcohol expectancies in childhood: change with the onset of drinking and ability to predict adolescent drunkenness and binge drinking. *Addiction*, 110, 71-79. PMID: PMC4594954
  15. \***Buu**, A., Dabrowska, A., Heinze, J.E., Hsieh, H., & Zimmerman, M.A. (2015). Gender differences in the developmental trajectories of multiple substance use and the effect of nicotine and marijuana use on heavy drinking in a high risk sample. *Addictive Behaviors*, 50, 6-12. PMID: PMC4515377
  16. Jester, J.M., **Buu**, A., & Zucker, R.A. (2016). Longitudinal phenotypes for alcoholism: heterogeneity of course, early identifiers, and life course correlates. *Development and Psychopathology*, 28, 1531-1546. PMID: PMC5091665
  17. Lin, H.C., Jester, J.M., & \***Buu**, A. (2016). The relationships of cigarette and alcohol use with the initiation, reinitiation, and persistence of cannabis use. *Journal of Studies on Alcohol and Drugs*, 77, 113-120.
  18. †Arterberry, B., Horbal, S.R., **Buu**, A., & Lin, H.C. (2016). The effects of alcohol, cannabis, and cigarette use on the initiation, reinitiation and persistence of non-medical use of opioids, sedatives, and tranquilizers in adults. *Drug and Alcohol Dependence*, 159, 86-92.
  19. Walton, M.A., Epstein-Ngo, Q., Carter, P.M., Zimmerman, M.A., Blow, F.C., **Buu**, A., Goldstick, J., & Cunningham, R.M. (2017). Marijuana use trajectories among drug-using youth presenting to an urban emergency department: violence and social influences. *Drug and Alcohol Dependence*, 173, 117-125. PMID: PMC5366264
  20. \***Buu**, A., Hu, Y.H., Pampati, S., Arterberry, B.J., & Lin, H.C. (2017). Predictive validity of cannabis consumption measures: results from a national longitudinal study. *Addictive Behaviors*, 73, 36-40. PMID: PMC5508534
  21. \***Buu**, A., Massey, L.S., Walton, M.A., Cranford, J.A., Zimmerman, M.A., & Cunningham, R.M. (2017). Assessment methods and schedules for collecting daily process data on substance use related health behaviors: a randomized control study. *Drug and Alcohol Dependence*, 178, 159-164. PMID: PMC5548619
  22. Hsieh, H.F., Heinze, J.E., Lang, I., Mistry, R., **Buu**, A., & Zimmerman, M.A. (2017). Violence victimization, social support, and papanicolaou smear outcomes: a longitudinal study from adolescence to young adulthood. *Journal of Women's Health*, 26, 1340-1349. PMID: PMC5733666
  23. †Pampati, S., **Buu**, A., Hu, Y.H., de Leon, C.M., & Lin, H.C. (2018). Effects of alcohol and cigarette use on the initiation, reinitiation, and persistence of cannabis use from adolescence to emerging adulthood. *Addictive Behaviors*, 79, 144-150.
  24. \***Buu**, A., Hu, Y.H., Piper, M.E., & Lin, H.C. (2018). The association between e-cigarette use characteristics and combustible cigarette consumption and dependence symptoms: results from a national longitudinal study. *Addictive Behaviors*, 84, 69-74. PMID: PMC5975121
  25. †Wong, S.W., Lin, H.C., Piper, M.E., Siddiqui, A., & \***Buu**, A. (2019). Measuring characteristics of e-cigarette consumption among college students. *Journal of American College Health*, 67, 338-347. PMID: PMC6320724

26. \***Buu**, A., Hu, Y.H., Wong, S.W., & Lin, H.C. (2020). Comparing American college and noncollege young adults on e-cigarette use patterns including polysubstance use and reasons for using e-cigarettes. *Journal of American College Health*, *68*, 610-616.
27. Carter, P.M., Cranford, J.A., **Buu**, A., Walton, M.A., Zimmerman, M.A., Goldstick, J.G., Epstein-Ngo, Q., & Cunningham, R.M. (2020). Daily patterns of substance use and violence among a high-risk urban emerging adult sample: results from the Flint Youth Injury Study. *Addictive Behaviors*, *101*, 106127. PMID: PMC6999833
28. \***Buu**, A., Yang, S., Li, R., Zimmerman, M.A., Cunningham, R.M., & Walton, M.A. (2020). Examining measurement reactivity in daily diary data on substance use: results from a randomized experiment. *Addictive Behaviors*, *102*, 106198. PMID: PMC6934919
29. Trucco, E.M., Yang, S., Yang, J.J., Zucker, R.A., Li, R., & \***Buu**, A. (2020). Time-varying effects of GABRG1 and maladaptive peer behavior on externalizing behavior from childhood to adulthood: testing gene x environment x development effects. *Journal of Youth and Adolescence*, *49*, 1351-1364. PMID: PMC7260088
30. †Wu, W.C., Hsieh, H.F., Chang, H., Lin, H.C., & \***Buu**, A. (2020). Aggressive-depressive trajectories in childhood and their association with drinking behaviors and problems in adolescence and emerging adulthood. *Journal of Youth and Adolescence*, *49*, 1897-1912.
31. Heinze, J.E., Hsieh, H.F., Aiyer, S.M., **Buu**, A., & Zimmerman, M.A. (2020). Adolescent family conflict as a predictor of relationship quality in emerging adulthood. *Family Relations*, *69*, 996-1011.
32. \***Buu**, A., Hu, Y.H., Wong, S.W., & Lin, H.C. (2021). Internalizing and externalizing problems as risk factors for initiation and progression of e-cigarette and combustible cigarette use in the U.S. youth population. *International Journal of Mental Health and Addiction*, *19*, 1759-1771.
33. \***Buu**, A., Cai, Z., Li, R., Wong, S.W., Lin, H.C., Su, W.C., Jorenby, D.E., & Piper, M.E. (2021). The association between short-term emotion dynamics and cigarette dependence: a comprehensive examination of dynamic measures. *Drug and Alcohol Dependence*, *218*, 108341. PMID: PMC7750263
34. †Wang, Z., **Buu**, A., Lohrmann, D.K., Shih, P.C., & Lin, H.C. (2021). The role of family conflict in mediating impulsivity to early substance exposure among preteens. *Addictive Behaviors*, *115*, 106779.
35. †Wang, Z., Lohrmann, D.K., **Buu**, A., & Lin, H.C. (2021). Resilience as a mediator between adverse childhood experiences and prescription opioid misuse among U.S. adults. *Substance Use & Misuse*, *56*, 484-492.
36. \***Buu**, A., Cai, Z., Li, R., Wong, S.W., Lin, H.C., Su, W.C., Jorenby, D.E., & Piper, M.E. (2021). Validating e-cigarette dependence scales based on dynamic patterns of vaping behaviors. *Nicotine & Tobacco Research*, *23*, 1484-1489. PMID: PMC8500184
37. Hsieh, H.F., Heinze, J.E., Caruso, E., Scott, B.A., West, B.T., Mistry, R., Eisman, A.B., Assari, S., **Buu**, A., & Zimmerman, M.A. (2022). The protective effects of social support on hypertension among African Americans exposed to violence. *Journal of Interpersonal Violence*, *37*(9-10), NP7202-NP7224.
38. Yang, J.J., Wang, Z., Trucco, E.M., **Buu**, A., Lin, H.C. (2022). Chronic pain and delinquency partially explain the effect of the DRD4 gene polymorphism on adult substance use. *American Journal of Drug and Alcohol Abuse*, *48*, 235-244.

39. Luo, X., Yang, J.J., **Buu**, A., Trucco, E.M., & Li, C.-S. R. (2022). Alcohol and cannabis co-use and longitudinal gray matter volumetric changes in early and late adolescence. *Addiction Biology*, 27, e13208. PMID: PMC9413216
40. Hsieh, H.F., Wu, W.C., Córdova, D., Heinze, J.E., Pomerantz, N., **Buu**, A., & Zimmerman, M.A. (2022). The intergenerational transmission of family conflict on children's aggression: the compensatory effect of positive parenting. *Journal of Interpersonal Violence*, 37(21-22), NP20769-NP20792.
41. Yang, J.J., Lin, H.C., Ou, T.S., Tong, Z., Li, R., Piper, M.E., & **\*Buu**, A. (2022). The situational contexts and subjective effects of co-use of electronic cigarettes and alcohol among college students: an ecological momentary assessment (EMA) study. *Drug and Alcohol Dependence*, 239, 109594. PMID: PMC10232334
42. **\*Buu**, A., Nam, J.K., Yang, M., Su, W.C., & Lin, H.C. (2022). Home e-cigarette rules and youth's vulnerability to initiate and sustain e-cigarette use. *Preventive Medicine*, 164, 107334. PMID: PMC9704116
43. **\*Buu**, A., Tong, Z., Cai, Z., Li, R., Yang, J.J., Jorenby, D.E., & Piper, M.E. (2023). Subtypes of dual users of combustible and electronic cigarettes: longitudinal changes in product use and dependence symptomatology. *Nicotine & Tobacco Research*, 25, 438-443. PMID: PMC9910154
44. **\*Buu**, A., Yang, J.J., Ou, T.S., Nam, J.K., Suh, G., & Lin, H.C. (2023). An ecological momentary assessment study to examine covariates and effects of concurrent and simultaneous use of electronic cigarettes and marijuana among college students. *Addictive Behaviors*, 141, 107662. PMID: PMC10226867
45. †Nam, J.K., Zatliff, J.P., Wong, S.W., Lin, H.C., Su, W.C., & **\*Buu**, A. (2023). An exploratory study on strategies adopted by parents who use e-cigarettes to negotiate risk perceptions of their children's secondhand exposure and parental role modeling. *International Journal of Mental Health and Addiction*. <https://doi.org/10.1007/s11469-023-01075-1> PMID: PMC10184636
46. Yang, J.J., Ou, T.S., Lin, H.C., Nam, J.K., Piper, M.E., & **\*Buu**, A. (in press). Retrospective and real-time measures of the quantity of e-cigarette use: an ecological momentary assessment study. *Nicotine & Tobacco Research*.
47. †Nam, J.K., Piper, M.E., Tong, Z., Li, R., Yang, J.J., Jorenby, D.E., & **\*Buu**, A. (2023). Dependence motives and use contexts that predicted smoking cessation and vaping cessation: a two-year longitudinal study with 13 waves. *Drug and Alcohol Dependence*, 250, 110871.

#### Publications on Health Policy or Environmental Health in Peer-Reviewed Journals

48. Lin, H.C., Wang, Z., Boyd, C., Simoni-Wastila, L., & **\*Buu**, A. (2018). Associations between statewide prescription drug monitoring program (PDMP) requirement and physician patterns of prescribing opioid analgesics for patients with non-cancer chronic pain. *Addictive Behaviors*, 76, 348-354.
49. Lin, H.C., Wang, Z., Simoni-Wastila, L., Boyd, C., & **\*Buu**, A. (2019). Interstate data sharing of prescription drug monitoring programs and associated opioid prescriptions among patients with non-cancer chronic pain. *Preventive Medicine*, 118, 59-65.



50. †Wong, S.W., **Buu**, A., & Lin, H.C. (2020). State medical marijuana laws and associated marijuana use, attitude, and perceived social norms among adolescents in the U.S. *Journal of Psychoactive Drugs*, 52, 383-392.
51. Su, W.C., Wong, S.W., & \***Buu**, A. (2021). Deposition of e-cigarette aerosol in human airways through passive vaping. *Indoor Air*, 31, 348-356. PMID: PMC7904647
52. Su, W.C., Lin, Y.H., Wong, S.W., Chen, J.Y., Lee, J., & \***Buu**, A. (2021). Estimation of the dose of electronic cigarette chemicals deposited in human airways through passive vaping. *Journal of Exposure Science and Environmental Epidemiology*, 31, 1008-1016. PMID: PMC8595527
53. Lin, H.C., Wang, Z., Hu, Y.H., Simon, K., & \***Buu**, A. (2022). Characteristics of statewide prescription drug monitoring programs and potentially inappropriate opioid prescribing to patients with non-cancer chronic pain: a machine learning application. *Preventive Medicine*, 161, 107116. PMID: PMC9307080
54. Lin, H.C., **Buu**, A., & Su, W.C. (2022). Disposable e-cigarettes and associated health risks: an experimental study. *International Journal of Environmental Research and Public Health*, 19, 10633. PMID: PMC9518067
55. Su, W.C., Lee, J., Zhang, K., Wong, S.W., & \***Buu**, A. (2023). Estimation of health risks caused by metals contained in e-cigarette aerosol through passive vaping. *Toxics*, 11, 684.

#### Publications on Statistical Methodology in Peer-Reviewed Journals

56. Zoppe, A., **Buu**, Y. A., & Flury, B. (2001). Parameter estimation under constraints for multivariate normal distributions with incomplete data. *Journal of Educational and Behavioral Statistics*, 26, 219-232.
57. \***Buu**, A., Johnson, N.J., Li, R., & Tan, X. (2011). New variable selection methods for zero-inflated count data with applications to the substance abuse field. *Statistics in Medicine*, 30, 2326-2340. PMID: PMC3133860
58. \***Buu**, A., Li, R., Tan, X., & Zucker, R.A. (2012). Statistical models for longitudinal zero-inflated count data with applications to the substance abuse field. *Statistics in Medicine*, 31, 4074-4086. PMID: PMC3505239
59. Yang, J.J., Li, J., **Buu**, A., & Williams, L.K. (2013). Efficient inference of local ancestry. *Bioinformatics*, 29, 2750-2756. PMID: PMC3799480
60. Dziak, J.J., Li, R., Zimmerman, M.A., & \***Buu**, A. (2014). Time-varying effect models for ordinal responses with applications in substance abuse research. *Statistics in Medicine*, 33, 5126-5137. PMID: PMC4227951
61. †Yang, H., Cranford, J.A., Li, R., & \***Buu**, A. (2015). Two-stage model for time-varying effects of discrete longitudinal covariates with applications in analysis of daily process data. *Statistics in Medicine*, 34, 571-581. PMID: PMC4314391
62. †Yang, H., Li, R., Zucker, R.A., & \***Buu**, A. (2016). Two-stage model for time-varying effects of zero-inflated count longitudinal covariates with applications in health behavior research. *Journal of the Royal Statistical Society: Series C*, 65, 431-444. PMID: PMC4812831
63. †Yang, G., Yu, Y., Li, R., & \***Buu**, A. (2016). Feature selection in ultrahigh dimensional Cox's model. *Statistica Sinica*, 26, 881-901. PMID: PMC4939909

64. Yang, J.J., Li, J., Williams, L.K. & \*Buu, A. (2016). An efficient genome-wide association test for multivariate phenotypes based on the Fisher combination function. *BMC Bioinformatics*, 17:19. doi: 10.1186/s12859-015-0868-6. PMCID: PMC4704475
65. †Yang, S., Cranford, J.A., Jester, J.M., Li, R., Zucker, R.A., & \*Buu, A. (2017). A time-varying effect model for examining group differences in trajectories of zero-inflated count outcomes with applications in substance abuse research. *Statistics in Medicine*, 36, 827-837. PMCID: PMC5242179
66. Yang, J.J., Williams, L.K., & \*Buu, A. (2017). Identifying pleiotropic genes in genome-wide association studies for multivariate phenotypes with mixed measurement scales. *PLoS ONE*, 12(1): e0169893. doi: 10.1371/journal.pone.0169893. PMCID: PMC5231271
67. Yang, J.J., Williams, L.K., & \*Buu, A. (2017). Identifying pleiotropic genes in genome-wide association studies from related subjects using the linear mixed model and Fisher combination function. *BMC Bioinformatics*, 18:376. doi: 10.1186/s12859-017-1791-9. PMCID: PMC5571642
68. †Yang, S., Cranford, J.A., Li, R., Zucker, R.A., & \*Buu, A. (2017). A time-varying effect model for studying gender differences in health behavior. *Statistical Methods in Medical Research*, 26, 2812-2820. PMCID: PMC4860169
69. \*Buu, A., Williams, L.K., & Yang, J.J. (2018). An efficient genome-wide association test for mixed binary and continuous phenotypes with applications to substance abuse research. *Statistical Methods in Medical Research*, 27, 905-919. PMCID: PMC6812509
70. Yang, J.J., Trucco, E.M., & \*Buu, A. (2019). A hybrid method of the sequential Monte Carlo and the Edgeworth expansion for computation of very small p-values in permutation tests. *Statistical Methods in Medical Research*, 28, 2937-2951. PMCID: PMC6360137
71. †Liu, W., Li, R., Zimmerman, M.A., Walton, M.A., Cunningham, R.M., & \*Buu, A. (2019). Statistical methods for evaluating the correlation between timeline follow-back data and daily process data with applications to research on alcohol and marijuana use. *Addictive Behaviors (Special Issue: Improving the Implementation of Quantitative Methods in Addiction Research)*, 94, 147-155. PMCID: PMC6544482
72. Yang, J.J., Luo, X., Trucco, E.M., & \*Buu, A. (2022). Polygenic risk prediction based on singular value decomposition with applications to alcohol use disorder. *BMC Bioinformatics*, 23:28. <https://doi.org/10.1186/s12859-022-04566-5> PMCID: PMC8744290
73. Yang, J.J., Kuo, J., Su, W.C., Jorenby, D.E., Piper, M.E., & \*Buu, A. (2022). A new statistical model for longitudinal ecological momentary assessment data on dual use of electronic and combustible cigarettes. *American Journal of Drug and Alcohol Abuse (Methods in Addiction Research Section)*, 48, 529-537. PMCID: PMC10201566

#### Manuscripts under Review or Revised & Resubmitted

74. Yang, J.J., Piper, M.E., Indic, P. & \*Buu, A. (revised & resubmitted). Statistical methods for predicting e-cigarette use events based on beat-to-beat (BBI) data collected from wearable devices.

75. Yang, J.J. & \***Buu**, A. (revised & resubmitted). Efficient matrix profile computation with Euclidean distance using eigen transformation: performance evaluation based on beat-to-beat interval (BBI) data.
76. Yang, J.J. & \***Buu**, A. (under review). Adaptive sequential singular spectrum analysis with an application to extract heart rate signals related to e-cigarette use.
77. Ou, T.S., **Buu**, A., Yang, J.J., & Lin, H.C. (revised & resubmitted). A longitudinal examination of the association between e-cigarette use contexts and alcohol use problems among college students.
78. Ou, T.S., **Buu**, A., Yang, J.J., & Lin, H.C. (revised & resubmitted). E-cigarette use contexts and associated e-cigarette use dependence among college students: A longitudinal examination.
79. †Nam, J.K., Yang, J.J., Ran, S., Piper, M.E., & \***Buu**, A. (under review). Bidirectional relationships between sleep quality and nicotine vaping: studying young adult e-cigarette users in real time and real life.

#### Book Chapters and Measurement or Software Manuals

1. Quittner, A.L., **Buu**, A., Watrous, M., & Davis, M.A. (2000). *Cystic fibrosis questionnaire: a health-related quality of life measure. User manual English version 1.0*. Washington, D. C.: Cystic Fibrosis Foundation.
2. Yang, J.J., Li, J., & **Buu**, A. (2013). *R Package EILA: Efficient Inference of Local Ancestry*. <https://CRAN.R-project.org/package=EILA>
3. Dziak, J., Tan, X., Li, R., & **Buu**, A. (2013). *Ordinal Tvem Macro*. <http://methodology.psu.edu/OrdinalTvemPropOdds>
4. **Buu**, A. & Li, R. (2018). New statistical methods inspired by data collected from alcohol and substance abuse research. In H. Fitzgerald & L. Puttler (Eds.), *Alcohol Use Disorders: A Developmental Science Approach to Etiology* (Chapter 21, pp. 354-365). New York, NY: Oxford University Press.
5. Yang J.J. & **Buu**, A. (2018). R Package FisherCombinationStat: Multivariate Test Using Fisher Combination Statistic. <https://github.com/jyangstat/FisherCombinationStat>

#### **Invited Presentations**

- *Assessing rater agreement using distance function approach*. Invited talk, Statistics Department, University of Michigan, Ann Arbor, Michigan, March 2004.
- *Using childhood risk to predict adolescent substance use development: the methodological challenges*. Invited talk, Methodology Center Seminar, Pennsylvania State University, State College, PA, November 2005.
- *Statistical models for longitudinal zero-inflated count data with applications to the substance abuse field*. Invited talk, The Second Institute of Mathematical Statistics Asia Pacific Rim Meeting, Tsukuba, Japan, July 2012.
- *New measurement and methodology for daily patterns of drug use and related risk behaviors*. Junior faculty presentation, Department of Psychiatry Grand Rounds, University of Michigan, Ann Arbor, MI, January 2013.
- *Longitudinal models for daily patterns of substance use*. Invited talk, Institute of Mathematical Statistics China Meeting, Chengdu, China, July 2013.
- *Evaluating compliance, reactivity, and validity of measurements for daily patterns of health risk behaviors*. Invited talk, The Addiction Research Center Research Seminar, University of Michigan, Ann Arbor, MI, October 2013.

- *Innovative approaches for measuring and analyzing daily patterns of health risk behaviors.* Invited talk, Epidemiology and Biostatistics Department Seminar, Indiana University, Bloomington, IN, March 2014.
- *Innovative approaches for measuring and analyzing daily patterns of health risk behaviors.* Invited talk, Joint Colloquium of Psychology and Statistics Departments, Iowa State University, Ames, IA, April 2014.
- *Innovative approaches for measuring and analyzing daily patterns of health risk behaviors.* Invited talk, Psychology Department Seminar, National Taiwan University, Taipei, Taiwan, June 2014.
- *Health communication technology and statistical methodology for studying daily process of substance use, violence, and HIV risk sexual behaviors.* Invited talk, School of Nursing Seminar, University of Michigan, Ann Arbor, MI, February 2015.
- *Health communication technology and statistical methodology for studying daily process of substance use, violence, and HIV risk sexual behaviors.* Invited talk, Department of Health Behavior Seminar, Gillings School of Global Public Health, University of North Carolina, Chapel Hill, NC, March 2015.
- *Measurement and methodology for real-time assessment of electronic cigarette use in natural settings.* Invited talk, Methodology Center, Pennsylvania State University, State College, PA, March 2017.
- *Developmental psychopathology of alcohol use disorder from childhood to adulthood: results from the Michigan Longitudinal Study.* Invited talk, Department of Human Development and Family Science, University of Georgia, Athens, GA, January 2018.
- *Measuring substance use related behaviors in real-time and natural environment: my journey to NIH funding.* Invited talk, School of Public Health, University of Texas, Dallas, TX, February 2018.
- *Genetic and phenotypic pathways to opioid misuse.* Invited talk, Methodology Center, Pennsylvania State University, State College, PA, September 2018.
- *Statistical methods for characterizing changes in health behaviors.* Invited talk, Department of Epidemiology and Biostatistics, Temple University, Philadelphia, PA, November 2018.
- *Measurement and methodology for characterizing health behaviors in real time.* Invited talk, Department of Preventive Medicine, University of Southern California, Los Angeles, CA, December 2018.
- *My journey to successful methodology funding from National Institutes of Health: vaping research.* Invited talk, Adult and Child Center for Health Outcomes Research and Delivery Science (ACCORDS), University of Colorado, Aurora, CO, September 2021.
- *Pursuing my passion for addiction research: characterizing substance use in real time & real life.* Invited talk, Rutgers Addiction Research Center, Rutgers University, New Brunswick, NJ, February 2023.
- *Ecological momentary assessment and substance use research.* Invited talk, Department of Community Health and Health Behavior, University at Buffalo, Buffalo, NY, April 2023.
- *Statistical methods for predicting e-cigarette use events based on beat-to-beat interval (BBI) data collected from wearable devices.* Oral paper presentation in the session of Digital Interventions for Tobacco Cessation, The 2024 Society for Research on Nicotine & Tobacco (SRNT) Annual Meeting, Edinburgh, Scotland, UK, March 2024.

- *Bidirectional relationships between sleep quality and nicotine vaping: a real-time and real-life study using smartphones and smartwatches.* Oral paper presentation in the session of Bio-Bacons: Illuminating Drug Use With Biosensors, The 2024 College on Problems of Drug Dependence (CPDD) Annual Meeting, Montreal, Canada, June 2024.

## Teaching

### Classroom Teaching

07/2003-12/2003	Taught PSYC30-Statistical Principles of Psychological Research (UNC)
09/2004-12/2004	Taught STATS350-Introduction to Statistics and Data Analysis & STATS100-Introduction to Statistical Reasoning (UM)
08/2014-12/2014	Taught SPH-Q602: Multivariate Statistical Analysis (IU)
08/2014-12/2014	Guest lectured SPH-E794: Doctoral Seminar in Epidemiology (IU)
01/2015-05/2015	Taught SPH-Q502: Intermediate Statistics in Public Health (IU)
01/2015-05/2015	Initiated new courses: SPH-Q605: Analysis of Multi-level and Longitudinal Data (IU)
09/2015-04/2019	Taught HS 550: Scientific Methods for Health Sciences: Fundamentals (UM)
01/2018-04/2019	Taught HS 853: Scientific Methods for Health Sciences: Special Topics (UM)
01/2019-04/2019	Taught NURS 218: Applied Statistics (UM)
01/2020-	Guest lecture PHM 1433: Seminar in Health Promotion & Behavioral Sciences (UTHealth)
01/2020-	Guest lecture PH 1988: Biostatistics Seminar (UTHealth)
08/2020-	Teach PH 1323L: Applied Methods for Longitudinal and Ecological Momentary Assessment (EMA) Data (UTHealth)
08/2020-	Teach PH 1410: Addiction and Society (UTHealth)
01/2021-	Teach PH 9997: Practicum (UTHealth)
08/2022-	Teach PHM 9998: Independent Integrative Learning Experience (UTHealth)
01/2023-05/2023	Teach PHD 1421L: Quantitative Analysis for Behavioral Sciences (UTHealth)
01/2023-	Teach PHD 9999: Dissertation Research (UTHealth)

### Mentoring

01/2006-07/2014	Guest lectured and supervised field work for PSYCH371-Advanced Laboratory in Psychopathology (UM) Hannah Wolfson, Marjorie Mygrants
05/2006-present	Mentored Master's in Public Health (MPH) students (UM/UTHealth) MaryAnn Mansour, Wei Wang, Agata Dabrowska, Sanjana Pampati, Adam Siddiqui, Emily Pendleton, Tyler Swate, Fernanda Contreras, M. Brayden Bowie, Vivian Nguyen, Abida Anwar, Olive Pertuit
01/2007-04/2011	Supervised independent study PSYCH327/423 (UM) Natalia Kalaida, Cydney DiPiazza, Robin Lane, Lindsay Gladysz, Brent Nier, Emily Shipman, Jillian Rosati, Stephanie Schroder, Sarah Mohr, Sarah Cravens
09/2008-04/2009	Mentored honors thesis (UM) Avanti Jangalapalli
09/2008-04/2009	Mentored Undergraduate Research Opportunity Program (UM) Iman Maiza, Conor Frederick

06/2012-present	Mentor Ph.D. students in Statistics (PSU) Hanyu Yang, Wanjun Liu, Songshan Yang, Zhanrui Cai, Zhaoxue Tong
09/2012-present	Mentor post-doctoral fellows (UM/UTHealth) Elisa Trucco, Brooke Arterberry, Su-Wei Wong
08/2014-present	Mentor Ph.D. students in Public Health (IU/UTHealth) Steven Horbal, Yi-Han Hu, Zhi Wang, Su-Wei Wong, Joon Kyung Nam, Rebecca Molsberry, Tzung-Shiang Ou, Meng Yang, Eugenia Lee
09/2016-present	Serve Ph.D. Dissertation Committee (UM/IU/UTHealth) Seoyoon Woo (Role: Member; Chair: Janet Larson) Zhi Wang (Role: Member; Chair: Hsien-Chang Lin) Joon Kyung Nam (Role: Chair) Rebecca Molsberry (Role: Biostatistics Minor Advisor; Chair: Katelyn Jetelina) Eugenia Lee (Role: Method Breadth Representative; Chair: Kymberle Sterling) Tracy Evans (Role: Biostatistics & Behavioral Science; Chair: Dorothy Kim Waller) Jennifer Thompson (Role: Biostatistics & Behavioral Science; Chair: Alex Testa)
08/2019-present	Serve Master's thesis Committee (UTHealth) Natascha del Vecchio (Role: Member; Chair: Kayo Fujimoto)
<u>Workshop</u>	
09/1999-04/2002	Conducted weekly data management and analysis workshops for clinical psychology students (UF)
01/2005-04/2011	Conducted weekly data management and analysis workshops for the Data Management Unit of Michigan Longitudinal Study (UM)
09/2010-04/2011	Conducted a series of scientific writing workshops for the Data Management Unit of Michigan Longitudinal Study (UM)
09/2015-12/2016	Coordinate a series of statistical workshops for U of M School of Nursing faculty & Ph.D. students: <ol style="list-style-type: none"> <li>1. Overview of Statistical Methods for Nursing Research (Chris Liu; January, 2016)</li> <li>2. Sequential, Multiple Assignment, Randomized Trial (Billie Nahum-Shani &amp; Daniel Almirall; February, 2016)</li> <li>3. Causal Inference for Observational Data (Olga Yakusheva; March, 2016)</li> <li>4. National Health Surveys (Matthew Davis; October, 2016)</li> <li>5. Big Data Analytics (Ivo Dinov; November, 2016)</li> </ol>
01/2018	Conducted a workshop entitled "Multi-level modeling in child development and family science" at University of Georgia.
04/2023	Conducted a workshop entitled "First class of addiction: terminology, epidemiology, and comorbidity" at University at Buffalo.

## **Memberships in Professional Societies**

01/1996-12/2000	Member, American Educational Research Association
01/2001-present	Member, American Statistical Association (ASA)
01/2005-present	Member, Research Society on Alcoholism (RSA)
08/2009-12/2014	Member, International Biometric Society
01/2012-12/2019	Member, American Psychological Association
01/2015-12/2020	Member, Institute of Mathematical Statistics

01/2018-present	Member, Society for Research on Nicotine & Tobacco (SRNT)
07/2020-present	Standing Member, Addiction Risks and Mechanisms (ARM) Study Section Center for Scientific Review, National Institutes of Health
09/2023-present	Member, College on Problems of Drug Dependence (CPDD)
10/2023-present	Associate Editor, Editorial Board at Nicotine & Tobacco Research

## Organizer or Chair at Conferences or Symposiums

- *Recent advances on statistical methods for analyzing longitudinal data and their applications.* Organizer of an open competition invited talk session, Institute of Mathematical Statistics China Meeting, Chengdu, China, July 2013.
- *Recent advances in genetic data analysis.* Chair of an open competition invited talk session, Institute of Mathematical Statistics China Meeting, Chengdu, China, July 2013.
- *Advanced statistical methods for genetic data analysis.* Organizer of an invited paper session, The Third Institute of Mathematical Statistics Asia Pacific Rim Meeting, Taipei, Taiwan, July 2014.
- *New statistical methods for genetic data analysis.* Organizer of a topic-contributed paper session, The Fourth Institute of Mathematical Statistics Asia Pacific Rim Meeting, Hong Kong, China, June 2016.
- *Advanced methodology for genetic data analysis.* Organizer & Chair of a topic-contributed paper session, 2016 Joint Statistical Meetings, Chicago, IL, July 2016.
- *New statistical methodology for genetic data analysis.* Organizer & Chair of an invited session in statistics, The 2017 IMS-China International Conference on Statistics and Probability, Nanning, Guangxi, China, June 2017.
- *Advanced methods for genetic data analysis.* Organizer & Chair of an invited talk session. The 2018 International Chinese Statistical Association China Conference with the Focus on Data Science, Qingdao, Shandong, China, July 2018.
- *New statistical methods for longitudinal data analysis.* Organizer of a topic-contributed session, 2020 Joint Statistical Meetings, virtual conference, August 2020.

## Grant Review Service (01/2012-present)

- Addiction Risks and Mechanisms Study Section [ARM], NIH (Oct 2016; Feb 2017; Feb 2018; Oct 2018)
- Risk, Prevention and Health Behavior [RPHB], Integrated Review Group, Special Emphasis Panel, NIH (Nov 2019)
- Injury Center Pilot Grant, University of Michigan
- Indiana Clinical and Translational Science Institute Pilot Grant, Indiana University
- PRIME-Funding for Preliminary Studies for New Investigators, University of Texas Health Science Center

## Manuscript Review Service (01/2005-present)

- *Addiction*
- *Addictive Behaviors*

- *Alcoholism: Clinical and Experimental Research*
- *American Journal of Public Health*
- *Biometrics*
- *Computational Statistics*
- *Drug and Alcohol Dependence*
- *JAMA Psychiatry*
- *Journal of Abnormal Psychology*
- *Journal of Studies on Alcohol and Drugs*
- *Journal of the Royal Statistical Society*
- *Nicotine & Tobacco Research*
- *Pediatrics*
- *Prevention Science*
- *Psychology of Addictive Behaviors*
- *Psychological Methods*
- *Statistical Methods in Medical Research*
- *Statistics in Medicine*
- *Substance Use & Misuse*

## **Committee, Organizational, and Volunteer Service**

### International Service

10/2023-present Associate Editor  
 Editorial Board  
 Nicotine & Tobacco Research

### National Service

07/2020-06/2024 Standing Member  
 Addiction Risks and Mechanisms Study Section  
 Center for Scientific Review  
 National Institutes of Health

01/2024-10/2024 Co-Chair  
 Medical Cannabis Use, Polysubstance Use, and Recovery Working Group  
 PhenX Toolkit (consensus measures for **Phen**otypes and **eX**posures)  
 National Institute on Drug Abuse (NIDA)

### School-Level Service

08/2014-05/2015 Selection Committee for School of Public Health Alumni Awards  
 Indiana University-Bloomington

01/2015-05/2015 MPH Leadership Committee, School of Public Health  
 Indiana University-Bloomington

01/2015-05/2015 School of Public Health Scholarship Selection Committee  
 Indiana University-Bloomington

09/2015-04/2019 Chair of the Analytics Methods for Science & Practice Group  
 School of Nursing



09/2016-04/2019 University of Michigan at Ann Arbor  
 Mock Reviewer for Nursing Faculty's NIH Proposals  
 University of Michigan at Ann Arbor  
 09/2016-04/2019 Interviewer for National Clinician Scholars Program  
 School of Nursing  
 University of Michigan at Ann Arbor  
 09/2018-04/2019 Member of the Undergraduate Curriculum Evaluation Group  
 School of Nursing  
 University of Michigan at Ann Arbor  
 01/2018-01/2019 Mentor of Fulbright Visiting Scholar  
 School of Public Health  
 University of Michigan at Ann Arbor  
 Wen-Chi Wu  
 07/2019-08/2019 Leader of the Review Committee for PRIME Awards  
 University of Texas School of Public Health  
 07/2019-present Mock Reviewer for Public Health Faculty's NIH Proposals  
 UTHealth  
 01/2020-08/2022 Member of the Faculty Council, School of Public Health, UTHealth  
 01/2020-present Member of the Faculty Mentoring Workgroup  
 School of Public Health, UTHealth  
 07/2019-present Mentor of junior faculty, School of Public Health, UTHealth  
 Wei-Chung Su, Michael Wilkerson, Emily Hébert Arsers, Alejandra Fernandez,  
 Dale Mantey

Department-Level Service

09/2004-12/2004 Marshalls Committee  
 Department of Statistics  
 University of Michigan at Ann Arbor  
 01/2015-05/2015 Coordinator of the Grant Writing Discussion Group  
 Department of Epidemiology and Biostatistics  
 Indiana University-Bloomington  
 01/2015-05/2015 MPH/PhD Student Admission Committee  
 Department of Epidemiology and Biostatistics  
 Indiana University-Bloomington  
 10/2019-present Member of the Data Safety and Monitoring Board  
 Randomized Trial of a Data-Driven Technical Assistance System for  
 Drug Prevention Coalitions (R01 DA045815; MPI: Louis Brown & Sarah  
 Chilenski)  
 10/2019-01/2020 Member of the Three-Year Review Committee of Dr. Wei-Chung Su,  
 Department of Epidemiology, Human Genetics, and Environmental  
 Sciences, UTHealth  
 09/2019-05/2020 Co-Chair of the Working Group for Drug Abuse Research Using Existing  
 Databases, Department of Biostatistics & Data Science, UTHealth  
 06/2019-present Member of the Working Group for Quantitative Method Courses &  
 Certificate, Department of Health Promotion & Behavioral Sciences,  
 UTHealth

07/2020-present	Grader of the doctoral preliminary exam, Department of Health Promotion & Behavioral Sciences, UTHealth
10/2020-01/2021	Chair of the Three-Year Review Committee of Dr. Casey Durand, Department of Health Promotion & Behavioral Sciences, UTHealth
01/2022-present	Member of the HPBS Admission Committee
05/2022-present	Member of the HPBS Student Scholarship Committee