Can Subsidized Transportation Options Slow Diabetes Progression?

Mobility Solutions to Better Health
Healthcare and Food Access under COVID-19

Strategies to Achieve Alignment, Collaboration, and Synergy Across Delivery and Financing Systems

Research-in-Progress Webinar
December 8, 2021
12-1pm ET
Agenda

Welcome: S4A Staff

Presenters: Fei Li, PhD and Christopher Wyczalkowski, PhD
Georgia State University

Commentary: Renee Ogoun
Food As Medicine Partnership

Q&A: S4A
Dr. Li is an Assistant Professor in the Urban Studies Institute. Her research interests include transportation, affordable housing, segregation and inequalities, and the social impacts of technology. Her current work explores 1) transportation as a social determinant of health (SDOH) and potential solutions to accessibility-related health disparities; 2) the role of shared mobility and micromobility (personal mobility devices such as bikes, scooters, skateboards, etc.) in a safe, sustainable, and equitable post-pandemic urban transportation system; and 3) socio-spatial isolation and segregation in individuals’ daily lives and activity spaces.

Fei Li, PhD
Dr. Wyczalkowski is affiliate faculty with the Urban Studies Institute at Georgia State University, adjunct professor in the Department of Public Management and Policy, and Manager of Research and Analysis at the Metropolitan Atlanta Rapid Transit Authority (MARTA). Chris is an urban policy scholar with research interests related to the interaction of society with the evolving urban environment. His current research agenda is focused on the effects of transportation systems on socioeconomic characteristics of neighborhoods.
Renee Ogoun has always had a passion for taking care of people. Currently, Renee serves as the Patient Navigator for the Food as Medicine Program. She started her career as a Nurse Assistant with over six years of experience. After graduating from Georgia State University in 2019 with a Bachelors in Public Health, she knew she wanted to continue to help people. She went on to become a Patient Navigator at Grady Memorial Hospital, a position designed to help connect patients to the right care in a timely manner. She loves advocating for her patients and will continue to do so for as long as she can.
Problems

- Mobility and accessibility as a social determinant of health (SDOH)
  - Access to medical care
  - Access to healthy food
  - Access to essential services
  - Independent living and social support

- Transportation inequalities could shape health-related behavior and lifestyles, which in turn contribute to health disparities

Life Expectancy at Birth in Atlanta, GA

What We Know

- Transportation barriers can hinder healthcare utilization \([1, 3, 5]\)
- Lack of transportation limits low-income households’ access to healthy food \([6, 8]\)
- Public transit services can be absent or inadequate in neighborhoods in need \([2, 7]\)
- Limited mobility of senior, chronically ill individuals \([4]\)
- Little evidence on how reducing transportation barriers or enhancing mobility may affect health outcomes
Research Objectives

• Test the causal linkage between transportation barriers and physical & mental health

• Compare alternative solutions to enhance mobility

• Examine the inter-system gaps that impede access and utilization of health care and social services among low-income, chronically ill individuals
A Cross-Sector Partnership
Food as Medicine (FAM)

Addressing Food Insecurity & Chronic Disease Management

Spearheaded by Grady, Food as Medicine is a collaborative program involving key partners including the Atlanta Community Food Bank and Open Hand Atlanta. The Food as Medicine Partnership will address both food insecurity and chronic disease among Grady’s patients, with benefits that extend to children, families, visitors and staff.
Target Community

- Approximately 80 percent of Grady patients reside in Fulton and DeKalb Counties
- Approximately 60 percent of these patients are uninsured or underinsured
- Many of these patients live in communities defined by the CDC as vulnerable to health problems caused by external stresses (homelessness, etc.)
- High prevalence of chronic diseases (diabetes, hypertension, etc.) that also correlate to areas with high social needs

Public Transit Access

Source: Source: Easy Analytic Software, Inc. (EASI) - Census Database, Enhanced Master Database.
Methodology

• Randomized Controlled Trial (RCT)
  • Four groups testing three mobility solutions
  • Five waves of data collection over 12 months
    • Surveys on travel patterns, health-related behavior, and self-reported health
    • Health outcomes measured by Grady

• Mixed methods

• Enrollment criteria: Food As Medicine participants
  • Grady patients
  • Food insecure
  • Uncontrolled diabetes (hemoglobin A1c > 9)
Alternative Solutions to Enhance Mobility

- Public transit rides (10 rides per month)
- Cash subsidies ($25 per month)
- Mobility counseling
  - **Solution-Focused Therapy** (SFT): help individuals frame their own goals, identify possible steps towards the goals and take actions
  - Improve the utilization of existing services and resources
  - May alleviate anxiety and improve mental health
  - Qualitative data on transportation barriers and how different systems can better work together to meet mobility needs
Mobility Support (Systems for Action)
- Transit, cash, or mobility counseling

Food as Medicine
- Food prescriptions
- Biweekly grocery pickups
- Nutrition & cooking classes

Healthcare Utilization
- Primary and routine care
- Emergency care

Activities Enhancing Physical & Mental Well-Being
- Physical activities
- Social activities
- Utilization of social services

Dietary Behavior
- Indicator foods
- Nutrition intake
- Food security

Physical & Mental Health Outcomes
- Diabetes control: blood glucose, hemoglobin A1c
- Complications and general health: BMI, blood pressure, waist circumference, # of days feeling unwell in the past month
- Depression and anxiety
Participants entering the Food as Medicine program: eligibility check & recruitment (n = 480)

Baseline survey

Random assignment

Group 1 Transit (n = 120)
- 10 rides per month

Group 3 Cash (n = 120)
- $25 per month

Group 4 Counseling (n = 120)
- Mobility counseling

Group 5 Control (n = 120)

3-month follow up survey

10 rides per month

$25 per month

Mobility counseling

6-month follow up survey

10 rides per month

$25 per month

Mobility counseling

9-month follow up survey

10 rides per month

$25 per month

Mobility counseling

12-month follow up survey

Intention-to-treat analysis: as-treated analysis: attrition analysis
COVID Adjustments

- Mobility solutions
  - Public transit
  - Rideshare
  - Mobility counseling

- Data collection
  - Pre-COVID and post-COVID behavior
  - Telephone surveys

- Time frame

- Eligibility Expansion: Stage 2 hypertension (BP above 140/90)
Impacts of the COVID-19 Pandemic

• Mobility and accessibility needs
• Healthcare and service utilization
• Confounding factors affecting health and other outcomes
• Facility and protocols
• Slow recruitment and high dropout rate
Home locations of active participants (N = 121)

Home locations of terminated participants (N = 103)
Participants

- 95% Black/African American
- 64% female
- 62% receive food stamps (SNAP)
- 46% receive SSI or SSDI benefits
- 24% Medicaid, 15% Medicare, 20% self-pay
- 48% have no access to a car, 41% unable to drive or only able to drive sometimes
Health Conditions at Enrollment

- 78% with uncontrolled diabetes (A1c >= 7.0)
- 52% with stage 2 hypertension (BP >= 140/90)
- 82% with BMI >= 25; 59% with BMI >= 30
- On average, 11.7 out of the past 30 days not in good physical health and 9.8 days not in good mental health
COVID Impacts: Travel Modes

- **Household Income Since COVID**
  - Significantly increased
  - Somewhat increased
  - Stayed more or less the same
  - Somewhat decreased
  - Significantly decreased

- **How often did you leave your home in the past month vs. a typical pre-Covid month**
  - Daily / Almost daily
  - A few times a week
  - Once a week
  - 2-3 times
  - Only once
  - Never

Source: Baseline survey (N = 185)
COVID Impacts: Travel Modes

Source: Baseline survey (N = 185)
COVID Impacts: Monthly Expenses

Source: Baseline survey (N = 185)
Travel Modes

Grocery shopping

Medical
Use of Transit Cards

Breeze Entries by Month

Bus Boardings

Rail Boarding

S4A Systems for Action
## Attrition Analysis

### Total Enrolled vs. Dropout

<table>
<thead>
<tr>
<th>Group</th>
<th>Total Enrolled</th>
<th>Dropout (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transit</td>
<td>49</td>
<td>28 (57%)</td>
</tr>
<tr>
<td>Cash</td>
<td>56</td>
<td>20 (36%)</td>
</tr>
<tr>
<td>Counseling</td>
<td>59</td>
<td>30 (51%)</td>
</tr>
<tr>
<td>Control</td>
<td>60</td>
<td>25 (42%)</td>
</tr>
<tr>
<td>Total</td>
<td>224</td>
<td>103 (46%)</td>
</tr>
</tbody>
</table>

Pearson chi2(3) = 5.9858  Pr = 0.112

### # Waves Completed vs. # Participants (%)

<table>
<thead>
<tr>
<th># Waves Completed</th>
<th># Participants (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>117 (53%)</td>
</tr>
<tr>
<td>2</td>
<td>49 (22%)</td>
</tr>
<tr>
<td>3</td>
<td>26 (12%)</td>
</tr>
<tr>
<td>4</td>
<td>30 (14%)</td>
</tr>
<tr>
<td>Total</td>
<td>222</td>
</tr>
</tbody>
</table>

### Active vs. Dropout

<table>
<thead>
<tr>
<th></th>
<th>Active</th>
<th>Dropout</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female**</td>
<td>71%</td>
<td>55%</td>
</tr>
<tr>
<td>Black</td>
<td>93%</td>
<td>96%</td>
</tr>
<tr>
<td>Age</td>
<td>56.8</td>
<td>55.4</td>
</tr>
<tr>
<td>SNAP</td>
<td>61%</td>
<td>64%</td>
</tr>
<tr>
<td>SSI or SSDI***</td>
<td>56%</td>
<td>34%</td>
</tr>
<tr>
<td>BMI</td>
<td>34.0</td>
<td>32.2</td>
</tr>
<tr>
<td>A1c***</td>
<td>9.4</td>
<td>10.5</td>
</tr>
<tr>
<td>Stage 2 hypertension*</td>
<td>58%</td>
<td>46%</td>
</tr>
<tr>
<td># days physically unwell</td>
<td>12.7</td>
<td>10.6</td>
</tr>
<tr>
<td># days mentally unwell</td>
<td>10.9</td>
<td>8.6</td>
</tr>
<tr>
<td>Access to a private vehicle</td>
<td>57%</td>
<td>47%</td>
</tr>
<tr>
<td>Able to drive at all times</td>
<td>56%</td>
<td>61%</td>
</tr>
<tr>
<td>Monthly Expenses - Transportation</td>
<td>$149</td>
<td>$157</td>
</tr>
<tr>
<td>Monthly Expenses - Housing**</td>
<td>$973</td>
<td>$718</td>
</tr>
<tr>
<td>Monthly Expenses - Food</td>
<td>$285</td>
<td>$244</td>
</tr>
<tr>
<td>Leaving home daily or almost daily</td>
<td>43%</td>
<td>43%</td>
</tr>
<tr>
<td>Employed</td>
<td>19%</td>
<td>28%</td>
</tr>
<tr>
<td>Use public transit as the primary mode for one or more types of trips</td>
<td>39%</td>
<td>48%</td>
</tr>
<tr>
<td>N</td>
<td>119</td>
<td>103</td>
</tr>
</tbody>
</table>

*: p<0.1; **: p<0.05; ***: p<0.01
What the Participants Told Us

• Many are aware and make use of existing programs providing free or discounted transportation (e.g., Medicaid or insurance companies, healthcare providers, local senior services)
  • However, the experience is often negative. Long wait is typical
  • Even discounted services like “dollar rides” can be unaffordable
  • Some seemingly innocuous requirements, such as having a credit/debit card, can prevent individuals in need from using a service

• Transportation barriers can affect physical and mental health in many ways
  • For example, diabetic patients report having to plan their days around a trip, get up early and pack lunch for the long travel
  • Disruption in medication and meal schedule
Next Steps

• Power and budget analysis: determine a feasible target sample size

• Find alternative controls to enhance statistical power

• Continue to monitor attrition and work with FAM partners to identify effective strategies for outreach and retention

• Collect additional qualitative data to better understand how participants use the mobility subsidies
References


Commentary

Renee Ogoun
Patient Navigator | Food as Medicine Program

JESSE HILL MARKET

OPEN HAND  Grady  ATLANTA COMMUNITY FOOD BANK
Questions?

www.systemsforaction.org

@Systems4Action
If you would like to receive a certificate of completion for today’s ResProg webinar, please complete the survey at the end of the session.

One will be emailed to you.
Upcoming Webinar

January 12th
12 pm ET

COVID's Impact on Health Equity & Access to Health and Social Services
A Conversation across the RWJF For Action Programs

REGISTER: https://ucdenver.zoom.us/webinar/register/WN_IAxvpiMUSDWSydDwNJzgQ
Acknowledgements

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