DAVOOD TOFIGHI, PH.D.

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POSITION

8/2016 – present   Assistant Professor, Department of Psychology, University of New Mexico, Albuquerque, NM.
2011 – 8/2016   Assistant Professor, School of Psychology, Georgia Institute of Technology, Atlanta, GA.

EDUCATION

December 2010   **Ph.D. in Quantitative Psychology**
Arizona State University
Dissertation: *Multilevel Mediation Analysis: Statistical Assumptions, Misspecification, and Centering*

August 2005   **Masters in Educational Psychology-Qualitative and Quantitative Methodology in Education (QQME)**
University of Nebraska-Lincoln.
Thesis: *The effects of ignoring scalar noninvariance on the Type I error and power of group mean comparisons*

August 2003   **Masters in Industrial and Management Systems Engineering**
University of Nebraska-Lincoln.

August 2003   **Minor in Statistics**
University of Nebraska-Lincoln

January 1999   **Bachelor in Industrial Engineering**
Sharif (Aryamehr) University of Technology, Tehran, Iran.

UNDER REVIEW

Tofighi, D. & Kelley, K. (Revise and Resubmit) A more robust test of indirect effect in mediation analysis. *Psychological Methods*.

Tofighi, D., Kelley, K., Dunford, B. B., & Witkiewitz, K. (submitted) Testing indirect effects in micromediational chains. *Multivariate Behavior Research*.

PEER-REVIEWED PUBLICATIONS

Tofighi, D., Hsiao, Y., Kruger, E. S., Van Horn, M. L., MacKinnon, D. P., Witkiewitz, K. (in press). Sensitivity analysis of the no-omitted confounder assumption in latent growth curve mediation models. *Structural Equation Modeling: A Multidisciplinary Journal.*

Hsiao, Y., **Tofighi, D.**, Kruger, E. S., Van Horn, M. L., MacKinnon, D. P., Witkiewitz, K., (in press) The (lack of) replication of self-reported mindfulness as a mechanism of change in mindfulness-based relapse prevention for substance use disorders. *Mindfulness*.

Witkiewitz, K., Roos, C. R**., Tofighi, D.,** & Van Horn, M. L. (2018). Broad coping repertoire mediates the effect of the combined behavioral intervention on alcohol outcomes in the combine study: An application of latent class mediation. *Journal of Studies on Alcohol and Drugs*, 79, 199–207. https://doi.org/10.15288/jsad.2018.79.199

Witkiewitz, K., Roos, C. R., **Tofighi, D.,** Van Horn, M. L. (2017). Broad coping repertoire mediates the effect of the combined behavioral intervention on drinking outcomes: An application of latent class mediation [abstract]. *Alcoholism: Clinical and Experimental Research, 41*(S1)*,* 92.

Tofighi, D., & Kelley, K. (2016). Assessing omitted confounder bias in multilevel mediation models. *Multivariate Behavioral Research*, *51*, 86–105. doi: 10.1080/00273171.2015.1105736

Tofighi, D. & MacKinnon, D. P. (2016). Monte Carlo confidence intervals for complex functions of indirect effects. *Structural Equation Modeling: A Multidisciplinary Journal, 23,* 194-205. doi: 10.1080/10705511.2015.1057284

Tofighi, D. & Thoemmes, F. (2014). Single-level and multilevel mediation analysis. *The Journal of Early Adolescence*, *34*, 93–119. doi:10.1177/0272431613511331

Tofighi, D. (2014). Mediation analysis. In: Michalos A.C. (Ed.). *Encyclopedia of Quality of Life and Well-Being Research*. Springer, Dordrecht, Netherlands: Springer, pp. 3963-3966.

Tofighi, D. (2014). Mediator. In: Michalos A.C. (Ed.). *Encyclopedia of Quality of Life and Well-Being Research*. Springer, Dordrecht, Netherlands: Springer, pp. 3966-3967.

Tofighi, D., West, S. G., & MacKinnon, D. P. (2013). Multilevel mediation analysis: The effects of omitted variables in the 1-1-1 model. *British Journal of Mathematical and Statistical Psychology*, *66*, 290–307. doi:10.1111/j.2044-8317.2012.02051.x

MacKinnon, D. P., & **Tofighi, D.** (2013). Statistical mediation analysis. In I. B. Weiner, J. A. Schinka, & W. F. Velicer (Eds.), *Handbook of Psychology, Research Methods in Psychology* (Vols. 1-12, Vol. 2, p. 717). Hoboken, N.J.: Wiley.

Tofighi, D. & MacKinnon, D. P. (2011). RMediation: An R package for mediation analysis confidence intervals. *Behavior Research Methods*, *44*, 692–700.

Tofighi, D., MacKinnon, D. P., & West, S. G. (2009). A general method to derive covariances between parameter estimates in mediation models [abstract]. *Multivariate Behavioral Research*, *44*, 855.

Tofighi, D., MacKinnon, D. P., & Yoon M. (2009). Covariances between regression coefficient estimates in a single mediator model. *British Journal of Mathematical and Statistical Psychology, 62*, 457-484.

Enders, C.K., & **Tofighi**, D. (2008). The impact of misspecifying class-specific residual variances in growth mixture models. *Structural Equation Modeling: A Multidisciplinary Journal*, *15*, 75-95.

Enders, C.**K.**, & **Tofighi**, D. (2007). Centering predictor variables in cross-sectional multilevel models: A new look at an old issue. *Psychological Methods*, *12*, 121-138.

Tofighi, D., & Enders, C.K. (2007). Identifying the correct number of classes in growth mixture models. In G. R. Hancock & K. M. Samuelsen (Eds.), *Advances in latent variable mixture models* (pp. 317-341). Greenwich, CT: Information Age.

Tofighi, D., & Enders, C.K. (2007), The harmonic mean. In *Encyclopedia of measurement and statistics* (Vol. 2, pp. 425-426). Newbury Park, CA: Sage.

GRANTS

Funded (Active)

NNX16AM16G (Fischer)	07/01/2016 – 06/30/2019	2.00 summer
Georgia Tech (NASA)	$45,572	

Understanding Key Components of Successful Autonomous Space Missions
The major goals of this project are to conduct several ground-based analog missions that simulate work and living conditions during confinement for a long period, social isolation, communication delay with mission control, mission objectives, off-nominal events to a) examine and model the impact of crew autonomy on both the crew and the multi-team systems of crew and mission control, and b) to determine whether its impact changes over time.

1 R01 AA025539-01A1 (Witkiewitz/Tofighi [multi-PIs])   04/01/2017 – 03/31/2022   .48 summer
NIH/NIAAA $2,052,838 (total costs)
Mechanisms of Behavior Change in Alcohol Use Disorder Treatment
This study seeks to gain a better understanding of the mechanisms of behavior change during and following treatment for alcohol use disorder. The results will build a knowledge base regarding the most robust mechanisms of behavior change and analytic tools to guide future mechanisms of behavior change research in alcohol use disorder treatment. Improved understanding of mechanisms of behavior change will guide treatment decision-making and inform precision medicine initiatives in the treatment of alcohol use disorder.

PA 16-160 (Binger)   07/01/2017 – 06/30/2022   0.45 summer
NIH $569,173
Word by Word: Building Sentences with Preschoolers who use AAC
The major goals of this project are to chart a new horizon of AAC research to create data-based interventions that capitalize on the availability of current technologies, simplify existing AAC apps, and promote early sentence productions, with the goal of mirroring the language skills and quality of life outcomes of peers.

Pending

PA 15-299 (McCrady)   09/01/2017 – 08/31/2022   1.35 academic (yr 5)
NIH/NIAAA $461,764   0.45 summer (yr 5)
Neurocognitive and Neurobehavioral Mechanisms of Change following Psychological Treatment for Alcohol Use Disorder
The major goals of this project are to conduct a randomized clinical trial to systematically examine pretreatment neurocognitive and behavioral characteristics and changes in neural function and
behavior over time.

Funded (Not Active)

Title of Project: Application of Bayesian methods in multilevel and longitudinal mediation models Agency/Company: NIH
Total Dollar Amount: $77,226
Role: PI
Collaborators: This grant has mentors (sponsors): Dr. David MacKinnon and Stephen west
Period of Contract: 8/2009- 12/2010
Candidate's Share: 95%

Title of Project: Research Coordination Network on Leveraging Computational Social Science for Understanding Virtual Organizations
Agency/Company: NSF
Total Dollar Amount: $324,024
Role: Co-PI
Collaborators: Leslie DeChurch (PI), Bruce Walker (Co-PI), Noshir Contractor (Co-PI)
Period of Contract: 12/2013 – 12/2015
Candidate's Share: 1/3

Title of Project: Causal mediation analysis in the presence of latent heterogeneity
Agency/Company: Institute for the Social Sciences, Cornell University
Total Dollar Amount: $3,100
Role: Co-PI
Collaborators: Felix Thoemmes (Co-PI)
Period of Contract: 12/2013 – 12/2014
Candidate's Share: 50% (~$1500)

Not Funded:

Title of Project: Team Cognition over Long Durations: Shifts in Team Mental Models and Team Communication
Agency/Company: NASA
Total Dollar Amount: 1,050,000 (maximum)
Role: Co-PI
Collaborators: Ute Fischer, Georgia Tech (PI), Kathleen Mosier, San Francisco State University (Co-PI)
Period of Contract: 12/2013 – 12/2014
Candidate's Share: 25%-35%

Title of Project: R01 Innovative Robust Methods to Ensure Accuracy and Adequacy of Multilevel and Longitudinal
Agency/Company: NIH
Total Dollar Amount: ~$500, 000
Role: PI
Collaborators: None
Period of Contract: 2013-2016
Candidate's Share: 90%
[*Impact score 44 - This grant proposal got scored by NIH in the first round and I was invited to resubmit, which I did.*]

Title of Project: Motivation in Multi-Team Systems
Agency/Company: Army Research Institute
Total Dollar Amount: $883,284
Role: Co-PI
Collaborators: Dr. Ruth Kanfer (PI) and Leslie DeChurch (Co-PI)
Period of Contract: 2013
Candidate's Share: 15%-30%

SOFTWARE DEVELOPMENT

- We wrote RMediation package (Tofighi and MacKinnon, 2011) in R statistical programming environment that uses a numerical method to build a CI for an indirect effect in a single mediator model. Further, I have made this software accessible by building a web application accessible to all researchers without requiring knowledge of any programming language. An update version of the web application (updated by Taylor Baldwin) is available at: https://amplab.shinyapps.io/MEDCI/

- We extended the RMediation package to build a confidence interval for any complex nonlinear function of the model parameters in single-level and multilevel structural equation models (Tofighi and MacKinnon, 2016). With this extension, one now can produce the Monte Carlo and Multivariate Delta Method to compute a CI. A Georgia Tech Ph.D. student, Taylor Baldwin, under my supervision, developed the web application for this new method. A web calculator for the online version of the software is available at: https://amplab.shinyapps.io/MEDMC/

SPONSORED TALK/POSTER

Tofighi, D. (2012, August). *Mediation Analysis in Drug Prevention using RMediation Package.*
Competitive Early Career Investigator Award Poster Session at the 120th American Psychological
Association Annual Convention Orlando, FL, Sponsored by the NIDA/NIAAA/APA (Divisions 28 & 50).

Tofighi, D. (2011, December) *Statistical Mediation Analysis in Prevention Research*. Behavioral Research
Program Crosstalk Invited Speaker Series. National Cancer Institute, Bethesda, MD.

INVITED TALK/POSTER

Tofighi, D. (2012, April) *The Effect of Omitted Variables in the Multilevel Mediation Model*. School of

Industrial and Systems Engineering Seminar Series, Georgia Institute of Technology, Atlanta, GA.

PRESENTATIONS/ POSTERS

Tofighi, D., & Kelley, K. (2018, May). *Assessing Omitted Confounder Bias in Multilevel Mediation Models.* Paper accepted for presentation at the Modern Modeling Methods (M^3) Conference, Storrs, Connecticut.

Tofighi, D., Hsiao, Y., Kruger, E. S., Van Horn, M. L., MacKinnon, D. P., Witkiewitz, K. (2018, May). *Sensitivity Analysis in Latent Growth Curve Mediation Models.* Paper accepted for presentation at the Modern Modeling Methods (M^3) Conference, Storrs, Connecticut.

Witkiewitz, K., Roos, C. R., **Tofighi, D.,** Van Horn, M. L. (June, 2017). Broad coping repertoire mediates the effect of the combined behavioral intervention on drinking outcomes: An application of latent class mediation. In B. Hagman and P. Clifford (Chairs), *Novel Research Methods in Delineating Mechanisms of Behavior Change in the Treatment of Alcohol Use Disorders: Current Trends and Future Directions.* Symposium at the 2017 Research Society on Alcoholism Annual Meeting, Denver, CO.

Tofighi, D. (2014, July). *Confidence Intervals for Polynomial Quotient of Indirect and Direct effects*. Paper presented at VI European Congress of Methodology, Utrecht, The Netherlands.

Tofighi, D. (2014, July). *Bayesian Outlier Detection in SEM*. Poster Session at VI European Congress of Methodology, Utrecht, The Netherlands.

Tofighi, D. (2014, July). *Monte Carlo Integration in the RMediation Package.* Poster Session at VI European Congress of Methodology, Utrecht, The Netherlands.

Tofighi, D. (2014, May). *Outlier Detection in SEM*. Paper presented at the Modern Modeling Methods (M^3) Conference, Storrs, Connecticut.

Tofighi, D., & MacKinnon, D. P. (2014, May). *Monte Carlo Confidence Intervals for Complex Functions of Indirect Effects*. Poster Session at 22nd Society for Prevention (SPR) Annual Meeting, Washington, DC.

Tofighi, D. (2013, August). *Bayesian Outlier Detection in Structural Equation Models*. Poster Session at the 121th American Psychological Association Annual Convention, Honolulu, HI (Division 5).

Tofighi, D., & West, S. G., & MacKinnon, D. P. (2012, July). *Multilevel mediation analysis: The effects of omitted variables in the 1-1-1 model*. Paper presented at the V European Congress of Methodology, Santiago de Compostela, Spain. **(Best Presentation Winner)**

Tofighi, D., & West, S. G., & MacKinnon, D. P. (2012, May). *Multilevel mediation analysis: The effects of omitted variables in the 1-1-1 model*. Poster presented at 20th Society for Prevention (SPR) Annual Meeting, Washington, DC.

Tofighi, D., & West, S. G., & MacKinnon, D. P. (2012, May). *The effects of omitted variables in multilevel model analysis*. Paper presented at the Modern Modeling Methods (M^3) Conference, Storrs, Connecticut.

Tofighi, D., MacKinnon, D. P., & West, S. G. (2009, October). *A general method to derive covariances between parameter estimates in mediation models*. Paper presented at the Seventh Annual Meeting of the Society of Multivariate Experimental Psychology- graduate student pre-conference, Gleneden Beach, Oregon.

Tofighi, D., & MacKinnon, D. P. (2009, April). *Comparison of methods for constructing 95% confidence intervals in a single mediator model*. Paper presented at the Annual Meeting of the American Educational Research Association, San Diego, CA.

Tofighi, D., MacKinnon, D. P., & Yoon M. (2008, July). *Covariance among regression coefficient estimates*

in a single mediator model. Paper presented at the International Meeting of the Psychometric Society, Durham, NH.

Tofighi, D., & Enders, C.K. (2008, April). *The effects of ignoring scalar noninvariance on the Type I error and power of group mean comparisons*. Paper presented at the Annual Meeting of the American Educational Research Association, New York City, NY.

Enders, C.K., & **Tofighi**, D. (2007, April). *Centering predictor variables in cross-sectional multilevel models: A new look at an old issue*. Paper presented at the Annual Meeting of the American Educational Research Association, Chicago, IL.

Russell, S. T, Crockett, L. J. & **Tofighi**, D. (2007, November). *Comparison of European-American and African-American youth*. Paper presented at the National Council on Family Relations Annual Conference, Pittsburgh, PA.

Enders, C.K., & **Tofighi**, D. (2006, May). *Determining the number of classes in a growth mixture model analysis*. Paper presented at the conference of the Center for Integrated Latent Variable Research, College Park, MD.

Crockett, L. J., **Tofighi**, D., & Russell, S. T. (2006, March). *The role of parenting practices in adolescents' self-esteem: A comparison of European and African American youth*. Paper presented at the Biennial Meeting of the Society for Research on Adolescence, San Francisco, CA.

Enders, C.K., & **Tofighi**, D. (2006, April). *Determining the number of classes in a growth mixture model analysis*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.

Enders, C.K., & **Tofighi**, D. (2005, April). *The impact of misspecifying class-specific residual variances in growth mixture models*. Paper presented at the Annual Meeting of the American Educational Research Association, Montreal, Canada.

Tofighi, D. (2005, April). *Enhancing validity in mixed methods design*. Paper presented at the Annual Meeting of the American Educational Research Association, Montreal, Canada.

TEACHING

Semester, Year	Course Number	Course Title	Number of Students
Spring 2018	PSY 502	Design and Analysis of Experiments	6
Fall 2017	PSY 502	Design and Analysis of Experiments	16
Fall 2016	PSY 200 *	Statistical Principles	90+
Courses taught at Georgia Institute of Technology			
Spring 2016	PSYC 2020/6022 ***	Psychological Statistics	20
Fall 2015	PSYC 2020/6022 ***	Psychological Statistics	22
Spring 2015	PSYC 6060 **	Statistical Analysis II	23
Fall 2014	PSYC 8060 **	Introduction to Multilevel Analysis	10
Fall 2014	PSYC 8908 **	Statistical Programming with R	8
Spring 2014	PSYC 6020 **	Statistical Analysis II	18
Fall 2013	PSYC 2020/6022 ***	Psychological Statistics	18
Spring 2013	PSYC 6020 **	Statistical Analysis II	18
Fall 2012	PSYC 8060 **	Introduction to Multilevel Analysis	6
Spring 2012	PSYC 8060 **	Introduction to Multilevel Analysis	11

* Undergraduate Course
** Graduate Course
*** Both Graduate and Undergraduate Course

PROFESSIONAL SERVICES:

- I organized and chaired a poster forum entitled "New Methods in Mediation Analysis" at the 20th Society for Prevention (SPR) Annual Meeting, Promoting Healthy Living Through Prevention Science, Washington, DC.
- Member of APA Division 5 and Society for Prevention
- Member of Early Career Prevention Network (ECPN) Steering Committee in Society for Prevention.

Editorial Board: (2013-Present)
- Psychological Methods (APA Journal)

Dissertation/Thesis/Comp Committee Members
1. Samuel Posnock (Ph.D., I/O)
2. Hea Won Jun (Ph.D., Quant)
3. Raquel Asencio Hodge (Ph.D, I/O) (Prelim)
4. Ben Jones (Ph.D, I/O) (Thesis)
5. Yeongyu Lim (Ph.D., Quant)
6. Charles Calderwood (Ph.D., I/O)
7. Heather Hayes (Ph.D., Quant)
8. Amy Wax (Ph.D., I/O)

Reviewer:
- Multivariate Behavioral Research
- Behavior Research Methods
- PLOS ONE
- Structural Equation Modeling
- Australian & New Zealand Journal of Statistics
- Journal of Experimental Psychology: Applied

OTHER HONORS

2013-	Editorial Board, *Psychological Methods*.
2012	European Association of Methodology (EAM) Best Junior Scientist Presentation Award received at the V European Congress of Methodology, Santiago de Compostela, Spain.
2012	Early Career Investigators Travel Award: NIDA-Supported Posters at the NIDA/NIAAA/APA (Divisions 28 & 50)
2008	Student Competition and Travel Award to Present at Society of Multivariate Experimental Psychology (SMEP)
2008	Travel Award, Arizona State University, Department of Psychology,
2006	The Earl A. and Lenore H. Tripke Professional Workshop Travel Awards, Arizona State
1995-1999	*Dean's List*, Industrial Engineering Department, Sharif University of Technology, Iran
1995	Ranked in the 99th Percentile for the National University Entrance Exam in Math and Physics *Iran National Entrance Exam*
1995	*Honors Diploma*, Graduated with honors in Math and Physics from Iran's National Organization for Development of Exceptional Talents (NODET) school systems, 1995