

## Curriculum Vitae

### MAURICIO GARNIER-VILLARREAL

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#### EDUCATION:

- 2016 **Ph.D. Quantitative Psychology.** University of Kansas.  
Dissertation: *Intra and Interindividual Variation Modeling: Bayesian Mixed-Effects Nonstationary Latent Differential Equation Model*  
Minor: Gerontology  
Advisors: Pascal R. Deboeck, and David K. Johnson
- 2013 **Master of Arts, Quantitative Psychology,** University of Kansas.  
Thesis: *Two-method planned missing designs for longitudinal research*  
Advisors: Todd D. Little, and David K. Johnson
- 2011 **Licentiate, Psychology.** University of Costa Rica.  
Thesis: *Inhibitory Control, Working Memory and Emotional Regulation in Preschool Children.*  
Advisors: Domingo Campos-Ramírez, and Mauricio Molina-Delgado
- 2010 **Bachelor in Psychology.** University of Costa Rica.

#### PERSONAL EXPERIENCE

##### Academic Positions:

- 2020-present **Assistant Professor,** Department of Sociology,  
**Vrije Universiteit Amsterdam.**
- 2016-2020 **Research Assistant Professor,** College of Nursing,  
HEAL 8015 Applied Statistics For Health Sciences,  
HEAL 8016 Advance Applied Statistics,  
**Marquette University.**
- 2015-2016 **Assistant Instructor,** Department of Psychology,  
PSYC 210 Statistics in Psychological Research,  
University of Kansas.
- 2015 **Graduate Teaching Assistant,** Department of Psychology,  
PSYC 991 Longitudinal Data Analysis,

University of Kansas.

2014 **Graduate Teaching Assistant**, Department of Psychology,  
PSYC 679/879 Applied Nonparametric Statistical Methods,  
University of Kansas.

2011-2014 **Graduate Research Assistant**,  
Center for Research Methods and Data Analysis,  
University of Kansas.

2008-2011 **Research Assistant**,  
Psychological Research Institute.  
University of Costa Rica.

2008-2009 **Research Assistant**,  
Neurosciences Research Program.  
University of Costa Rica.

2008 **Teaching Assistant**, Department of Psychology,  
Research IV (descriptive statistics),  
Research V (inferential statistics),  
Psychology of Group Process,  
University of Costa Rica.

#### **Professional:**

2011-2014 **Statistical Consultant**.  
Center for Research Methods and Data Analysis,  
University of Kansas.

2010 **Research position**,  
Department of Psychology,  
University of Costa Rica.

2008 **Marketing Research Assistant** in the Research Department of Central  
Radio ([www.cdr.cr](http://www.cdr.cr)).

2008 **Professional consultant** for the American Institute of Human Rights  
(IIHR). Developed the methodological guide, produced and edited the audio  
material for "Methodological Guide for the use of compact disc collection:  
'Truth, justice and reparation', in book: 'Latin American Experience, meet  
victims'. ".

2006-2007 **Psychology Assistant** in the psycho pedagogic clinic of the Dra. Solange  
De Faria. Alajuela, Costa Rica

#### **Publications**

##### *Methodological*

1. Merkle, E. C., Ariyo, O., Winter, S. D., & **Garnier-Villarreal, M.** (2023). Opaque prior

- distributions in Bayesian latent variable models. *Methodology*, 19(3), 228–255.  
<https://doi.org/10.5964/meth.11167>
2. Van Lissa, C. J., **Garnier-Villarreal, M.**, & Anadria, D. (2023). Recommended Practices in Latent Class Analysis Using the Open-Source R-Package tidySEM. *Structural Equation Modeling: A Multidisciplinary Journal*, 1–9. <https://doi.org/10.1080/10705511.2023.2250920>
  3. Jorgensen, T.D., **Garnier-Villarreal, M.** (2023). Limited Utility of Small-Variance Priors to Detect Local Misspecification in Bayesian Structural Equation Models. In: Wiberg, M., Molenaar, D., González, J., Kim, J.S., Hwang, H. (eds) *Quantitative Psychology. IMPS 2022. Springer Proceedings in Mathematics & Statistics*, vol 422. Springer, Cham. [https://doi.org/10.1007/978-3-031-27781-8\\_8](https://doi.org/10.1007/978-3-031-27781-8_8)
  4. **Garnier-Villarreal, M.** & Little, T. D. (in press). Bayesian Longitudinal Structural Equation Modeling (Chapter 13). In T. D. Little (author), *Longitudinal Structural Equation Modeling* (2nd Edition). New York, NY: Guildford press.
  5. **Garnier-Villarreal, M.**; Merkle, E.C.; Magnus, B.E. (2021) Between-Item Multidimensional IRT: How Far Can the Estimation Methods Go? *Psych*, 3, 404–421.  
<https://doi.org/10.3390/psych3030029>
  6. Magnus, B. E., & **Garnier-Villarreal, M.** (2021). A multidimensional zero-inflated graded response model for ordinal symptom data. *Psychological Methods*.  
<https://doi.org/10.1037/met0000395> (<https://osf.io/hvkfn/>)
  7. Smits, N., Ögreden, O., **Garnier-Villarreal, M.**, Terwee, C. B., & Chalmers, R. P. (2020). A study of alternative approaches to non-normal latent trait distributions in item response theory models used for health outcome measurement. *Statistical Methods in Medical Research*.  
<https://doi.org/10.1177/0962280220907625>
  8. **Garnier-Villarreal, M.**, & Jorgensen, T. D. (2020). Adapting Fit Indices for Bayesian Structural Equation Modeling: Comparison to Maximum Likelihood. *Psychological Methods*, 25(1), 46–70.  
<https://doi.org/dx.doi.org/10.1037/met0000224>
  9. Jorgensen T.D., **Garnier-Villarreal M.**, Pornprasertmanit S., Lee J. (2019) Small-Variance Priors Can Prevent Detecting Important Misspecifications in Bayesian Confirmatory Factor Analysis. In: Wiberg M., Culppepper S., Janssen R., González J., Molenaar D. (eds) *Quantitative Psychology. IMPS 2017. Springer Proceedings in Mathematics & Statistics*, vol 265. Springer, Cham. [https://doi.org/10.1007/978-3-030-01310-3\\_23](https://doi.org/10.1007/978-3-030-01310-3_23)
  10. Chen, P.-Y., Wu, W., **Garnier-Villarreal, M.**, Kite, B. A., & Jia, F. (2019). Testing Measurement Invariance with Ordinal Missing Data: A Comparison of Estimators and Missing Data Techniques. *Multivariate Behavioral Research*, 1–15.  
<https://doi.org/10.1080/00273171.2019.1608799>
  11. **Garnier-Villarreal, M.**, Rhemtulla, M., & Little, T. D. (2014). Two-method planned missing designs for longitudinal research. *International Journal of Behavioral Development*, 38(5), 411–422. doi:10.1177/0165025414542711

#### Applied

1. Wahl, C. A., **Garnier-Villarreal, M.**, & Meyer, B. B. (2023). Development of the assessment of recovery activities for athletes. *International Journal of Sport and Exercise Psychology*, 1–20.  
<https://doi.org/10.1080/1612197X.2023.2168727>
2. Frenn, M., Salzman, N., Lam, V., Holtz, M., Moosreiner, A., & **Garnier-Villarreal, M.** (2023). Body Mass Index and Gut Microbiome: A Cluster-Randomized, Controlled, Pilot Feasibility Study. *Childhood obesity* (Print), 10.1089/chi.2022.0171. Advance online publication.  
<https://doi.org/10.1089/chi.2022.0171>
3. Hlebichuk, J. L., Gretebeck, R. J., **Garnier-Villarreal, M.**, Piacentine, L. B., Singh, M., &

- Gretebeck, K. A. (2023). Physical Activity, Inflammation, and Physical Function in Older Adults: Results From the Health & Retirement Study. *Biological Research For Nursing*, 25(1), 24–32. <https://doi.org/10.1177/10998004221111217>
4. Valdez, C. E., Stevens, T., **Garnier-Villarreal, M.**, & Shumway, M. (2022). Using Bayesian methods to clarify the role of trauma-related cognitions on the course of posttraumatic stress in nonspecific trauma-focused therapy. *Psychological Trauma: Theory, Research, Practice, and Policy*. <https://doi.org/10.1037/tra0001280>
5. Haglund, K., King, A. L., Bekhet, A. K., **Garnier-Villarreal, M.**, Olson, K., Atshan, R., Ortiz, A., Santos, J. de los, & Belknap, R. A. (2023). Learning a Healthy Rhythm: An Intervention to Increase Children's Resources for Stress Management. *Western Journal of Nursing Research*, 45(1), 46–54. <https://doi.org/10.1177/01939459221099362>
6. Lavoie, J.A., Schindler, C., **Garnier-Villarreal, M.**, Bagli, SP, McCarthy, D.O., Goday, P.S. (2022) Nasogastric bridles are associated with improved tube-related outcomes in children. *J Parenter Enteral Nutr*; 1- 10. [doi:10.1002/jpen.2409](https://doi.org/10.1002/jpen.2409)
7. Burns, J., Basken, A., Acosta, R., **Garnier-Villarreal, M.**, Kulkarni, A., & Hayes, D. (2022). Identification of research priorities in CHD: Empowering patients and families through participation in the development of formal research agendas. *Cardiology in the Young*, 1-6. [doi:10.1017/S104795112200066X](https://doi.org/10.1017/S104795112200066X)
8. Hanson, L., VandeVusse, L., Malloy, E., **Garnier-Villarreal, M.**, Watson, L., Fial, A., Forgie, M., Nardini, K., & Safdar, N. (2022). Probiotic interventions to reduce antepartum Group B streptococcus colonization: A systematic review and meta-analysis. *Midwifery*, 105, 103208. <https://doi.org/10.1016/j.midw.2021.103208>
9. Grau, P. P., Melchert, T. P., **Garnier-Villarreal, M.**, Knobloch-Fedders, L. M., & Wetterneck, C. T. (2021). Change in Self-compassion, Psychological Inflexibility, and Interpersonal Courage in Intensive PTSD Treatment: A Latent Growth Curve Analysis. *Mindfulness*. <https://doi.org/10.1007/s12671-021-01759-6>
10. **Garnier-Villarreal, M.**, Pinto, D., Mummidisetty, C. K., Jayaraman, A., Tefertiller, C., Charlifue, S., Taylor, H. B., Chang, S.-H., McCombs, N., Furbish, C. L., Field-Fote, E. C., & Heinemann, A. W. (2021). Predicting Duration of Outpatient Physical Therapy Episodes for Individuals with Spinal Cord Injury Based on Locomotor Training Strategy. *Archives of Physical Medicine and Rehabilitation*, 1–11. <https://doi.org/10.1016/j.apmr.2021.07.815>
11. Clayton-Jones, D., Ong, L.Z., **Garnier-Villarreal, M.**, Vick, L., Sawdy, R., George Dalmida, S. & Haglund, K. (2021). Complementary and alternative medicine mind-body approaches used among racially and ethnically diverse adolescents, *Journal of Pediatric Nursing*, 61, 254-259.
12. Haglund, K., Ortiz, A., Santos, J. D. L., **Garnier-Villarreal, M.**, & Belknap, R. A. (2021). An Engaged Community-Academic Partnership to Promote Positive Youth Development. *Journal of Community Engagement and Scholarship*, 13(2), 11.
13. Grau, P.P., Larsen, S.E., Lancaster, S.L., **Garnier-Villarreal, M.** & Wetterneck, C.T. (2021), Change in Event Centrality and Posttraumatic Stress Disorder Symptoms During Intensive Treatment. *Journal of Traumatic Stress*, 34, 116-123. <https://doi.org/10.1002/jts.22541>
14. Edwards, L.M., Le, H.M., & **Garnier-Villarreal, M.** (2021). A systematic review and meta-analysis of risk factors for postpartum depression among Latinas. *Maternal and Child Health Journal*. <https://doi.org/10.1007/s10995-020-03104-0>
15. Johnson, N. L., Bekhet, A. K., Karenke, T., & **Garnier-Villarreal, M.** (2021). Swim Program Pilot for Children with Autism: Impact on Behaviors and Health. *Western Journal of Nursing Research*, 43(4), 356–363. <https://doi.org/10.1177/0193945920948867>
16. Jerofke-Owen, T. A., & **Garnier-Villarreal, M.** (2020). Development and Psychometric Analysis of the Patient Preferences for Engagement Tool. *Nursing Research*, Publish Ahead of Print. <https://doi.org/10.1097/NNR.0000000000000423>
17. Frenn M, Kaugars A, Garcia J, **Garnier-Villarreal M.** (2020) Child Body Fat and Body Mass

Index: Which Determinants are Most Important? *Western Journal of Nursing Research*. 42(8):593-602. doi:10.1177/0193945919879960

18. Jerofke-Owen, T., **Garnier-Villarreal, M.**, Fial, A., & Tobiano, G. (2020). Systematic review of psychometric properties of instruments measuring patient preferences for engagement in health care. *Journal of Advanced Nursing*, jan.14402. <https://doi.org/10.1111/jan.14402>
19. Johnson, N. L., Lerret, S., Klingbeil, C. G., Polfuss, M., Gibson, C., Gralton, K., **Garnier-Villarreal, M.**, Ahamed, S. I., Riddhiman, A., Unteutsch, R., Pawela, L., White-Traut, R., Sawin, K., & Weiss, M. (2020). Engaging parents in education for discharge (ePED): Evaluating the reach, adoption & implementation of an innovative discharge teaching method. *Journal of Pediatric Nursing*, 54, 42–49. <https://doi.org/10.1016/j.pedn.2020.05.022>
20. Lerret, S. M., Johnson, N. L., Polfuss, M., Weiss, M., Gralton, K., Klingbeil, C. G., Gibson, C., **Garnier-Villarreal, M.**, Ahamed, S. I., Adib, R., Unteutsch, R., Pawela, L., White-Traut, R., & Sawin, K. (2020). Using the engaging parents in education for discharge (ePED) iPad application to improve parent discharge experience. *Journal of Pediatric Nursing*, 52, 41–48. <https://doi.org/10.1016/j.pedn.2020.02.041>
21. Pinto, D., **Garnier-Villarreal, M.**, Barbas, J., Chang, S.-H., Charlifue, S., Field-Fote, E., Furbish, C., Tefertiller, C., Mummidisetty, C. K., Taylor, H., Jayaraman, A., & Heinemann, A. W. (2020). Budget impact analysis of robotic exoskeleton use for locomotor training following spinal cord injury in four SCI Model Systems. *Journal of NeuroEngineering and Rehabilitation*, 17(1), 4. <https://doi.org/10.1186/s12984-019-0639-0>
22. Tyacke, M., Guttormson, J. L., **Garnier-Villarreal, M.**, Schroeter, K., & Peltier, W. (2019). Advance Directives and Intensity of Care Delivered to Hospitalized Older Adults at the End-Of-Life. *Heart and Lung*. <https://doi.org/10.1016/j.hrtlng.2019.08.018>.
23. Cleland, B. T., Papanek, P., Ingraham, B. A., Harkins, A., **Garnier-Villarreal, M.**, Woo, D., ... V. Ng, A. (2019). Determinants of low bone mineral density in people with multiple sclerosis: Role of physical activity. *Multiple Sclerosis and Related Disorders*, 101864. <https://doi.org/10.1016/j.msard.2019.101864>
24. Grau, P., **Garnier-Villarreal, M.**, & Wettemeck, C. (2019). An Analysis of the Latent Factor Structure of the PCL-5 in a PTSD Partial Hospitalization Program. *Traumatology*. <https://doi.org/10.1037/trm0000200>
25. King, A. L., **Garnier-Villarreal, M.**, Simanek, A. M., & Johnson, N. L. (2019). Testing allostatic load factor structures among adolescents: A structural equation modeling approach. *American Journal of Human Biology*, 232–242. <https://doi.org/10.1002/ajhb.23242>
26. Woda, A., Dreifuerst, K., & **Garnier-Villarreal, M.** (2019). The Impact of Supplemented Simulation on Newly Licensed Registered Nurses. *Journal of Clinical Simulation in Nursing*. <http://doi.org/10.1016/j.ecns.2018.12.002>
27. Woda, A., Hansen, J., Dreifuerst, K. T., Anderson, P., Hardy, T., & **Garnier-Villarreal, M.** (2019). The Impact of Simulation on Knowledge and Performance Gain Regarding Diabetic Patient Care. *Clinical Simulation in Nursing*, 34, 16–21. <https://doi.org/10.1016/j.ecns.2019.05.001>
28. Hardy, T. M., **Garnier-Villarreal, M.**, Ohlendorf, J. M., & McCarthy, D. O. (2019). Chronic Stress and Ovarian Function in Female Childhood Cancer Survivors. *Oncology Nursing Forum*, 46(3), 75–85. <https://doi.org/10.1188/19.ONF.E75-E85>
29. Ohlendorf, J. M., Robinson, K., & **Garnier-Villarreal, M.** (2019). The impact of maternal BMI, gestational weight gain, and breastfeeding on early childhood weight: Analysis of a statewide WIC dataset. *Preventive Medicine*, 118, 210–215. <https://doi.org/10.1016/j.ypmed.2018.11.001>
30. Ruekert Kobiske, K., Bekhet, A. K., **Garnier-Villarreal, M.**, & Frenn, M. (2018). Predeath Grief, Resourcefulness, and Perceived Stress Among Caregivers of Partners With Young-Onset Dementia. *Western Journal of Nursing Research*, 1–17. <https://doi.org/10.1177/0193945918806689>



31. Bekhet, A. K., & **Garnier-Villarreal, M.** (2018). Factor Structure and Psychometric Properties of Cognitive-Behavioral Scales in Caregivers of Persons with Dementia. *International Journal of Psychology and Psychoanalysis*, 4(2). <https://doi.org/10.23937/2572-4037.1510035>
32. Bekhet, A. K., & **Garnier-Villarreal, M.** (2018). Depression, positive thinking, personal and social resourcefulness among caregivers of persons with autism spectrum disorders. *Archives of Psychiatric Nursing*, 32(6), 823–827. <https://doi.org/10.1016/j.apnu.2018.06.006>
33. Valdivieso-Mora, E., Ivanisevic, M., Shaw, L. A., **Garnier-Villarreal, M.**, Green, Z. D., Salazar-Villanea, M., ... Johnson, D. K. (2018). Health-Related Quality of Life of Older Adults in Costa Rica as Measured by the Short-Form-36 Health Survey. *Gerontology and Geriatric Medicine*, 4, 233372141878281. <https://doi.org/10.1177/2333721418782812>
34. Watts, A., **Garnier-Villarreal, M.**, & Gardiner, P. (2018). Measurement of Sitting Time in Older Adults With and Without Alzheimer's Disease. *Journal for the Measurement of Physical Behaviour*, 1(2), 70–78. <https://doi.org/10.1123/jmpb.2018-0002>
35. Woda, A., Schnable, T., Alt-Gehrman, P., Bratt, M., & **Garnier-Villarreal, M.** (2018). Innovation in clinical course delivery and impact on students' clinical decision making and competence. *Nursing Education Perspectives*. doi: 10.1097/01.NEP.0000000000000406
36. Hardy, T. M., **Garnier-Villarreal, M.**, McCarthy, D. O., Anderson, R. A., & Reynolds, R. M. (2018). Exploring the Ovarian Reserve Within Health Parameters: A Latent Class Analysis. *Western Journal of Nursing Research*, 1–16. <https://doi.org/10.1177/0193945918792303>
37. Robinson, K., **Garnier-Villarreal, M.**, & Hanson, L. (2018). Effectiveness of CenteringPregnancy on Breast-Feeding Initiation Among African Americans: A Systematic Review and Meta-analysis. *The Journal of Perinatal & Neonatal Nursing*, 1. <https://doi.org/10.1097/JPN.0000000000000307>
38. Matel-Anderson, D. M., Bekhet, A. K., & **Garnier-Villarreal, M.** (2018). Mediating Effects of Positive Thinking and Social Support on Suicide Resilience. *Western Journal of Nursing Research*. <https://doi.org/10.1177/0193945918757988>
39. Sebern, M. D., Sulemanjee, N., Sebern, M. J., **Garnier-Villarreal, M.**, & Whitlatch, C. J. (2017). Does an intervention designed to improve self-management, social support and awareness of palliative-care address needs of persons with heart failure, family caregivers and clinicians? *Journal of Clinical Nursing*. <https://doi.org/10.1111/jocn.14115>
40. Bekhet, A. K., & **Garnier-Villarreal, M.** (2017). The Positive Thinking Skills Scale: A screening measure for early identification of depressive thoughts. *Applied Nursing Research*, 38, 5–8. <https://doi.org/10.1016/j.apnr.2017.08.004>
41. Harris, M. A., Donnellan, M. B., Guo, J., McAdams, D. P., **Garnier-Villarreal, M.**, & Trzesniewski, K. H. (2017). Parental Co-Construction of 5- to 13-Year-Olds' Global Self-Esteem Through Reminiscing About Past Events. *Child Development*, 88(6), 1810–1822. <https://doi.org/10.1111/cdev.12944>
42. Shogren, K. A., **Garnier-Villarreal, M.**, Lang, K., & Seo, H. (2017). Mediating Role of Self-Determination Constructs in Explaining the Relationship Between School Factors and Postschool Outcomes. *Exceptional Children*, 83(2), 165–180. <https://doi.org/10.1177/0014402916660089>
43. Valdivieso-Mora, E., Peet, C. L., **Garnier-Villarreal, M.**, Salazar-Villanea, M., & Johnson, D. K. (2016). A Systematic Review of the Relationship between Familism and Mental Health Outcomes in Latino Population. *Frontiers in Psychology*, 7. <https://doi.org/10.3389/fpsyg.2016.01632>
44. Salazar-Villanea, M., Liebmann, E., **Garnier-Villarreal, M.**, Montenegro-Montenegro, E., & Johnson, D. K. (2015). Depressive Symptoms Affect Working Memory in Healthy Older Adult Hispanics. *Journal of Depression and Anxiety*, 04(04). <http://doi.org/10.4172/2167-1044.1000204>
45. Johnson, D. K., Langford, Z., **Garnier-Villarreal, M.**, Morris, J. C., & Galvin, J. E. (2016). Onset of Mild Cognitive Impairment in Parkinson Disease: *Alzheimer Disease & Associated Disorders*, 30(2), 127–133. <https://doi.org/10.1097/WAD.0000000000000088>

46. Shogren, K. A., **Garnier-Villarreal, M.**, Dowsett, C., & Little, T. D. (2014). Exploring Student, Family, and School Predictors of Self-Determination Using NLTS2 Data. *Career Development and Transition for Exceptional Individuals*. doi:10.1177/2165143414546685
47. Shogren, K. A., Kennedy, W., Dowsett, C., **Garnier-Villarreal, M.**, & Little, T. D. (2014). Exploring Essential Characteristics of Self-Determination for Diverse Students Using Data From NLTS2. *Career Development and Transition for Exceptional Individuals*, 37(3), 168–176. <http://doi.org/10.1177/2165143413486927>
48. Shogren, K. A., & **Garnier-Villarreal, M.** (2015). Developing student, family, and school constructs from NLTS2 data. *The Journal of Special Education*, 49(2), 89–103. <http://doi.org/10.1177/0022466913513336>
49. **Garnier-Villarreal, M.**, & Conejo, L. D. (2014). Go/No-Go task. In T. Castelain & B. Marín (Eds.), *Experimental Psychology: Foundations and Experimental Protocols for studying cognitive processes* (pp. 87–99). San Jose, Costa Rica: Universidad de Costa Rica Press.
50. **Garnier-Villarreal, M.**, Dinartes Bogantes, A. (2008) "Methodological Guide for the use of compact disc collection: 'Truth, justice and reparation', in the book: 'Latin American Experience, meeting victims'. " American Institute of Human Rights (IIHR). San José, Costa Rica

## CONFERENCE PRESENTATIONS

### Talks

- Garnier-Villarreal, M.**, & Pavlopoulos, D. (March, 2023). How many are too many? Methods to enumerate underlying trajectories with Mixture Hidden Markov Models and Sequence Analysis. Presentation at Advanced Techniques for Longitudinal Data Analysis in Social Science (ATLAS), Bielefeld, Germany.
- Pavlopoulos, D., & **Garnier-Villarreal, M.** (March, 2023). Employment trajectories in the presence of measurement error. An application using Mixed Hidden Markov Models. Presentation at Advanced Techniques for Longitudinal Data Analysis in Social Science (ATLAS), Bielefeld, Germany.
- Garnier-Villarreal, M.** (November, 2022). Introduction to Mixture Models. Bamberg University. Bamberg, Germany.
- Garnier-Villarreal, M.**, Jorgensen, T.D. (July, 2022). BSEM modification indices: missed parameters and how to find them. Presentation at International Meeting for Psychometric Society (IMPS), Bologna, Italy.
- Garnier-Villarreal, M.**, van Lissa C., & Pavlopoulos, D. (May, 2022). Mixture Modeling: best practices when the latent variable is categorical. Presentation at Advanced Techniques for Longitudinal Data Analysis in Social Science. Presentation at Association of Psychological Sciences conference (APS), Chicago, USA.
- Garnier-Villarreal, M.**, Pavlopoulos, D., & Obreski, D. (July, 2021). Unknown Trajectory Classification: from cluster analysis to mixture models. Presentation at European Association of Methodology conference (EAM), Valencia, Spain.
- Garnier-Villarreal, M.**, Merkle, E., & Magnus, B.. (July, 2019). Bayesian Multidimensional IRT: How far can it go?. Presentation at International Meeting for Psychometric Society (IMPS), Santiago, Chile.
- Garnier-Villarreal, M.**, & Jorgensen, T.D. (July, 2018). Adapting Fit Indices for Bayesian SEM: Comparison to Maximum Likelihood. Presentation at International Meeting for Psychometric Society (IMPS), Columbia University, New York.
- Garnier-Villarreal, M.**, Deboeck, P.R., Johnson, D.K., & Watts, A. (May, 2017). Intra and Interindividual Variation Modeling: Bayesian Mixed-Effects Nonstationary Latent Differential Equation Model. Presentation at the Modern Modeling Methods (M3) Conference, University of Connecticut.
- Garnier-Villarreal, M.**, & Watts, A. (May, 2017). Bayesian MixedEffects Nonstationary Latent Differential Equation Model (BMNLDE): An Application to Accelerometer Data. Presentation at the

Association for Psychological Science Conference. Boston, MA, USA.

**Garnier-Villarreal, M.**, Harpole, J., Skrupski, W., & Johnson, D.K. (May, 2015). Multivariate Longitudinal Piecewise Regression. Presentation at the Association for Psychological Science Conference. New York, NY, USA.

**Garnier-Villarreal, M.**, Schoemann, A.M., & Little, T.D (May, 2014). You shall combine, but how? A comparison of the methods to combine the  $\chi^2$  using Multiple Imputation. Presentation at the Modern Modeling Methods (M3) Conference, University of Connecticut.

**Garnier-Villarreal, M.**, Rhemtulla, M., & Little, T.D (May, 2013). Two-method planned missing designs for longitudinal research. Presentation at the Modern Modeling Methods (M3) Conference, University of Connecticut.

## **Posters**

Valdivieso, E., Ivanisevic, M., Green, Z., **Garnier-Villarreal, M.** & Johnson, D.K. (2016). Lifetime cognitive activity and cognitive functioning in Costa Rican older adults of EDAD study. Poster presented at the 2016 Gerontological Society of America Annual Scientific Meeting in New Orleans, LA.

Conejo, L.D., Pierotti, S.L., Campos, D., **Garnier-Villarreal, M.**, Raventós, H., Contreras, J., & Glahn, D. (July, 2015). Invariance model of the State and Trait Anxiety Inventory's factorial structure and effects of anxiety on quality of life. Poster presented at the European Congress of Psychology, Milan, Italy.

Salazar, M., **Garnier-Villarreal, M.**, Liebmann, E., Montenegro, E., Vidoni, E., Johnson, D. (July, 2015). Fitness Predicts Cognitive Performance in Urban Latin Americans. Alzheimer's Association International Conference, Washington, D.C.

Conejo, L.D., **Garnier-Villarreal, M.** & Carlo, G. (March, 2015). The importance of order and type of stimuli on inhibitory control and short-term memory in preschoolers. Poster presented at the biennial meeting of the Society for Research in Child Development, Philadelphia, PA.

**Garnier-Villarreal, M.**, Johnson, D.K., & Salazar Villanea, M. (September, 2014). The effects of emotional constructs on cognitive constructs in a sample of older adults from Costa Rica. Poster presented at The International Conference on Aging in the Americas. University of Colorado Boulder.

**Garnier-Villarreal, M.**, Johnson, D.K., Woods, C., & Salazar Villanea, M. (September, 2013). The factor structure and item properties of the Geriatric Depression Scale (GDS) in a Costa Rican Sample. Poster presented at The International Conference on Aging in the Americas. University of Texas at Austin.

**Garnier-Villarreal, M.**, Salazar Villanea, M., Johnson, D.K., & Montenegro Montenegro, E. (September, 2013). Autobiographical memory relates to emotion and cognition in a sample of Costa Rican older adults. Poster presented at The International Conference on Aging in the Americas. University of Texas at Austin.

**Garnier-Villarreal, M.**, Johnson, D.K., & Salazar Villanea, M. (September, 2012). Differences in BADL, IADL and cognitive status in a Costa Rican sample of older adults. Poster presented at The International Conference on Aging in the Americas. University of Southern California.

Salazar Villanea, M, **Garnier-Villarreal, M.**, Montenegro Montenegro, E., & Johnson, D.K. (September, 2012). Profiles of Cognitive Performance and Physical Activity in old age: characterization by gender and age in an urban sample from Costa Rica. Poster presented at The International Conference on Aging in the Americas. University of Southern California.

**Garnier-Villarreal, M.**, Johnson, D.K., & Salazar Villanea, M. (September, 2012). Differences in BADL, IADL and cognitive status in a Costa Rican sample of older adults. Poster presented at The International Conference on Aging in the Americas. Washington University in St. Louis.

## **PROFESSIONAL PRESENTATIONS AND WORKSHOPS**



1. **Garnier-Villarreal, M.** (May, 2023). *Introduction to Bayesian SEM*, Association of Psychological Sciences (APS) conference workshop.
2. **Garnier-Villarreal, M.** (May, 2023). *Measurement Models for official statistics*, Statistics Netherlands (CBS), presentation.
3. **Garnier-Villarreal, M.** (November, 2022). *Introduction to Mixture Models*, Bamberg University.
4. **Garnier-Villarreal, M.** (February, 2022). *Mixture Hidden Markov Models: how to apply it and what is next*. Methods & Statistics at RICDE invited talk, University van Amsterdam.
5. **Garnier-Villarreal, M.** (April, 2022). *Local model evaluation: modification indices in BSEM*. Webinar "Selection of Priors in Bayesian Structural Equation Modelling" as part of the YoungStatS project of the Young Statisticians Europe initiative (FENStatS) supported by the Bernoulli Society for Mathematical Statistics and Probability and the Institute of Mathematical Statistics (IMS).
6. **Garnier-Villarreal, M.** (February, 2022). *Bayesian SEM: catching up on decades of frequentist research*. Methods and Statistics Colloquium, Utrecht University.
7. **Garnier-Villarreal, M.** (June, 2020 to 2023). *Bayesian Data Analysis*. Stats Camp Statistical Training Institute.
8. **Garnier-Villarreal, M.** (June, 2016 to 2023). *Bayesian SEM*. Stats Camp Statistical Training Institute.
9. **Garnier-Villarreal, M.** (September, 2017). *Bayesian Data Analysis*. Stats Camp Statistical Training Institute.
10. **Garnier-Villarreal, M.** (June, 2014). *Bayesian SEM*. Presentation at the Longitudinal Structural Equation Modeling course. Stats Camp Statistical Training Institute.
11. **Garnier-Villarreal, M., & Little, T.D** (February, 2014). Longitudinal and Missing Data Analysis with Structural Equation modeling. Summer School workshop organized by the Psychological Research Institute, University of Costa Rica.
12. **Garnier-Villarreal, M.** (June, 2013). Multiple Group CFA. Presentation at the Statistical Literacy course. University of Kansas Summer Institute in Advanced Quantitative Analysis.
13. **Garnier-Villarreal, M.** (June, 2012). Structural Equation Modeling in R (lavaan) for psychology, Workshop organized by the Psychological Research Institute, University of Costa Rica.

## GRANT EXPERIENCE

- Institute of Education Sciences (IES), Statistical and Research Methodology in Education. Merkle, E. C (PI), Bonifay, W., Garnier-Villarreal, M., & Rosseel, Y. Scaling Bayesian Latent Variable Models to Big Education Data. August 2021 – August 2024. \$897,984. Role: Co-PI (11%)
- European Research Council (ERC) grant. Pavlopoulos, D (PI). Righting the Wrongs. A Life Course Dynamics Approach for Non-Standard Employment (DYNANSE). September 2020-August 2025. € 1,996,377. Role: project member working on model development, data analysis, and paper writing (60%)
- National Institute of Health (NIH)/ Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) R21: 1R21HD095320-01. Hanson, L. (PI), VandeVusse, L, Safdar, N., & Garnier-Villarreal, M. The efficacy of Probiotics to Reduce Antepartum Group B Streptococcus Colonization. July 2018-June 2020. \$426,248 total award. Role: Co-Investigator, data analyst, statistical and methodological consultant (10%)
- National League for Nursing, Education Grants. Young-Brice, A. (PI), Garnier-Villarreal, M., & Dreifuerst, K. Grit as a predictor of academic success among associate degree nursing students. July 2018 – July 2020. \$21,247 total award. Role: Co-Investigator, data analyst, statistical and methodological consultant (5%)

- CTSI, Marquette University. Johnson, N. (PI), Lerret, S., Garnier-Villarreal, M., Ahamed, S., Dobrozsi, S., & Gibson, C. Peds THINK (Transition to Home INtervention): Nursing Interventions to Improve Discharge Outcomes. April 2018 – May 2019. \$50,000 total award. Role: Co-Investigator, data analyst, statistical and methodological consultant. (10%)
- Sigma Theta Tau International/Chamberlain College. Woda, A. (PI), Hansen, J., Dreifuerst, K., Anderson, P., & Garnier-Villarreal, M. Exploring the Impact of Simulation on Knowledge Gain Regarding the Care of the Patient with Diabetes. November 2017 – October 2018, \$9,998 total award. Role: Co-Investigator, data analyst, statistical and methodological consultant.
- Sigma Theta Tau, Delta Gamma At-Large Chapter. King, A (PI). Understanding Relationships Between Early Life Toxic Stress, Childhood Socioeconomic Disadvantage, and Allostatic Load in Adolescence. January 2018 – June 2018. \$5,000 Total award. Role: data analyst, statistical and methodological consultant.
- National Association of Pediatric Nurse Practitioners, Wisconsin Chapter. King, A (PI). Understanding Relationships Between Early Life Toxic Stress, Childhood Socioeconomic Disadvantage, and Allostatic Load in Adolescence. January 2018 – June 2018. \$1,500 Total award. Role: data analyst, statistical and methodological consultant.
- Center for Gender and Sexualities Studies Women and Girls of Color Research Initiative Grant, Marquette University. Haglund, K., Belknap, R. A., Edwards, L., Garcia, J. T., Garnier-Villarreal, M., "Changing responses to dating violence precursor behaviors: An action research project for girls of color and their partners". \$34,460.00. (April 2017 - June 2019). Role: Co-Investigator, data analyst, statistical and methodological consultant (1.4%)
- Regner Grant, Marquette University College of Nursing. Sebern, M (Principal). iPad Enhanced Shared Care Intervention for Partners Pilot test. 7/1/16-6/30/17. \$5,000.00 Total Award. Role: data analyst, statistical and methodological consultant.
- Regular Research Grant, Marquette University Office of Research and Sponsored Programs. Sebern, M (Principal). iPad Enhanced Shared Care Partners Intervention. Optimization and Usability Test. 1/8/15-12/31/2015. \$5,820.00 Total Award. Role: data analyst, statistical and methodological consultant.
- Fogarty International Center, R21TW009665 - Johnson, J. K., PhD (Principal). & Garnier-Villarreal, M. (GRA) June 1, 2013 - May 31, 2016. Epidemiology and Development of Alzheimer's Disease in Healthy Aging Costa Ricans. Low and middle income nations will experience an unprecedented growth of the elderly population and subsequent increase in age related neurological disorders. This grant tests low cost strategies for promoting healthy brain aging and prevention of Alzheimer's disease in rural and urban Costa Rica. Roles: Project leader, data analyst, statistical and methodological consultant.
- Planned Missing Research Designs: Power and Validity of Planned Missing Data Designs in Longitudinal Research.* Co-PIs: Wei Wu, Todd D. Little. Funded by: National Science Foundation (1053160). Roles: Project leader, data analyst.
- Shogren, K. A. (2010). *Exploring the predictors and outcomes of self-determination for secondary students with disabilities by analyzing NLTS2 data* (U.S. Dept. of Education, Institute of Education Sciences, Special Education Research Grants, Secondary and Transition Services, CFDA# 84.324A). August 2011 to July 2015, \$381,153 awarded to the University of Illinois/University of Kansas. Role: Data analyst, statistical and methodological consultant.
- MJFox Foundation Clinical Translation Award - Johnson, D. K. (Consulting Neuropsychologist), & Galvin, J. (Principal). 08/15/2011 – 06/30/2016. Defining Cognitive Phenotypes of Parkinson's Disease: Translational research in Parkinson's disease targeting early diagnostic signs of the disease and identify specific biomarkers of cognitive decline. Role: Data analyst, statistical and methodological consultant.
- A Secondary Analysis of the National Longitudinal Transition Study 2: Examining Relationships Between Expectations, Opportunities, and Postsecondary Life Engagement.* PI: Mary Morningstar. Funded by: U.S. Department of Education, Institute of Education Sciences (R324A100275). Role: Data

analyst, statistical and methodological consultant.

## Awards

- 2018 Way-Klingler Teaching Enhancement Award. Knobloch-Fedders, L., Garnier-Villarreal, M., & Magnus, B., “Development of an Interdisciplinary Curriculum to Advance Graduate-Level Research Training”. Sponsored by the Office of the Provost, Marquette University, \$20,000 (July 2018 – June 2019).

## MENTORING

- 2022 Carly A. Wahl. Dissertation committee member. College of Health Sciences, Sport Psychology, University of Wisconsin, Milwaukee.
- 2022 Jay Gottschalk. Dissertation committee member. College of Nursing, Marquette University.
- 2021 Tim Hemerik. Master’s Thesis committee member. Department of Sociology, Vrije Universiteit Amsterdam.
- 2021 Julie Lavoei. Dissertation committee member. College of Nursing, Marquette University.
- 2021 Margaret Salinas. Dissertation committee member. College of Nursing, Marquette University.
- 2020 Peter Grau. Dissertation committee member. Department of Counseling Education and Counseling Psychology, Marquette University.
- 2020 Esteban Montenegro-Montenegro. Dissertation committee member. Department of Educational Psychology, Texas Tech University.
- 2018 Kelly Jones. Dissertation committee member. College of Nursing, Marquette University.
- 2018 Theresa Hardy. Dissertation committee member. College of Nursing, Marquette University.
- 2018 Marsha Tyacke. Dissertation committee member. College of Nursing, Marquette University.
- 2018 Amanda King. Dissertation committee member. College of Nursing, Marquette University.
- 2018 Karie Ruekert-Kobiske. Dissertation committee member. College of Nursing, Marquette University.
- 2018 Ketan Tailor. Dissertation committee member. Department of Counseling Education and Counseling Psychology, Marquette University.
- 2017 Denise Matel-Anderson. Dissertation committee member. College of Nursing, Marquette University.
- 2014 Luis Rojas-Torres. Master’s Thesis committee member. Department of Statistics, University of Costa Rica.

## SERVICE

- 2023–present Ad-hoc reviewer, *Journal of the Royal Statistical Society: Series A*.
- 2022–present Ad-hoc reviewer, *International Journal of Environmental Research and Public Health*.
- 2022–present Ad-hoc reviewer, *Behavior Research Methods*.
- 2022–present Ad-hoc reviewer, *British Journal of Mathematical and Statistical Psychology*.
- 2022–present Ad-hoc reviewer, *Healthcare*.

2022–present	Ad-hoc reviewer, <i>Educational and Psychological Measurement</i> .
2021–present	Ad-hoc reviewer, <i>Psychological Methods</i> .
2021–present	Ad-hoc reviewer, <i>Psych</i> .
2021–present	Ad-hoc reviewer, <i>Quality of Life Research</i> .
2021–present	Ad-hoc reviewer, <i>AERA Open</i> .
2021–present	Ad-hoc reviewer, <i>Evolutionary Applications</i> .
2020–present	Ad-hoc reviewer, <i>Multivariate Behavioral Research</i> .
2020–present	Ad-hoc reviewer, <i>AStA Advances in Statistical Analysis</i> .
2020 spring	Committee on Diversity and Equity Meeting, Marquette University
2019–present	Ad-hoc reviewer, <i>Assessment</i> .
2019–present	Ad-hoc reviewer, <i>Structural Equation Modeling: A Multidisciplinary Journal</i> .
2018–present	Ad-hoc reviewer, <i>Statistics and Computing</i> .
2018–present	Ad-hoc reviewer, <i>Current Psychology</i> .
2017	Program and Curriculum development. Master Health Care Data Analytics. Marquette University.
2017-2020	Hispanic/Latinx Faculty and Staff Association member Marquette University
2016- 2020	Statistical consultation as Research Assistant Professor at the College of Nursing (CON), Marquette University

Semester	Grant applications	Research CON	PhD students	Marquette outside CON	Outside Marquette
Fall 2016	4	1	1	0	1
Spring 2017	4	6	10	3	1
Summer 2017	2	4	6	1	1
Fall 2017	2	4	4	0	2
Spring 2018	1	6	8	2	3
Fall 2018	3	5	4	2	2
Spring 2019	2	6	5	2	2
Summer 2019	1	4	2	1	1
Fall 2019	3	6	3	2	1
Spring 2020	1	5	4	2	3

2016–present	Ad-hoc reviewer, <i>Nursing Research</i> .
2016–present	Ad-hoc reviewer, <i>Revista Costarricense de Psicología</i> , Costa Rica Professional Psychology College
2016 – 2020	Gastroschisis Outcomes of Delivery (GOOD) Study Data and Safety Monitoring Board: Statistician
2015–present	Ad-hoc reviewer, <i>Actualidades en Psicología</i> , Psychological Research Institute, University of Costa Rica
2014–present	Ad-hoc reviewer, <i>International Journal of Behavioral Development</i> .
2011–2014	Statistical and Methodological Consultation, Center for Research Methods and Data Analysis, University of Kansas

Client Type

*N*

KU Master's Thesis	7	
KU Dissertation	5	
Misc. KU Student or Post doc Research	10	
KU Faculty Research	8	
Non-KU Dissertation	1	TOTAL
Private Sector Research	1	32

2011–2016 “Counselor” (consultant), Summer Institutes in Statistics (“Stats Camp”). Consulted for workshops on structural equation modeling, multilevel modeling, longitudinal analysis, R, *Mplus*, modeling of intra-individual observations, Bayesian data analysis, mediation and moderation, and missing data analysis.

## OTHER PERSONAL ACTIVITIES

### Seminars and Conferences

2023 Participated in the Conference *European Association of Methodology*, Ghent, Belgium.

2023 Participated in the Conference *Association for Psychological Science (APS) Conference*. Washington DC, USA.

2023 Participated in the Conference *Advances Techniques for Longitudinal Data Analysis in Social Science (ATLAS)*. Bielefeld, Germany.

2022 Participated in the Conference *International Meeting for Psychometric Society (IMPS)*, Bologna, Italy.

2022 Participated in the Conference *Association for Psychological Science (APS) Conference*. Chicago, IL, USA.

2021 Participated in the Conference *Royal Statistical Society of Belgium annual meeting*, Liege, Belgium.

2021 Participated in the Conference *European Association of Methodology*, Valencia, Spain.

2019 Participated in the Conference *International Meeting for Psychometric Society (IMPS)*, Santiago, Chile.

2018 Participated in the Conference *International Meeting for Psychometric Society (IMPS)*, New York, NY, USA.

2018 Participated in the Workshop *Continuous and Discrete Time Dynamic Modeling in R* as part of *International Meeting for Psychometric Society (IMPS)*, New York, NY, USA.

2017 Participated in the Conference *Modern Modeling Methods (M3)*, University of Connecticut.

2017 Participated in the Conference *Association for Psychological Science (APS) Conference*. Boston, MA, USA.

2016 Participated in the Conference *Gerontological Society of America (GSA)*. New Orleans, LA, USA.

2015 Participated in the Conference *Association for Psychological Science (APS) Conference*. New York, NY, USA.

2014 Participated in the Conference *International Conference on Aging in the Americas*, University of Colorado Boulder.

2014 Participated in the Conference *Modern Modeling Methods (M3)*, University of Connecticut.

- 2013 Participated in the Conference *International Conference on Aging in the Americas*, University of Texas at Austin.
- 2013 Participated in the *Conference Modern Modeling Methods (M3)*, University of Connecticut.
- 2012 Participated in the Symposium *8<sup>th</sup> Leonard Berg Symposium: Prevention of Alzheimer's Disease*, Washington University in St. Louis
- 2012 Participated in the Conference *International Conference on Aging in the Americas*, University of Southern California.
- 2009 Participated in the workshop *Validation of psychometric instruments*, University of Costa Rica.
- 2008 Participated in the workshop *Introductory Course Atlas Ti tool for the management of qualitative information*, University of Costa Rica.
- 2007 Participated in the workshop *Training in psychological support to victims of gross violations of human rights in the litigation*, Interamerican Institute of Human Rights.
- 2007 Participated in the Summer Seminar *Foundations for Understanding the Social World III*, University of Costa Rica.
- 2005 Participated in the Congress *VII Congress of Social Psychology of Liberation*, University of Costa Rica.

## Translations

- 2011 Translation from English to Spanish of the KUant Guides, Center for Research Methods and Data Analysis, University of Kansas. crmda.ku.edu
- LISREL (8.80) Syntax Reference
  - Reading Data Into LISREL
  - Interpreting LISREL Output
  - Starting Values in LISREL
  - What to Report: Information to report for a Confirmatory Factor Analysis based on Brown (2006)
  - The Satorra-Bentler  $\chi^2$
  - Bootstrapping
  - Multiple Imputation
  - LISREL's RP option
  - Alternative Parameters
  - Missing Data in Large Data Projects
  - Monte Carlo Simulation in Mplus
  - Mplus (5.0) Syntax Reference
  - Converting Data to/from SAS
  - Latent Variable Moderation
  - Using PROC CALIS ins SAS 9.22 to Evaluate Between-Group Differences in Latent Variable Means
  - Path Diagram in Microsoft Word 2007

## LANGUAGES

- Native: Spanish
- Other: English: proficient in reading, comprehension, and writing

## SOFTWARE PROFICIENCY



Contribute to the R packages: blavaan, semTools, tidySEM, nonnest2

General statistical packages: R, SPSS

Structural Equation Modeling: blavaan, lavaan, Mplus, OpenMx, Amos

Bayesian modeling languages: Stan, JAGS, OpenBUGS/WinBUGS

### **SOCIETIES**

- European Association of Methodology
- Foundation for Open Access Statistics
- Psychometric Society
- Association for Psychological Science
- Gerontological Society of America
- Open Science Community Amsterdam

### **VOLUNTEERING**

2006-2008

Volunteer work permanently in the NGO "Un Techo Para Mi País – Costa Rica."

For more information <https://costarica.techo.org/>

January, 2023