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Evaluating the impact of implementing a public bicycle share program on utilitarian cycling: The case of BIXI in Montreal, Canada

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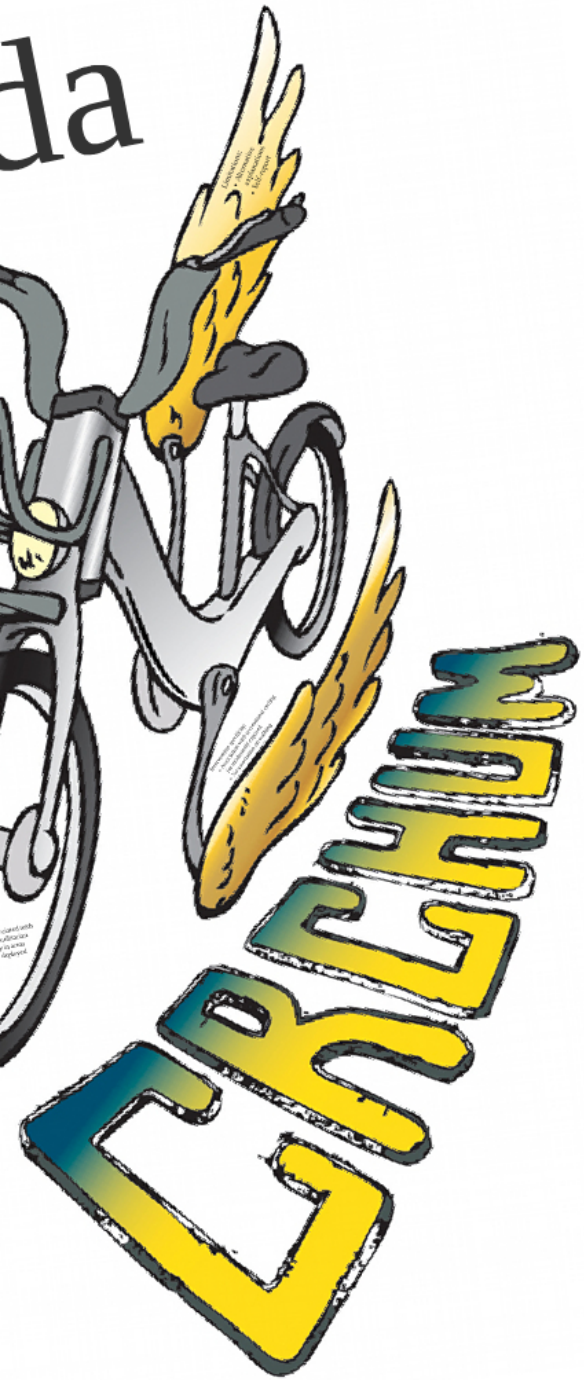

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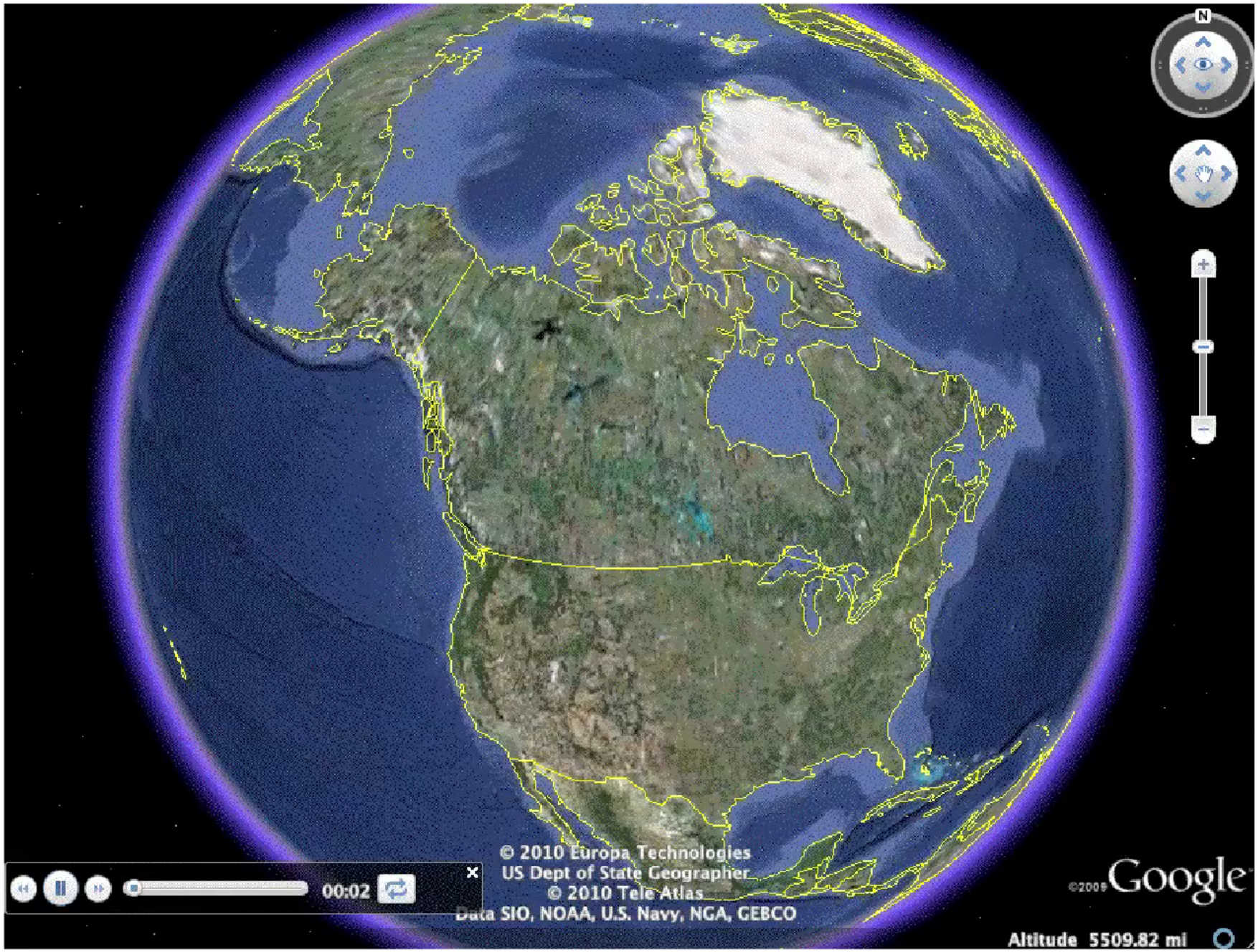
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Altitude 5509.82 mi

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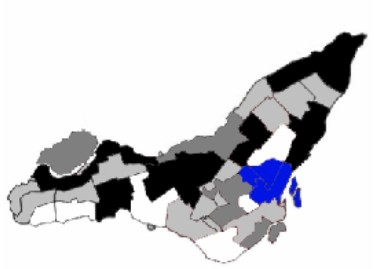

Pre-implementation

- May 4th and June 10th 2009
- n=2001
- Mean age: 49.4 years
- 55.4% female
- 36.9% response rate

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'Natural' intervention

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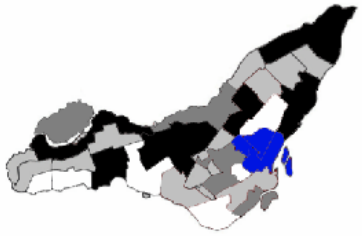

Post-implementation

- October 8th - December 12th 2009
- n=2502
- Mean age: 47.8 years
- 61.8% female
- 34.6% response rate

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X

Hypothesis:

- Exposure to BIXI docking stations will increase utilitarian cycling between the pre and post-implementation periods in Montreal
- Because the BIXI program targets utilitarian cycling (e.g., 30 minute free period), there will be no effect of implementing the program on recreational cycling and utilitarian walking

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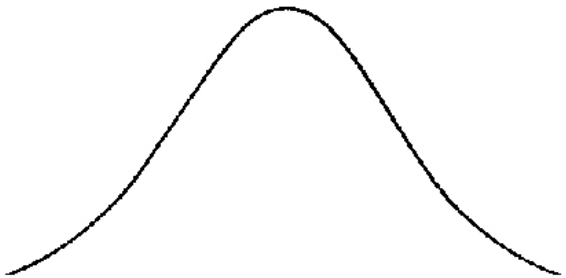

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Analysis

- Post-stratification weighting
- Multivariate logistic regression

Dependent variables

- Utilitarian cycling (y/n)

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- Multivariate logistic regressi

Dependent variables

- Utilitarian cycling (y/n)
- Recreational cycling (y/n)
- Utilitarian walking (y/n)

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'Natural' intervention

Challenges:

- Timeline for evaluation
- Design
- Hypothesis testing

Intervention Specifity

- Utilitarian cycling
- Recreational cycling
- Utilitarian walking
- BMI

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'Natural' intervention

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- Multivariate logistic regress

Dependent variables

- Utilitarian cycling (y/n)
- Recreational cycling (y/n)
- Utilitarian walking (y/n)

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n)

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Independent variables

- Survey Period (pre/post)
- Exposure to BIXI
- Survey period * Exposure to BIXI

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Covariates

- Land use
- Street connectivity
- Age
- Sex
- Education
- Employement

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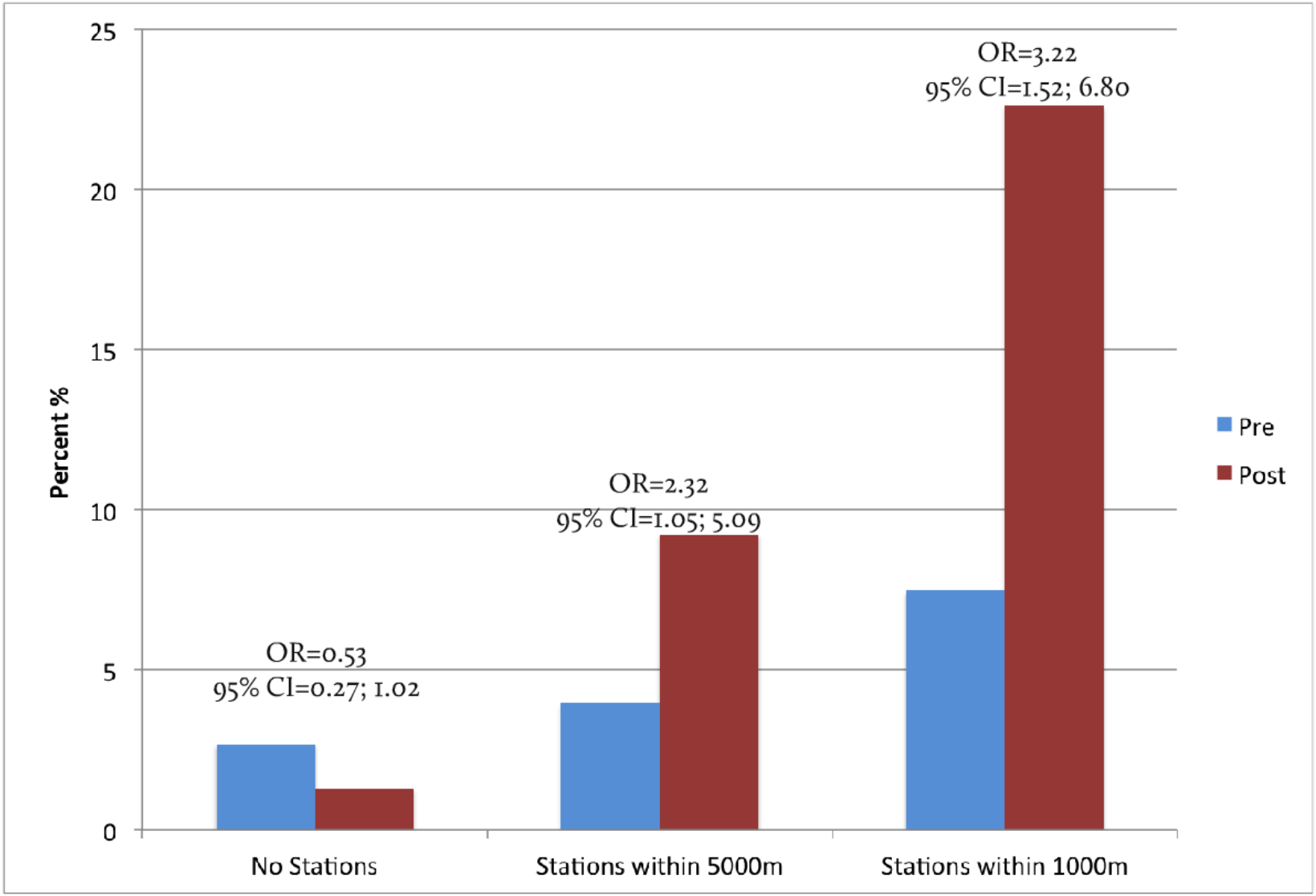
Percent of utilitarian cycling by exposure to BIXI stations pre and post implementation of BIXI in Montreal



Controlling for land use, street connectivity, age, sex, education and employement

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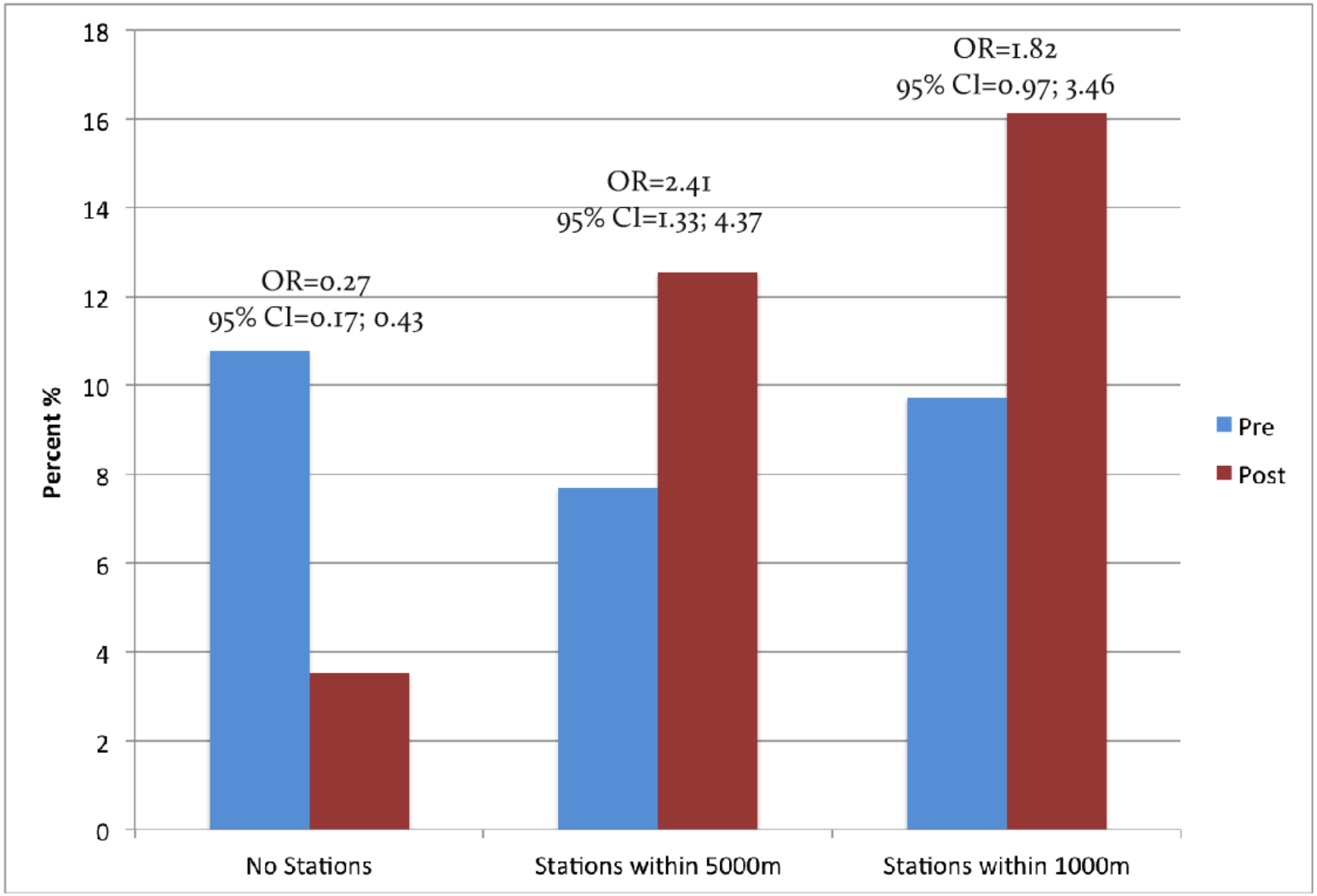
Percent of recreational cycling by exposure to BIXI stations pre and post implementation of BIXI in Montreal



Controlling for land use, street connectivity, age, sex, education and employement

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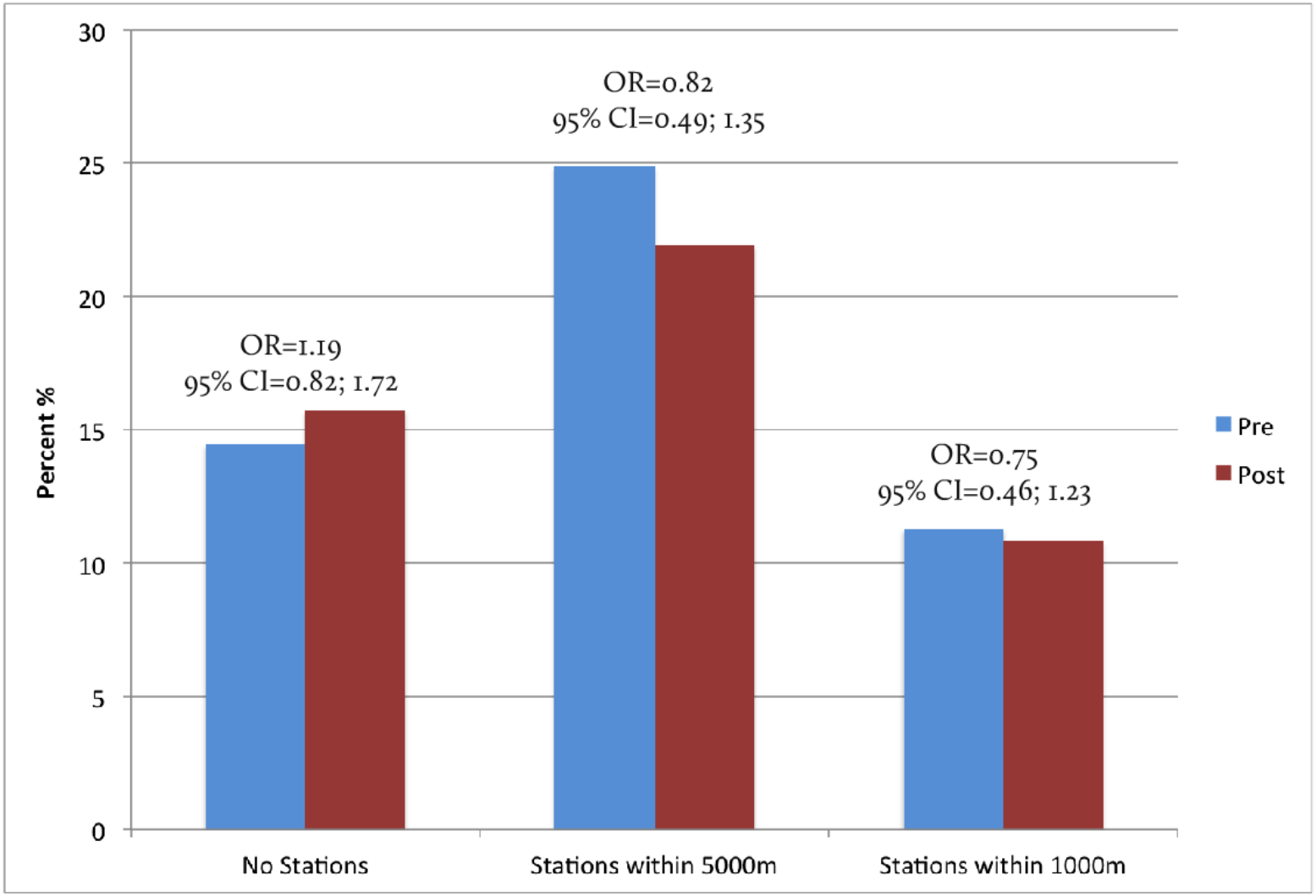
Percent of utilitarian walking by exposure to BIXI stations pre and post implementation of BIXI in Montreal



Controlling for land use, street connectivity, age, sex, education and employement

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Discussion

Hypothesis 1:

- BIXI was associated with increases in utilitarian cycling, only in areas were it was deployed

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Intervention specificity:

- Association with recreational cycling for moderately exposed
- No association on walking

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Limitations:

- Alternative explanations
- Self-report

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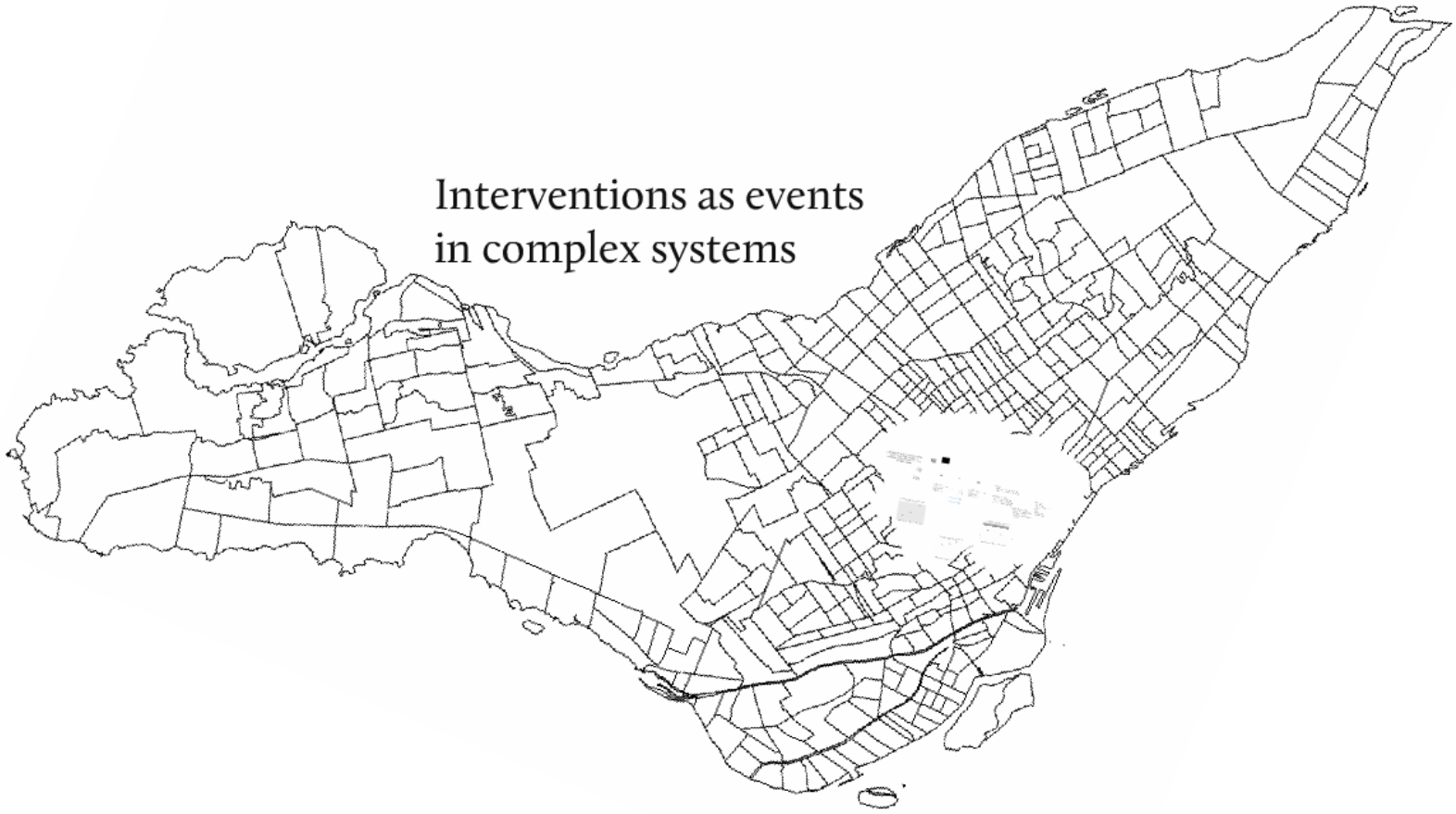
Interventions as events in complex systems



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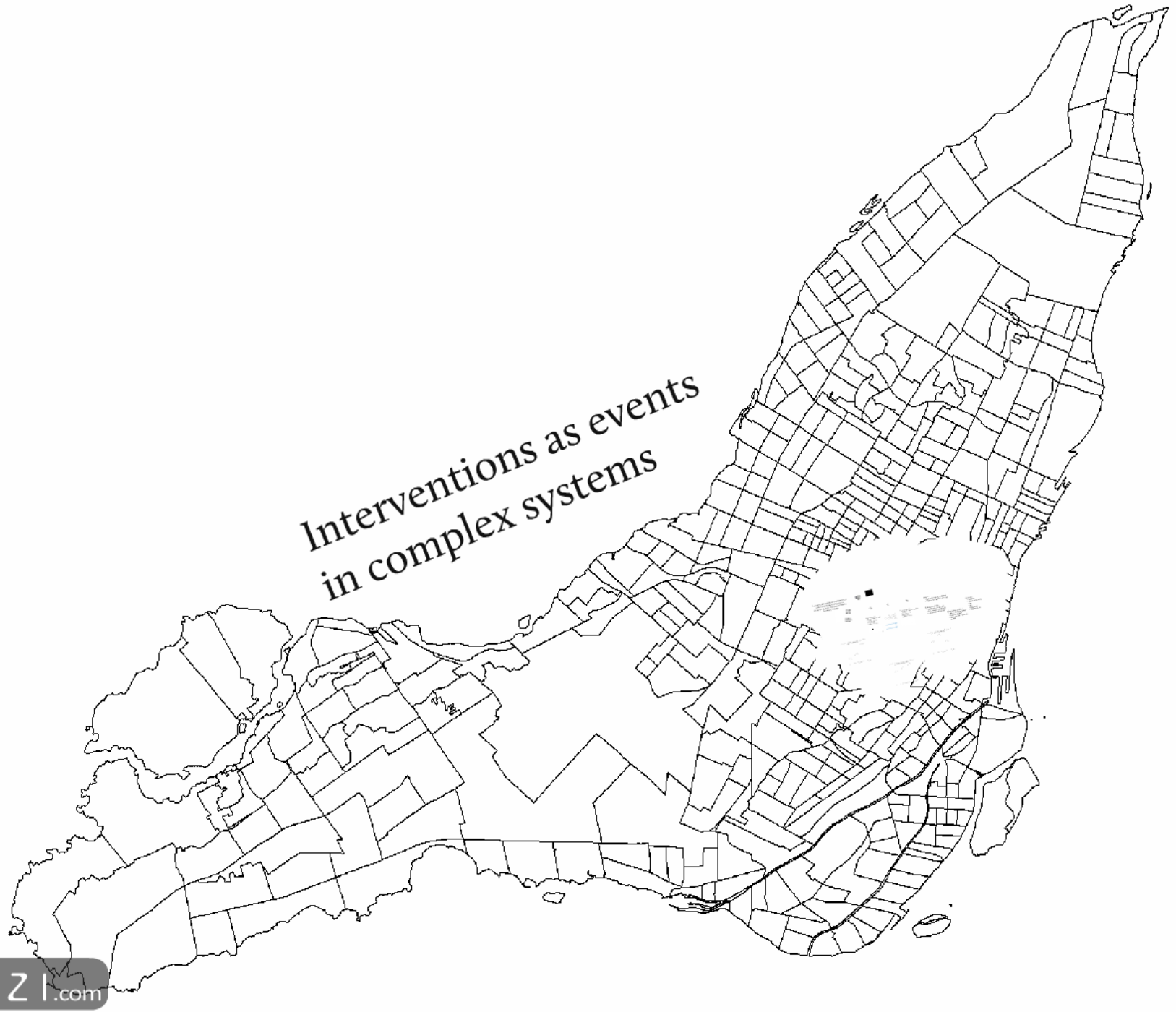

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