

Joshua F. Wiley

Academic

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Industry

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EDUCATION

Ph.D. (expected 2015)

University of California, Los Angeles, CA 2010 – Present
Dissertation Title: *Measurement of Psychosocial Resources, Allostatic Load, and Their Relations*
Major: Health Psychology; Minor: Quantitative Psychology — GPA: 3.960

Master of Arts

University of California, Los Angeles, CA 2010 – 2011
Thesis Title: *Psychosocial Resources as a Constellation*
Major: Health Psychology

Bachelor of Arts

University of California, Riverside, CA 2006 – 2010
Major: Psychology — GPA: 3.950

General Coursework

Riverside Community College, Riverside, CA 2002 – 2005
Major: Undeclared — GPA: 4.000

RESEARCH SUMMARY

I study the roles of risk and protective factors, particularly psychosocial resources and coping, in the psychological and biological response to stress and chronic disease such as cancer. I harness my background in health psychology and advanced quantitative methods to answer questions three types of questions: (1) What are the trajectories of mental and physical health in response to stress and are these predicted by resources or change in coping strategy? (2) Do psychological and physical processes move in synchrony or co-regulate? (3) What are the mechanisms and causal chains linking risk and protective factors, psychological, and physical health outcomes?

WORK EXPERIENCE

My Year After (MYA) breast cancer study (1R01 CA133081)

July 2013 – Present

Graduate Student Researcher

- Responsible for data cleaning and management
- Responsible for conducting analyses and generating reports and graphs for the primary project
- Employed a variety of analytical techniques including: latent class analysis, growth mixture models, multilevel structural equation modeling for multilevel mediation, survival analysis, missing data models
- Created a securely-hosted online codebook for the data with automatically updated descriptive statistics and graphs
- Advised on analyses for secondary projects

Elkhart Group Ltd.

June 2013 – Present

Senior analyst and statistical consultant

- Consult on and analyze data for industry and academic researchers
- Responsible for high level data models, custom analytics, and team projects. Sample projects include: multiple mediator analysis, hierarchical Bayesian models for categorical data, joint models for non-ignorable dropout in pre-clinical trials, dimension reduction and analysis of app and device data, and machine learning to find novel patterns and relations in hundreds of clinical endpoints.
- Prepare and write reports for stakeholders and detailed methods for scientific publication

Stanton Stress & Coping Laboratory

June 2010 – Present

Doctoral Student and Researcher

- Research on coping, quality of life, and adjustment to breast and eye cancer (ocular melanoma)
- Research on the conceptualization and measurement of psychosocial resources
- Co-PI on an experimental study of emotional reactions to receiving negative health information
- Supervise research assistants and honors students

University of California, Los Angeles

IDRE Statistical Consulting Group

August 2011 – June 2013

- Spearheaded an initiative to begin contract work, securing multi-thousand dollar contracts for topics such as hierarchical Bayesian modeling and latent variable models.
- Worked individually with UCLA researchers to understand their goals and use statistics to provide clear, actionable results.
- Assisted with manuscript and grant preparation including advising on appropriate methods and conducting power analyses.
- Created web page tutorials and examples of statistical concepts and programming in R, Mplus, SAS, Stata, & SPSS. Topics included multilevel mediation analysis, random effects models for categorical data, data visualization to explore nonlinear relationships and longitudinal models, approximating SRMR in SEM with missing data.
- Developed and implemented a system for automating the inclusion of R code and output in web pages.

Relationships and Health Laboratory

September 2010 – December 2011

Relationship and Expression Study

PIs: Theodore Robles, Ph.D. and Heidi Kane, Ph.D.

Aided in study design and supervise undergraduate RAs.

Professor Howard Friedman's Laboratory

September 2008 – June 2010

Relations of Personality and Occupation with Alcohol Consumption

Supervisors: Howard S. Friedman, Ph.D. and Kate Sweeny, Ph.D.

Undergraduate honors thesis examining the relations between adult personality traits and alcohol use one decade later, and between concurrent occupation and alcohol use in males using data from the Terman Life Cycle Study.

A Nonverbal Approach to Charismatic Leadership Training

PIs: Howard S. Friedman, Ph.D. and Brynn C. Nodarse, Ph.D.

Research assistant overseeing 10-20 other undergraduate RAs in conducting a dissertation study including nonverbal assessments and training.

PUBLICATIONS

In Preparation

12. **Wiley, J. F.**, Bei, B., Trinder, J. & Manber, R. (in preparation). *Variability as a predictor: A Bayesian variability model for small samples and few repeated measures.*

Conceptualized study, designed and conducted simulation, and wrote the manuscript.

11. **Wiley, J. F.**, Bei, B., Bower, J. E., Stanton, A. L. (in preparation). *Systematic review of psychosocial resources & allostatic load.*

Planned, conducted review, and wrote the manuscript.

10. **Wiley, J. F.**, Stanton, A. L., Bower, J. E. (in preparation). *Trajectories of psychological adjustment to BRCA 1/2 genetic testing.*

Participated in conceptualization, wrote methods, results, and discussion, conducted analyses.

9. **Wiley, J. F.**, Kane, H., Robles, T. F., & Dunkel Schetter, C. (in preparation). *Relations of psychosocial resources to salivary cortisol and alpha-amylase.*

Participated in methods and data collection for the larger study. Conceptualized research question for this manuscript, conducted analyses, and wrote the manuscript.

8. Bauer, M. R., Harris, L. N., **Wiley, J. F.**, Weihs, K. L., & Stanton, A. L. (in preparation). *The role of situational and dispositional coping in physical health-related adjustment to breast cancer.*

Conducted multilevel mediation analyses, directionality analyses, and critical revision of the manuscript.

7. Harris, L. N., Bauer, M. R., **Wiley, J. F.**, Hammen, C., Weihs, K. L., & Stanton, A. L. (in preparation). *Coping in context: Examining prospective risk and protective factors for physical health-related adjustment in breast cancer patients.*

Consulted on methods and analysis and critical revision of the manuscript.

Under Review

6. **Wiley, J. F.**, Cleary, L., Karan, A., Stanton, A. L. (under review). *Brief Report: Illness controllability moderates the effect of coping efficacy on positive affect.*

Wrote the manuscript, conducted analyses, participated in study conceptualization and data collection.

5. **Wiley, J. F.**, Thompson, E. H., Beran, T. M., Karan, A., Jorge, A., McCannel, T. A., & Stanton, A. L. (under review). *A tale of two resources: Psychological and social resources are distinct factors and are related to psychological health.*

Conceptualized research questions, conducted analyses, and wrote the manuscript using data from four samples.

4. Cain, S. W., McGlashan, E., **Wiley, J. F.**, Anderson, C. (under review). *Sex differences in sleep across the lifespan.*

Conducted generalized additive models, wrote methods and results, critical revision of the manuscript.

3. Ortiz Parada, M. & **Wiley, J. F.** (under review). *Psychological distress predicts HbA_{1c} trajectories among type 1 diabetic adolescents.*

Conducted analyses, wrote the results section, and critically revised the manuscript.

2. Menkin, J. A., Robles, T. F., **Wiley, J. F.**, & Gonzaga, G. C. (revise and resubmit). *Online dating in later life: Users' relational goals and others' expectations*

Consulted and conducted exploratory and confirmatory factor analyses, and multiple group models to test measurement invariance. Assisted with critical revision of the manuscript and contributed to writing methods, results, and supplement.

1. Huynh, T. H., **Wiley, J. F.**, Holmboe, E. S., Tseng, C-H, Vespa, P. M., Kleerup, E. C. & Wenger, N. S. (revise and resubmit). *Differences between attendings' and fellows' perceptions of futile treatment in the intensive care unit: Implications for training.*

Contributed to the conceptualization of analyses, conducted cross-classified, Bayesian ordered multilevel models for prediction of futile assessment, and models to test differences in the number of reasons listed for futile assessments. Assisted with critical revision of the manuscript including interpretation of results for the discussion and writing the methods and results sections.

In Press

11. Huynh, T. H., **Wiley, J. F.**, Curtis, R., Yamamoto, M., & Wenger, N. S. (accepted with revisions). Nurse and physician concordance on the perception of inappropriate treatment in critical care: An opportunity for collaboration?. *American Journal of Critical Care.*

Contributed to writing the manuscript and conducting analyses, critical revision of manuscript.

10. Bei, B., **Wiley, J. F.**, Allen, N. & Trinder, J. (in press). A cognitive vulnerability model on sleep and mood in adolescents under restricted and extended sleep opportunities. *Sleep.*

Contributed to the operationalization of the conceptual model, analyzing the data, writing of the manuscript, and critical revision of the manuscript.

9. **Wiley, J. F.** & Stanton, A. L. (in press). Cancer and Mental Health. *Encyclopedia of Mental Health.*

Invited encyclopedia article. Both authors contributed equally to structure and literature review.

2014

8. Brown, L. A., **Wiley, J. F.**, Wolitzky-Taylor, K., Roy-Byrne, P., Sherbourne, C., Stein, M. B., ... Craske, M. G. (2014). Changes in self-efficacy and outcome expectancy as predictors of anxiety outcomes from the CALM study. *Depression and Anxiety*, 31(8), 678-689. doi: 10.1002/da.22256

Designed and conducted parallel latent growth models to address primary research questions. Contributed substantially to writing the methods and results sections. Participated in conceptualization and gave feedback on entire manuscript and critically revised the manuscript.

7. Ortiz Parada, M., **Wiley, J. F.**, & Chiang, J. J. (2014). How stress gets under the skin o Como el estrés psicológico se mete bajo tu piel. *Revista Médica de Chile*, 142(6). 767-774.

Participated in conceptualization and wrote the section on mechanisms linking stress and cancer.

6. Hale, T. S., Kane, A. M., Kaminsky, O., Tung, K. L., **Wiley, J. F.**, McGough, J. J., Loo, S. K., & Kaplan, J. T. (2013). Visual Network Asymmetry and Default Mode Network Function in ADHD: An fMRI Study. *Frontiers in Psychiatry*, 5(81). doi: 10.3389/fpsy.2014.00081.

Contributed to the multivariate analyses of the asymmetry indices across thresholds, and writing methods and results for these.

5. **Wiley, J. F.** (2014). Growth Curve Analysis and Visualization Using R. *Journal of Statistical Software, Book Reviews*, 58(2). URL: <http://www.jstatsoft.org/v58/b02>

Invited book review.

4. Dour, H. J., **Wiley, J. F.**, Roy-Byrne, P., Stein, M. B., Sullivan, G., Sherbourne, C. D., Bystriksy, A., Rose, R. D., & Craske, M. G. (2014). Perceived social support mediates anxiety and depressive symptom changes following primary care intervention. *Depression and Anxiety*, 31(5), 436-442. doi: 10.1002/da.22216

Participated in conceptualization and gave feedback on the entire manuscript, particularly the introduction and results, and assisted with critical revision of the manuscript. Conducted path analyses to test direct and indirect pathways through multiple mediators.

3. Langley, A. K., Falk, A., Peris, T., **Wiley, J. F.**, Kendall, P. C., Ginsburg, G., Birmaher, B., March, J., Albano, A. M. & Piacentini, J. (2014). The Child Anxiety Impact Scale: Examining parent- and child-reported impairment in child anxiety disorders. *Journal of Clinical Child & Adolescent Psychology*, 43(4), 579-591. doi: 10.1080/15374416.2013.817311

Aided in scale evaluation, constructing a bi-factor model to estimate the latent scale scores, controlling for parent and child reporter bias. Also assisted in testing measurement invariance across age and gender and critical revision of the manuscript.

2013

2. Huynh, T. N., Klerup, E. C., **Wiley, J. F.**, Savitsky, T. D., Guse, D., Garber, B. J. & Wenger, N. S. (2013). The Frequency and cost of treatment perceived to be futile in critical care. *JAMA Internal Medicine*, 173(20), 1887-1894. doi: 10.1001/jamainternmed.2013.10261

Worked to conceptualize analyses on predictors of futile assessment and conducted cross-classified, Bayesian ordered multilevel models. Assisted with interpretation of results for the discussion and writing the methods and results sections and critical revision of the manuscript.

1. **Wiley, J. F.**, Laird, K., Beran, T. M., McCannel, T. A., & Stanton, A. L. (2013). Quality of life and cancer-related needs in patients with choroidal melanoma. *British Journal of Ophthalmology* 97(11), 1471-1474. doi: 10.1136/bjophthalmol-2013-303635

Conceptualized research questions, conducted all analyses, and wrote the paper using data from an existing study.

SOFTWARE

3. **varian**: Developer and maintainer of the R package, **varian**, to quantify and model variability as a latent variable using Bayesian models.
2. **MplusAutomation**: Co-developer of **MplusAutomation** cited by at least 19 papers and in the top 15% of R packages. Available online at <http://cran.r-project.org/package=MplusAutomation>
Source code at <https://github.com/michaelhallquist/MplusAutomation/>
For a list of papers citing **MplusAutomation**, see:
<https://github.com/michaelhallquist/MplusAutomation/wiki/Publications-with-MplusAutomation>
1. **postMCMCglmm**: Developed the R package **postMCMCglmm** to calculate average marginal probabilities from multilevel Bayesian models. Available online from <https://github.com/jwiley/postMCMCglmm>.
Citation:
Wiley, J. F. (2013). *postMCMCglmm: Average marginal predicted probabilities from Bayesian ordered probit models*. R package version 0.1-2. doi: 10.5281/zenodo.11461.

SYMPOSIA & PRESENTATIONS

21. Herts, K. L., **Wiley, J. F.**, McCannel, T. A., & Stanton, A. L. (submitted). *A Test of the Impact-Engagement Model of Post-Traumatic Growth in Patients with Ocular Melanoma*. Annual Meeting of the Society for Behavioral Medicine.
20. Bauer, M. R., Hanover, L. N., **Wiley, J. F.**, Weihs, K. L., & Stanton, A. L. (submitted). *Role of Situational and Dispositional Coping in Physical Health-Related Adjustment to Breast Cancer*. Annual Meeting of the Society for Behavioral Medicine.
19. Bei, B., **Wiley, J. F.**, Allen, N. & Trinder, J. (accepted). *Testing a cognitive vulnerability model on sleep and mood in adolescents under restricted and extended sleep opportunities*. Oral Presentation at the Australasian Sleep Association.
18. Neville, T. N., **Wiley, J. F.**, Flitcraft, M., Anderson, B., Yamamoto, M, Curtis, J. R., & Wenger, N. S. (2014). *Nurse and physician concordance on whether critical patients are receiving treatment perceived to be futile: Opportunity for collaboration*. Poster presentation at the Annual Meeting of the American Society for Bioethics and Humanities.
17. Dour, H. J., Cohen, Z. D., Mesri, B., **Wiley, J. F.**, Niles, A. N, DeRubeis, R. J., & Craske, M. G. (2014). *To ACT or to CBT? Using prediction models to identify which treatment to implement for an anxious patient*. Oral presentation at the annual meeting of the Association for Behavioral and Cognitive Therapies, Philadelphia, PA.
16. Bauer, M. R., **Wiley, J. F.**, Weihs, K. L., & Stanton, A. L. (2014 May). *Situational and Dispositional Avoidance Coping in Adjustment to Breast Cancer*. Poster presented at 26th annual meeting of the Association for Psychological Science, San Francisco, CA.
15. Huynh, T. H., **Wiley, J. F.**, Tseng, C-H., Vespa, P. M., Klerup, E. C. & Wenger, N. S. (2014). *Differences between attendings' and fellows' perceptions of inappropriate treatment in the intensive care unit*. Oral presentation in the ICU Utilization and Outcomes symposium at the Annual Meeting of the American Thoracic Society. American Journal of Respiratory Critical Care Medicine, 189, pp. A2187.
14. **Wiley, J. F.**, Gruenewald, T. L. & Seeman, T. E. (2014). *Measurement of allostatic load in adults aged 34-84 in the Midlife in the United States Study* . Poster presented at the Annual Meeting of the American Psychosomatic Society.
13. Weihs, K. L., **Wiley, J. F.** & Stanton, A. L. (2014). *Acceptance of Emotions Buffers Chronic Stress and Predicts Decline in Depressive Symptoms after Breast Cancer Diagnosis*. Poster presented at the Annual Meeting of the American Psychosomatic Society.
12. Weihs, K. L., **Wiley, J. F.** & Stanton, A. L. (2013). *Prospective, Longitudinal study of Emotion Acceptance and Stress Effects on Depression after Breast Cancer*. Poster Presentation for the Frontiers in Science Colloquium, Arizona Health Sciences Center, Tucson, AZ. October 29, 2013.
11. **Wiley, J. F.** (fall 2013). *knitr: Automatically embedding R output in documents*. Invited presentation at the Los Angeles R User Group. Available from: <https://www.youtube.com/watch?v=p2VBzhLVz3o>
10. **Wiley, J. F.** (June 2013). *Psychometrics: Machine Learning meets Psychology*. Invited presentation at the Los Angeles Machine Learning User Group. Available from: <https://www.youtube.com/watch?v=bbogtQxgULE>
9. **Wiley, J. F.** (May 2013). *Mplus Automation: Dynamic Models & Documents with R*. Invited guest lecture at Modern Modeling Methods post conference workshop with Dr. Bengt Muthén. Available from: <https://www.youtube.com/watch?v=Rm77PTrq6VY>
8. **Wiley, J. F.**, Huynh, T. N., & Wenger, N. S. (2013). *Methods for intuitive presentations of hierarchical categorical models: An example predicting futile treatment in critical care*. Poster presented at Modern Modeling Methods.
7. Huynh, T. N., **Wiley, J. F.**, Klerup, E. C., & Wenger, N. S. (2013). *The Frequency and Cost of Futile Treatment in Critical Care*. Oral presentation at the Annual Meeting of the American Society for Bioethics and Humanities.
6. **Wiley, J. F.**, Kane, H. S., Dunkel Schetter, C., & Robles, T. (2013). *Social constraint and romantic partner support predict salivary cortisol and alpha-amylase trajectories during an acute social stressor*.

Poster presented at the Annual Meeting of the Society for Behavioral Medicine. Available from: http://joshuawiley.com/papers/JW_2013_SBM.pdf

5. **Wiley, J. F.** (2012). *An integrative approach to psychosocial resources and health*. Presentation at the UCLA Health Psychology Colloquium. Available from: <http://joshuawiley.com/papers/2012HPBB.html>
4. **Wiley, J. F.** (2012). *Creating Plots & Graphs in R*. Invited presentation at the UCLA Center for Health Policy Research. Available from: http://joshuawiley.com/papers/2012CHPR_Rgraphics.pdf
3. **Wiley, J. F.**, Laird, K., Beran, T. M., McCannel, T. A., & Stanton, A. L. (2012). *Quality of Life and Cancer-Related Needs in Choroidal Melanoma Survivors*. Poster presented at the Annual Meeting of the Society for Behavioral Medicine. Available from: http://joshuawiley.com/papers/JW_2012_SBM.pdf
2. **Wiley, J. F.** (2010). *Relations of Personality and Occupation with Alcohol Consumption*. Paper presented at the annual UC Riverside Symposium for Undergraduate Research, Scholarship and Creative Activity. Available from: http://joshuawiley.com/papers/Predictors_of_Alcohol_Web.pdf

HONORS & AWARDS

Accepted and funded to attend the Stanford Workshop in Biodemography	2013
Health Psychology-Population Sciences Training Grant (NIGMS T32GM084903)	2011 – 2013
Graduate Summer Research Mentorship Award, UC Los Angeles	2011
Chancellor's Award for Excellence in Undergraduate Research, UC Riverside	2010
Upper Division Honor's Program, UC Riverside	2009 & 2010
Chancellor's List, UC Riverside	2009 & 2010
Dean's Academic Distinction Award, UC Riverside	2009 & 2010
Dean's List, UC Riverside	2008 – 2010
Summer Academy for Advanced High School Students (with Honors), UC Riverside	2006 – 2008
President's Honor Recital, Riverside Community College	2005

PROFESSIONAL SERVICE

Served on the local organizing committee for the useR! 2014 international conference, coordinating tutorials, review of abstracts, and scheduling oral and poster sessions.

Ad Hoc Reviewer:

- R Journal
- (in preparation). *R Graph Cookbook*. Birmingham, United Kingdom: Packt Publishing.
- Xie, Y. (2013). *Dynamic Documents with R and knitr*. Chapman & Hall/CRC Press. ISBN: 978-1-48220-353-0.
- Quick, J. M. (2010). *Statistical Analysis with R*. Birmingham, United Kingdom: Packt Publishing. ISBN: 978-1-84951-208-4.

TECHNICAL SKILLS

Statistical & Mathematical

Mastery of mixed effects and latent variable models

Biostatistics experience: survival models, ROC analysis, propensity scores, RCT evaluation

Missing data experience: multiple imputation, full information maximum likelihood, Bayesian methods, joint models, non ignorable missingness with latent class/mixture analysis

Psychological experience: latent variable models for factor analysis, structural equation models, growth models, parallel process models

Speciality Topics: Bayesian factor analysis and SEM, two-stage models of variability

Mastery of R and Mplus

Proficient with major packages including SAS Analytics, Stata, IBM SPSS Statistics

Experience with specialty analytics software including STAN, JAGS, WinBUGS, EQS, OpenMx

Graduate statistics coursework in biostatistics, statistics, and quantitative psychology

Programming

Mastery of R: A language and environment for statistical computing

Experience with bash, C++, JavaScript and JSON, SQL, version control systems (`git`, `svn`)

Publishing

Microsoft (Access, Excel, PowerPoint, Visio, Visual Web Developer, Word)

L^AT_EX, BibTeX, GNU Emacs

HTML5, CSS, php

Operating Systems

Windows (all desktop variants)

Linux (Debian, Ubuntu)