

# PUBLIC OUTDOOR STAIRWELL UTILIZATION THROUGHOUT HAIFA, ISRAEL:

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An observational study comparing geo-spatial environmental and residential demographic characteristics with outdoor stairwell use

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# Study question

What geo-spatial and population demographic factors influence utilization rate of public outdoor stairwells throughout a city?

# Objectives

- Establish a baseline for the utilization rates of outdoor stairwells among different neighborhoods throughout Haifa, Israel
- Compare various geo-spatial environmental factors of the stairwell or the residential demography of its district
- Application for physical activity initiatives and urban planning projects

# Background information

- In 2012, 31% of the world's population was physically inactive
- Lack of engagement in regular adequate physical activity contributes greatly to the high morbidity and mortality burden of many non-communicable chronic diseases
- Walkability of city impacts prevalence of walking
- Outdoor stairwells act as a bridge to increase walkability in mountainous regions

# Study design

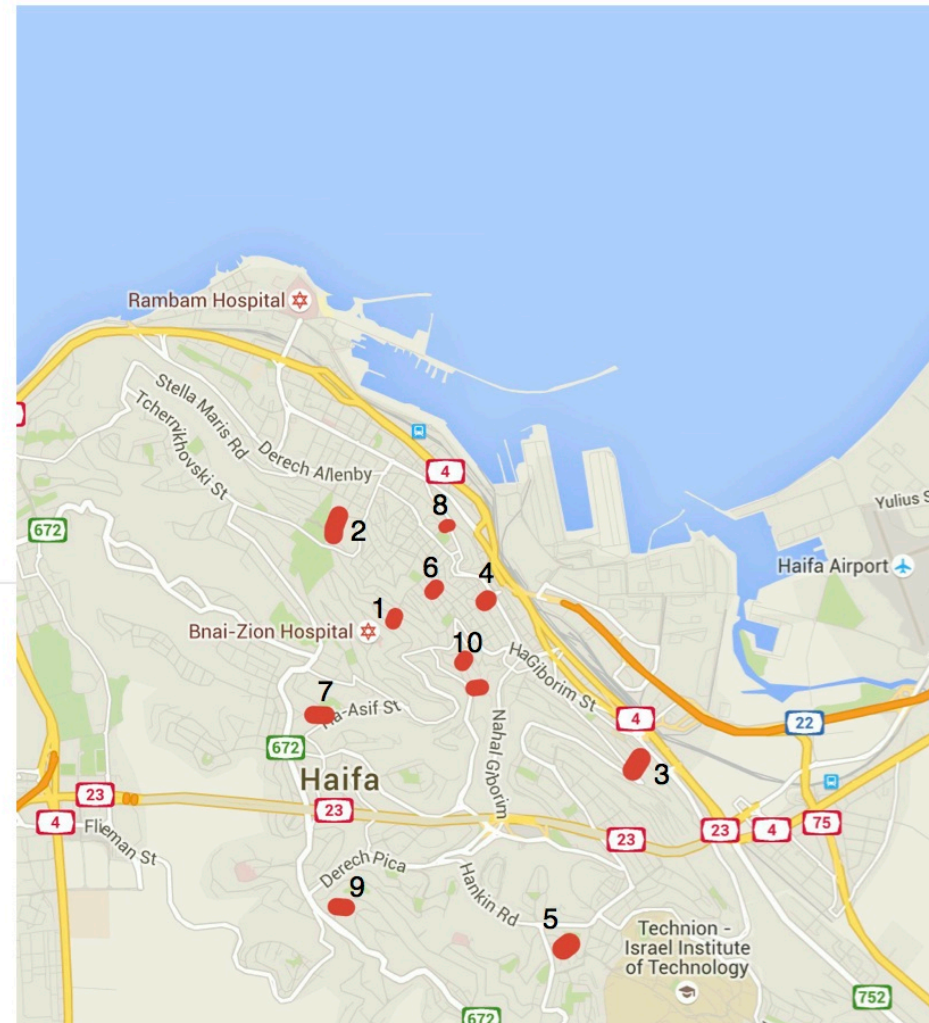
- Type: observational study
- What: ten outdoor public stairwells
- Location: throughout Haifa, Israel
- Time: February 2016, during the weekdays
  - 7:30am-10:00am, 3:00pm-6:00pm
- Conditions: days with no precipitation forecast

# Chosen sites

## Haifa Stairs for Survey

### Priority1

- 1 📍 spinoza1
- 2 📍 shifra1
- 3 📍 yona bugla
- 4 📍 shukri
- 5 📍 borohov-lamed-he
- 6 📍 hilel-yafe1
- 7 📍 hasport
- 8 📍 omar el-khayam
- 9 📍 yearot
- 10 📍 shiloah-hermon
- 📍 michael - birkat-moshe



# Data collected

- People count, gender
- Topographic area:
  - Elevation of highest point of stairwell
  - Change in elevation throughout the stairwell
  - Length of stairwell
  - Distance to closest bus stop, # of bus stops within 0.5km radius
- District population density
- Percentage of people in each district who:
  - Walked to work
  - Took the bus to work
  - Owned a car

# Methods of data collection

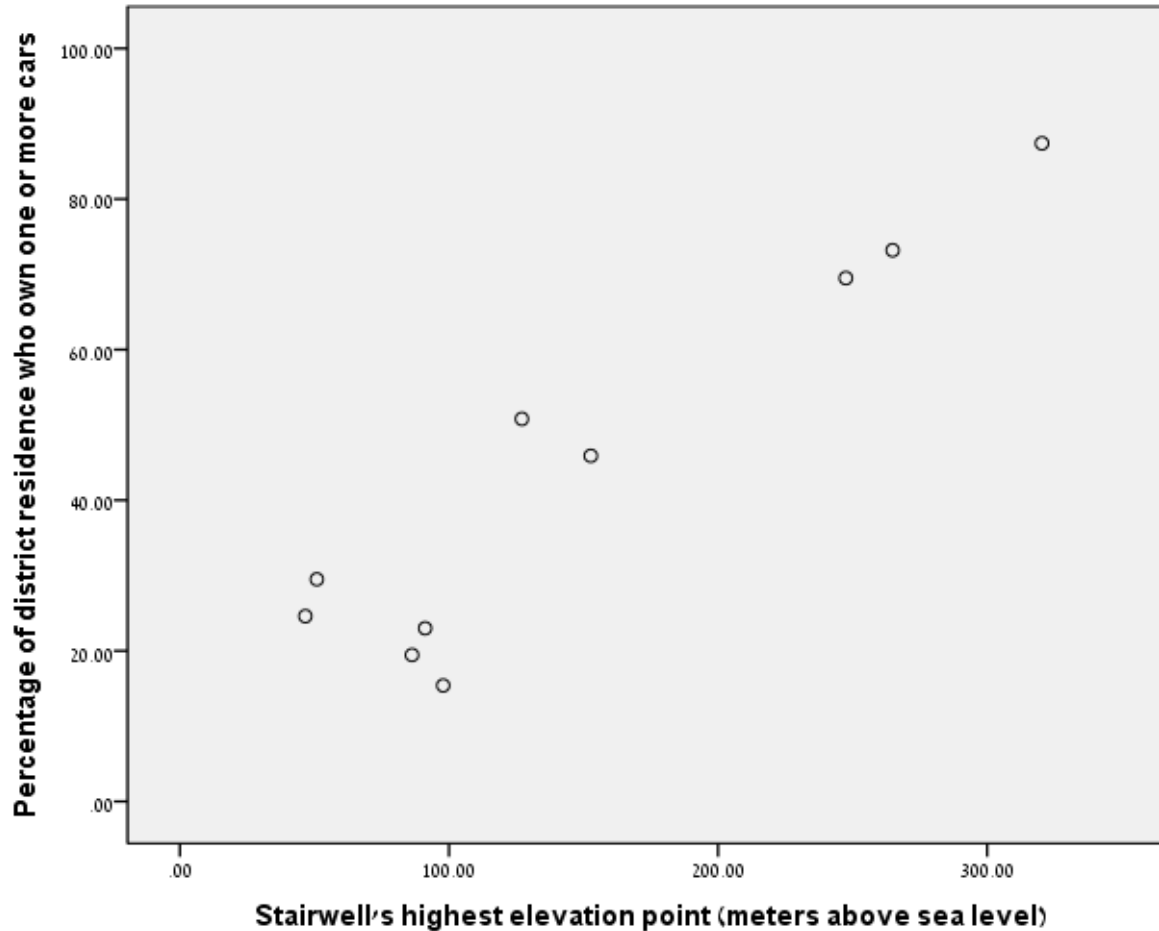
- People count, gender:
  - Direct observation
- Topographic features:
  - Google Earth Pro
- Demographic characteristics of communities:
  - Israeli Central Bureau of Statistics and the Haifa Municipality.



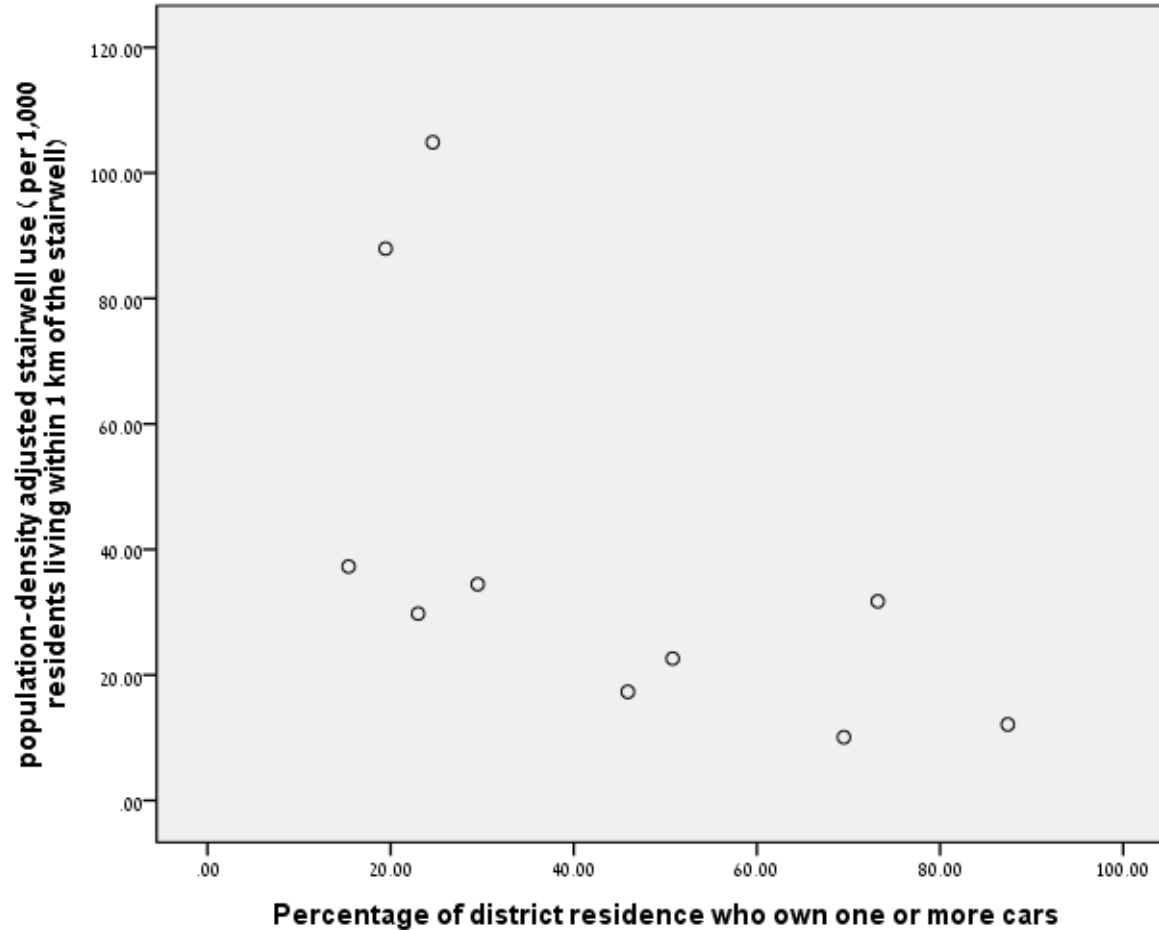
# Results

- Outdoor stairwell use is...
- Proportionally related to:
  - Percentage of residents that take the bus or walk to work
  - Distance to the nearest bus stop
- Inversely related to:
  - Car ownership/elevation (income)
  - Change in elevation
  - Length of stairway

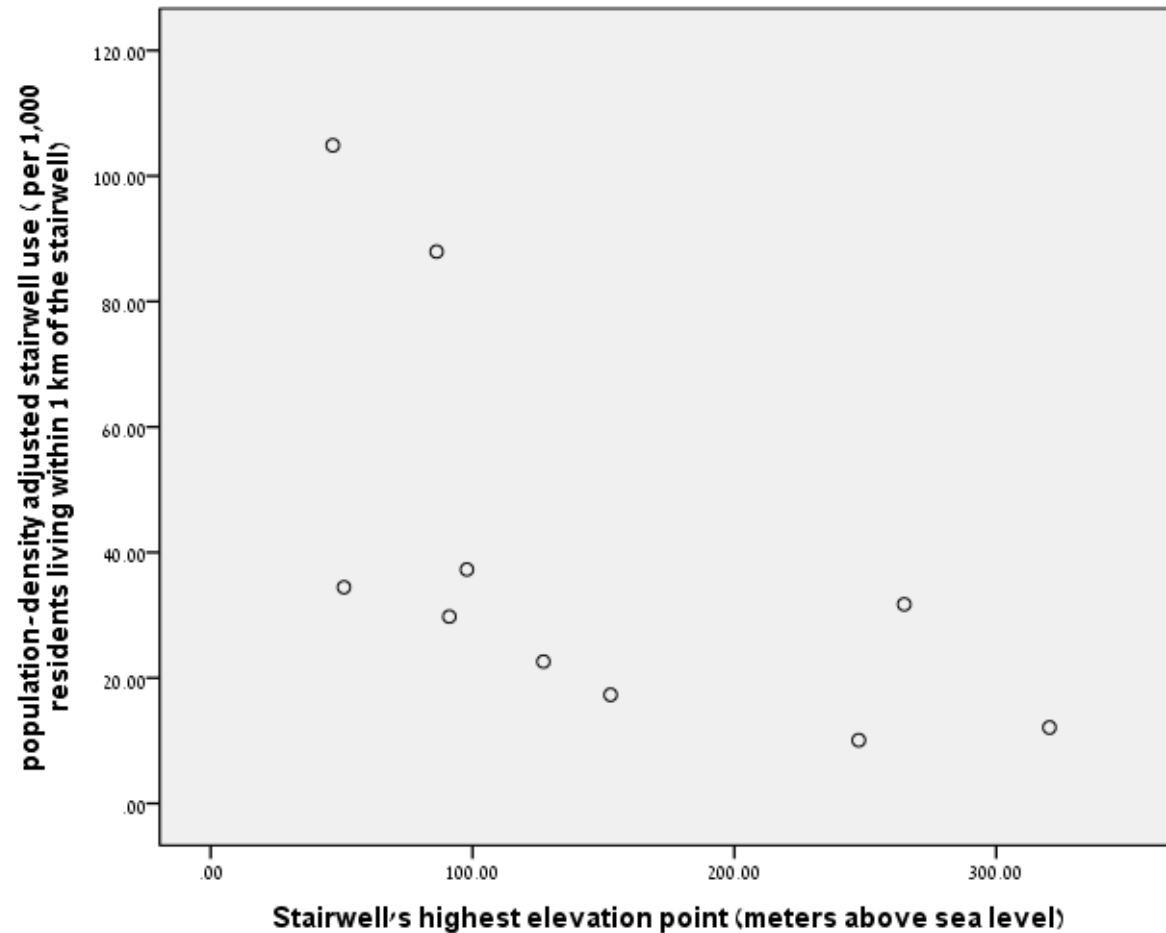
# Stairwell's highest elevation and car ownership



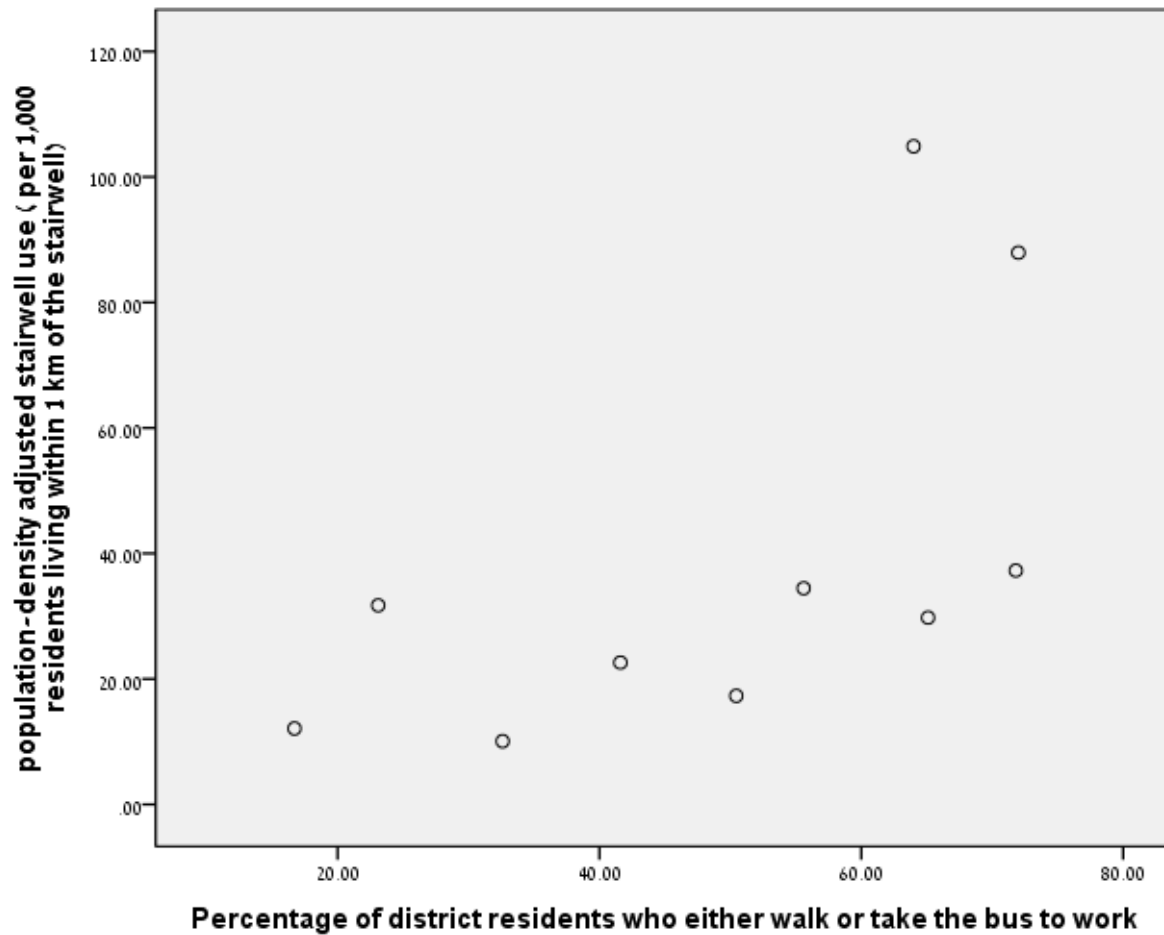
# Car ownership and outdoor stairwell use



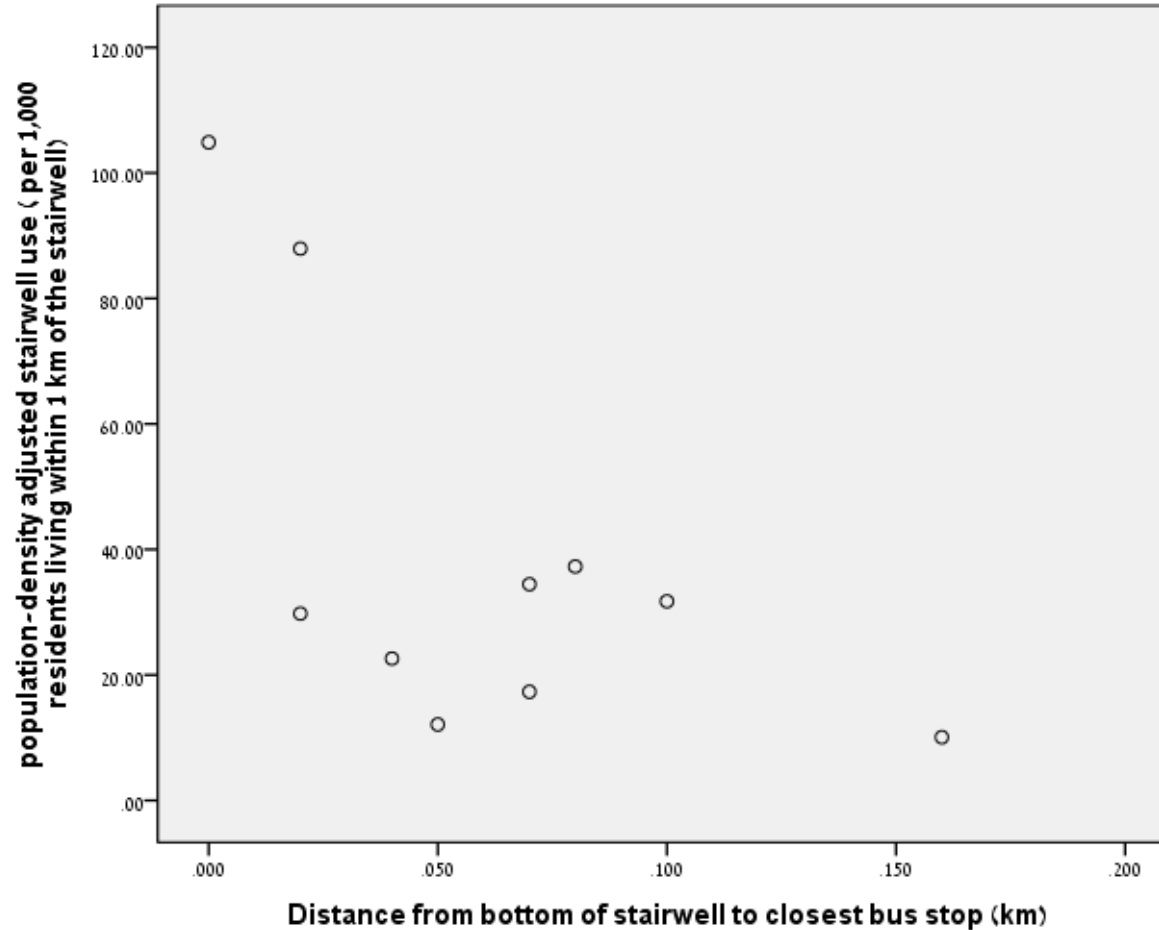
# Stairwell highest elevation and stairwell use



# Walking or taking the bus and stairwell use



# Distance to bus stop and stairwell use



# Conclusion

- This is a study first of its kind
- There is an indication that geo-spatial and residential demographic factors influence outdoor stairwell use
- With a low sample size, findings are not significant, cannot extrapolate data
- Study can aid as a springboard for future quantitative and qualitative studies looking at stairwell use in outdoor context
  - Examine other residential demographic and geo-spatial factors

# Discussion - recommendations

- Campaigns that harnessed non-health related benefits promoted stair use
- Engaging, enticing social, psychological benefits can increase physical activity
  - Sites of attraction
- Public health interventions must focus on non-health incentives, to increase physical activity
- Consideration of construction of new stairwells:
  - High density areas
  - In area with mix land use, areas of attraction
  - Low car ownership



# MPH program competencies applied

- Social behavioral sciences
- Health policy and management
- Global health
- Environmental and occupational health
- Epidemiology
- Leadership