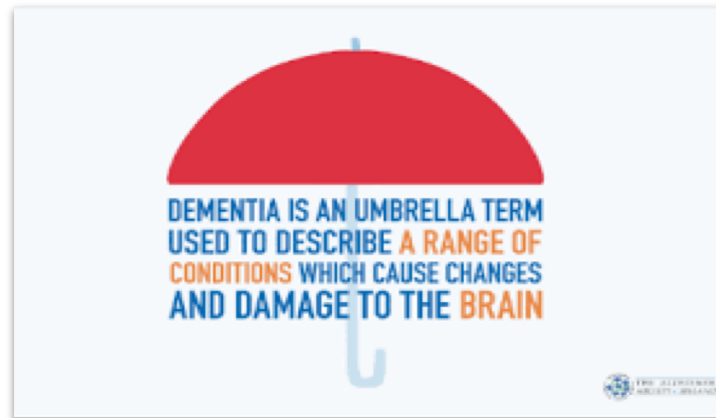


The Relationship of Physical Activity and Community Factors in Persons with Dementia

Bryson Houston, SUMR Scholar

Dementia is a major public health problem

- ❑ A loss of cognitive and behavioral function that limits the ability to think, remember, or reason
- ❑ Persons with dementia (PwDs) have severe mental decline that it interferes with activities of daily living (ADLs)
- ❑ Globally dementia is one of the leading causes of disease burden



The Importance of Activity for Persons with Dementia

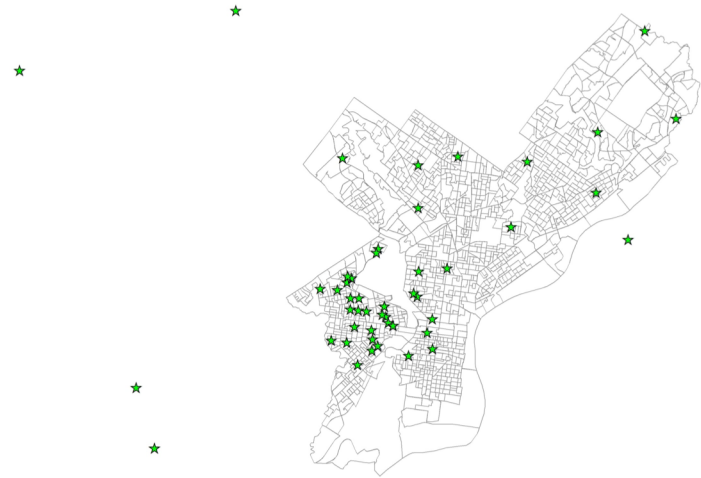
- ❑ Research shows the importance of physical activity for reducing stress in persons with dementia
- ❑ Several studies are looking at the effect of how aerobic exercise can improve thinking and memory, as well as reduced rates of dementia
- ❑ What has not been considered are the neighborhood and social factors that affect stress and one's ability to exercise

Overall question: **Do neighborhood factors affect the stress and activity levels of home-dwelling persons with dementia?**



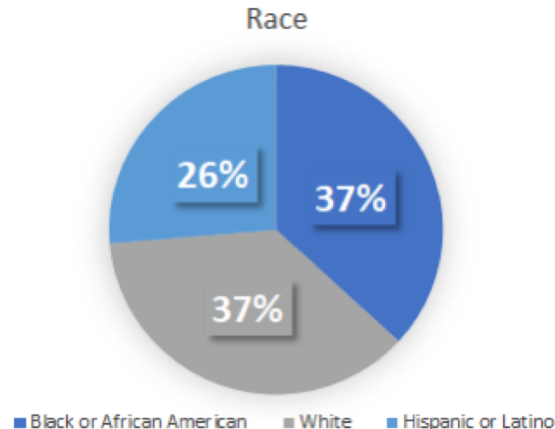
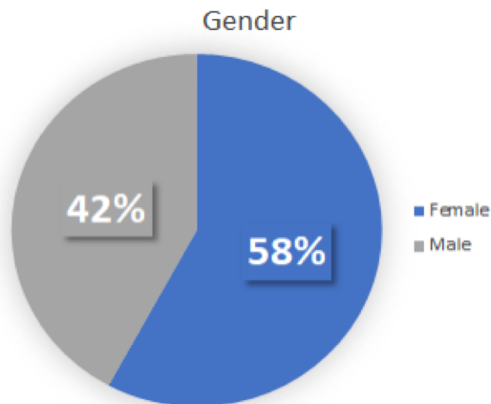
Neighborhood Data Project

- ❑ Pilot study to examine health care utilization among multiethnic community-dwelling persons with dementia in greater Philadelphia
- ❑ Aim:
 - ❑ Determine what community level factors contribute to individual well-being (i.e health related QOL, cortisol levels, sleep, and physical activity)



Methods

- ❑ 19 participants from the Neighborhood Data Project
- ❑ Criteria:
 - ❑ Age ranged from 56-80
 - ❑ Clinical Dementia Rating of 1



Data Collection

- ❑ Cortisol levels, a common measure of stress, were taken during the first weekend of the study
- ❑ ArcGIS, Social Explorer, and WalkScore used to get neighborhood level data



Cortisol



Total Crime Index

Walkability Score

Median House Value

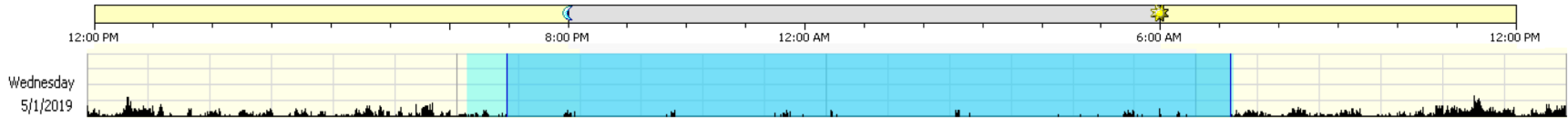
Distance to Greenpace

Population Density

90-100	Walker's Paradise <i>Daily errands do not require a car</i>
70-89	Very walkable <i>Most errands can be accomplished on foot</i>
50-69	Somewhat walkable <i>Some errands can be accomplished on foot</i>
25-49	Car Dependent <i>Most errands require a car</i>
0-24	Car Dependent <i>Almost all errands require a car</i>

Actigraphy Measure of Activity

- ❑ Activity data collected through Actiwatches
 - ❑ Worn 24/7
 - ❑ Recorded activity during first weekend
- ❑ Extracted data from Philips Actiware for activity
 - ❑ Minutes awake and active
 - ❑ Sleep time/ inactive



Correlations of Stress and Neighborhood

Cortisol was significantly associated with:

- ☐ Total Crime ($p < 0.02$)
- ☐ Walkability ($p < 0.05$)
- ☐ Distance to Green Space ($p < 0.05$)



Correlations of Activity and Neighborhood

Activity was significantly associated with:

- ☐ Minutes Awake/Active and Median Home Value ($p < 0.03$)



Correlations of Race/Ethnicity and Neighborhood

- ❑ White participants had the lower walkability ($p = 0.001$)
- ❑ Crime is twice as high in the African American/black community ($p = 0.01$)
- ❑ Home value in white participants was twice as high as minority home value ($p = 0.03$)

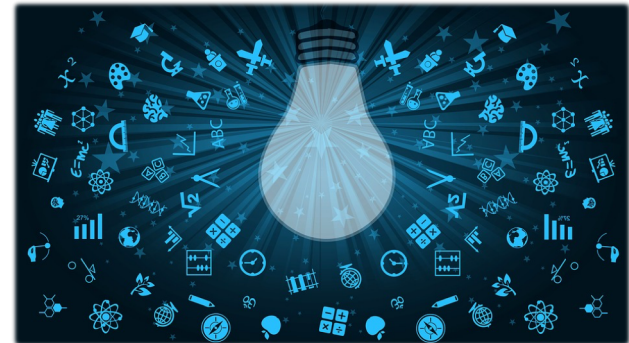


Major Takeaways

- ❑ In a small sample, we found that:
 - ❑ Neighborhood factors of crime, walkability, and distance to greenspace affect stress in persons with dementia
 - ❑ Home value was the only neighborhood factor affecting activity
 - ❑ Relationships between stress, neighborhood, and activity in persons with dementia are complex
- ❑ We need to be able to account for neighborhood factors when designing programs and interventions to encourage physical activity
- ❑ More research is needed!

Lessons Learned

- ☐ Patience
- ☐ Understanding dementia in different populations
- ☐ Health services research can be tailored to your interest



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School of Nursing Healthy Patterns Study Team



Movement is a medicine for creating change in a person's physical,

Questions?
emotional, and mental states.

Carol Welch