

# The Moderating Effect of Depressive Symptoms on Associations between Objective and Perceived Built Environment Measures and Neighborhood Walking among Older U.S. Women

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# Presenter Disclosures

No relationships to disclose

# Built Environment (BE) & Physical Activity (PA)

- Neighborhood built environment → PA
  - Objectively-measured BE<sup>9-10</sup>
  - Self-reported (perceived) BE<sup>10-11</sup>
- Objective and perceived BE seem to be related but distinct constructs that predict unique variance in PA<sup>12</sup>
- Objective BE → Perceived BE → PA<sup>13-14</sup>

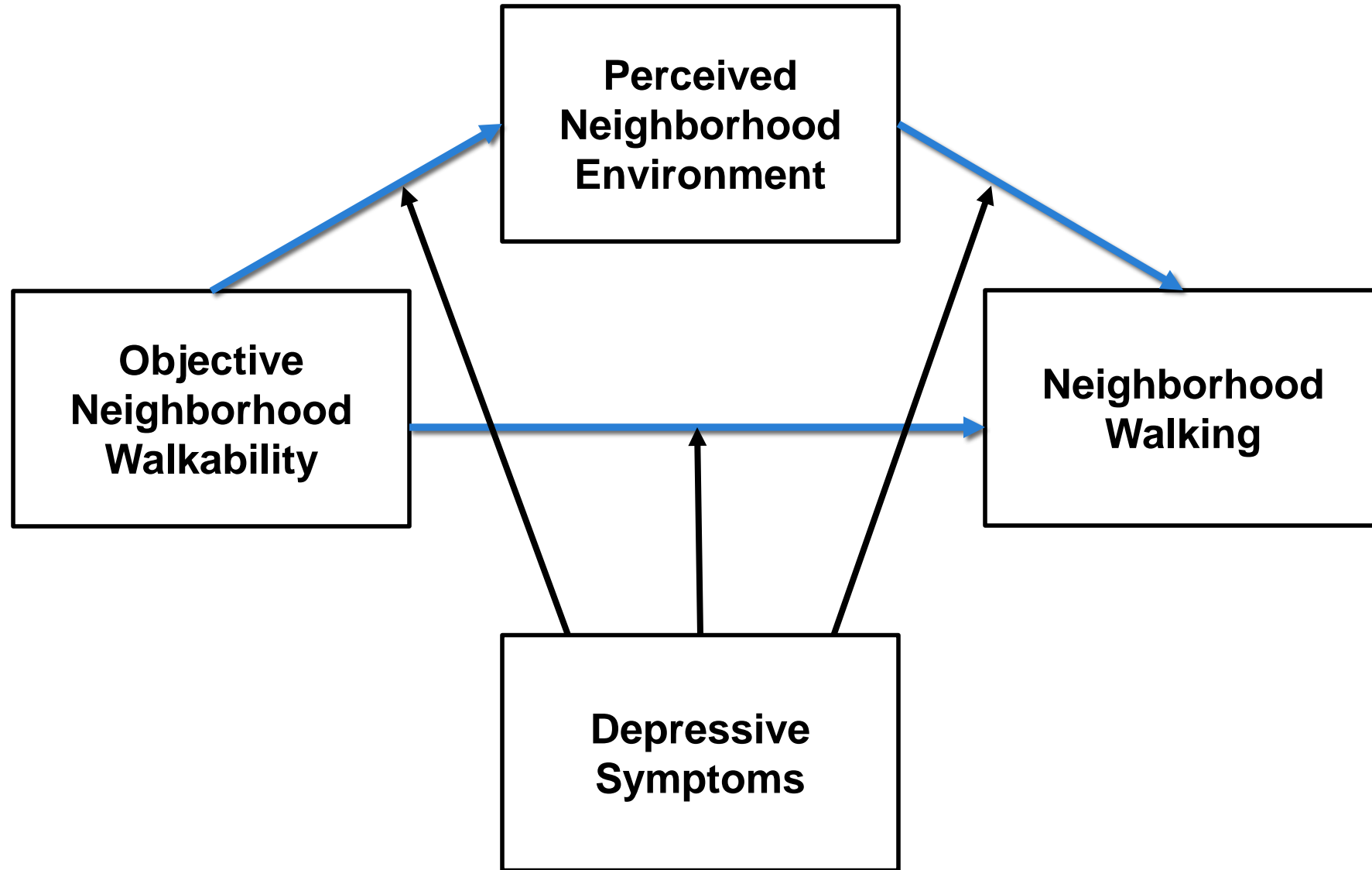
# Depressive Symptoms as a Moderator

- Environmental perception is influenced by cognitive, emotional, and social factors<sup>15</sup>
- Depressive symptoms are associated with perceptions of neighborhoods,<sup>16-18</sup> PA intentions<sup>19</sup> and PA behavior<sup>19-20</sup>
- Depressive symptoms may moderate  
Objective BE → Perceived BE → PA

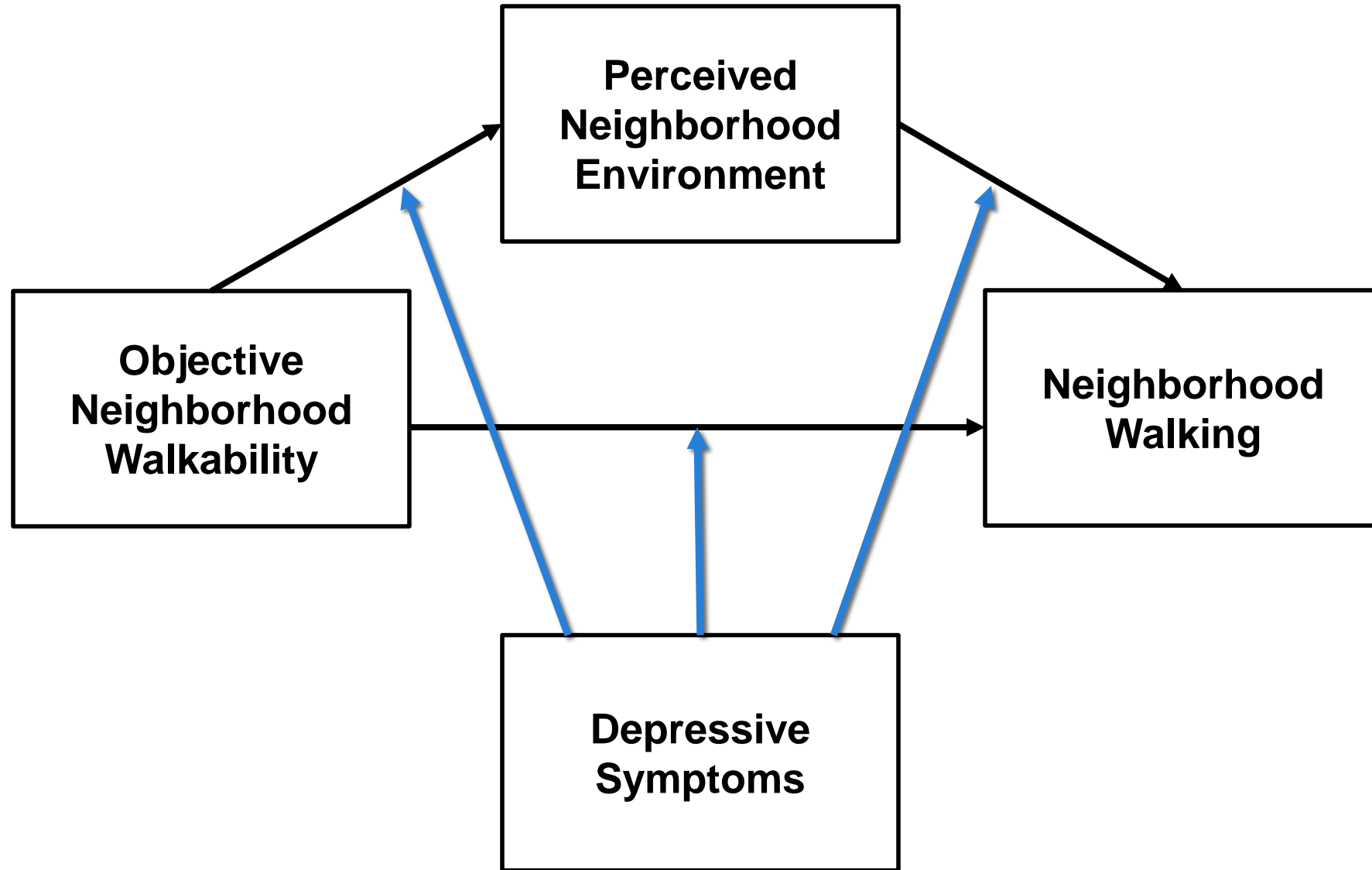
<sup>15</sup>Nasar, 2008; <sup>16</sup>Latkin et al., 2009; <sup>17</sup>Kamphuis et al., 2010; <sup>18</sup>Mair et al., 2012; <sup>19</sup>Krämer et al., 2014;

<sup>20</sup>Wielopolski et al., 2015

# Conceptual Model and Hypotheses



# Conceptual Model and Hypotheses



# Design, Setting, and Participants

- Cross-sectional
- Nurses' Health Study (NHS)
  - 2008 questionnaire
  - Female nurses
  - Living throughout the U.S.
- Participants ( $N=60,133$ )
  - Mean age =  $73\pm 7$  years
  - 98% White

# Independent Variables

- GIS-based BE measures
  - Objective walkability index<sup>26</sup> created by summing z-scores of:
    - Intersection count (1200m residential buffer)
    - Facility count (1200m residential buffer)
    - Population density (census tract of residence)
- NHS questionnaire
  - Perceived BE composite measure<sup>27-28</sup> created by summing:
    - Recreation facilities
    - Retail destinations
    - Sidewalks
    - Crime rate
  - Geriatric Depression Scale (GDS)<sup>29</sup>



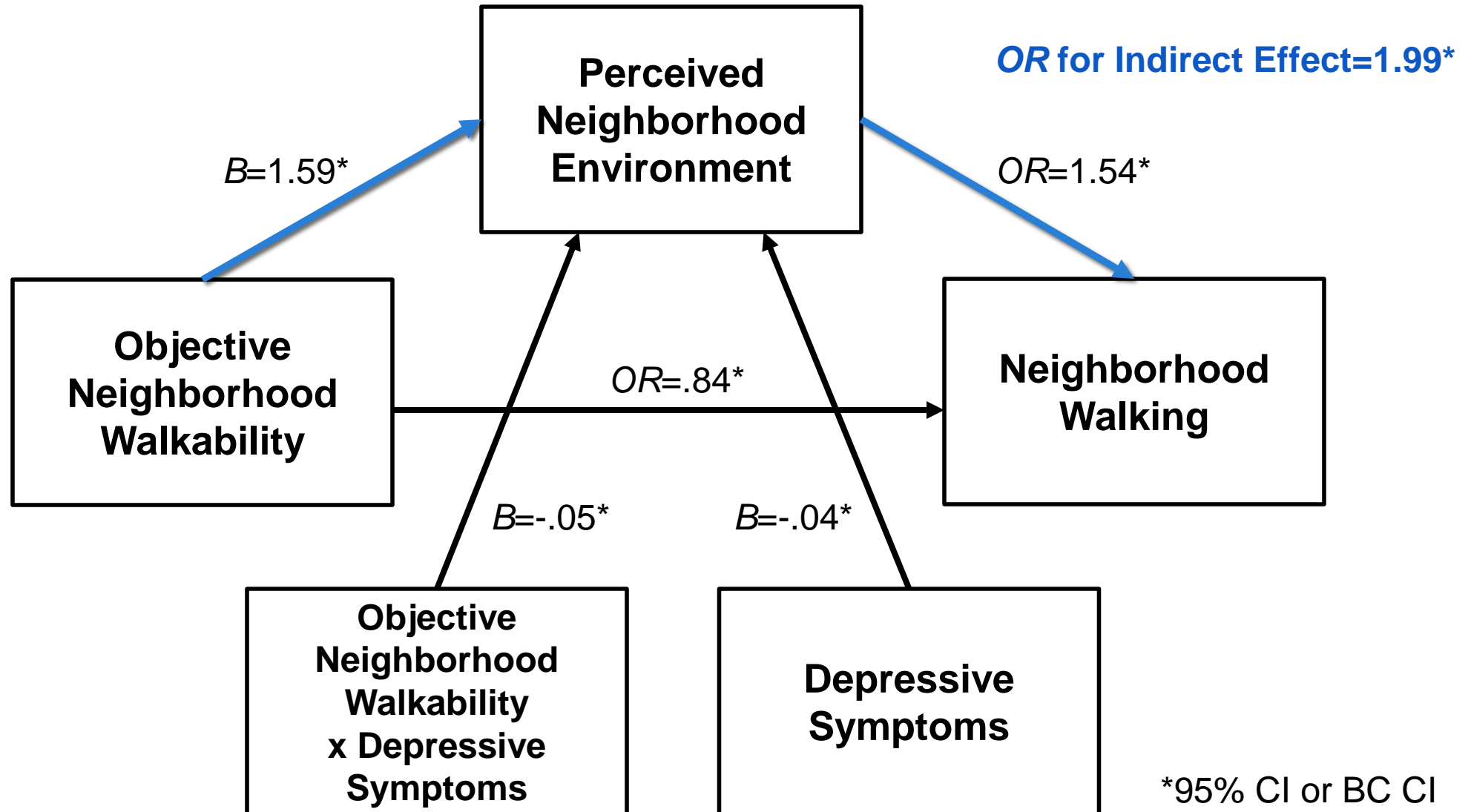
# Dependent Variables

- Neighborhood walking<sup>30</sup>
  - *I walk around my neighborhood twice a week or more for leisure or exercise.*
    - No = <2 times/week
    - Yes = ≥2 times/week

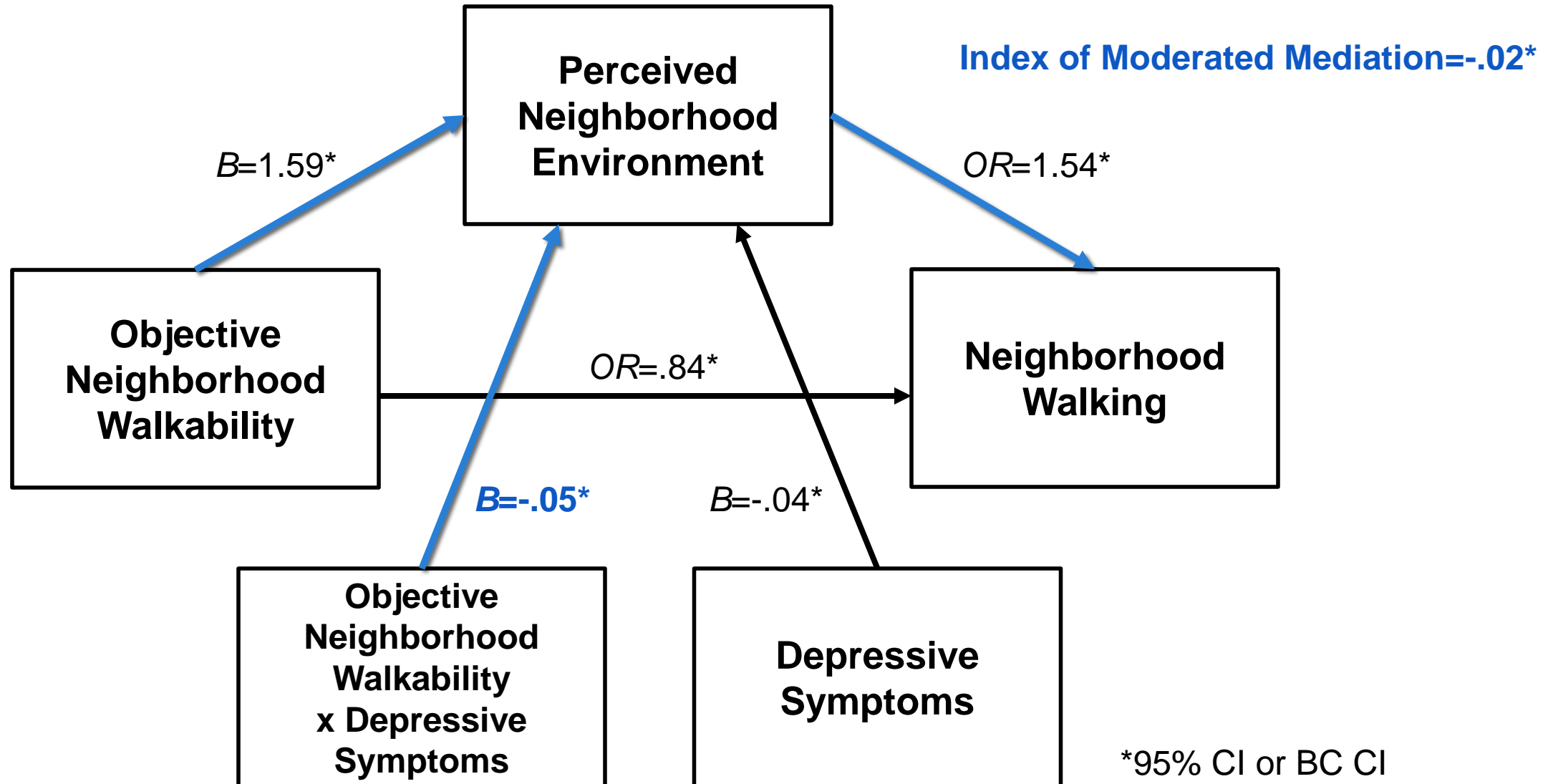
# Data Analysis

- Used multiple linear regression, controlling for covariates
- Tested moderated mediation<sup>25</sup>
  - 5,000 bootstrap samples to generate 95% bias-corrected confidence intervals (BC CIs)
  - PROCESS© v2.13 for SAS® 9.3
- Plotted significantly moderated effects
  - $M \pm 1 SD$  of depressive symptoms
  - Johnson-Neymen technique

# Results: Neighborhood Walking



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# Discussion

- Women living in more walkable areas perceived their neighborhood more favorably and were more active than women living in less walkable areas
- This association held among women with higher levels of depressive symptoms, but the association was weaker for those with higher depressive symptom scores

# Discussion

- Neighborhood walkability may not be as facilitative for walking among women with higher levels of depressive symptoms
- The perceived neighborhood environment and depressive symptoms should be factored into PA conceptual models and considered when developing community PA interventions

# Strengths & Limitations

- Strengths:
  - Large sample of women from various settings
  - Objective and perceived measures
  - Role of depressive symptoms in BE & PA research
- Limitations:
  - Cross-sectional design
  - PA self-report measures
  - Potential confounding
  - Generalizability

THANK YOU

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