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MODELLING AGE-VARYING ASSOCIATIONS BETWEEN
GROUP MEMBERSHIPS, NEIGHBORHOOD
CONNECTEDNESS, AND WELLBEING

SOCIAL CONNECTIONS

- Fundamental need to connect with others, including consequences for physical health and subjective wellbeing

(Holt-Lunstad et al., 2010)

- Mere connection is separable from quality of connection (i.e., distinction between structure and function)

(Cohen, 2004)

- Community-based group memberships are associated with lower depression but higher subjective wellbeing

(e.g., Cruwys et al., 2013)



GROUP, CONNECTEDNESS, AND TIME

- Social group memberships are associated with wellbeing and perceived connectedness in targeted age groups...
 - During and after retirement (e.g., Gleib et al., 2005; Lam et al., 2020)
 - In residential care (e.g., Gleibs et al., 2011)
 - Entering college/university (e.g., Iyer et al., 2009)

Could pinpoint cohorts of interest by *empirically identifying* age-based variability in the association.

CURRENT STUDY

Purpose: Examining magnitude and direction of associations between one's number of group memberships and:

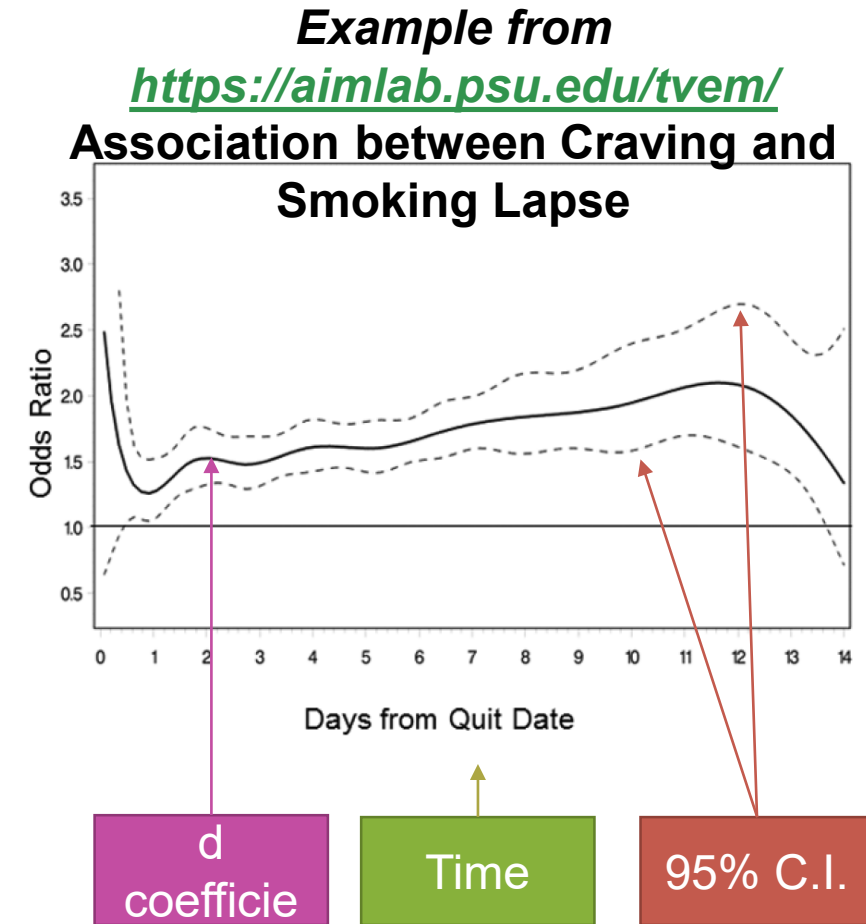
- Connectedness in the community
- Wellbeing
- Loneliness

Focused on ages during which there are shifts in these associations

TIME-VARYING EFFECTS MODELLING (TVEM; TAN ET AL., 2012)

- Dynamic estimation of coefficients between predictor and outcome at many points in time
 - Coefficient patterns estimated, unconstrained in shape (linear, quadratic)
 - Longitudinal or cross-sectional (panel data)

$$Y = \beta_0(t) + \beta_1(t)x + e$$



METHODS

- 2020 COVID survey!
- Sample: 3940 individuals (53% female; $M_{age} = 45.61$, $SD = 15.62$) after data management.
 - Constrained sample to those under 74
 - Participants who provided responses to at least three (of four) key items

MEASURES



Neighborhood
connectedness.

*“I have a sense of being connected to my
community.”*



Subjective wellbeing.

*“My life is
good.”*



Loneliness.

“I feel very lonely.”



of group memberships.

*“In the past 12 months, were you a member or participant
in...”*

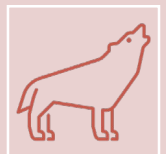
MEASURES



Neighborhood connectedness.



Subjective wellbeing.



Loneliness.



of group memberships.

42.5% membership in at least one group

- 27.1% one group, 15.4% two or more

Union/profess.

Sport/recreation

Cultural/hobby

Religious

Political group

Community/civic

Seniors' group

Service club

Co-operative

Youth org.

Ethnic/immig.

Other

ANALYSES

Two-step regressions

TVEM: Intercept-only models for all variables, followed by coefficient models

- p-spline: set the maximum number of knots and macro selects parsimonious model (Li et al., 2015)

Predictor	Outcome
Group Memberships	Connectedness
	Wellbeing
	Loneliness

Covariates. Employment status, relationship status, subjective health, personal risk of covid, country, sex

RESULTS

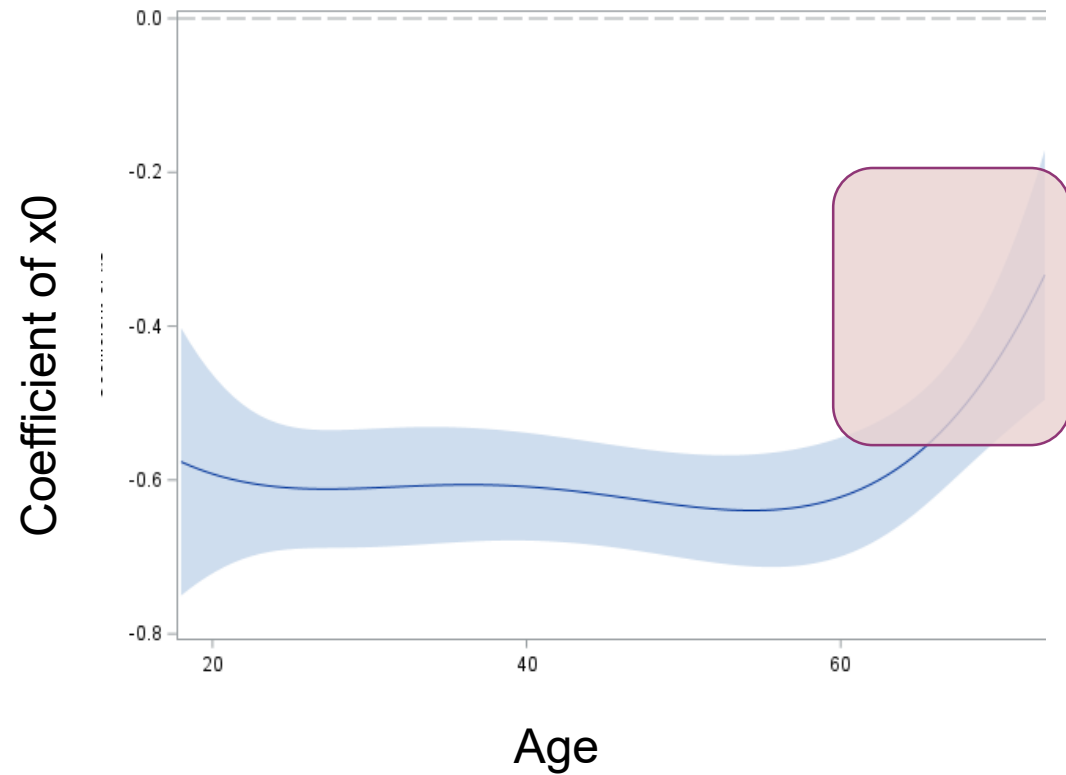
	1	2	3	4
1. Group memberships	-			
2. Connectedness	.17*	-		
3. Wellbeing	.14*	.23*	-	
4. Loneliness	-.03	-.13*	-.41*	-
5. Age	.02	.09*	.12*	-.22*
* $p < .001$				
<i>M</i>	.55	2.89	5.29	3.26
<i>SD</i>	.75	.89	1.48	2.02

Predictor	Outcome	R^2	<i>Pred B</i>
Group Memberships	Connectedness	.07	.16*
	Wellbeing	.18	.12*
	Loneliness	.06	.06

RESULTS

Intercept-only models

Example intercept-only model: Group memberships

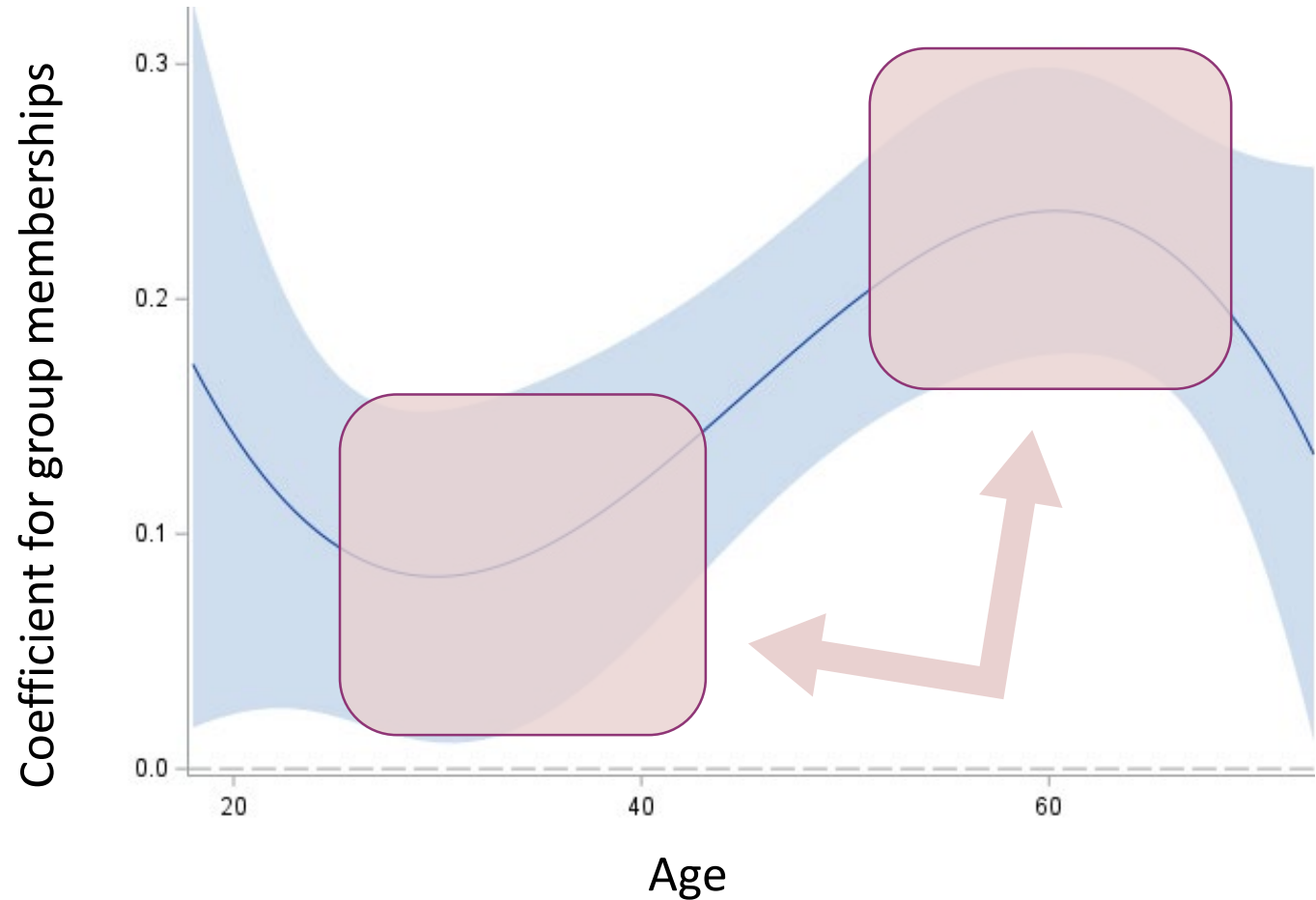


RESULTS

Coefficient models

Group memberships predicting connectedness, wellbeing, loneliness

Covariate model predicting connectedness.

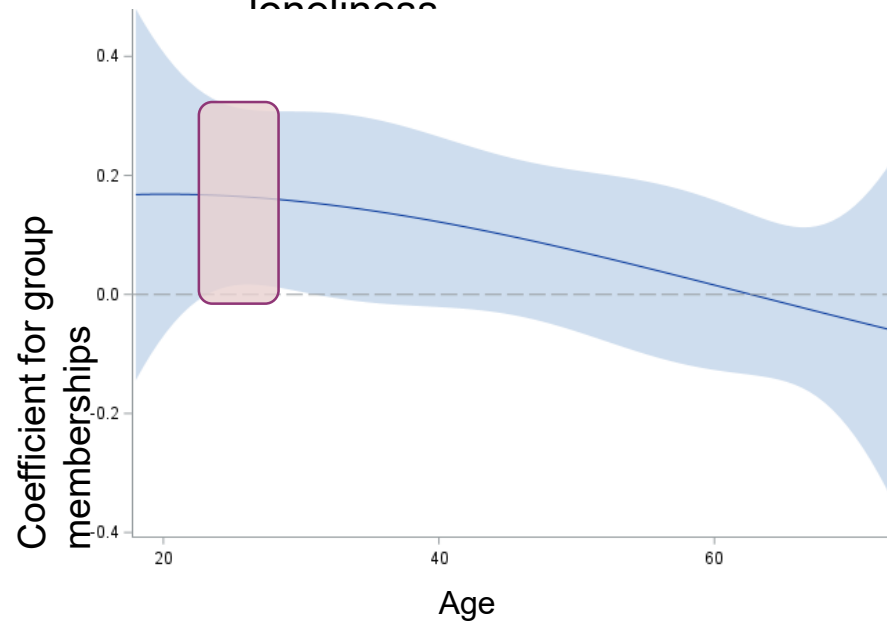


METHODS

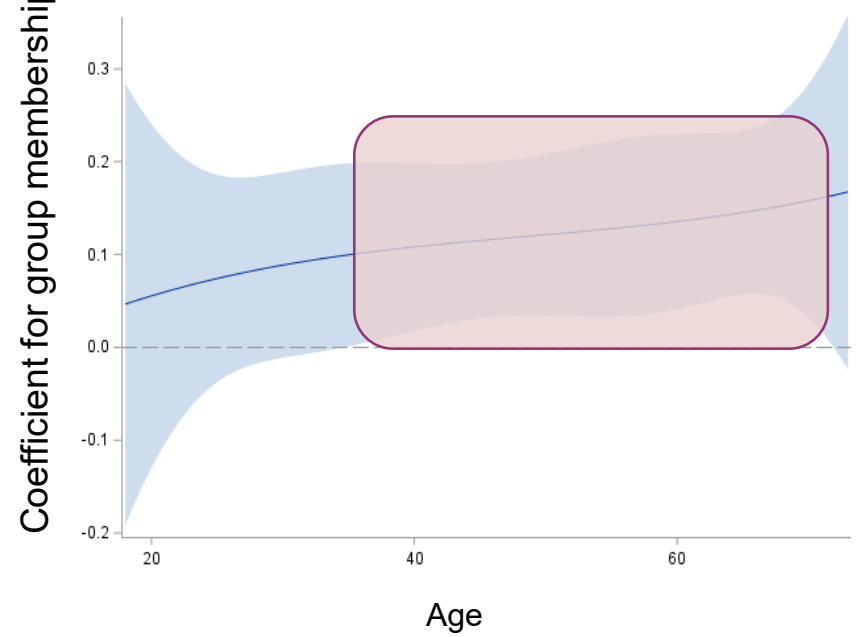
Coefficient models

Group memberships predicting connectedness, wellbeing, loneliness

Covariate model predicting loneliness





Covariate model predicting wellbeing



SUMMARY AND DISCUSSION

- Consistent effects (albeit small-to-moderate in magnitude) support theory regarding the universal value of group memberships and connectedness

Predictor	Outcome	Regression	TVEM
			
Group Memberships	Connectedness		Positive predictor at all ages – strongest at age 60
	Wellbeing		Positive predictor from age 36-72
	Loneliness		Unanticipated effects from ages 22-28

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	Loneliness	<input checked="" type="checkbox"/>	Unanticipated effects from ages 22-28
Connectedness	Wellbeing	<input checked="" type="checkbox"/>	Positive predictor at all ages
	Loneliness		Negative predictor from age 42 – strongest

SUMMARY AND DISCUSSION

Considerations

- Cross-sectional data limits application
- COVID-19: Age-varying implications of distancing restrictions?
- Novel application of TVEM to a well-studied topic
 - SAS and R packages available - learn more at:
<https://aimlab.psu.edu/tvem/>

THANK YOU!



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