Measuring social relations: A multidimensional concept

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Network for Innovative Methods in Longitudinal Aging Studies
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Outline

- Why social relations matter
- Theory (Convoy Model of Social Relations)
- Measurement (Hierarchical Mapping Technique)
- Exercise (mapping your social convoy/network)
- Empirical examples
- Q & A

-BREAK (5 mins)

- Communication technologies
  - Introduction to ICT and social relations
  - Adaptation of Convoy Model
  - Exercise (mapping your cell phone network)
  - Empirical examples
  - Q & A
- Wrap-up

Acknowledgements

- Life Course Development Program at the University of Michigan

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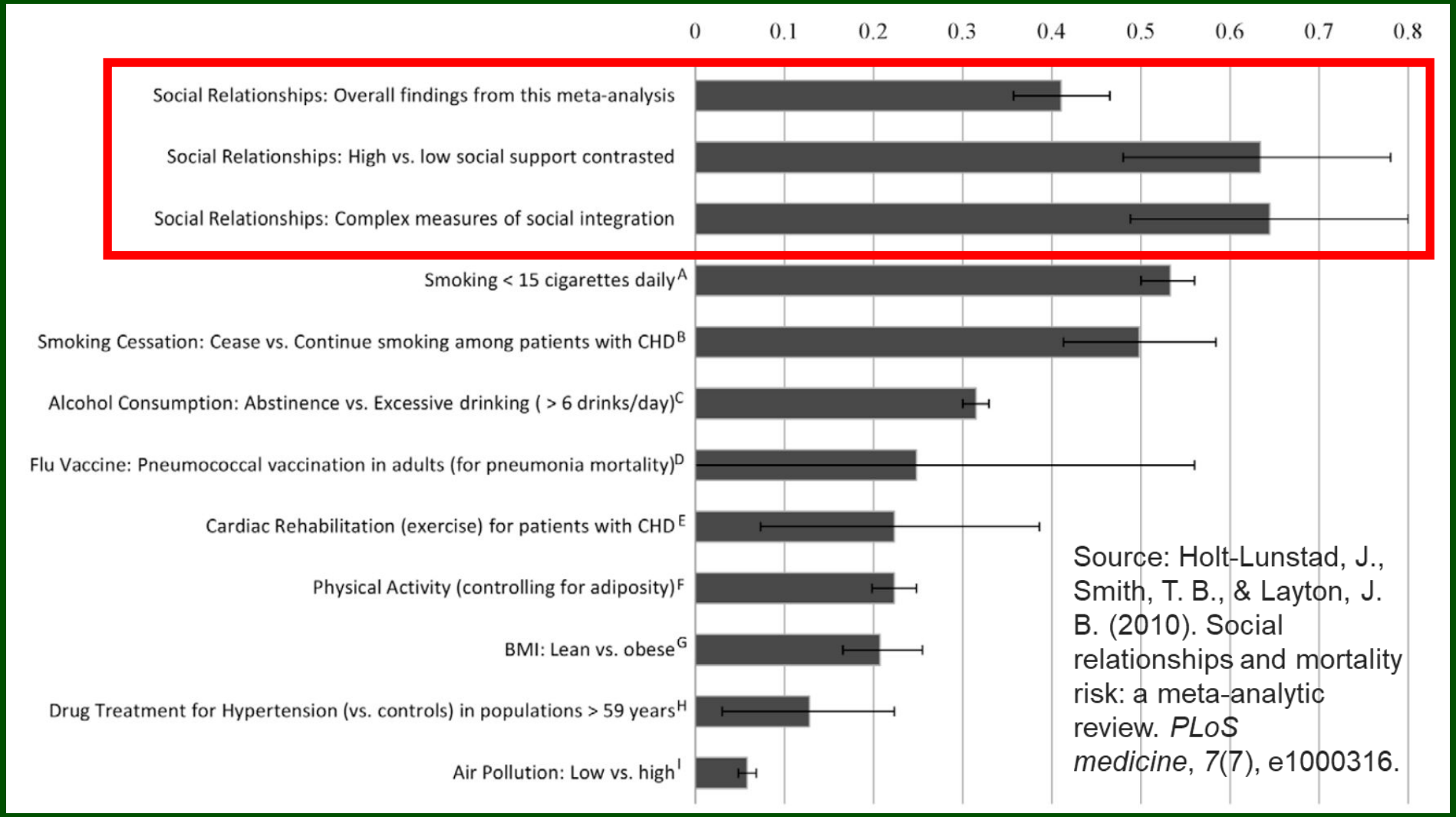
Social Relations
- why they matter -

- Linked to multiple health outcomes and longevity
- Impact health behaviors
- Vary across contexts (e.g., environment, age)
- Are multidimensional (structure, composition, quality)
- Experienced (as well as measured & analyzed) at multiple levels
  - Individual (ego-centric approach) - *most focus of today's workshop
  - Group (socio-centric approach), e.g., residents in a building
- Subjective aspects - e.g., who you feel close/connected to and how much
- Objective aspects - e.g., geographic distance of those in your network

Social Relations & Longevity



Source: Holt-Lunstad, J., Smith, T. B., & Layton, J. B. (2010). Social relationships and mortality risk: a meta-analytic review. *PLoS medicine*, *7*(7), e1000316.

Social Relations & Cognition

- Increasing evidence that social relations affect cognition
- Why does this matter? Alzheimer's Disease and Related Dementias (ADRD) dramatically increasing

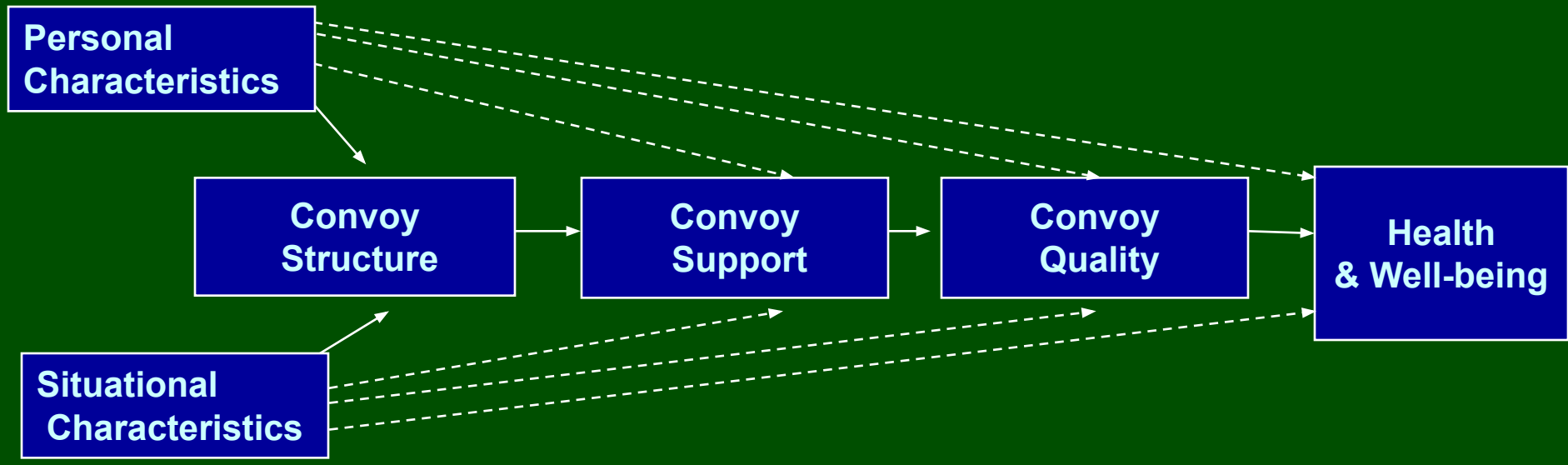
  …and almost 50% of cases are preventable!

- Older adults who are more engaged….
  - are generally healthier
  - less likely to develop ADRD
  - have slower progress of Mild Cognitive Impairment

Theory

Theory

Convoy Model of Social Relations



Kahn, Robert L., and Toni C. Antonucci. 1980. “Convoys over the Life Course: Attachment, Roles, and Social Support. Pp. 254-83 in *Life-span, Development, and Behavior*, edited by P. B. Baltes and O. C. Brim. New York: Academic Press.

Antonucci, Toni C. 2001. “Social relations: An examination of social networks, social support, and sense of control.” Pp. 427-53 in *Handbook of the psychology of aging*, edited by J. E. Birren and K. W. Schaie. San Diego, CA: Academic Press.

Theory

Convoy Model of Social Relations

What are Convoys of Social Relations?

- people who surround an individual

- protect and socialize, shape and change the individual

- impact health and well-being across life course

Theory

Convoy Model of Social Relations
Origins

- Term ‘convoy’ coined by Plath (1980)

  - described group living and learning cohort where Japanese children were being raised

  - protective function found within social relations as individuals experienced age related events

Theory

Convoy Model of Social Relations
Origins

- Combines perspectives from developmental psychology, social psychology, and the sociological tradition of symbolic interactionism

- Grounded in research on attachment, roles, and organizations

Theory

Convoy Model of Social Relations

Informed by life span & life course perspectives

Understand Human Experience to be:

- Long-term/life long
- Multilevel
- Contextual
- Dynamic

Influenced by macro & micro factors

- Gains and losses
- Risks and resiliencies

Theory

Convoy Model of Social Relations

Convoys are are…

Multidimensional

i.e., can be described in terms of both…

1) Quantity - structure and composition

2) Quality - relationship quality,
both positive & negative simultaneously

Theory

Convoy Model of Social Relations

QUANTITY

Structure, e.g.,

Size (number of people)

Frequency of contact

Geographic proximity

Composition, e.g.,

Age

Gender

By Relationship (family, friends, co-workers,etc.)

Theory

Convoy Model of Social Relations

QUALITY

Positive
e.g., help when sick
receive encouragement

Negative
e.g., gets on nerves
makes too many demands

Theory

Convoy Model of Social Relations

Hypothesis – Convoys influenced by antecedent factors

1) Personal characteristics of individual (ascribed and achieved)

- Age
- Gender
- Race/Ethnicity
- Education

Theory

Convoy Model of Social Relations

Hypothesis – Convoys influenced by antecedent factors

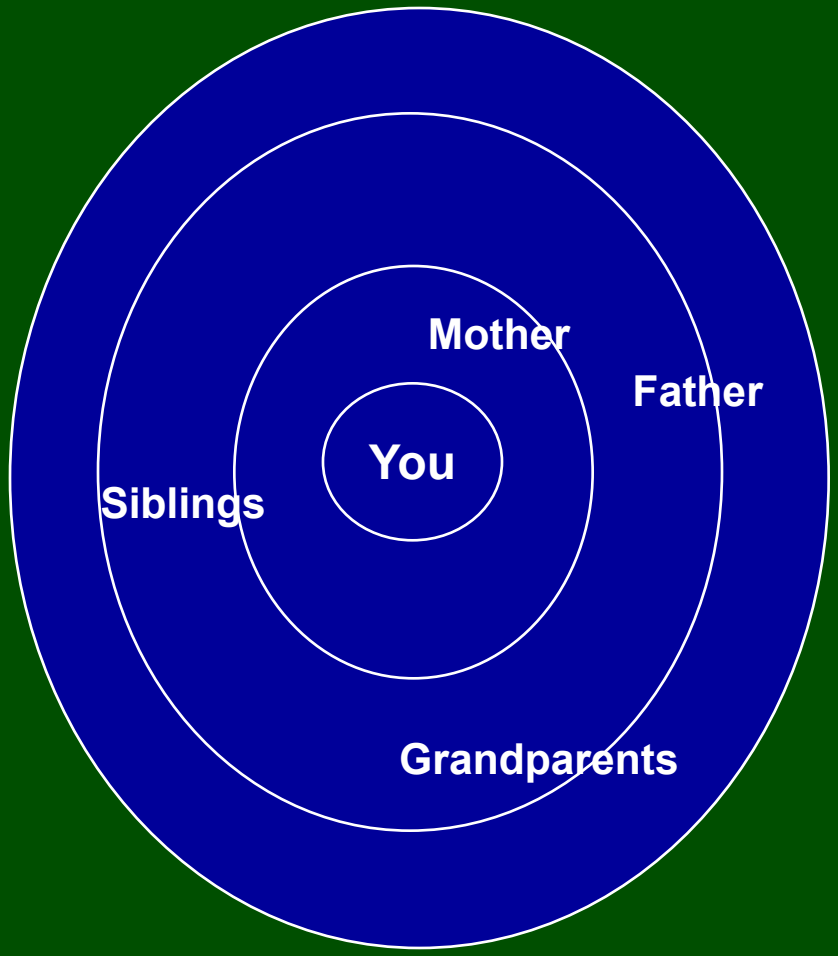
2) Situational characteristics

roles & transitions across one's life

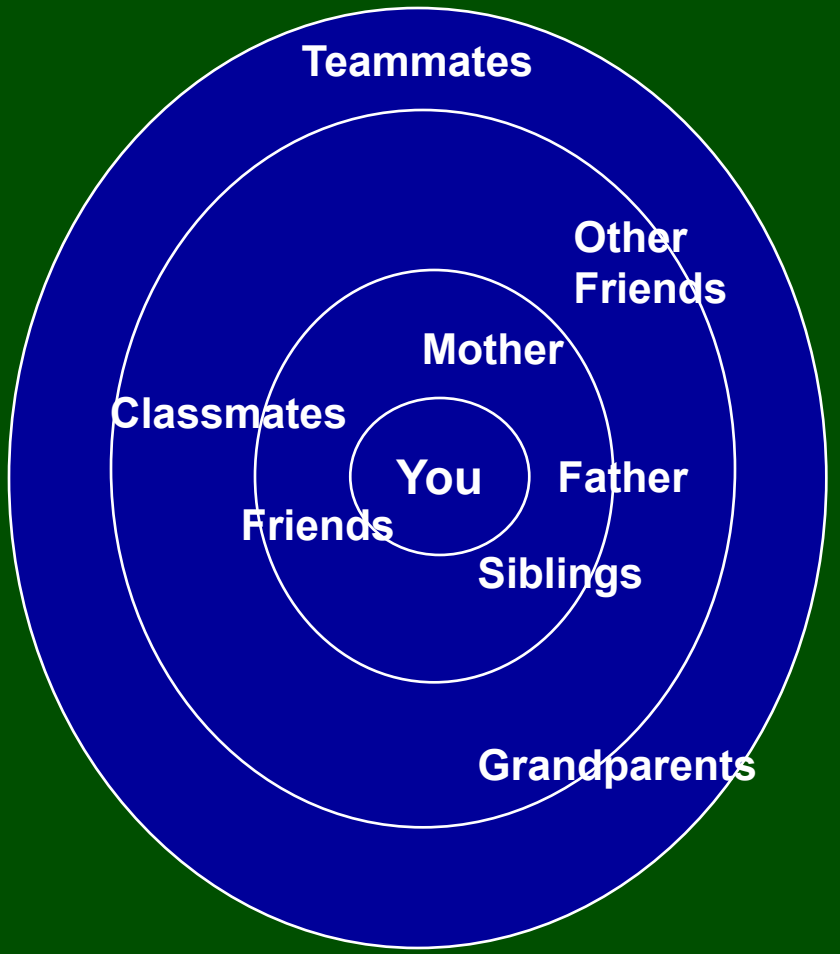
e.g., marital status, parental status, employment status

Convoy Composition at Different Ages in the Life Cycle

6 month old infant



10 year old child



Convoy Composition at Different Ages in the Life Cycle

Theory

Convoy Model of Social Relations

Contributions to study of social relations

- Parsimonious representation of complex human experience
- Conceptualized as multidimensional
- Moves beyond global nonspecific measures
  (e.g., reporting on all family together)
- Life span and life course perspectives (dynamic) - build on previous experience and incur significance over time
- Understood objectively as well as subjectively and from multiple perspectives
- Contextual (situational) nature of social relations

Theory

Convoy Model of Social Relations
-Summary-

- They are life span
- They are longitudinal
- They are hierarchical
- They can be positive, negative or both
- They are often multigenerational
- They can have ethnic, religious, cultural characteristics
- They have antecedents and consequences

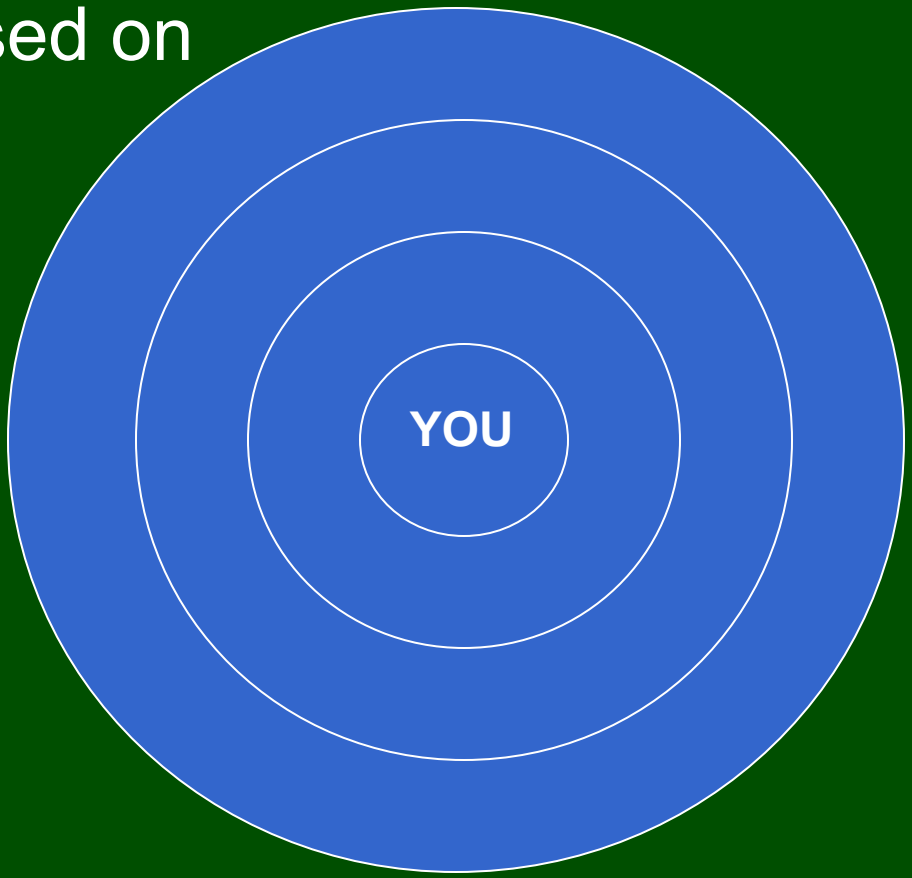
Measurement

Measurement

Hierarchical Mapping Technique
Ego-centric measure / Name generator

- Step 1: Nominations based on varying levels of closeness

- Step 2: Allows for collection of detailed data on people nominated in networks



Antonucci, T.C. (1986). Hierarchical Mapping Technique. *Generations: Journal of the American Society on Aging*, 10(4), 10-12.

Measurement

Hierarchical Mapping Technique

STEP 1 – Nomination:

Count of the number of people listed in respondents'

1) First (inner circle)
2) Second (middle circle)
3) Third (outer circle)
4) Add all three together
   = total network size

***All four are measures of convoy / social network structure**

Measurement

Hierarchical Mapping Technique

STEP 2 - collection of data on convoy members

Convoy Structure (in addition to size)

Geographic Proximity – live within 1 hour drive?

Contact Frequency – how often in contact? (1=irregularly; 5=everyday)

Convoy Composition:

Age

Gender

Relationship – spouse/partner, child, grandparent, friend, neighbor, etc.

Measurement

Hierarchical Mapping Technique

STEP 2 - collection of data on convoy members

Strategies / Notes…

- collect by person (i.e., go through all questions for each then move to next)

OR

- collect by measure (i.e., go through all people for one measure, e.g., proximity, then go to next measure)

Measurement

Hierarchical Mapping Technique

STEP 2 - collection of data on convoy members

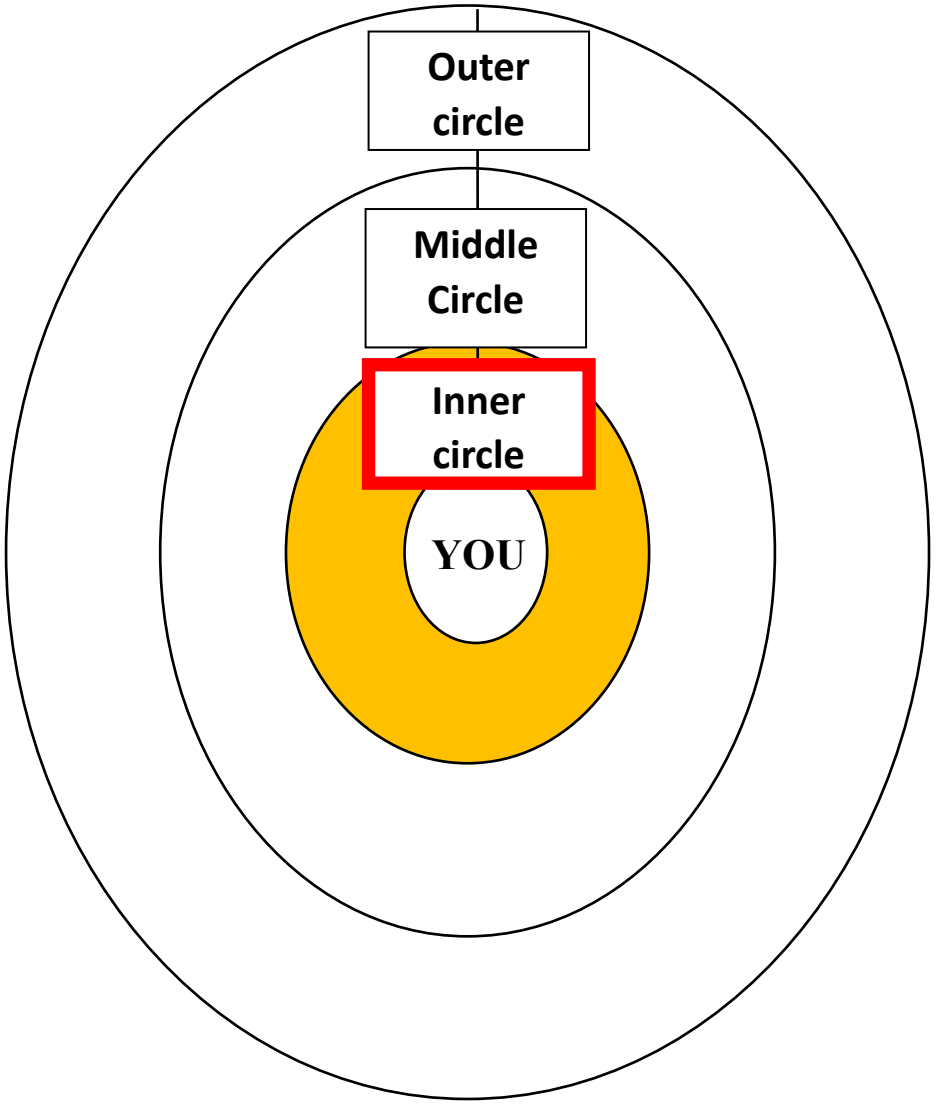
Strategies / Notes…

- Refine questions to fit context and time
  e.g., Proximity – live with 1 hour drive
  developed for Detroit, Michigan

  e.g., Contact frequency – modes of contact?
  Face to face, text (*more on this later…*), etc.

- Limit number of people to follow-up on (10?) –
  reduce respondent burden

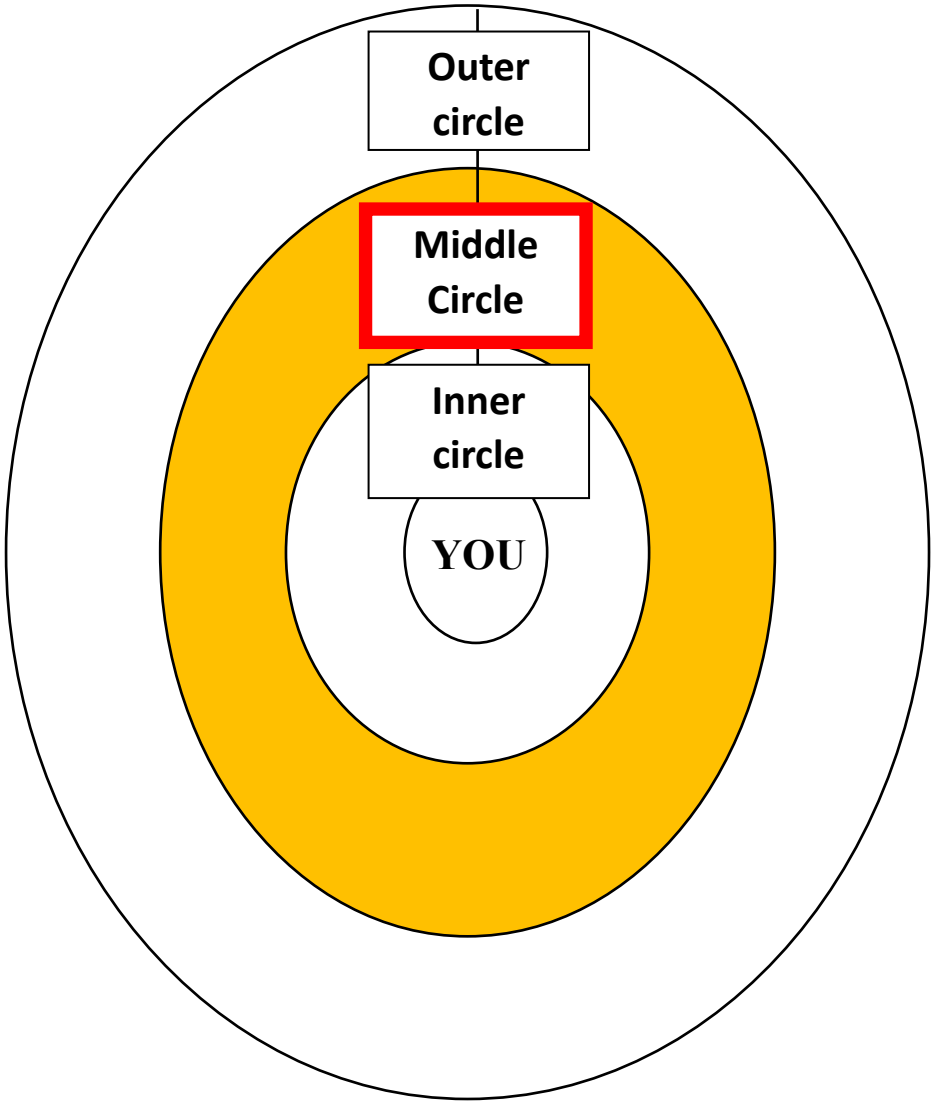
Exercise – Mapping your social convoy



Steps to complete your personal network diagram

1) Beginning with the people you feel closest to, is there any one person or persons that you feel so close to that it's hard to imagine life without them? Please write their first name along with the number you entered them (e.g., 1, 2, 3…) in the inner circle.

Exercise – Mapping your social convoy



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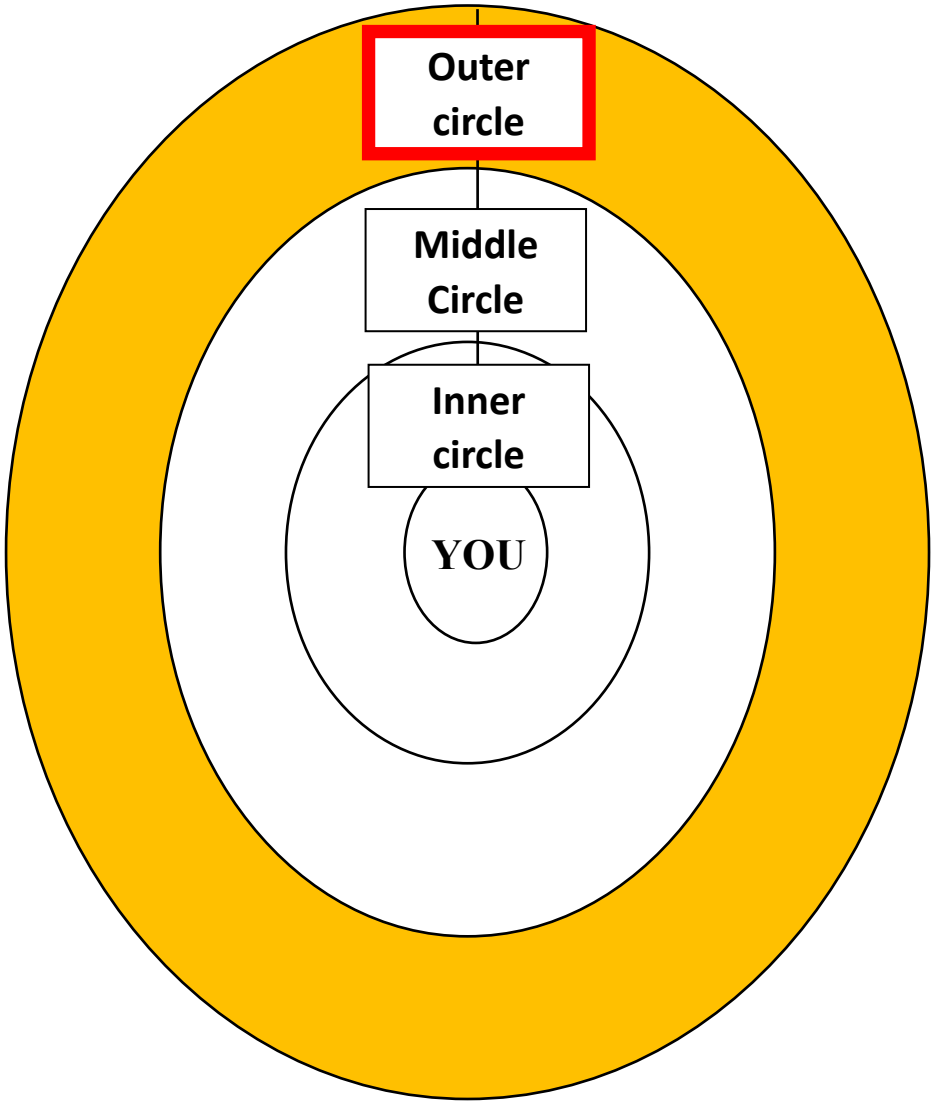
1) Beginning with the people you feel closest to, is there any one person or persons that you feel so close to that it's hard to imagine life without them? Please write their first name along with the number you entered them (e.g., 1, 2, 3…) in the inner circle.

2) Next, are there people you may not feel quite that close, but who are still very important to you? Write their first name and number you entered them (e.g., 4, 5, 6) in the middle circle.

Exercise – Mapping your social convoy



Steps to complete your personal network diagram

1) Beginning with the people you feel closest to, is there any one person or persons that you feel so close to that it's hard to imagine life without them? Please write their first name along with the number you entered them (e.g., 1, 2, 3…) in the inner circle.

2) Next, are there people you may not feel quite that close, but who are still very important to you? Write their first name and number you entered them (e.g., 4, 5, 6) in the middle circle.

3) Lastly, are there people whom you haven't already listed, but who are close and important enough in your life that they should also be placed in your diagram? Write their name(s) in the outer circle.

Exercise – Mapping your social convoy

4) Complete the table for the first 5 people entered in your diagram.

Person #	What is their Age?	Do they live within an hour's drive? Yes or No?	Are they a family member? Yes or No?
1…			

Some follow-up questions

1) How many people (total) did you include in your diagram (measure of network size)?
2) What % of those included are in the outer circle? (total in outer circle / network size = network proportion weak ties)?
3) What is the age range of your closest/inner circle ties (measure of network composition)?
4) **Any thoughts / reflections you would like to share about this process?**

Measurement

Relationship Quality

Separate measures available for both….

Positive relationship quality

&

Negative relationship quality

***Not opposite ends of same measure**

Measurement

Positive Relationship Quality

How strongly agree with the following statements about [First Name]
(1=strongly agree; 5=strongly disagree)

- [Name] supports me
- I enjoy spending time with [Name]
- [Name] helps me when sick
- [Name] believes in me
- [Name] encourages me

***Measure = mean composite scale of 5 items**

Measurement

Negative Relationship Quality

How strongly agree with the following statements about [First Name]
(1=strongly agree; 5=strongly disagree)

- [Name] gets on my nerves

- [Name] makes too many demands of me

***Measure = mean composite scale of 2 items**

Measurement

Relationship Quality

Strategies / Notes….

- Collect for specific / key relationships
  spouse/partner, child rely on most, mother, father, best friend

OR

- Collect by order of those nominated in convoy

***Likely some overlap, but not all**

Measurement

Hierarchical Mapping Technique

Adaptability

1) Change stem of name nomination questions to document other type(s) of ties / networks…

e.g., caregiving support convoy

Sherman, C. W., Webster, N. J., & Antonucci, T. C. (2013). Dementia caregiving in the context of late-life remarriage: Support networks, relationship quality, and well-being. *Journal of Marriage and Family*, *75*(5), 1149-1163.

Measurement

Hierarchical Mapping Technique

Adaptability

2) Add / remove composition questions to meet study goals

e.g., can collect…

- race/ethnicity of convoy members
- religious affiliation
- education
- if live in same community

Example: Senior Housing Communities

Data

- Affordable Senior Housing Community in Ann Arbor, MI
  - 205 units / 7 stories / 2 common entrances
  - Approximately 250 residents

- Residents (N=46) interviewed face-to-face in the community

- Sample Characteristics
  - Gender - 78% female
  - Race/Ethnicity - 26% racial/ethnic minorities
  - Age – Mean=73 (30-93; SD=11.7)
  - Education - 76% some college of more
  - Marital Status – 11% married

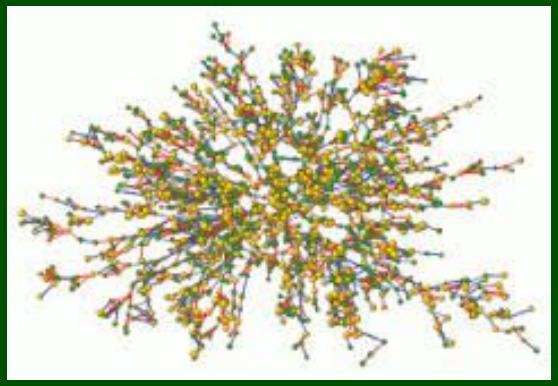
Results: Network Structure & Composition

Total Convoy/Network Size	**12.5 (6.5)**	**0-29**
# of convoy members who live in housing community	3.2 (4.0)	0-17
% of convoy who live in housing community	27.7 (31.2)	0-100

Additional Theoretical Perspective

Social Contagion

- Behaviors are contagious
- Spread through social ties via multiple mechanisms



1) **induction effects**: influence and prestige
2) **proximity effects** or shared environmental factors
3) **homophily**: people associate with those similar to themselves; engage in similar behaviors

Social contagion linked to spread of negative health behaviors: e.g., obesity and smoking

Christakis, N.A., & Fowler, J.H. (2013). Social contagion theory: examining dynamic social networks and human behavior. Statistics in medicine, 32(4), 556-577.

Christakis, N.A., & Fowler, J.H. (2007). The spread of obesity in a large social network over 32 years. The New England Journal of Medicine, 357, 370-379.

Measure - Group: Within Community Ties

Socio-centric measure

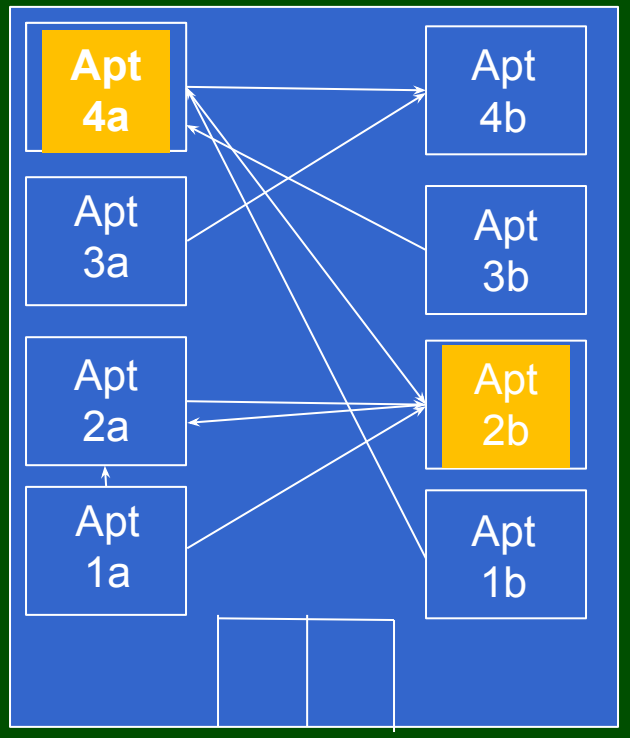
- Residents asked to identify names of people they know in community
- From this list ask about…

[a] Respect = how much respect each
(1=not at all; 5=very much)

[b] Time spent = how much time spend with each in typical week
(1=<1/2 hr; 5=4+ hrs

[c] Confide = how comfortable talk about important matters
(1=not at all comf; 5-very comf.)

[d] Nerves = how often get on nerves
(1=none of time; 5=all of time)



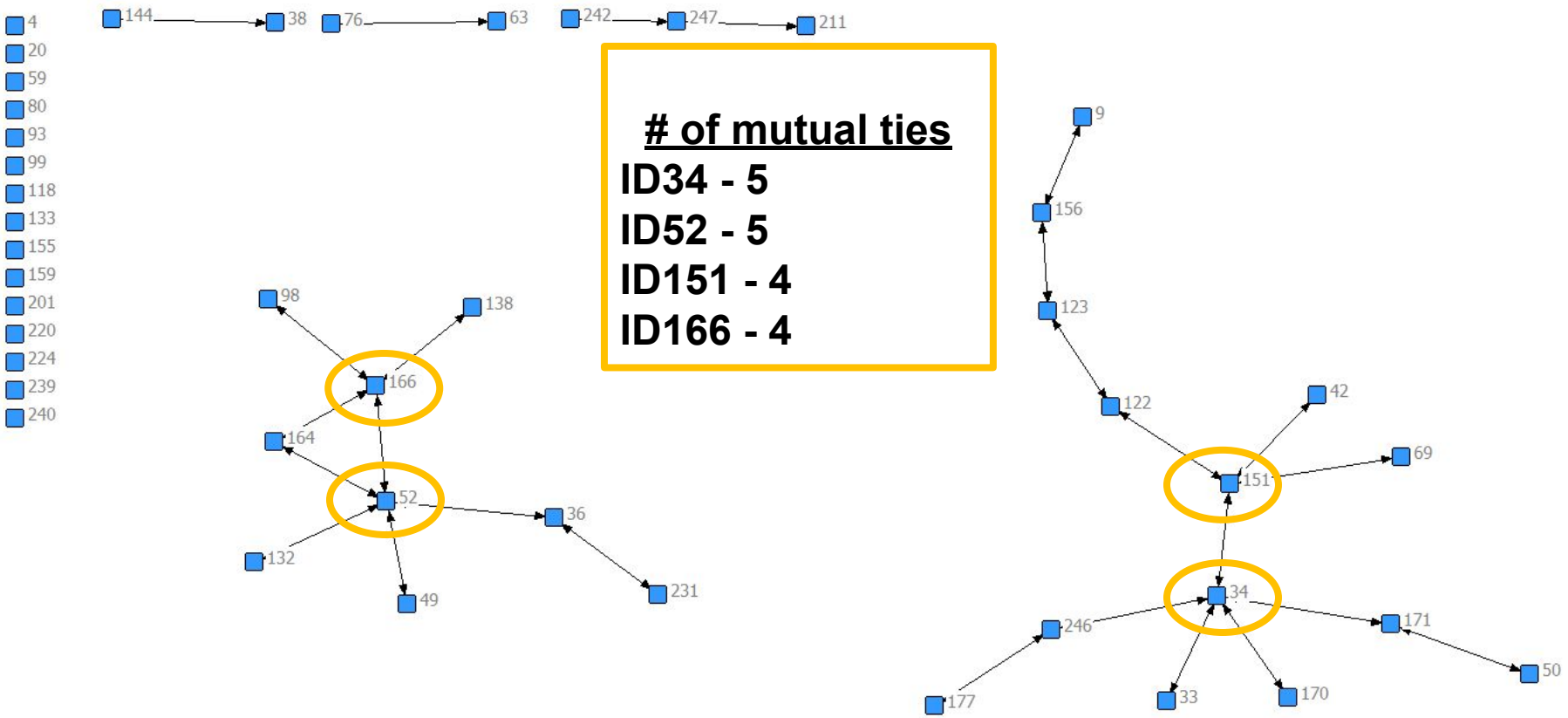
Results: Within Community Social Ties

	Mean (SD)	Range
# People 'I' Know in Community Self-Report	10.1 (6.5)	0-20+
# People Know 'Respondent' in Community Other Report	3.0 (2.8)	0-11
Of People 'I' know in Community		
Respect [a]	4.0 (0.7)	2-5
Time Spent [b]	2.1 (1.0)	1-5
Confide In [c]	3.3 (1.1)	1-5
Get on nerves [d]	2.0 (0.8)	1-5

[a] Respect = how much respect each (1=not at all; 5=very much)
[b] Time spent = how much time spend with each in typical week (1=<1/2 hr; 5=4+ hrs
[c] Confide = how comfortable talk about important matters (1=not at all comf; 5-very comf.)
[d] Nerves = how often get on nerves (1=none of time; 5=all of time)

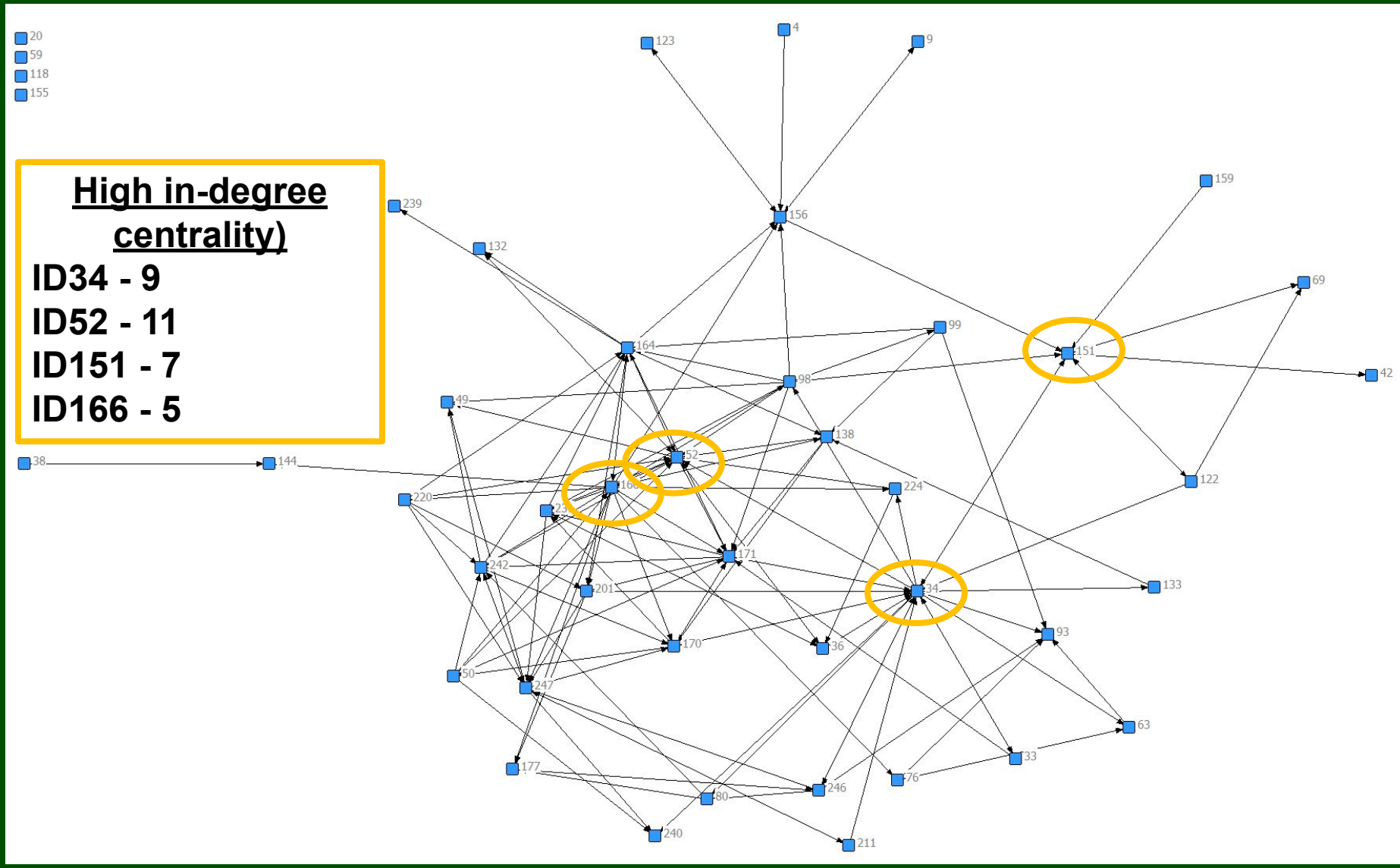
Results: Within Community Social Ties

Sociogram of Mutual Known Ties (I know you & You know me)



Results: Within Community Social Ties

Sociogram of Alter (Who Knows You) Ties



Empirical Examples

Analysis

Network Level – collected variables

File Edit View Data Transform Analyze Graphs Utilities Extensions Window Help

	Name	Type	Width	Decimals	Label
1	Resp_ID	String	8	0	Respondent ID
2	InnerC_size	Numeric	8	0	Total number of people listed in inner cicle
3	MiddleC_size	Numeric	8	0	Total number of people listed in middle circle
4	OuterC_size	Numeric	8	0	Total number of people listed in outer circle
5	P1_age	Numeric	8	2	Person 1 in network - age
6	P1_prox	Numeric	8	0	Person 1 in network - live within 1 hr drive (0=no; 1=yes)
7	P1_family	Numeric	8	0	Person 1 in network - family member (0=no; 1=yes)
8	P2_age	Numeric	8	2	Person 2 in network.....
9	P2_prox	Numeric	8	0	
10	P2_family	Numeric	8	0	
11	P3_age	Numeric	8	2	
12	P3_prox	Numeric	8	0	
13	P3_family	Numeric	8	0	
14	P....10_age	Numeric	8	2	Person 10 in network
15	P....10_prox	Numeric	8	0	
16	P....10_fam	Numeric	8	0	

Analysis

Network Level – collected data

	Resp_ID	InnerC_size	MiddleC_size	OuterC_size	P1_age	P1_prox	P1_family
1	1	3	4	8	34	1	1
2	2	1	2	4	78	1	0
3	3	2	2	2	45	1	1
4	4	4	5	9	56	1	1
5	5	5	2	6	41	1	1

Analysis

Network Level – computed variables

	NetworkTotal_Size	Numeric	8	0	Total network size (sum of three circles)
	Network_Num_10	Numeric	8	0	Number up to 10 - net characteristic questions
	Network_AverageAge	Numeric	8	1	Mean age of first 10 network members
	Num_Prox_10	Numeric	8	0	Number live within 1 hr drive (up to first 10 nominated) - Sum
	Percent_Prox_10	Numeric	8	1	Percent of first 10 live within 1 hr drive
	Num_Family_10	Numeric	8	0	Number family (up to first 10 nominated) - Sum
	Percent_Family_10	Numeric	8	1	Percent of first 10 who are family

Analysis

Network Level – computed variables

- Network Total Size – sum count of inner, middle, outer circle sizes (we cap each circle at 20 nominations; 60 max)
- Network Number (up to 10) - 10 indicates 10+; used for computed variables denominator
- Network Average Age – computed mean age of first 10 network members

Analysis

Network Level – computed variables

- Number Proximate – sum count of 1's across network members
- Percent Proximate – number proximate / network number (10) * 100
- Number Family - sum count of 1's across network members
- Percent Family – number family / network number *100

Analysis

Network Level – computed data

	Resp_ID	NetworkTotal_Size	Network_Num_10	Network_AverageAge
1	1	15	10	45.4
2	2	7	7	38.2
3	3	6	6	57.8
4	4	18	10	48.3
5	5	13	10	65.2

Num_Prox_10	Percent_Prox_10	Num_Family_10	Percent_Family_10
4	77.1	7	82.1
7	58.3	7	100.0
2	64.2	3	23.5
9	52.9	8	78.0
8	48.7	5	67.7

Network Level - Example

Links between neighborhood context and access to social capital in later life

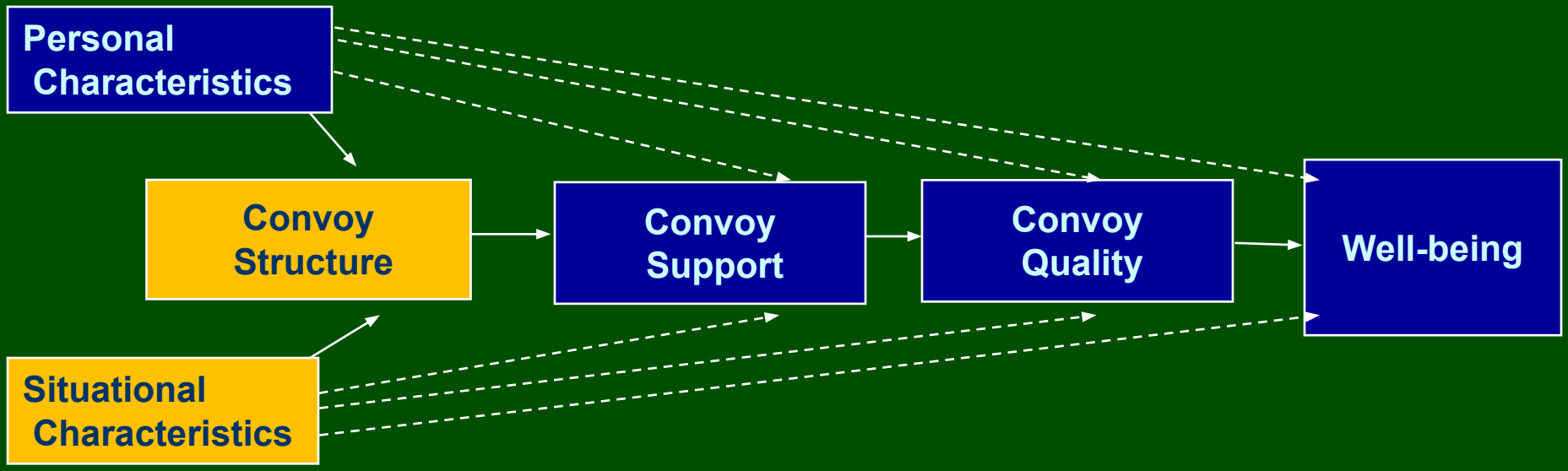
Presented in symposium ‘Neighborhood Context and Later Life Well-Being: Objective and Subjective Indicators’ at the annual scientific meeting of the Gerontological Society of America, November 13-17, 2019, Austin, TX

*Supported by National Institute of Health R01 AG045423

Theoretical Perspective

Convoy Model of Social Relations

(Antonucci, 2001; Kahn & Antonucci, 1980)



Situational characteristic = neighborhood context

Research Question: Are/how objective and subjective indicators of neighborhood context associated with social network structure and composition?

Data

Social Relations Study (Antonucci, 1992)

- Regionally representative sample of the Detroit Metropolitan area
  - Wave 1 (1992)
    face to face interviews, 72% response rate (N=1,703)
  - Wave 2 (2005)
    telephone interviews, 78% follow-up response rate (N= 1,076)
  - Wave 3 (2015)
    telephone interviews, 73% follow-up response rate (N= 720)
  - Study Sample: Adults age 65+ at Wave 3 (N=259)

Measures: Outcomes
Social Network Structure

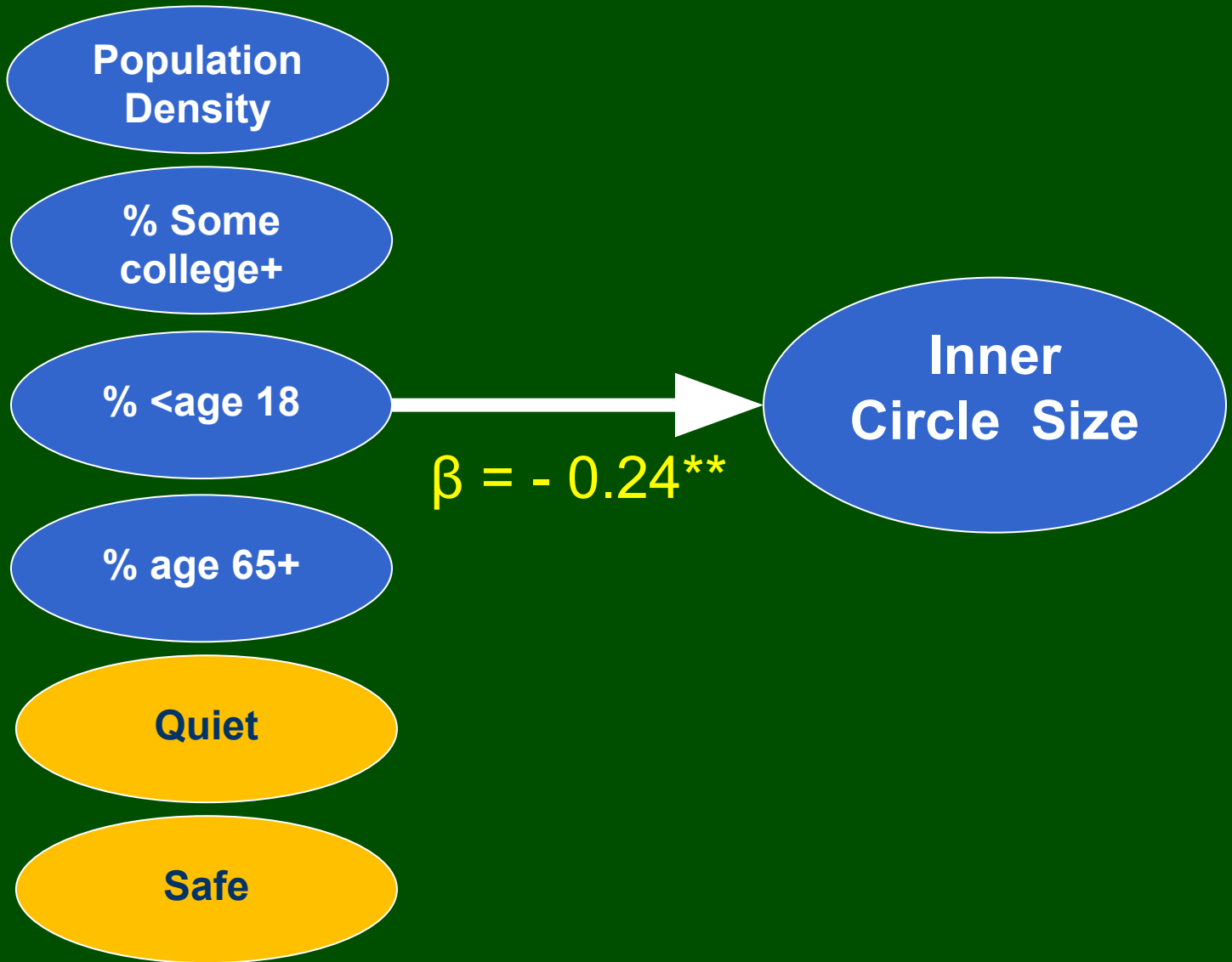
1) Network Size – total number of people nominated and in Inner, Middle, Outer Circles

2) Geographic Proximity – % of network live within 1 hour drive

3) Contact Frequency – (1=irregularly; 5=everyday)

4) Composition – % of first 10 that are friends

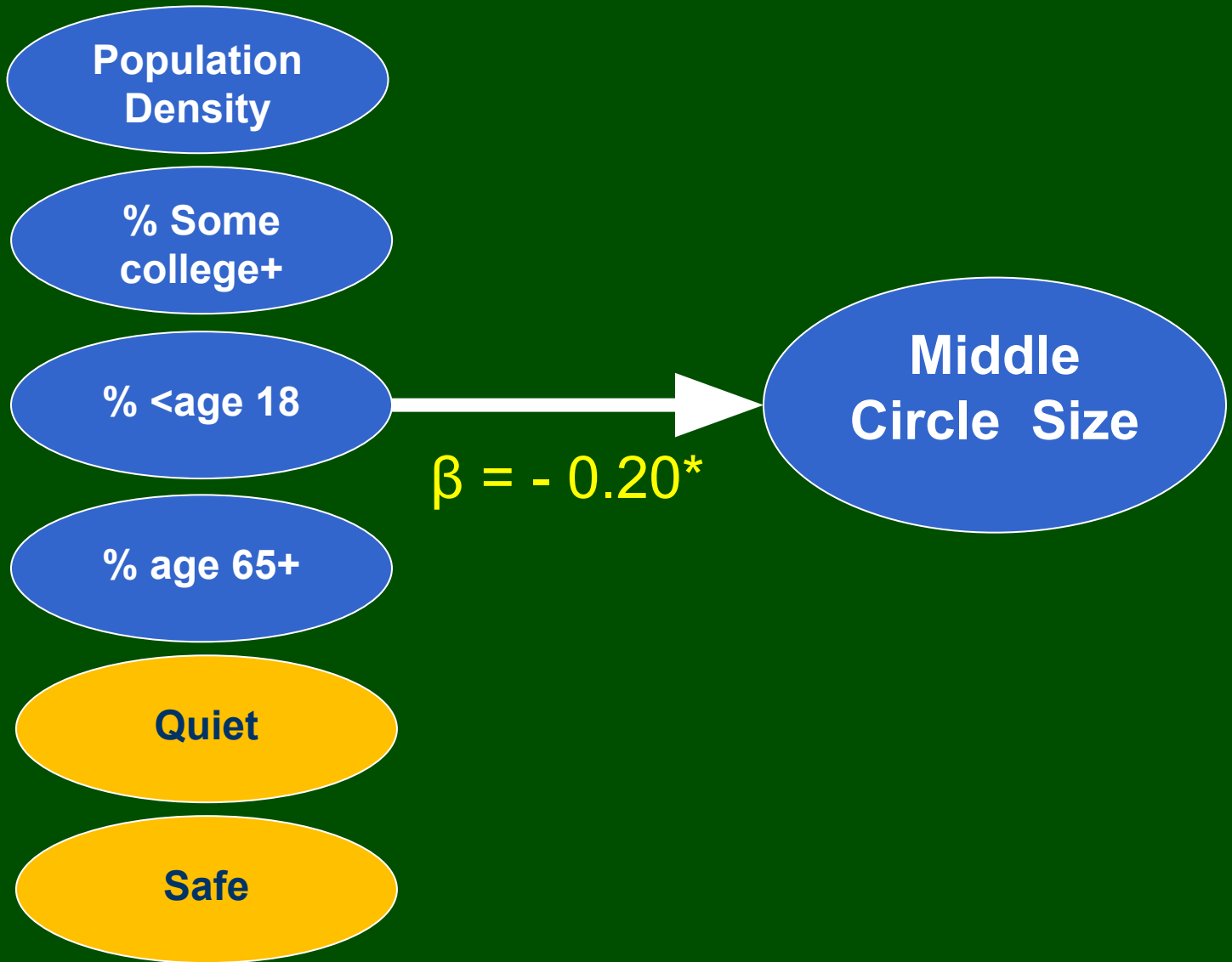
Results
Social Network Structure



** p-value <.01

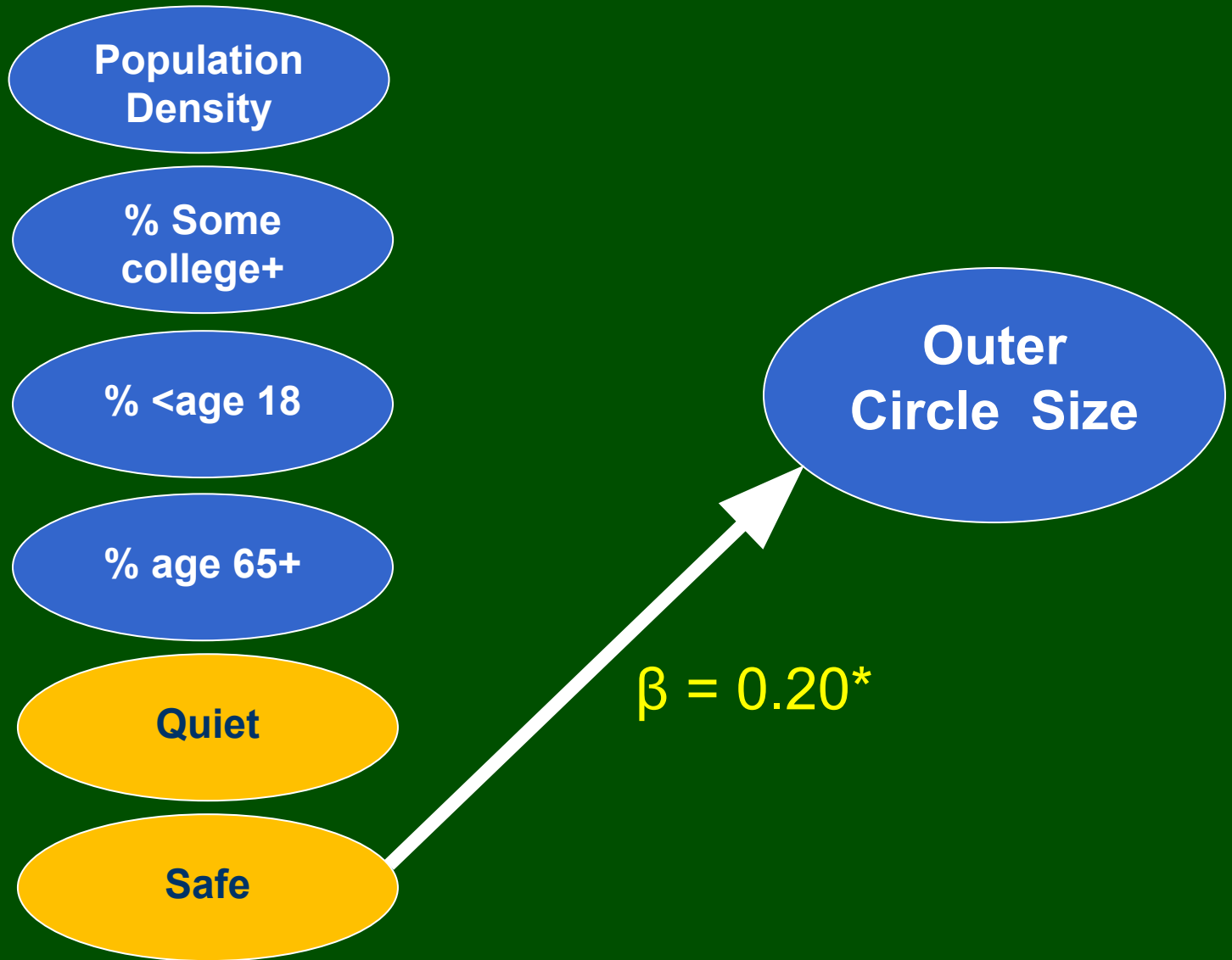
Results

Social Network Structure



* p-value <.05

Results
Social Network Structure



* p-value <.05

Analysis

Individual Network Member Level – collected variables

	Name	Type	Width	Decimals	Label
1	Resp_ID	String	8	0	Respondent ID
2	Person_Num	Numeric	8	0	Number order nominated
3	P_age	Numeric	8	0	Network member age
4	P_prox	Numeric	8	0	Network member - live within 1 hr drive (0=no; 1=yes)
5	P_family	Numeric	8	0	Network member - family member (0=no; 1=yes)

Analysis

Individual Network Member Level – collected data (long format)

	Resp_ID	Person_Num	P_age	P_prox	P_family
1	1	1	23	1	1
2	1	2	6	1	0
3	1	3	34	1	1
4	1	4	87	1	1
5	1	5	56	1	1
6	1	6	23	1	1
7	1	7	19	1	1
8	1	8	28	0	1
9	1	9	78	1	0
10	1	10	57	0	0
11	2	1	54	1	0
12	2	2	23	1	1
13	2	3	78	0	1
14	2	4	45	1	0
15	2	5	47	0	1
16	2	6	79	0	1
17	2	7	34	1	0

Analysis

Network Member Level – Example

American Psychological Association

Psychology and Aging

0882-7974/19/$12.00

2019, Vol. 34, No. 8, 1158–1169
http://dx.doi.org/10.1037/pag0000375

Convoys of Social Relations: Cohort Similarities and Differences Over 25 Years

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Noah J. Webster
University of Michigan

Study Goal: Examine if differences in network structure and composition by ego (respondent) age and closeness (circle placement) of network members

Analysis

Network Member Level – Ex

- Multi-level models conducted
- Level 1 = individual network member
- Level 2 = respondent / ego

Analysis

Network Member Level – Ex

Multilevel modeling conducted because

- accommodates non-independence of observations

  i.e., network members nested within respondent networks

Analysis

Network Member Level – Ex

Multilevel-model conducted for each outcome, i.e., each aspect of network structure and composition

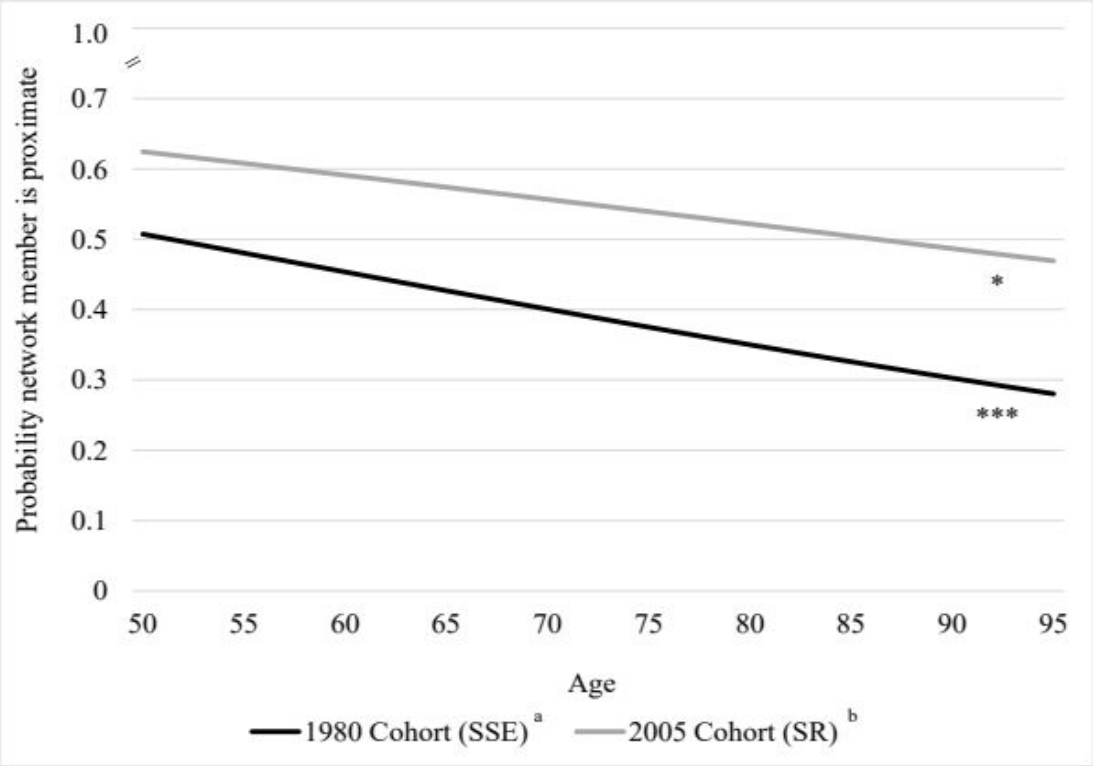
Continuous outcomes
network member age
years known
contact frequency

Categorical/Binary outcomes
gender of network member
proximity
Relationship (child, spouse/partner, etc.)

Analysis

Network Member Level – Ex

Historical stability: Effect of respondent age on network geographic proximity across cohorts



*** $p < .001$, * $p < .05$

[a] SSE: Social Supports of the Elderly

[b] SR: Social Relations Study

Analysis

Three Approaches

- Various methods used to analyze antecedents and outcomes of social network characteristics

1) Variable centered approaches examine unique effect of specific network characteristics on outcome or antecedents on network characteristics (prior example)

2) Person (ego) centered at network-level
- group people together with similar networks
- techniques include: cluster and latent class analysis

3) Person / Network member centered approaches
- group network members together who are similar
- techniques similar as above, but need to account for non-independence of data (e.g., MLCA)

Example Analysis

Typologies of Convoys Approach (Network-Level)

- Conduct Latent Profile Analysis (Mplus used)
- Person-centered approach: grouping of similar respondents based on structure and composition of their convoy
- Respondents assigned a categorical profile membership based on their probabilities of being in each profile
- Compared different model solutions – specifying 1 to 6 different types of convoys
- Best fitting model determined by following criteria:
  - relative declines in model fit (AIC and BIC)
  - parsimony (i.e., minimum profile members >5% of sample)
  - interpretability and previous literature

Analysis

Typologies of Convoys Members (Within-Network)

- Conduct Multilevel Latent Class Analysis (using Mplus)

- Person centered approach similar to LPA, but unit of analysis is individual convoy members nominated by the respondent

- Convoy members nested within the convoy of respondent

- Examined probability of convoy members being assigned to a particular class of convoy member, which is allowed to vary across primary respondents (or across convoys)

  -Specify one random intercept to capture this variability in the probability and assess change in fit

- Compared different model solutions – specifying 1 to 7 different types of convoys and follow-up after including random intercept

Results: Typologies of Convoys

Convoy Typology 1 (18%; N=52) = geographically distant, younger family members

i.e., relocated children

Convoy Typology 2 (52%; N=150) = similar aged, close family (sibling)

i.e., spouse, siblings

Convoy Typology 3 (30%; N=86) = diverse network comprised of similar aged peers and family, mix of stronger and weaker ties, similar gender composition as sample

i.e., extended family, friends, neighbors

Results: Typologies of Convoy Members

Convoy Member Typology 1 (41%; N=863) = younger, all family proximate and not proximate

i.e., children and grandchildren

Convoy Member Typology 2 (20%; N=410) = oldest, weaker ties; proximate; not family

i.e., neighbors and acquaintances

Convoy Member Typology 3 (9%; N=188) = oldest, weaker ties, proximate, not family

i.e., neighbors and acquaintances

Convoy Member Typology 4 (31%; N=640) = most contact, proximate, almost all family

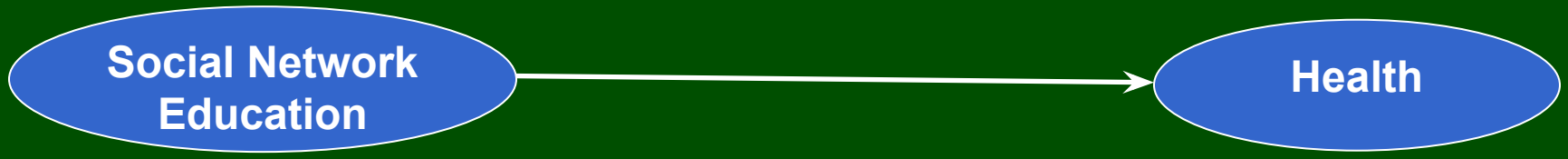
i.e., spouse/partner, other household members

Intersection of multiple composition variables
Network Level
Ex: Social Network Education

Research Questions

1) Is there an association between social network education and health of ego?

2) Does this vary by specific types of network members? (e.g., those in more contact)

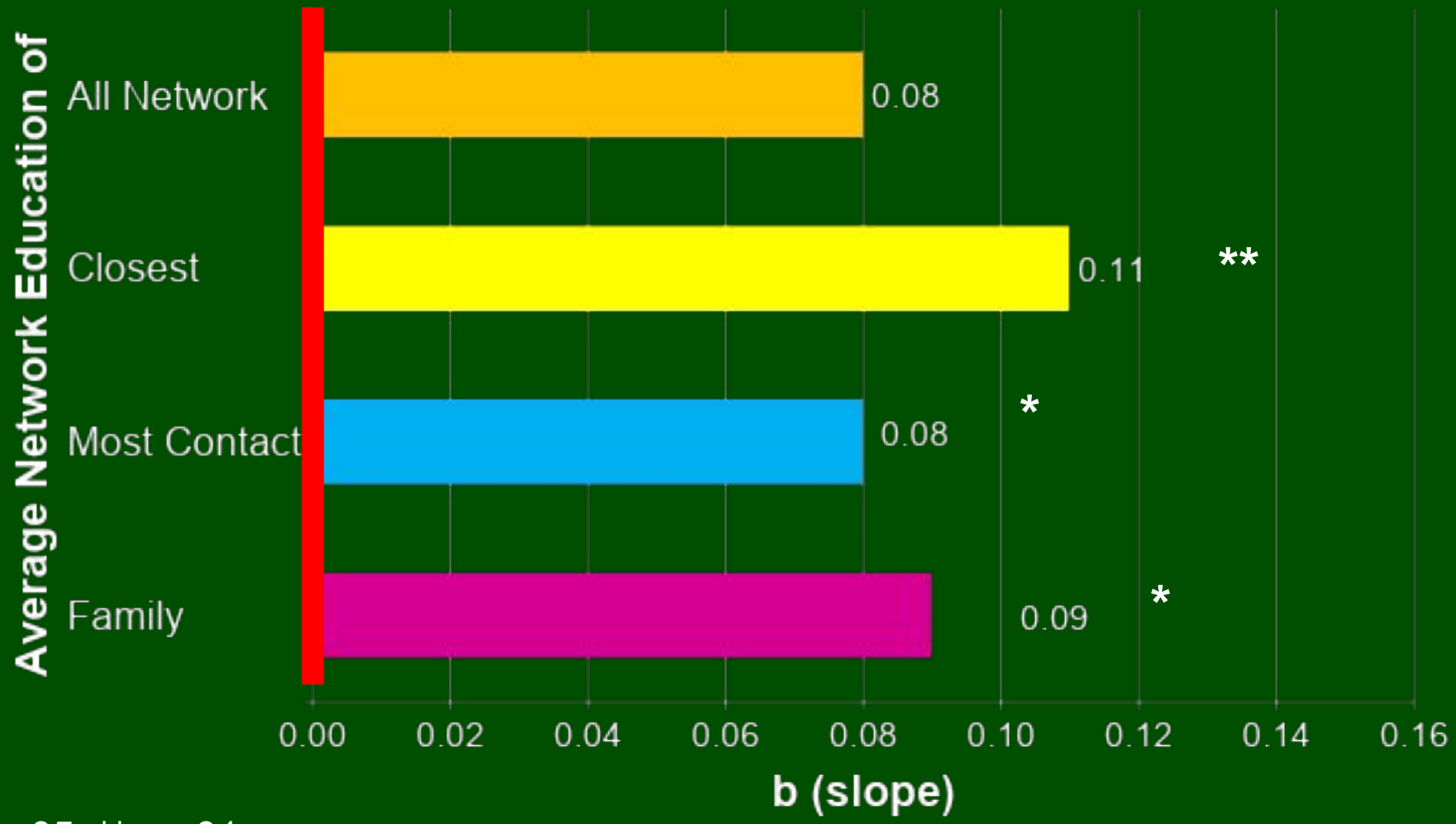


Sample: Convoy Characteristics

	Mean (SD)	Range
Network Size	7.6 (2.7)	0-11
Prop. Inner Circle	48.1 (26.7)	0-100
Contact Frequency	4.0 (0.5)	2-5
Prop. Family	78.2 (23.8)	0-100
Network Education Levels (average education of…)	**1=<H.S. 5=more than college**	
All Network	2.7 (0.8)	1-5
Closest Members	2.7 (0.9)	1-5
Most Contact	2.8 (1.0)	1-5
Family	2.7 (0.8)	1-5

Results

(Network Education Self-Rated Health)



*p<.05; ** p<.01

Control variables: age, gender, race, marital status, and education

Longitudinal Considerations

Question - Is your research question focused on network-level change or network member-level changes?

Network-level (e.g., predictors of changes in network size)
*does not require tracking specific network members overtime
**exception if interested in amount of network turnover

Network member-level (e.g., predictors of network members' exit over time) - *requires tracking people in network across waves

Two options:

1) In survey - verify past mentions in subsequent wave
   most accurate, but uses survey time
2) After data collection - match on name and other info
   less accurate, but less respondent burden

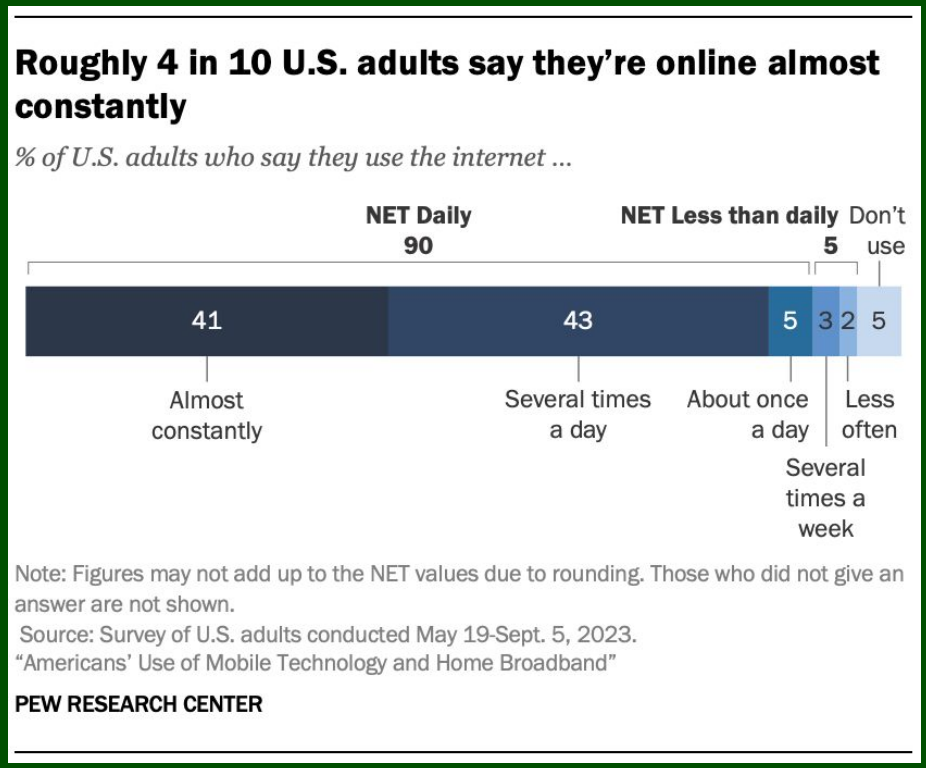
Questions?

Communication Technologies

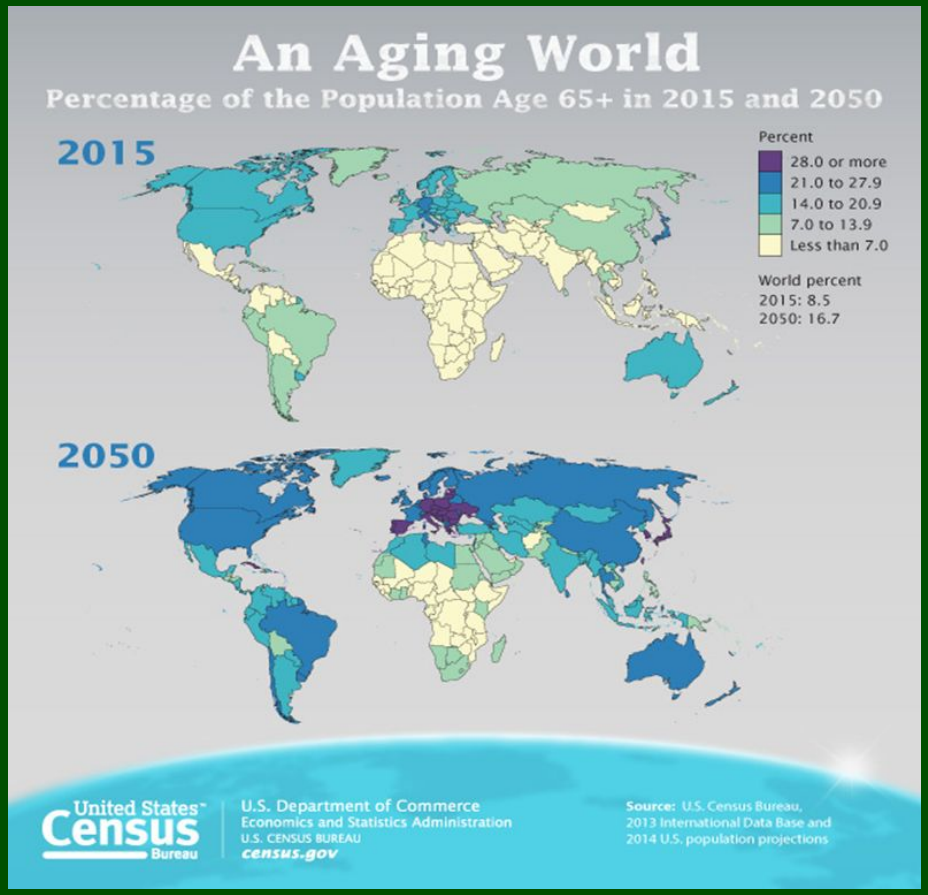
Introduction to ICT and Social Relations

ICT Use in US

- Information and communication technologies (Internet, email, mobile phones, video chat, social network sites, smart apps, virtual reality, etc.
- Frequency, type of use, mode of communication matters
- Access, use, benefits determined by socioeconomic / demographic factors



Aging and Social Tech Use



4 out of 5 older adults (65+) rely on social technologies such as mobile phones and social media to communicate with social ties

Social technology use has been associated with

- Lower loneliness
- Fewer depressive symptoms
- Lower social isolation
- Greater sense of mattering

Adaptation of Convoy Model

Introduction

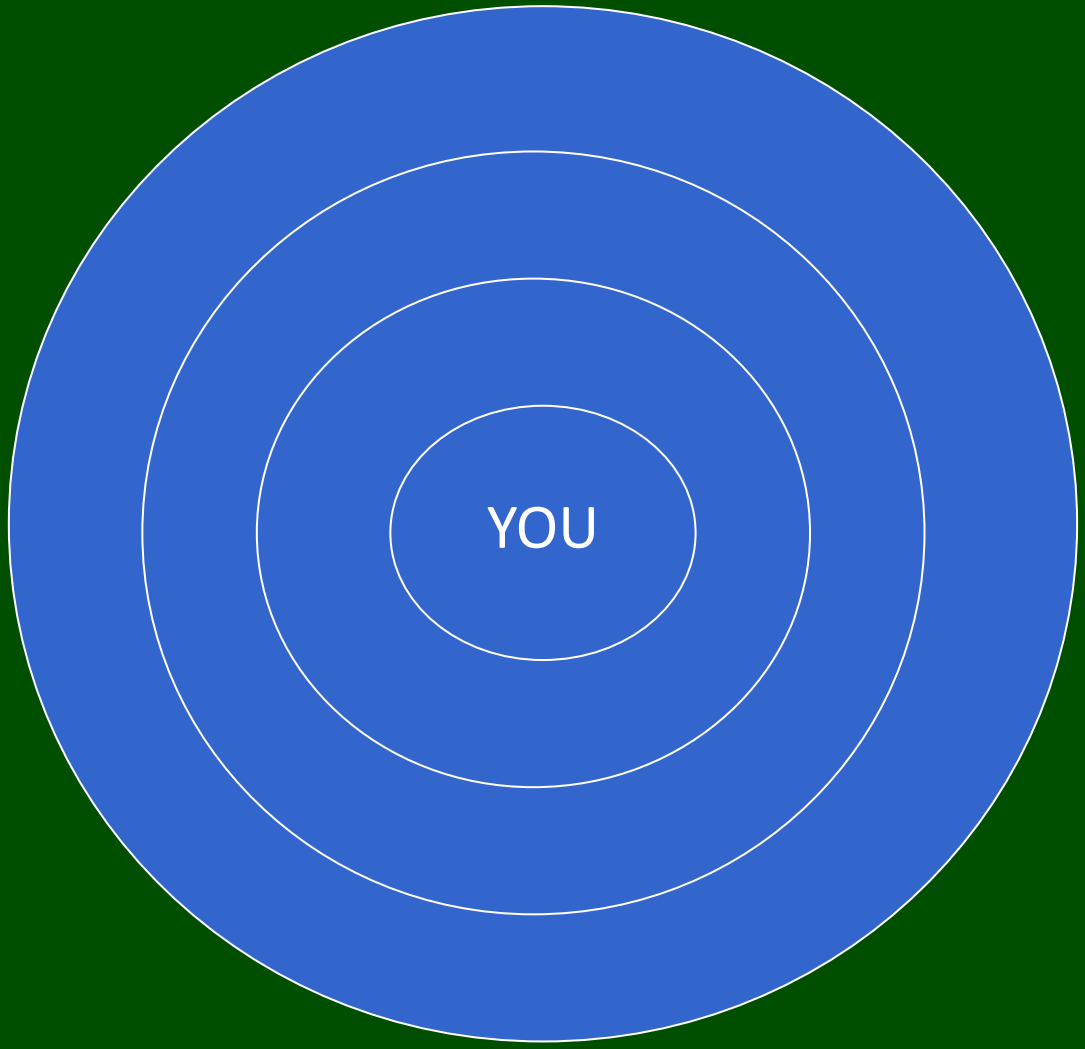
- Social Relations
  - Multi-dimensional
  - Personal and situational influence
  - Relationship type
  - Influence on well-being
- Technology
  - Contact Modes

Background

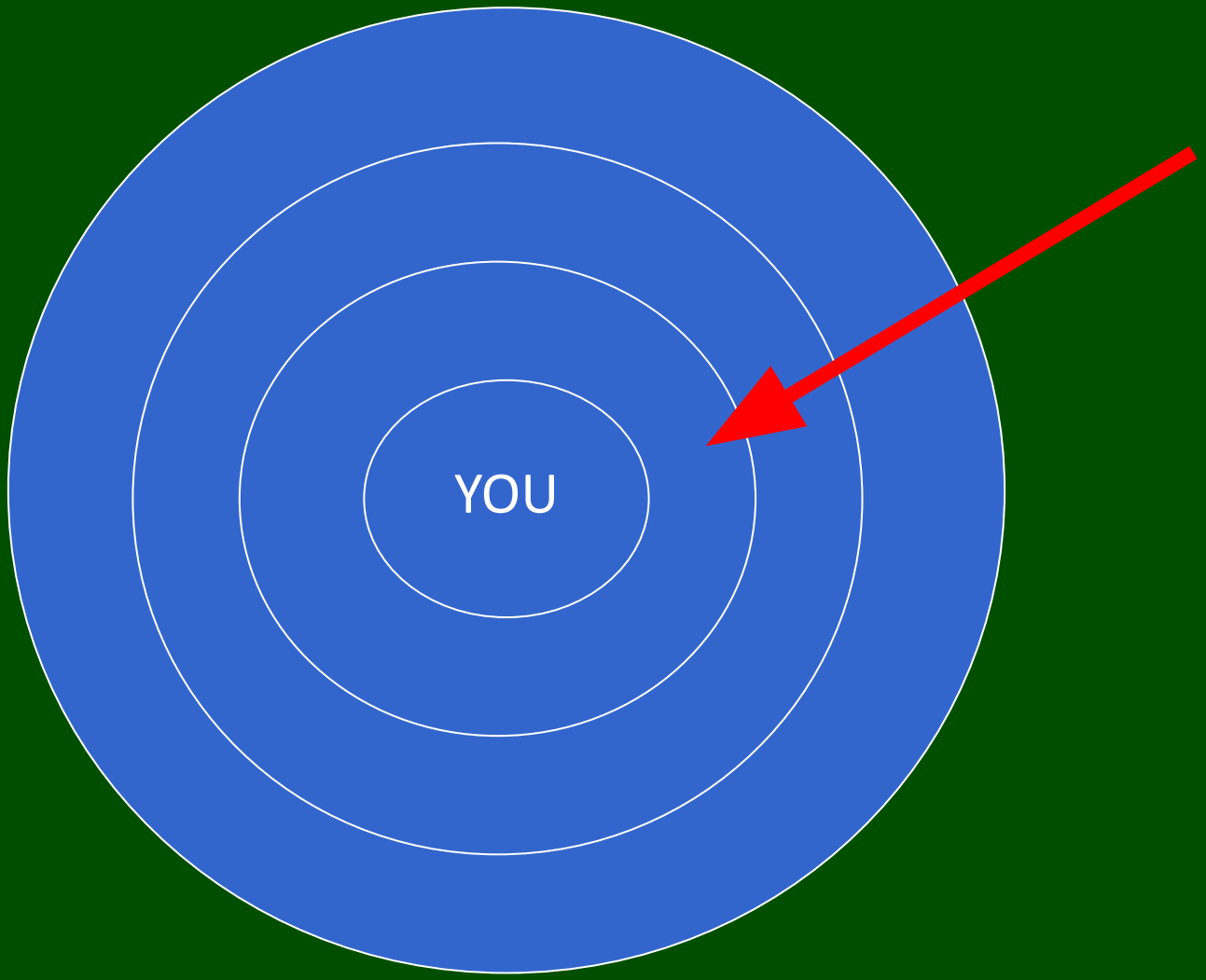
- Modes of contact expansion
  - Information and communication technologies (Internet, email, mobile phones, video chat, social network sites, smart apps, virtual reality, etc.)
- Interpersonal relationships
  - Place no longer matters
  - Connectivity increase
  - Emotional elements precarious
  - Impact on communication (style, frequency, intimacy)

Exercise
(mapping your cell phone network)

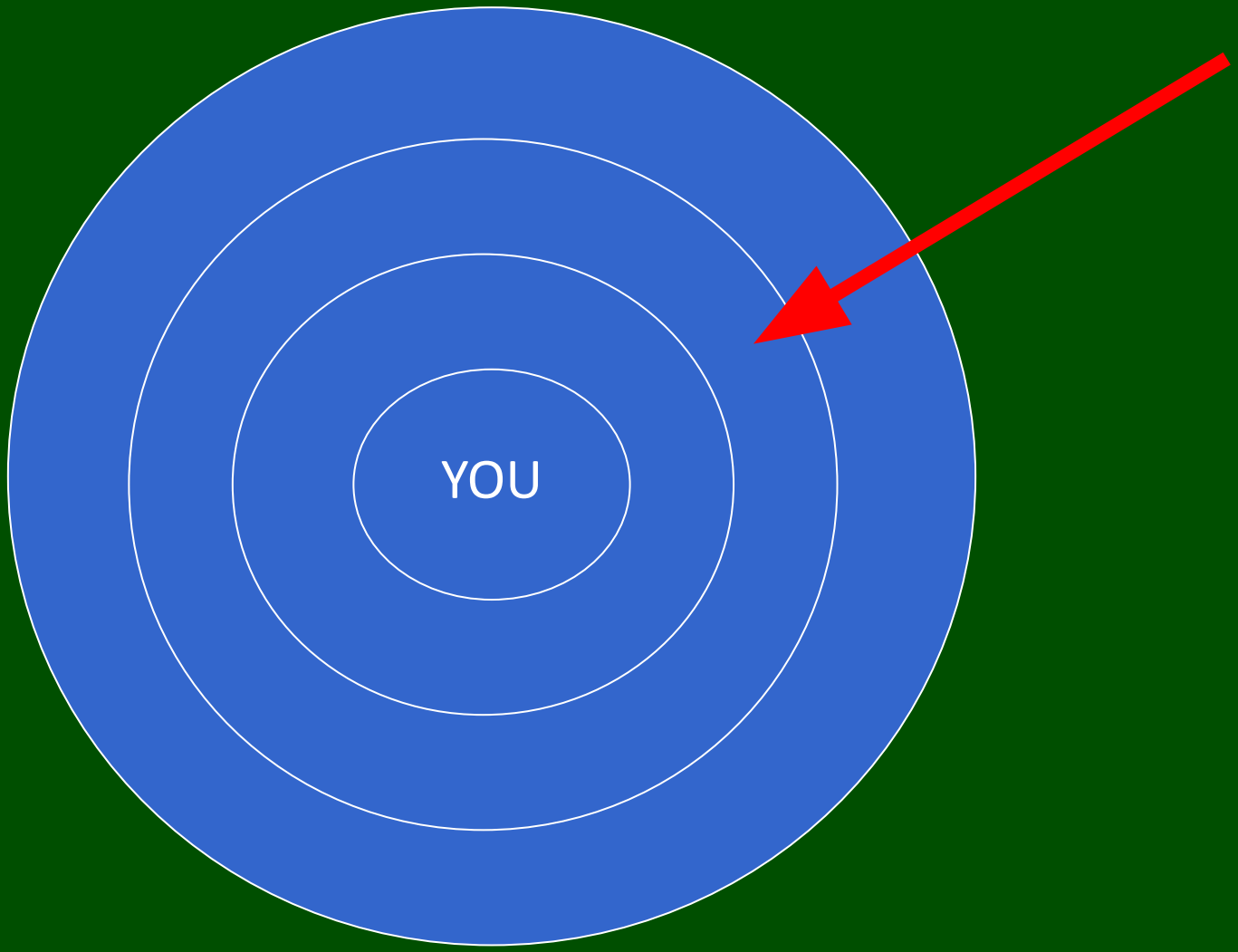
Cell Phone Networks



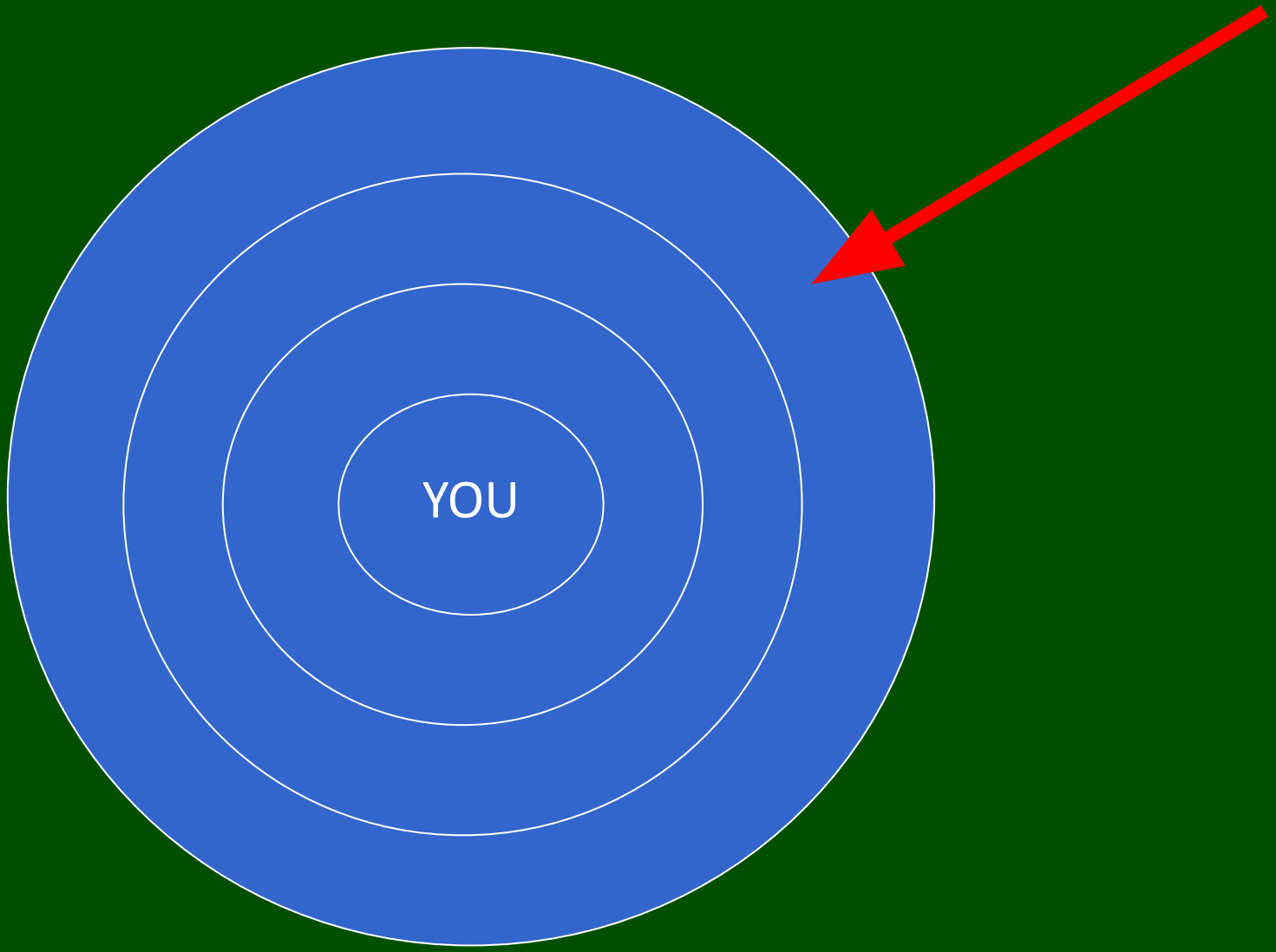
Cell Phone Networks



Cell Phone Networks



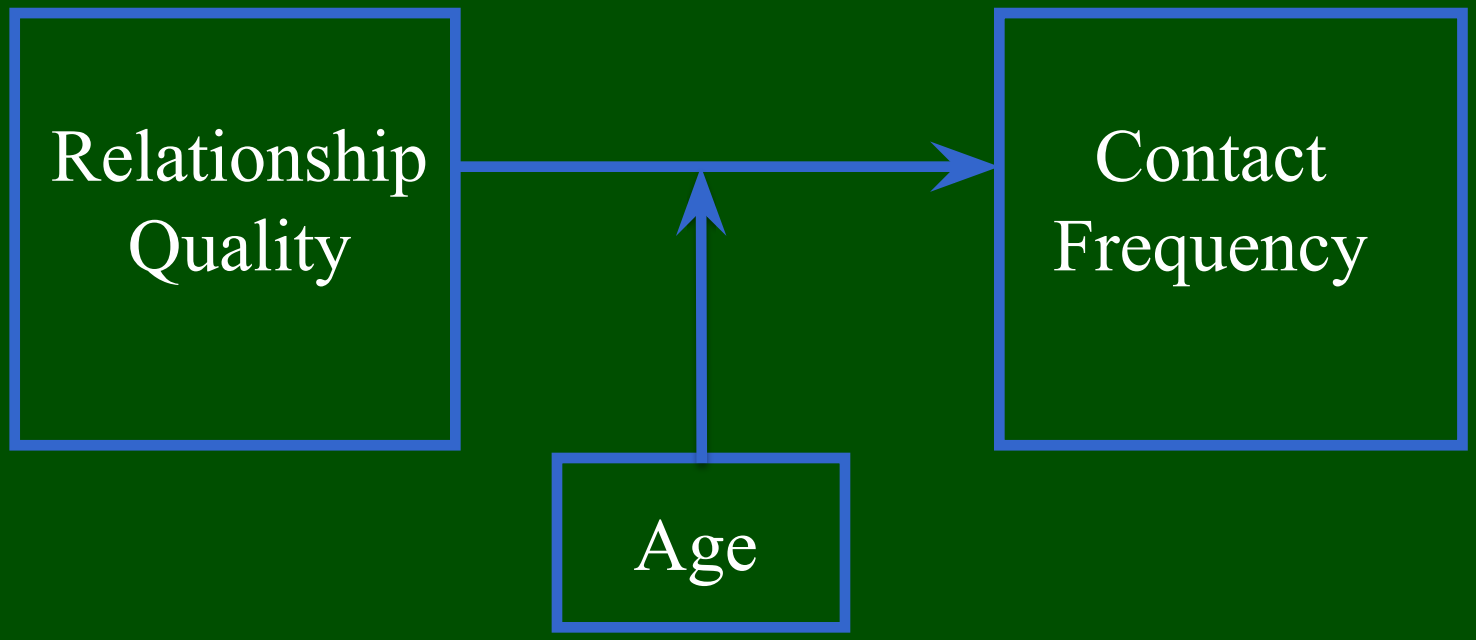
Cell Phone Networks



Person #	What is their relationship to you?	What is the prominent method of communication with them. Do you text only, text more than talk, text/talk equal amounts, talk more than text, or talk only	How quickly does this person return your contact? Would you say immediately, within half hour, within day, within week or irregularly?
1			

Empirical example

Study Aims



AIM1: Does relationship quality influence contact mode frequency?

AIM2: Does they way in which relationship quality influences contact mode frequency vary by age?

Measures: Contact frequency

1 (irregularly/never) to 5 (every day) via three modes:

- In person
  - *How often do you see (him/her) in person?*
- Telephone
  - *How often do you talk to (him/her) on the phone?*
- Electronic
  - *How often do you video chat with (him/her), for example using Skype, FaceTime, or Google Hangouts?*
  - *How often do you communicate with (him/her) via text, email, or social media (i.e., Facebook, Twitter, Instagram, WhatsApp, Snapchat, etc.)?*

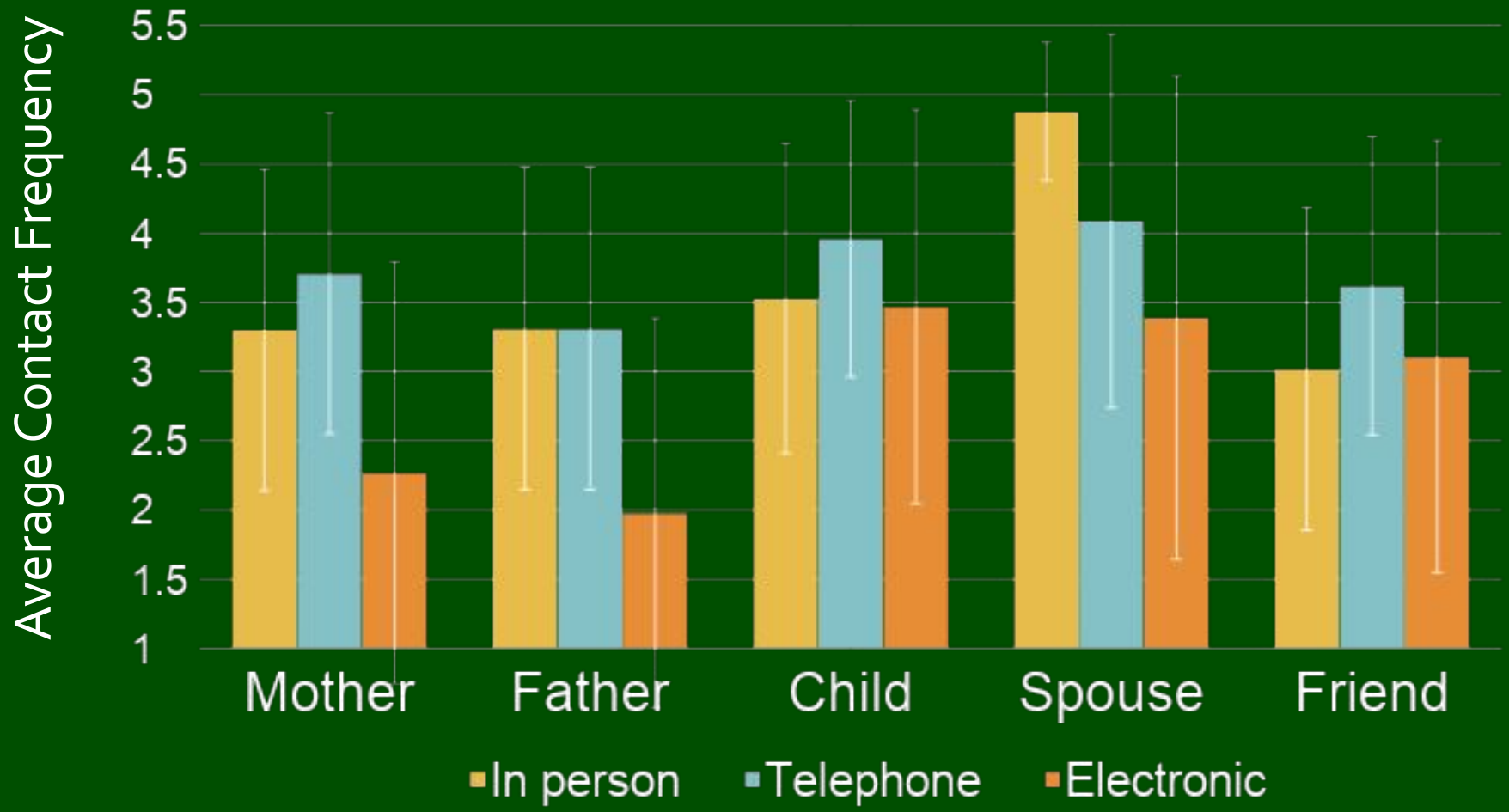
Measures: Relationship quality

Mother, Father, Child, Spouse, Friend

Positive : 5-items (α range = .73 to .91)
(e.g., helps, supports, encourages)

Negative: 3-items (α range = .48 to .78)
(e.g., gets on nerves, demands, have conflicts)

Contact Frequency Mode



N=557; W3 SRS; 30-99 years old M=60

Electronic Contact Frequency: Influence of positive relationship quality

	Mother *n*=83	Father *n*=49	Child *n*=129	Spouse *n*=137	Friend *n*=113
Positive RQ	0.45	0.20	0.16	0.45	1.34
Age	-0.05**	-0.04*	-0.04**	-0.08***	-0.04***
Positive * Age	0.01	-0.02	0.05	0.06^{+}	-0.05

Notes: Controlled for gender, education, and geographic proximity

+ p < .10 *p < .05; **p < .01; ***p < .001

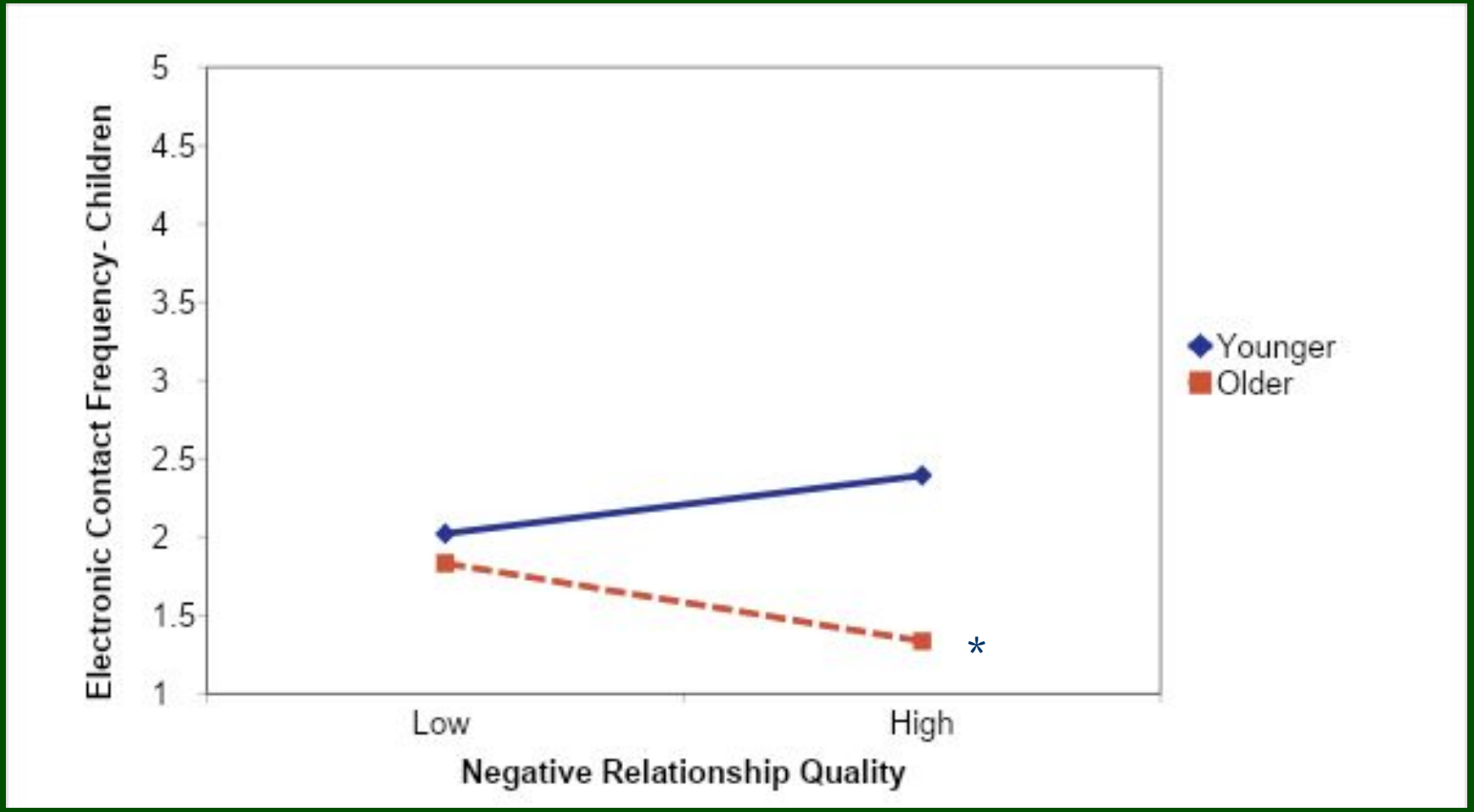
Electronic Contact Frequency:
Influence of negative relationship quality

	Mother *n*=83	Father *n*=49	Child *n*=129	Spouse *n*=137	Friend *n*=113
Negative RQ	**-0.36⁺**	-0.18	-0.03	-0.06	-0.02
Age	-0.05***	-0.05**	-0.04**	-0.08***	-0.05***
Negative*Age	-0.02	0	**-0.03***	-0.01	-0.02

Notes: Controlled for gender, education, and geographic proximity

+ p < .10 *p < .05; **p < .01; ***p < .001

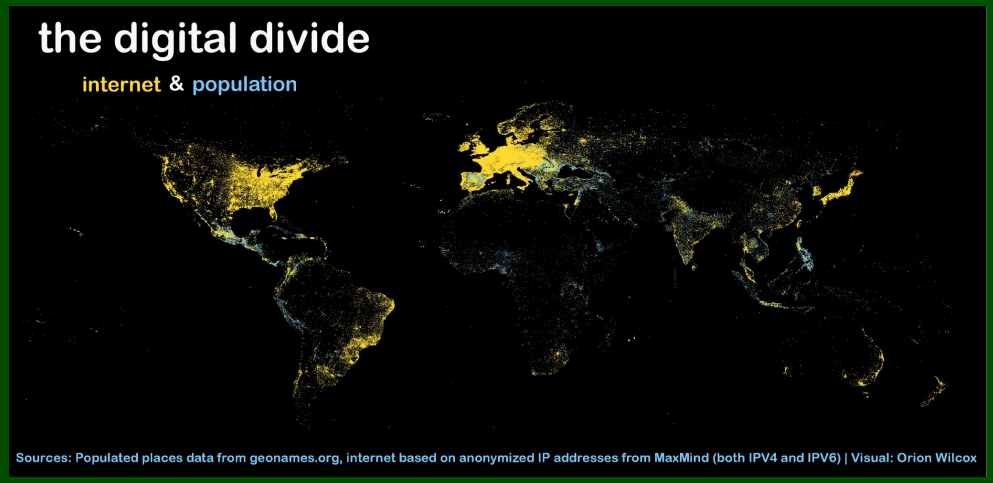
Negative relationship quality predicts less frequent electronic contact with children among older adults



Considerations for Recruitment, Measurement, & Analysis of Social Tech Networks

Digital Divide

- Historical gaps in:
  - Access
  - Usage
  - Quality
  - Empowerment



Recruitment Bias Potential

- Online recruitment and/or study implies a certain degree of tech savvy and socio-economic status

Understanding Users / Participants

- Strictly tech network vs. Strictly offline network vs. Hybrid network
- Comfort with tech, frequency of tech use, variety of tech use

Questions?

Further Reading

Antonucci, T.C. (2001). “Social relations: An examination of social networks, social support, and sense of control.” Pp. 427-53 in *Handbook of the psychology of aging*, edited by J. E. Birren and K. W. Schaie. San Diego, CA: Academic Press.

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Thank you

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