Neighborhoods characteristics and health outcomes

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Priorities and equity in health care policy

- Inequalities and inequities in health outcomes.
- Importance of individual socioeconomic status.
- Importance of context.
- Research on neighborhood characteristics and health.
- Relevant for health policy.

Evidence of neighborhood impact on health outcomes

- Neighborhood contextual effects on individual health outcomes have been found after controlling for individual factors.

- Dimensions of neighborhood environments which have been investigated:
  - Neighborhood economic disadvantage
  - Neighborhood physical disorder
  - Neighborhood social organization

Neighborhood economic disadvantage

- Neighborhood economic disadvantage has strong and pervasive effects on the life of residents.
- Recent studies show neighborhood socioeconomic status to be associated with self-rated health, health behaviors, and mental health.

Neighborhood physical disorder

- Defined as “the deterioration of urban landscapes, for example, graffiti on buildings, abandoned cars, broken windows, and garbage on the streets” (Sampson & Raudenbush, 1999).
- Recent literature discusses the effects of neighborhood physical environments on health and health behaviors.
- Deteriorated physical conditions have been associated with depression, gonorrhea, and physical activity.

Neighborhood social processes

- Social capital:
  - Coleman (1990) defined social capital by its function, which is to facilitate certain actions of individuals within social structures and the achievement of certain ends.
  - Putnam (1993) referred to “features of social organization, such as trust, norms, and networks, that can improve the efficiency of society by facilitating coordinated actions”.
- Social capital has been related to health outcomes in regions as well as small areas such as neighborhoods.

Neighborhood social processes

- Collective efficacy
  - the “linkages of mutual trust and the shared willingness to intervene for the common good” of the community (Sampson et al. 1997)
- Collective efficacy has been associated with self-rated health and with children’s quality of life and mental health outcomes.

Neighborhood research

- The early literature was based on the associations between contextual characteristics and various health outcomes.
- More recent literature investigates the pathways through which neighborhood characteristics exert their effects on health
  - including how neighborhood social processes and physical conditions might mediate the association between neighborhood socioeconomic conditions and individual health.

Presentation

- This presentation discusses:
  - The impact of neighborhood characteristics on health outcomes
    - Self-rated health and obesity
  - The impact of neighborhoods characteristics on a determinant of health
    - Trust
- The focus is on the policy implications.

Neighborhood economic conditions, social processes, and self-rated health in low-income neighborhoods in Texas: a multilevel latent variables model

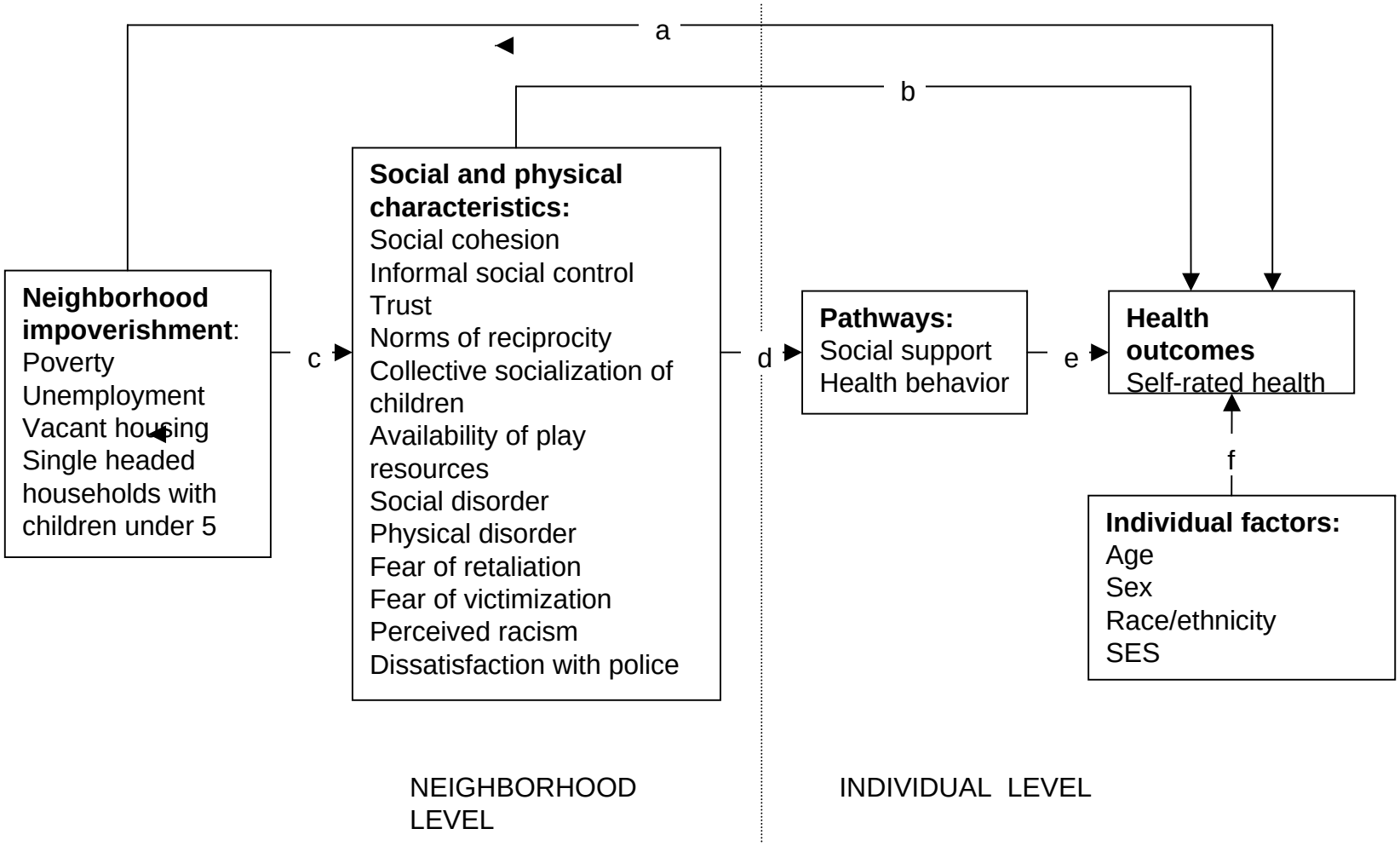
- Collaborators: Margaret Caughy, William Spears, Maria Eugenia Fernandez Esquer.

- Objectives:
  - This paper explores the relationship between neighborhood impoverishment and self-rated health.
  - It investigates the hypothesis that neighborhood social processes and physical conditions mediate the relationship between neighborhood impoverishment and self-rated health.
  - It proposes social support and health behavior as possible individual level pathways through which neighborhood social processes and physical conditions affect self-rated health.

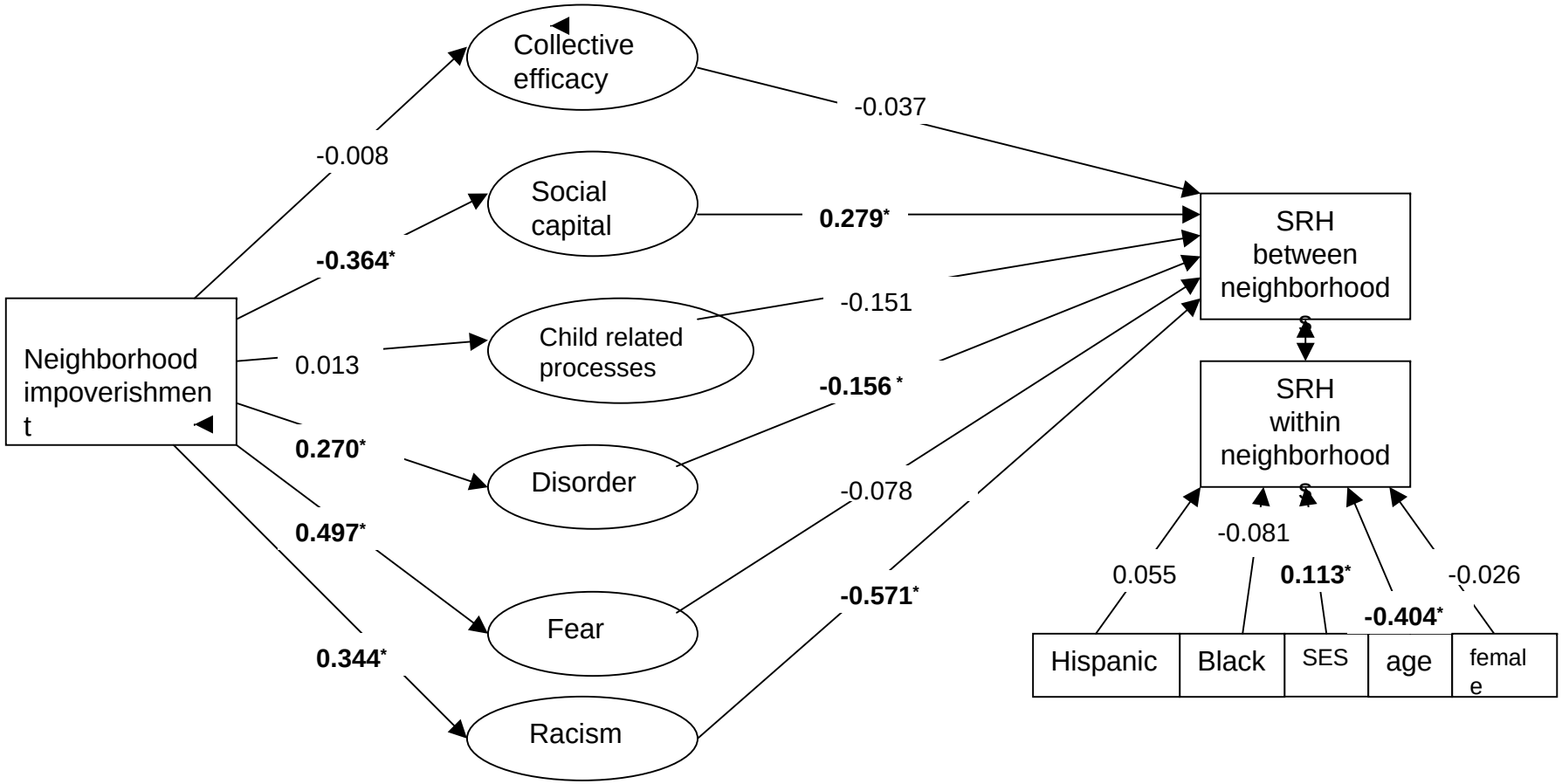
Methods

- Participants:
  - Data for this study were drawn from surveys obtained as part of a project exploring social context and health in low income Texas neighborhoods.
  - Face-to-face interviews were completed with 3,203 residents clustered in 100 census block groups.
- Statistical analysis:
  - We used a multilevel structural equations model with latent variables.
  - The software Mplus incorporates a multilevel analysis in a latent variables context.

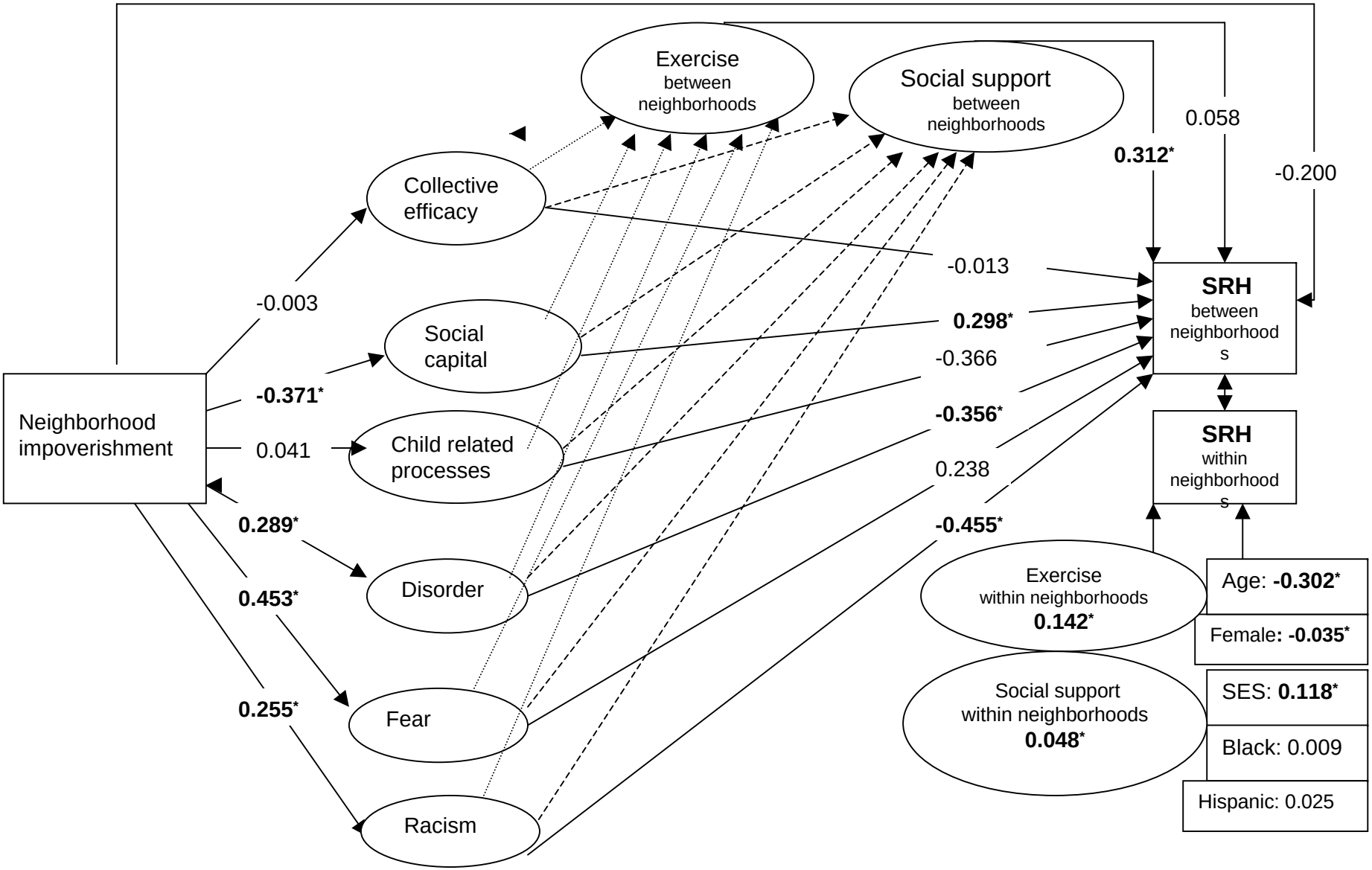
Conceptual model



Multilevel structural equation model of neighborhood impoverishment on individual SRH with mediating social and physical processes



Multilevel structural equation model of neighborhood impoverishment on individual SRH with mediating social and physical processes and health behavior and social support pathways.



Conclusion

- The effect of neighborhood impoverishment on health is mediated by social and physical neighborhood characteristics.
- Positive neighborhood social processes are not produced in a vacuum but emerge in environments with adequate socioeconomic resources.
- The importance of incorporating macrolevel economic factors when studying neighborhood characteristics should be further emphasized

How do physical and social neighborhood characteristics influence child physical activity and obesity? Preliminary results

- Collaborators: Marc Elliott, Paula Cuccaro, Janice Gilliland, Mark Schuster, Jo Anne Grunbaum, Frank Franklin, Susan Tortolero.
- Objective:
  - To investigated the association between physical and social neighborhood environment and fifth graders' physical activity and obesity using multiple measures of neighborhood physical characteristics and social processes.

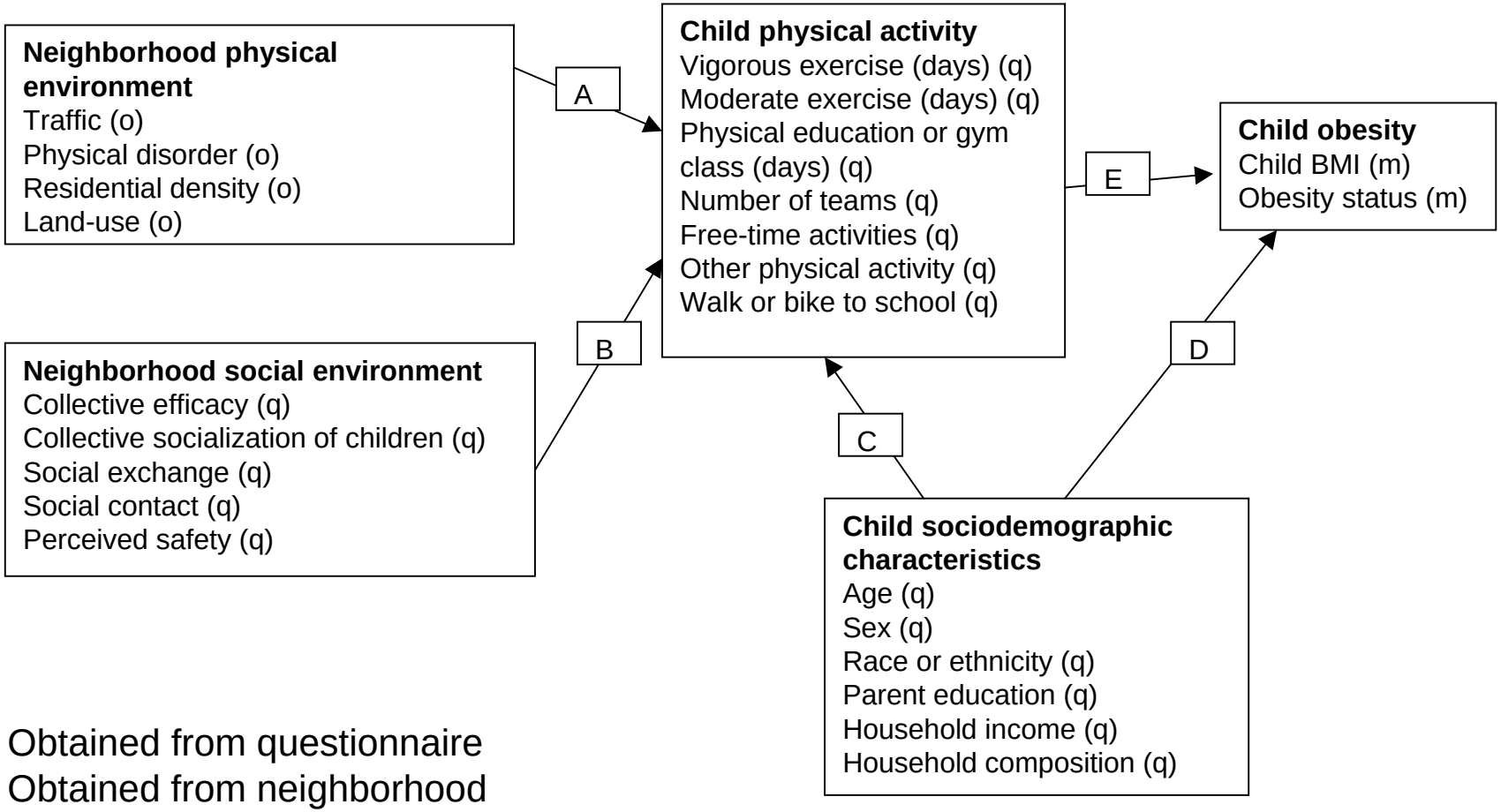
Methods

- Data on 650 fifth-grade children and their primary caregiver during Phase I of Healthy Passages, a multi-site (Houston TX, Los Angeles CA, Birmingham AL), community-based, cross-sectional study of health risk behaviors and health outcomes in children.
- Measured neighborhood physical factors using independent systematic neighborhood observations
- Measured neighborhood social processes using survey data.

Statistical analysis

- Physical and social neighborhood environments modeled as two latent variables.
- MPlus software to estimate structural equation models with latent variables.
- All analyses accounted for the complex survey design, appropriately adjusting standard errors for the effects of weights and the clustering of students within schools.

Theoretical model for child obesity

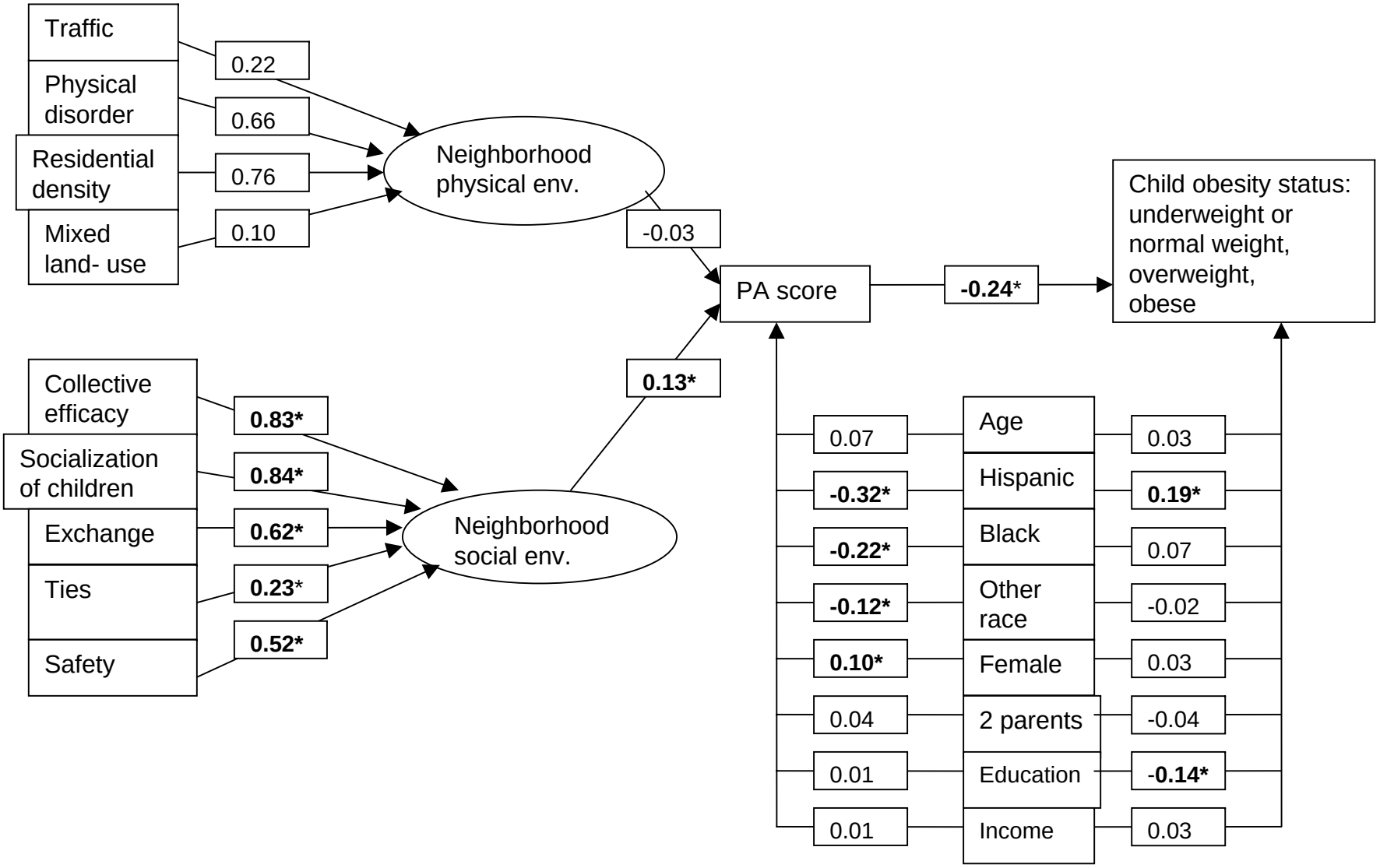


q: Obtained from questionnaire
o: Obtained from neighborhood structured observations
m: Obtained from measurement

Structural equation models of individual and neighborhood factors on measures of physical activity.

	Z score PA	**Vigorous exercise**	**Moderate exercise**	**Physical education or gym class**	**Number of teams**	**Participate in other PA lessons**	**Walk or bike to school**	**Free-time activities**
	Beta (t statistic)	Beta (t statistic)	Beta (t statistic)	Beta (t statistic)	Beta (t statistic)	Beta (t statistic)	Beta (t statistic)	Beta (t statistic)
Neighborhood social environment	**0.15[a] (2.35)**	**0.57[a] (2.90)**	-0.241 (-0.52)	**0.39[a] (4.18)**	-0.05 (-0.91)	-0.004 (-0.06)	0.05 (0.68)	**0.19[a] (3.16)**
Neighborhood physical environment	0.03 (0.22)	0.17 (0.44)	0.17 (0.29)	0.01 (0.08)	-0.06 (-1.00)	-0.02 (-0.27)	0.16 (1.30)	-0.01 (-0.07)
Child age	0.07 (1.59)	0.08 (0.37)	0.23 (1.26)	-0.02 (-0.29)	0.01 (0.20)	**0.13[a] (2.05)**	0.02 (0.38)	0.02 (0.22)
Female	0.10[a] (2.06)	-0.05 (-0.33)	0.29 (1.34)	-0.02 (-0.42)	0.09[a] (2.51)	**0.20[a] (3.86)**	0.02 (0.23)	**-0.10 [a] (-1.98)**
Two parents at home	0.04 (0.75)	-0.30 (-1.30)	-0.09 (-0.40)	**0.34[a] (3.06)**	0.07 (1.22)	-0.06 (-1.13)	0.02 (0.25)	0.02 (0.26)
Parent education	0.02 (0.29)	**0.60[a] (2.58)**	**0.44[a] (1.97)**	-0.15 (-0.75)	-0.01 (-0.23)	**0.15[a] (2.27)**	-0.06 (-0.39)	**-0.24[a] (-5.53)**
Hispanic	**-0.28[a] (-3.57)**	**0.60[a] (2.06)**	-0.45 (-1.61)	**-1.21[a] (-5.75)**	0.09 (1.43)	**-0.12[a] (-2.11)**	-0.04 (-0.16)	**-0.24[a] (-3.12)**
Black	**-0.18[a] (-2.30)**	0.15 (0.55)	**-0.74[a] (-2.75)**	-0.36 (-1.41)	-0.01 (-0.12)	-0.02 (-0.25)	-0.07 (-0.36)	-0.11[b] (-1.70)
Other race	-0.10 (-1.77)	**0.22[a] (2.12)**	**-0.31[b] (-1.86)**	**-0.31[a] (2.77)**	0.01 (0.22)	-0.001 (-0.01)	-0.16[b] (1.91)	-0.03 (-0.79)
Log household income	-0.01 (-0.15)	0.51[b] (1.78)	0.06 (0.21)	**-0.29[a] (-2.73)**	0.03 (0.50)	**0.13[a] (2.15)**	-0.02 (-0.14)	-0.11 (-1.55)
Type of model	*continuous*	*count*	*count*	*count*	*ordinal*	*categorical*	*categorical*	*ordinal*

Structural equation model of individual and neighborhood factors on child obesity status with mediating physical activity.



Conclusions

- After controlling for child sociodemographic factors, we found that a favorable social environment was positively associated with several measures of physical activity, and physical activity was negatively associated with child obesity.
- Physical environment was not significantly associated with physical activity.
- These findings suggest that policies must consider neighborhood social factors and not focus solely on improvements in the physical environment to reduce child obesity.

Overall findings

- The characteristics of neighborhoods affect residents health outcomes over and above individual characteristics.
- Neighborhood economic disadvantage affects health outcomes and is at the root of neighborhood social processes and physical characteristics.
- Neighborhood social processes are more influential than physical characteristics in affecting health outcomes and behaviors.

Policy implications of findings

- Policies aiming to reduce health disparities must focus on:
  - reducing neighborhood economic disadvantage
  - improving social processes in disadvantaged neighborhoods.

Predictors of trust in low-income, minority neighborhoods in Texas: Preliminary results

- Objective:
  - To investigate the relationship between self-rated health and trust and then explore the predictors of trust in low-income and minority neighborhoods (defined as census block groups) in Texas.
- Methods:
  - We investigate predictors of trust in residents of 100 low-income and minority neighborhoods in Texas.
  - Census data and survey data on 3171 residents provided information on individual and neighborhood characteristics.
- Statistical analysis (using Stata):
  - The relationship between self-rated health and trust was modeled by the ordered logistic regression with corrections for clustering at the block group level.
  - Predictors of trust were modeled using multi-level probit models.

Self-rated health and trust: Odds ratios for trust measures from the ordinal logistic regression with self-rated health as dependent variable.

Measure of trust	Odds ratio[a]	P value
Trust people in general	1.39	<0.01
Trust people in the neighborhood	1.24	0.03
Trust people of the same race/ethnicity	1.40	<0.01
Trust in the police	1.32	<0.01
Trust in bank/store personnel	1.24	0.03

a: adjusted for age, gender, race/ethnicity, education, and log(income-to-need)

Predictors of trust	**Dependent variable: General trust**		
Variables	Coeff.	Std. error	P value
Individual level			
Age	**0.01**	**0.003**	**<0.01**
Female	**-0.22**	**0.08**	**<0.01**
Black	**-0.41**	**0.16**	**0.01**
Hispanic	-0.10	0.14	0.48
Education	**0.06**	**0.03**	**0.01**
Log(income-to-need)	-0.01	0.04	0.76
Time in neighborhood	-0.01	0.02	0.81
Associate with other races/ethnicities	-0.02	0.04	0.62
Personal opportunity	0.25	0.17	0.14
Perceived racism	**-0.55**	**0.23**	**0.02**
Social support	**0.39**	**0.15**	**0.01**
Religiosity	0.10	0.11	0.34
Neighborhood level			
Impoverishment	0.02	0.08	0.80
Race/ethnic fragmentation	0.10	0.37	0.79
Gini coefficient	-1.60	1.18	0.17
Linguistic fragmentation	**-1.01**	**0.45**	**0.02**
Residential stability	-0.10	0.51	0.84
Collective efficacy	***1.52***	***0.82***	***0.06***
Disorder	0.16	0.40	0.70
Level 2 standard deviation	**0.35**	**0.07**	
Rho	**0.11**	**0.04**	
N	2041		
Number of groups	99		

Trust

- Results:
  - Trust was associated with self-reported health.
  - Linguistic heterogeneities, but neither racial/ethnic diversity nor income inequality, was associated with general trust.
  - More detailed analyses indicated that people tend to trust more those they personally know than those who belong to the same racial/ethnic group.
- Conclusions:
  - Interventions in diverse communities should focus on increasing social integration among residents in order to reach higher levels of cooperation, contributing to positive health outcomes.