

Dyadic Data Analysis: Actor-Partner Interdependence Modeling Workshop

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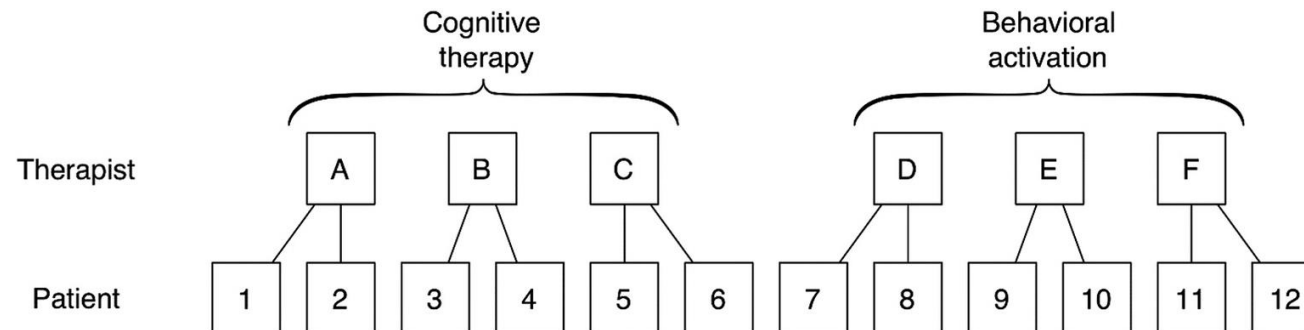
November 1, 2024

Overview:

- What is dyadic data?
- What are the benefits of dyadic data analysis?
- Type of Variables
- Distinguishability
- Intraclass Correlation (ICC)
- The Actor-Partner Interdependence Model (APIM)
- Demo: APIM in R

Dyadic data is nested data

- Multi-level modeling (MLM)
 - Can also be modeled using SEM with correct covariances and constraints (but not discussing that today)
- Clustered / Nested data
- Violates the Assumption of Independence
- Observations within a cluster/group may be correlated → underestimate SE's for effects → Type I error



Benefits of dyadic data analysis



CAN EXAMINE SOCIAL
DYNAMICS



GET MULTIPLE REPORTS
OF THE SAME
EXPERIENCE



CAPTURES BOTH
PERCEPTION AND
REALITY



MODEL DYADIC
OUTCOMES

Types of Variables

- **Between-dyad:** one score per dyad that differs between dyads
 - E.g., relationship length, # children
- **Within-dyad:** different within dyad, but same across dyad
 - E.g., amount of time talking during a 7-minute conversation
- **Mixed:** different within and between dyads (most common)
 - E.g., self-reported perceptions of relationship satisfaction

Distinguishable vs. Indistinguishable dyads

- Distinguishability is a mix of theoretical and empirical considerations
- Is there a meaningful and defining characteristic that distinguishes between the two members of the dyad?
- For dyads to be considered distinguishable it should be...
 - A) Theoretically important to make a distinction between members
 - B) Empirically shown that there are meaningful differences between the members of the dyad
- Distinguishable dyads = male/female, caretaker/patient, parent/child
- Indistinguishable dyads = mixed-sex couples, friends

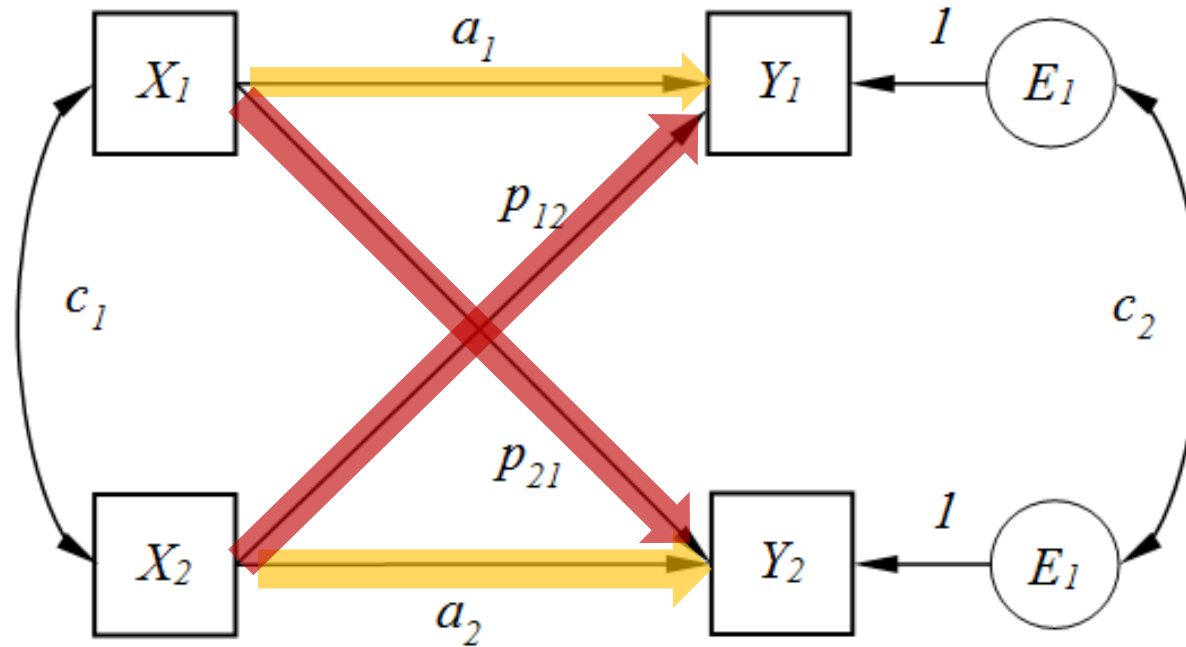
Intraclass Correlation (ICC)

- Amount of variance explained by the clustering
- Low ICC indicates that most of the variance is NOT due to clustering
- But from a conceptual standpoint it may make sense to use MLM anyways
- From statistical standpoint, $ICC = .10$ is generally high enough to justify MLM

Actor-Partner Interdependence Model (APIM)

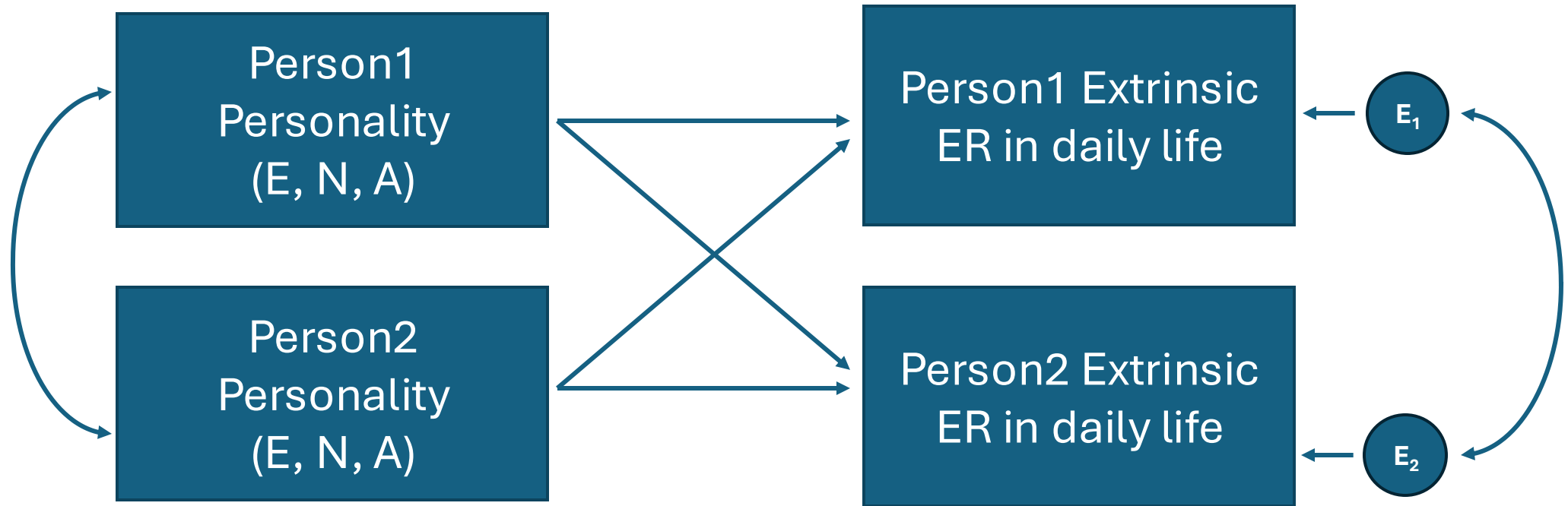
Actor effect: the effect of the self's predictor on the self's outcome

Partner effect: the effect of the partner's predictor on the self's outcome



Example:

Does personality predict extrinsic ER in couples?



Mean-centered predictors

Controlling for couple age and relationship quality

Kenny, Kashy, & Cook (2006)

Individuals reported *providing more extrinsic ER* to their spouse if their spouse was higher in neuroticism

Actor Provision of Extrinsic ER in Daily Life

	Estimate	SE	df	t-value	p-value
(Intercept)	3.33				
Actor Extraversion	0.13	0.10	126	1.20	.232
Partner Extraversion	0.17	0.10	126	1.61	.109
Actor Neuroticism	0.14	0.11	126	1.28	.202
Partner Neuroticism	0.27	0.11	126	2.44	.016
Actor Agreeableness	0.12	0.17	126	0.70	.485
Partner Agreeableness	0.09	0.17	126	0.50	.616
Couple Age	0.00	0.01	132	0.55	.582
Actor Rel Qual	0.20	0.11	126	1.78	.077
Partner Rel Qual	0.26	0.11	126	2.39	.018

There are many other ways of modeling dyadic data

- APIM using MLM
- APIM using SEM
- Longitudinal dyadic data
- Moderations and mediations
- Truth and Bias Model
- Stability and Influence Model
- Mutual Influence Model
- Common Fate Model
- Social Relations Model
- One-with-Many Model
- Dyadic Response Surface Analysis

Pioneers in dyadic data analysis

- David Kenny
- Niall Bolger
- Deborah Kashy
- Randi Garcia

DEMO: APIM analyses in R