

# **THE EFFECTS OF NEIGHBORHOOD SOCIAL AND MATERIAL DEPRIVATION CHANGE ON PSYCHOLOGICAL DISTRESS**

**METHODOLOGICAL CHALLENGES USING  
NPHS DATA AND THE PAMPALON  
DEPRIVATION INDEX**

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7<sup>TH</sup> QICSS NEW  
RESEARCHER  
CONFERENCE**

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UNIVERSITY  
INSTITUTE





NEIGHBORHOODS

DS  
DS

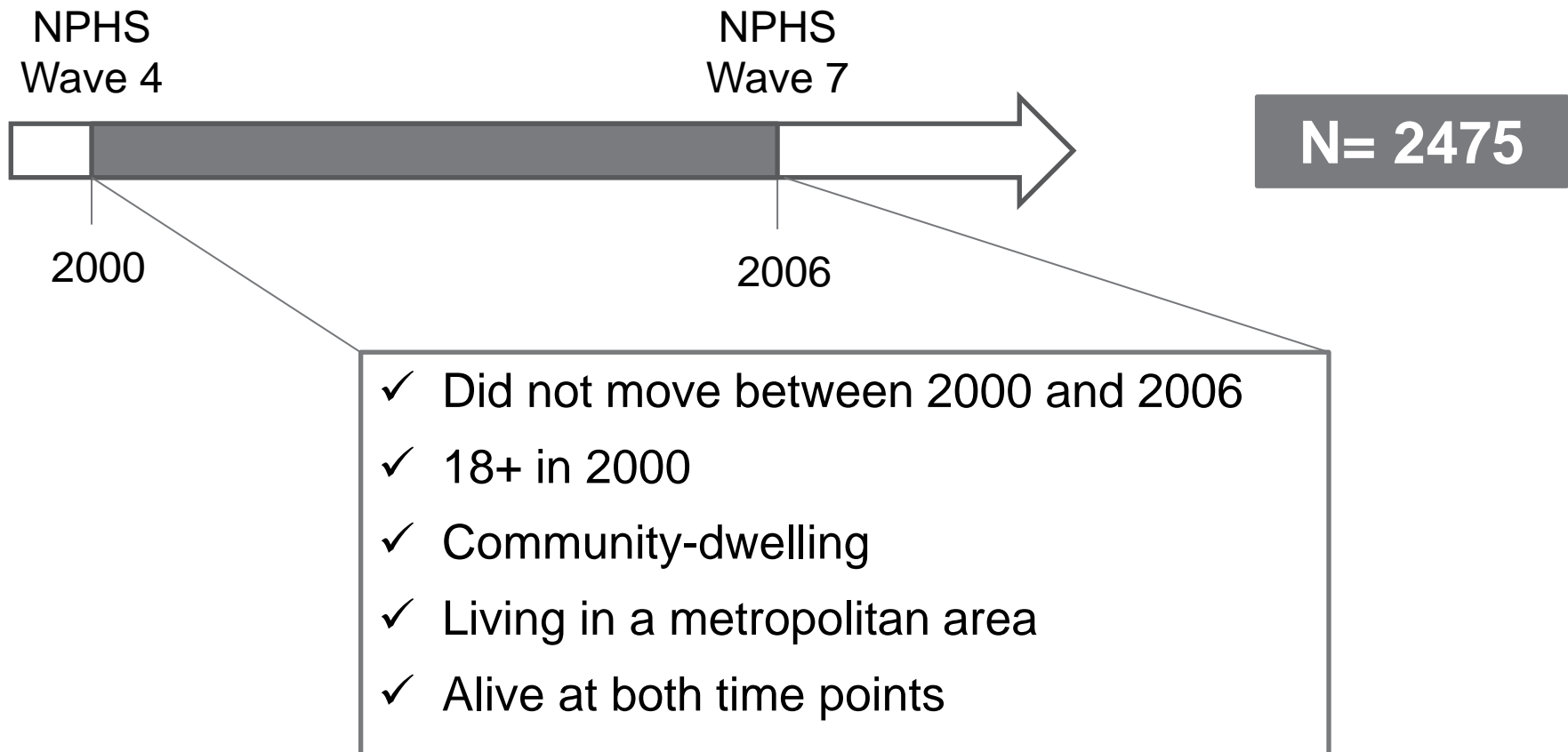
MENTAL  
HEALTH

OUTCOMES

# RESEARCH GOALS

1. Describe trajectories of neighborhood deprivation change in Canada
2. Examine the effects of neighborhood deprivation change on psychological distress
3. Evaluate the roles of important covariates

# SAMPLE



# OUTCOME MEASURE

## Kessler 6-item Psychological Distress Scale

The following questions are about how you have been feeling during the **past 30 days**.

1. About how often during the past 30 days did you feel nervous - would you say **all** of the time, **most** of the time, **some** of the time, **a little** of the time, or **none** of the time?

4. How often did you feel so depressed that nothing could cheer you up?  
(IF NEC: **all**, **most**, **some**, **a little**, or **none** of the time?)

Scores between  
0 and 24

# INDEPENDENT MEASURE

## Pampalon Social and Material Deprivation Index

### Social deprivation

% persons living alone

% divorced,  
separated, widowed

% single-parent  
families

### Material deprivation

% persons without high  
school diploma

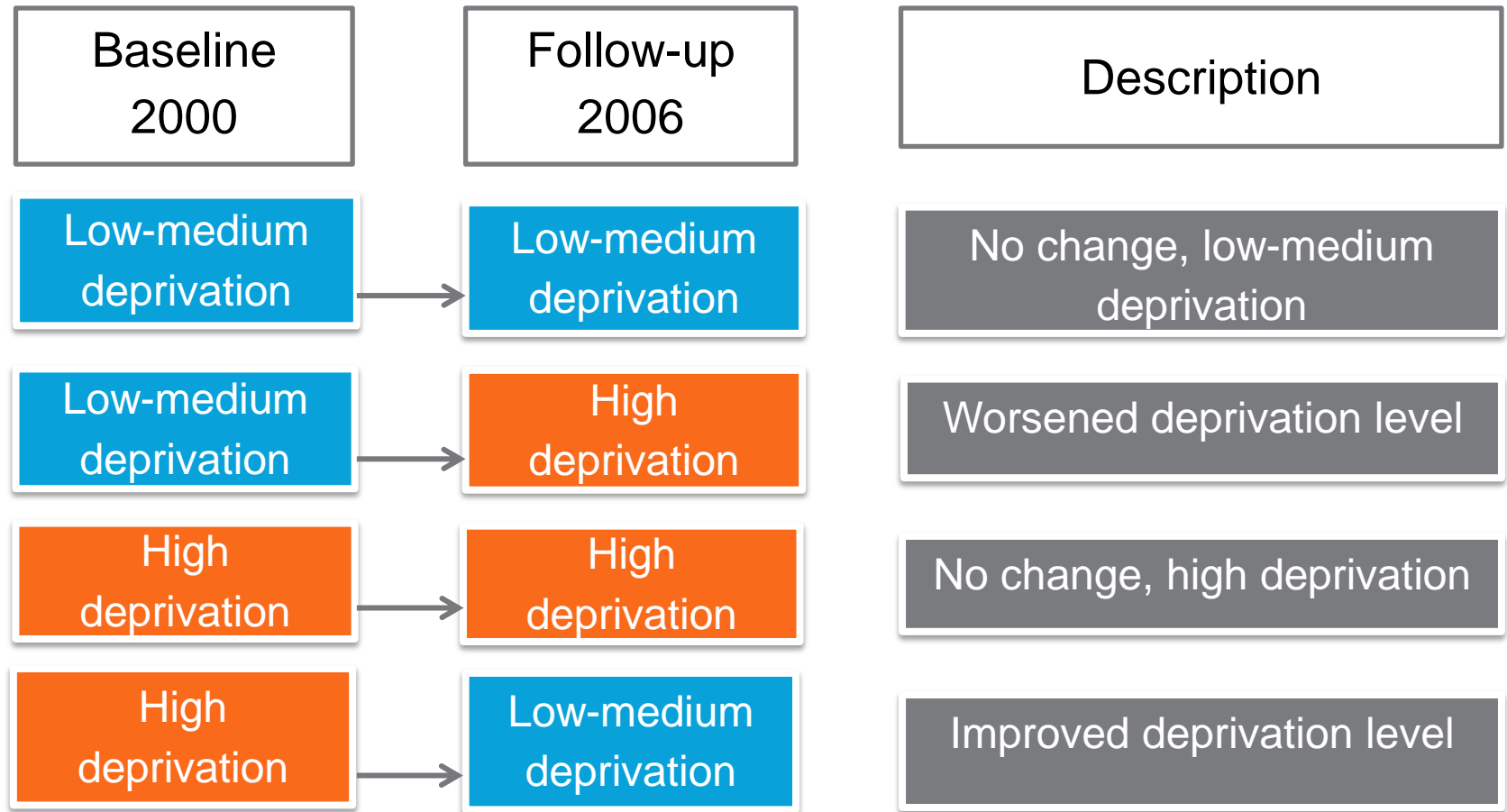
% unemployed

Average personal  
income

#### CLASSIFICATION

Q1	Q2	Q3	Q4	Q5
Low-medium deprivation			High deprivation	

# DEPRIVATION CHANGE



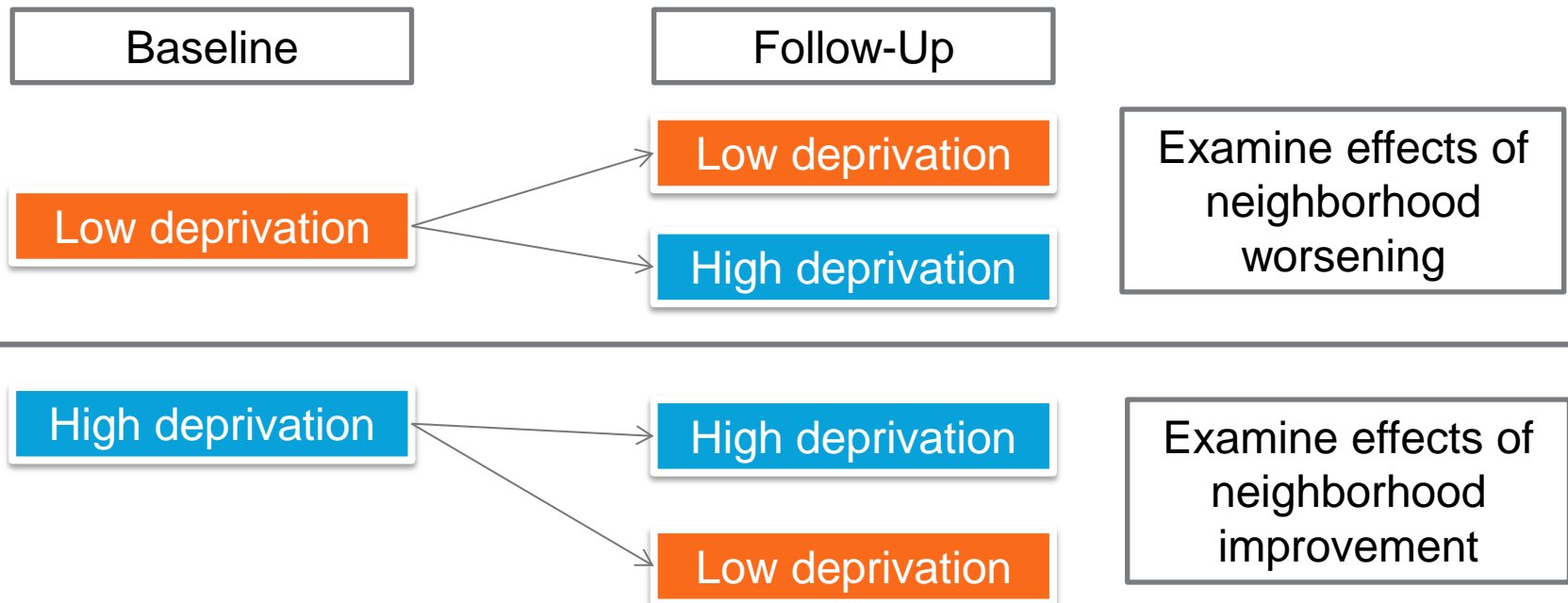
# COVARIATES


- ☐ Age
- ☐ Sex
- ☐ Marital status
- ☐ Education
- ☐ Income adequacy



# ANALYSIS

- ❑ Multiple linear regression models, stratified by baseline deprivation level.



The background of the slide is a collage of two city scenes. The left side shows a hillside with green trees and a castle in the distance. The right side shows a busy city street with many pedestrians and cars. A diagonal line splits the image, with the top-left portion being orange and the bottom-right portion being a semi-transparent blue overlay. The word "RESULTS" is written in large, bold, black capital letters across the center of the blue overlay.

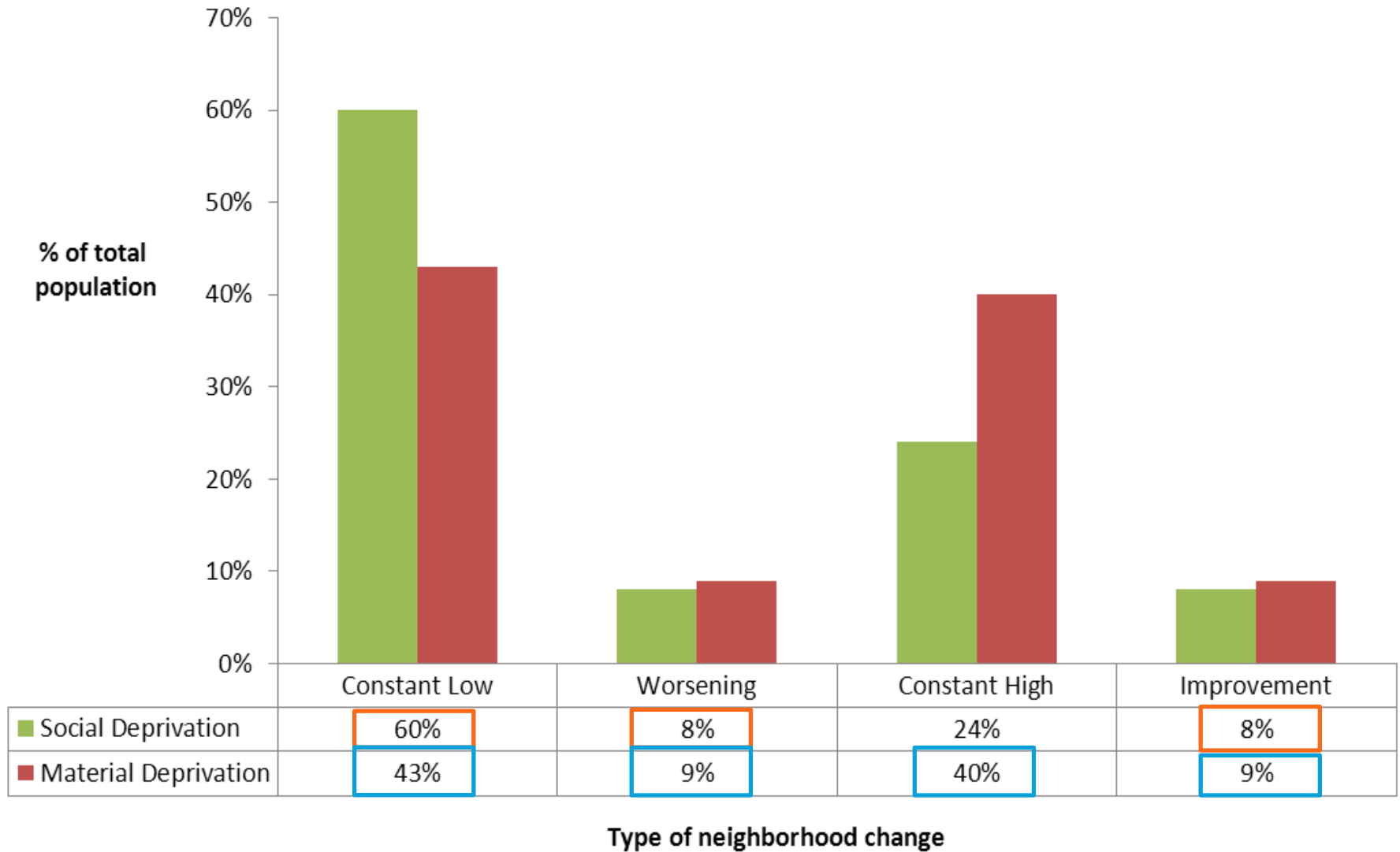
# RESULTS

# DESCRIPTIVE RESULTS

Measures	
<b>Total population</b>	N=2745
Males	44%
Females	56%
<b>Age</b>	52.79 ( $\pm 13.96$ )
<b>Marital status</b>	
Single	9%
Married	74%
Widowed/divorced/ separated	17%
<b>Race</b>	
Caucasian	96%
Non-Caucasian	4%
<b>Income adequacy</b>	
Low	10%
High	90%

Measures	
<b>Education attainment</b>	
Less than high school	26%
High school graduate	38%
Post-secondary graduate	36%
<b>Social deprivation</b>	
Low-medium	68%
High	32%
<b>Material deprivation</b>	
Low-medium	52%
High	48%
<b>Baseline distress</b>	
Mean score	1.67 ( $\pm 2.55$ )

# PATTERNS OF NEIGHBORHOOD CHANGE



# EFFECTS OF SOCIAL DEPRIVATION CHANGE ON DISTRESS

Independent variables	Low social deprivation at baseline		High social deprivation at baseline	
	Worsening vs. Constant low-medium deprivation Coefficient (CI)*		Improvement vs. Constant high deprivation Coefficient (CI)	
Neighborhood change (ref. no change)	0.08 (-0.03-0.18)		<b>0.13 (0.01-0.26)†</b>	0.11 (-0.01-0.23)
Sex (ref. men)	<b>0.1 (0.03-0.17)‡</b>		<b>0.19 (0.07-0.30)†</b>	0.09 (-0.02-0.2)
Age (years)	<b>-0.004 (-.007, -.001) ‡</b>		<b>-0.007(-.011, -.003)‡</b>	-0.003 (-.007-.001)
Race (ref. Caucasian)	-0.07 (-0.25-0.11)		0.17 (-0.13-0.47)	0.08 (-0.20-0.37)
Marital Status (ref. married)				
Single	0.06 (-0.08-0.19)		0.04 (-0.13-0.21)	0.05 (-0.10-0.21)
Widowed/ Separated/Divorced	-0.07 (-0.17-0.04)		0.11 (-0.03-0.27)	<b>0.15 (0.01-0.29)†</b>
Education (ref. post-sec.)				
High school	-0.02(-0.09-0.06)		0.07 (-0.05-0.20)	0.06 (-0.06-0.18)
Less than high-school	<b>0.10 (0.01-0.19)†</b>		0.11 (-0.04-0.27)	0.09 (-0.05-0.24)
Income adequacy (ref. High)	<b>0.14 (0.01-0.28)†</b>		0.08 (-0.1-0.27)	-0.05 (-0.22-0.13)
Baseline Distress	<b>0.40 (0.35-0.44)‡</b>			<b>0.39 (0.32-0.46)‡</b>

\* ‡=p<0.01 †= p<0.05



# EFFECTS OF MATERIAL DEPRIVATION CHANGE ON DISTRESS

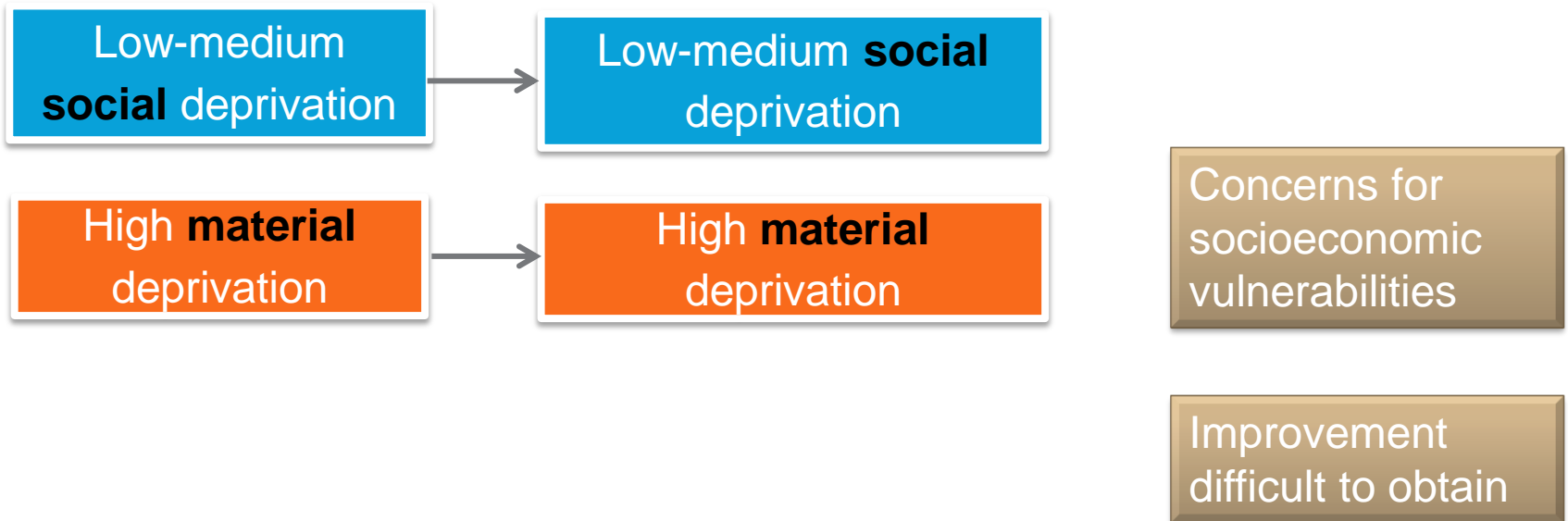
Independent variables	Low material deprivation at baseline Worsening vs. Constant low-med deprivation Coefficient (CI)*	High material deprivation at baseline Improvement vs. Constant high deprivation Coefficient (CI)	
Neighborhood change (ref. no change)	<del>0.05 (-0.06-0.15)</del>	<b>0.13 (0.01-0.26)<sup>‡</sup></b>	0.11 (-0.01-0.23)
Sex (ref. men)	<b>0.10 (0.2-0.18)<sup>†</sup></b>	<b>0.19 (0.07-0.3)<sup>‡</sup></b>	0.09 (-0.01-0.19)
Age (years)	<b>-0.005(-.008,-.002)<sup>‡</sup></b>	<b>-0.008 (-0.01,-.003)1<sup>‡</sup></b>	-0.003 (-.007-.007)
Race (ref. Caucasian)	0.08 (-0.12-0.28)	0.17 (-0.13-0.47)	0.14 (-0.16-0.44)
Marital Status (ref. married) Single Widowed/ Separated/Div.	-0.01 (-0.14-0.13) 0.04 (-0.07-0.15)	0.04 (-0.13-0.47) 0.11 (-0.04-0.26)	<del>0.05 (-0.10-0.21)</del> <b>0.15 (0.01-0.29)<sup>†</sup></b>
Education (ref. post-sec.) High school Less than high-school	0.02 (-0.07-0.10) <b>0.17 (0.06-0.29)<sup>‡</sup></b>	0.07 (-0.05-0.2) 0.11 (-0.04-0.27)	0.06 (-0.06-0.17) 0.09 (-0.05-0.24)
Income adequacy (ref. High)	<del><b>0.20 (0.04-0.36)<sup>‡</sup></b></del>	0.08 (-0.1-0.27)	<del>-0.04 (-0.22-0.13)</del>
Baseline Distress	<b>0.40 (0.34-0.45)<sup>‡</sup></b>		<b>0.39 (0.32-0.46)<sup>‡</sup></b>

The background features a collage of three images: a hillside with a castle and colorful autumn trees on the left, a modern skyscraper in the center, and a busy city street with pedestrians and cars on the right. A large blue diagonal overlay covers the right side of the image, and a solid orange triangle is in the bottom-left corner.

# DISCUSSION

# WHAT DOES THIS STUDY ADD?

## Description of trajectories of change



# PREDICTORS OF DISTRESS

In fully adjusted models deprivation change is not associated with distress

Without baseline distress: neighborhood improvement significantly associated with distress.

Why?

## Gentrification?

Social hierarchies

Social and material exclusion

Corroded networks of support

- **Low deprivation areas**

Women

Younger adults

Low income

Low education

Baseline distress

- **High deprivation areas**

Widowed, separated, divorced

Baseline distress

# **LIMITATIONS**

- Generalizability of sample
- Classification of neighborhood change
- Timeframe of study
- Ecological data

# **STRENGTHS**

- Longitudinal data
- Urban sample
- Clinically validated psychological distress measure



# FUTURE DIRECTIONS

- What other ways can neighborhood change be measured?
- Planned vs. unplanned change?
- Examine 2008-2012 time period, post-recession
- Subjective vs. objective deprivation measures

# PUBLIC HEALTH IMPLICATIONS

- Focus on socially and economically vulnerable groups
- Look at relationship in more detail
- Examine causes of deprivation

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## Data Access



QUESTIONS OU  
COMMENTAIRES?

Ö

QUESTIONS OR  
COMMENTS?



# ADDITIONAL SLIDES

# STRENGTHS AND LIMITATION OF INDEX

## Strengths

- **Accessible, affordable**
- **Nation-wide**
- **Multiple time points**
- **Good measure of area SES**

## Limitations

- **Poor proxy for social relationships**
- **Aggregate data**
- **Not place-specific**
- **Ecological**



# INCOME ADEQUACY

Low income adequacy:

**1-2 persons with less than \$15,000**

**3-4 persons with less than \$20,000**

**5 or more persons with less than \$30,000**

High income adequacy:

**1-2 persons with more than \$15,000**

**3-4 persons with more than \$20,000**

**5 or more persons with more than \$30,000**

Limitations:

- Very little variation in sample
- No gradation (low-medium-high)

# URBAN AREAS

**Census Metropolitan Areas (CMAs) =**

- **Defined by Statistics Canada**
- **Areas that consist of 1 or more neighboring municipalities which have a total population of at least 100,000**
- **At least 50,000 or more live in the core.**

# K6 DISTRESS SCALE

The following questions are about how you have been feeling during the **past 30 days**.

1. About how often during the past 30 days did you feel **nervous** - would you say **all** of the time, **most** of the time, **some** of the time, **a little** of the time, or **none** of the time?
2. During the past 30 days, about how often did you feel **hopeless** - **all** of the time, **most** of the time, **some** of the time, **a little** of the time, or **none** of the time?
3. During the past 30 days, about how often did you feel **restless or fidgety**?  
(IF NEC: **all, most, some, a little, or none** of the time?)
4. How often did you feel **so depressed that nothing could cheer you up**?  
(IF NEC: **all, most, some, a little, or none** of the time?)
5. During the past 30 days, about how often did you feel that **everything was an effort**?  
(IF NEC: **all, most, some, a little, or none** of the time?)
6. During the past 30 days, about how often did you feel **worthless**?  
(IF NEC: **all, most, some, a little, or none** of the time?)

# RELEVANT SOURCES OF ATTRITION

- 3198 persons were movers between 2000-2006
- 2522 persons lived in rural areas
- 1376 persons did not complete questionnaire
- 910 persons died before or at follow-up
- 20 persons were institutionalized
- 342 persons were missing distress scores at baseline or follow-up