GSA Webinar Series
Supported by the GSA Innovation Fund

Welcome
Methodological Innovations in Gerontology: Advances in Psychosocial Research

Webinar Agenda
— Brief Overview (Drs. Carr & Neupert)
— Intergenerational Transfer and Reporting Bias (Dr. Lin)
— Q & A
— Stochastic Differential Equations, Categorical Repeated Measures, Emodiversity, and Grid Sequence (Dr. Ram)
— Q & A
Quick Audience Poll

- Please tell us who you are:
  - Academia
  - Industry
  - Government
  - Medical Practice
  - Other
Special Issue Overview

Recent explosion of data and methods → new areas of study in social gerontology

Then:
– Cross-sectional or two points in time of individuals

Now:
– Experiences embedded in dyads, families, social networks, and neighborhoods at multiple points in time
– Increased volume of data, requiring new statistical techniques
Special Issue Overview

15 studies represent innovations in:

- Unit of analysis (Brinberg, Ram et al.; Lin & Wu)
- Measurement (Benson, Ram et al.; Koffer, Ram, & Almeida)
- Data collection practices (Brick, Koffer, Gerstorf, & Ram)
- Statistical modeling (Wood ... Ram)
- Replication and accessibility (Benson, Ram et al.; Brinberg, Ram et al.; Lin & Wu; Wood ... Ram)
Intergenerational Transfer and Reporting Bias

- **Goal:** Extract reliable information from unreliable reports

- **Background:** Parents and adult children tend to include bias from their distinct perspectives, reducing the reliability of their reports of transfer

- **Strategy:** Use multiple-indicators-and-multiple-causes (MIMIC) model to separate reporting bias from transfer and identify correlates of transfer when the measure of transfer is biased
Intergenerational Transfer and Reporting Bias (continued)
Intergenerational Transfer and Reporting Bias (continued)

- **Software:** Amos, SAS, Stata, LISREL, Mplus, MLwiN

- **Prerequisite:**
  - This strategy requires at least two measurement items from two informants
  - More predictors are required if allowing measurement errors to be correlated

- **Expansion:** More than two family members and multiple measurement items
Intergenerational Transfer and Reporting Bias (continued)
Clarifying Questions?

• We will not be using the “raise hand” feature today
• Please use the “questions” feature accessible on the right side of your screen
• If we do not get to all of the questions today, we will email responses after the webinar
Intraindividual Variability and Aging

Longitudinal Methods

1. **Intraindividual Dynamics**
   - Stochastic Differential Equations

2. **Categorical Repeated Measures**
   - Six Metrics of Categorical IIV

3. **Intraindividual Diversity**
   - Illustration & Recommendations

4. **Intra‐dyad Sequences**
   - Grid‐Sequence Analysis

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Wood et al. (2018)
Koffer et al. (2018)
Benson et al. (2018)
Brinberg et al. (2018)
1. Intraindividual Dynamics

**Stochastic Differential Equations**

- **Process Models** – Linking Theory to Method
  - *DynAffect Model* (Kuppens et al. 2010)
    \[ d\theta_i(t) = \beta_i(\mu_i - \theta_i(t))dt + \sqrt{2\beta_i\gamma_i}dW(t) \]
  - *Regulation to Equilibrium + Perturbation (context)**
  - Ornstein-Uhlenbeck Process Model (1930)
    Bayesian estimation: Age Differences in *perturbation*, NOT *regulation*

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2. Categorical Repeated Measures

*Six Metrics of IIV*

- **Intraindividual Distributions (IIV)**
  1. Central Tendency
  2. Dispersion
  3. Skew

1. **Dominance/Mode**

   - Mode = N, H
   - Mode = IT

2. **Diversity/Spread**

   - Spread = H, W
   - Spread = W, O, H, N, A

3. **Rarity/Order**


Koffer, Ram & Almeida (2018)
3. Intraindividual Diversity

*Illustration & Recommendation*

- **Emodiversity** (dispersion across categories)

*Item Selection*

*Measurement Scale*

*Choice of Diversity Metric*

*Number of Occasions*

*Interindividual Differences in IIV*

*Emodiversity Circumplex* (Russell, 1980)

[Benson, Ram, Almeida, Zautra & Ong (2018)]
4. Intra-dyad Sequences

**Inter-dyad Differences in Intra-dyad Dynamics**

- **Grid-Sequence Analysis (5 Steps)**
  1. *Create state space grids*
  2. *Extract sequences*
  3. *Distances between sequences*
  4. *Classification of types*
  5. *Differences among types*

Brinberg, Ram, Hülür, Brick & Gerstorf (2018)
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Methodological Innovations in Gerontology: Advances in Psychosocial Research

• Archived recording on GSA’s YouTube channel
• Copy of today’s slides

Save The Date:
• Non-Academic Careers in Aging: Friday, April 6 at Noon EDT
• HRS Biomarkers Data: Tuesday, April 24 at Noon EDT

www.geron.org/webinar
In an effort for continual improvement, we would like to hear your thoughts. Please provide feedback by clicking the survey link at the end of the webinar.

Thank you again and we hope you enjoyed the program!
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Thank You

GSA

- The nation’s oldest and largest interdisciplinary organization devoted to research, education, and practice in the field of aging
  - 5,500+ interdisciplinary members around the world touching all facets of aging
- Mission
  - Promote multi- and interdisciplinary research in aging
  - Translate and disseminate research findings
  - Promote/advocate for education/awareness on aging across disciplines
  - Foster application of research into policy development
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