



# **The Role of Individual and Community Level SES on Disability Trajectories in Later Life**

Miles G. Taylor

*Carolina Population Center*

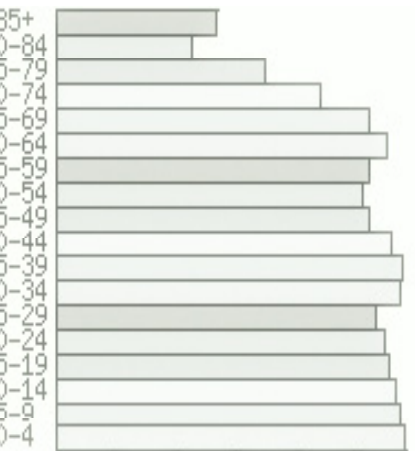
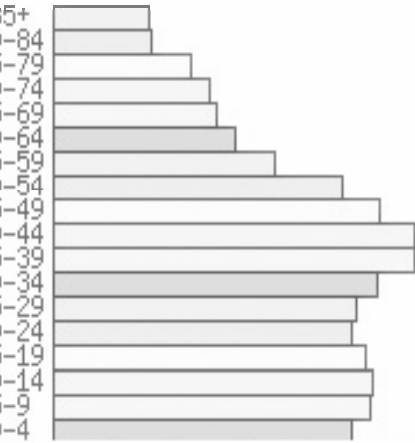
Jessica Kelley-Moore

*Case Western University*



# Introduction

- Active Life Expectancy (ALE) in the US is increasing
- Disability among Older Adults
- Importance of SES
- Inequality in U.S.
- Contribution of Education to Trends





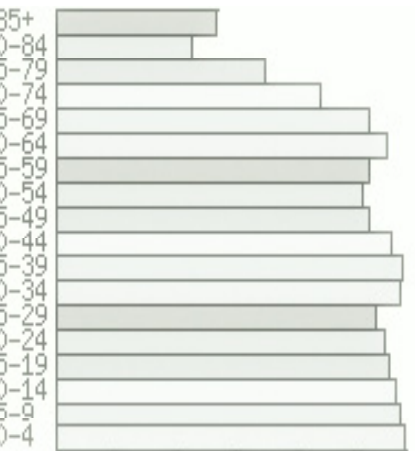
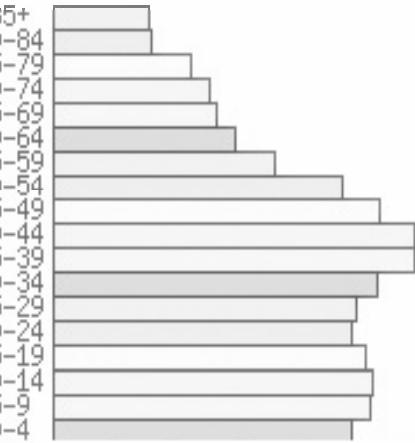
# Importance of Place

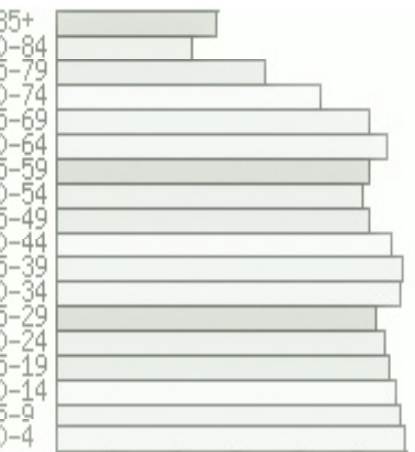
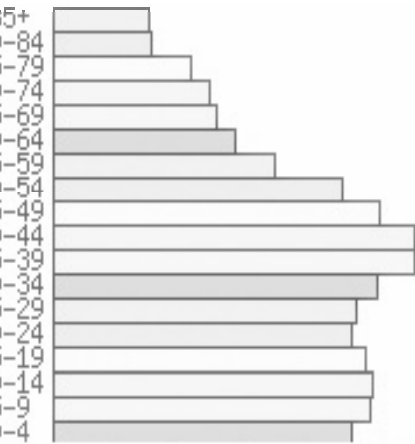
- Individuals embedded in neighborhoods and communities
- Types of effects
  - Compositional
  - Collective
  - Contextual



# Importance of Place

- Most work to date has been among younger people
- Glass and Balfour (2003)
  - Aging may increase exposure
  - Aging may increase vulnerability





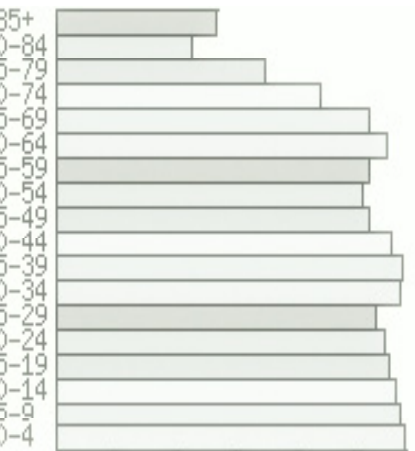
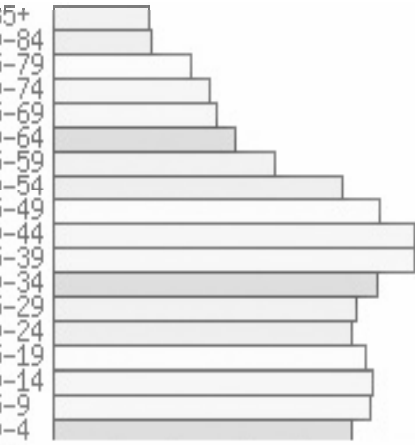
## Importance of Place

- Majority of studies have been cross-sectional or short term longitudinal
- Yao and Robert (2008)
  - Neighborhood disadvantage and health among older adults
  - Support for level, but not change



# Importance of Place

- Majority of studies have been in urban settings
- Subramanian et al. 2006
  - New Haven data
  - SES rather than stability or % elderly





## Individual Level SES

- Education - (*Ross & Wu, 1995; Mirowsky & Ross, 2003*)
  - Work/Economic conditions, social-psychological resources
  - Learned effectiveness – Health Behaviors & Mastery
- Financial Resources - (*Lynch & Kaplan, 2000*)
  - Decrease life stressors
  - Assets/Home, Access to Care, Health Information
- Multiple Components Important for Disability



## **Socioeconomic Status of “Place”**

- Many studies use indexes of disadvantage
- Standard Measures of SES at the Aggregate level
- Little research on individual vs. community SES





## **Socioeconomic Status of “Place”**

- Does the link between education and health translate to the area level?
- Independent contributions of individual and area SES
- Buffering effects of area level education



# Multilevel Pathways to Disability

- **Individual-level socioeconomic status only.**
  - **Ex: Education**
- **Community-level socioeconomic status only.**
  - **Ex: Poverty**
- **Individual and community socioeconomic status independently influence health and disability.**
  - **Ex: Affluence**
- No studies that “match” indicators of socioeconomic status at each level



## Data

- Duke Established Populations for Epidemiologic Studies of the Elderly (**EPESE**)
- In-person: 1986/87, 1989, 1992, 1996
- Original N=4,162
- All R's matched to 1990 Census tract (N = 95).
- 3 tracts dropped because they contained 1 or 2 respondents
- Analytic sample=3,827
- Missingness on Dependent Variable: FIML



## Measures

- Disability: Activities of Daily Living (ADL's) and Instrumental Activities of Daily Living (IADL's)
  - Summed Index
- SES (Community): % 12 Yr. Education, % 13+ Education, % in Poverty, % Unemployed, % 5 yr. Housing Tenure, % Black
- SES (Individual): Education (yrs), Poverty, Unemployed, 5 yr. Housing Tenure, Black



# Descriptive Stats

---

## *Neighborhood (N=94)*

---

% Black	39.49%
% Educ. 12 yrs.	25.61%
% Educ. 13+ yrs.	45.30%
% Poverty	27.15%
Unemp. Rate	6.71%
% 5 yr. Tenure	54.66%

---



# Descriptive Stats

---

*Individual(N=3,827)*

---

Black	53.46%
Educ (yrs)	8.61 (4.06)
Poverty	56.00%
Nonemp.	87.85%
5 yr. tn.	84.74%

---



# Measures

- Individual Controls:
  - Demographic/Soc. Support: Age, Female, Widow, Religious Attendance
  - Health Behaviors: Underweight, Current Smoker, Former Smoker
  - SES Controls: Home Ownership, Medicaid, Supp. Ins.



# Analytic Model

- Multilevel Regression:

- $Int_{ij} = \beta_{0j} + e_{ij}$

- $Slp_{ij} = \beta_{0j} + e_{ij}$

- In the equation,  $Int_{ij}$  is the trajectory intercept and  $Slp_{ij}$  is the trajectory slope for the  $i$ th respondent in  $j$ th census tract,  $\beta_{0j}$  is the fixed value for all of the respondents in the  $j$ th census tract, and  $e_{ij}$  is the random value for the  $i$ th respondent in the  $j$ th census tract.





# Results

N=3,827

Model 1

	Intercept	S.E.	Slope (L)	S.E.	Sl. (Q)	S.E.
	BETWEEN					
% Black	-0.001	(0.002)	-0.003	(0.002)	---	---
% Educ. 12 yr	--0.005	(0.014)	-0.017***	(0.008)	---	---
% Educ. 13+ yr	-0.016***	(0.007)	-0.016***	(0.005)	---	---
% Poverty	-0.002	(0.004)	0.000	(0.003)	---	---
Unemp. Rate	-0.011	(0.013)	0.004	(0.016)	---	---
% 5 yr. Tenure	-0.001	(0.005)	-0.010***	(0.004)	---	---



# Results

	Model 2					
	Intercept	S.E.	Slope (L)	S.E.	Slope (Q)	S.E.
	WITHIN					
lack	0.031	(0.082)	-0.087	(0.143)	0.003	(0.002)
duc (yrs)	-0.054***	(0.015)	-0.021	(0.019)	-0.004	(0.007)
overty	0.123	(0.117)	0.016	(0.150)	0.090	(0.064)
onemp.	0.490***	(0.075)	0.194	(0.185)	-0.028	(0.065)
yr. tn.	-0.232***	(0.150)	0.070	(0.150)	-0.046	(0.053)



# Results

N=3,827	Model 4					
	Intercept	S.E.	Slope (L)	S.E.	Slope (Q)	S.E.
	BETWEEN					
% Black	0.000	(0.002)	-0.002	(0.002)	---	---
% Educ. 12 yrs	0.000	(0.011)	-0.013	(0.008)	---	---
% Educ. 13+ yrs	-0.008	(0.006)	-0.010***	(0.005)	---	---
% Poverty	-0.003	(0.004)	0.000	(0.003)	---	---
Unemp. Rate	-0.012	(0.012)	0.003	(0.015)	---	---
% 5 yr. Ten.	0.002	(0.005)	-0.008†	(0.004)	---	---
	WITHIN					
Age	0.071***	(0.008)	0.085***	(0.008)	0.003	(0.002)
Black	0.190***	(0.092)	-0.075	(0.157)	0.006	(0.060)
Educ (yrs)	-0.021	(0.014)	0.002	(0.021)	-0.010	(0.008)
Poverty	-0.116	(0.112)	-0.141	(0.167)	0.115	(0.071)
Nonemp.	0.362***	(0.081)	0.191	(0.176)	-0.026	(0.065)
5 yr. ten.	0.047	(0.009)	0.228	(0.160)	0.000	(0.058)



## Discussion

- We found support for #2 and #3.
  - In the unadjusted models, individual and community-level education both influenced disability (#3)
  - After adjusting for covariates, only community education level remained a significant predictor of the disability trajectory over time (#2)
- Residents of areas with higher education levels had growth of disability over time – independent of individual socioeconomic status



## Discussion

- Education at the Individual level:
  - Mastery, Access to Care
- Education at the Neighborhood level:
  - Collective Efficacy, Services/Access to Care



## Why Community Education Level?

- Ability of a community to gain and effectively use resources that protect health.
  - Well-maintained infrastructure, valuable services, and elements of a healthy lifestyle.
- Signal of relative affluence of the area.
  - Stability, increases in home values, desirability of an area, and strong political representation.

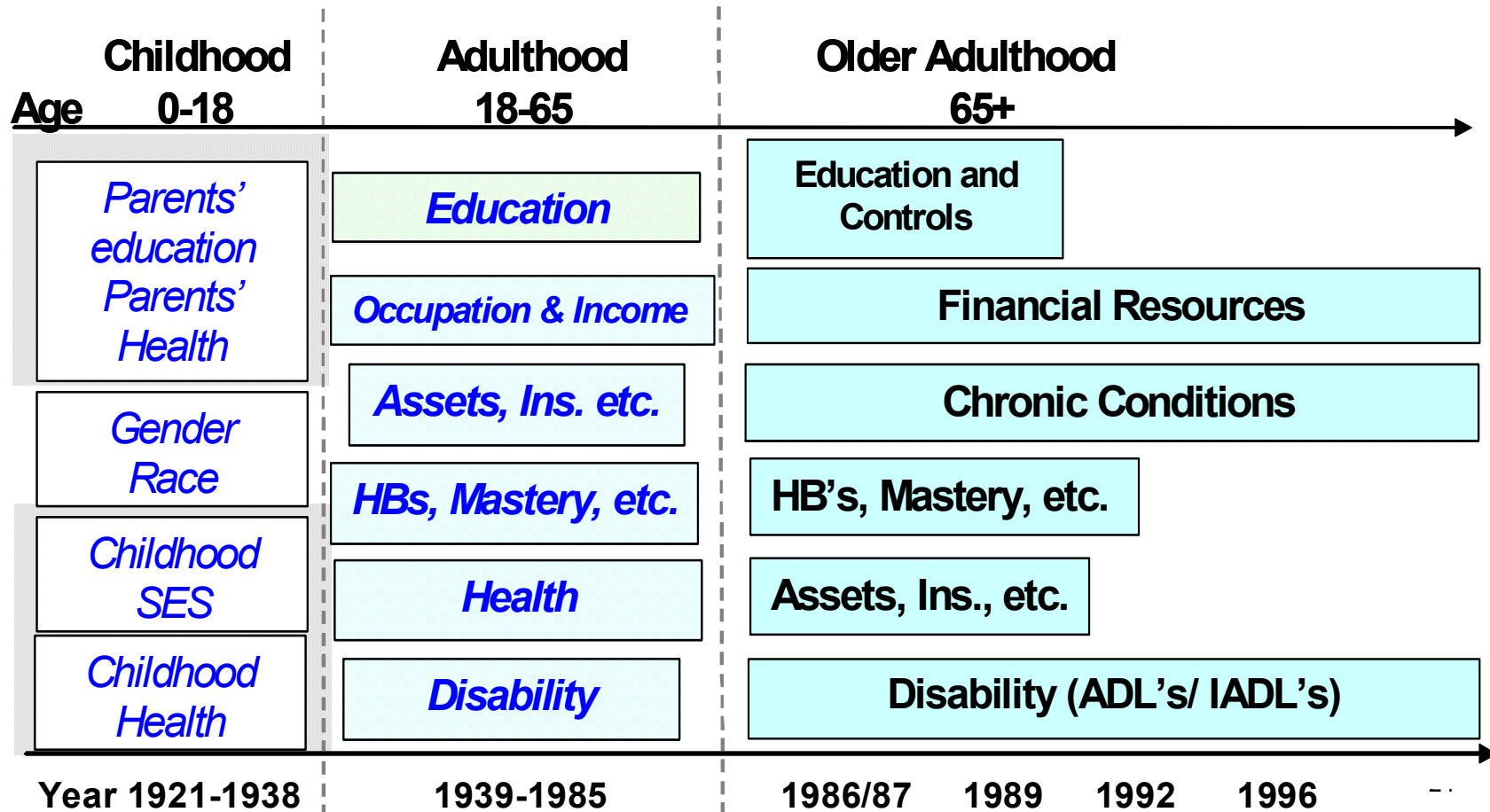


## **Acknowledgements**

- **National Institute on Aging NRSA Institutional Training Award (T32AG00139), 2001-2005**
- **National Institute on Aging NRSA Individual Training Award (F32AG026926), 2005-2007**
- **Demography of Economics and Aging Research (DEAR), UNC-Chapel Hill Pilot Project Award, 2006**
- **National Institute on Aging Pathways to Independence Award (K99AG030471), 2007-2011**



# Race, SES & Health Across the Life Course







# Measures

All 4,162 respondents were matched to their respective 1990 Census tract (N = 95)

Data for the tract level were drawn from the 1990 U.S. Census, Summary Files 1 and 3.

Three Census tracts were dropped from analysis because they contained 1 or 2 respondents. Clustering within tracts ranges from 18 to 200.

## **Area-level measures included:**

Racial composition (measured as quartiles for the region)

Educational attainment (percent who obtained each degree-type)

Age composition (percent ages 65 or older)

Housing tenure (5 yr housing tenure)

Home ownership (percent in owner-occupied housing)

Although other measures were available, these were selected to match the individual socioeconomic measures available in the EPESE study.