THE IMPACT OF VARIOUS INFLUENCES ON SELF-MANAGEMENT OF ADULT AFRICAN-AMERICANS’ WITH ASTHMA

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Valdosta State University
School of Nursing
Acknowledgement

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Significance of Asthma

- Approximately 18.8 million adult Americans have asthma. (American Lung Association, 2012)
- 2.1 million emergency visits were attributed to asthma in 2009 (American Lung Association, 2012)
- An estimated 14.2 million lost work days in adults with asthma (American Lung Association, 2012)
- Annual direct health care cost of asthma is approximately $50.1 billion; indirect costs (e.g. lost productivity) another $5.9 billion, for a total of $56.0 billion dollars (American Lung Association, 2012)
African Americans with Asthma

- Disproportionally affected by asthma (CDC, 2012, but considerably less represented in research than Caucasians (Choi & Cho Chung, 2011)
- Research primarily focused on children with asthma (Choi & Cho Chung, 2011)
- Small sample sizes (Durna & Ozcan, 2003) and retention issues.
- In 2009, African Americans were three times more likely to die from asthma causes than the Caucasian population (Office of Minority Health, 2014)
Purpose of the Study

To use Social Cognitive Theory (SCT) as the framework to examine asthma self-management in African American adults with asthma.
Use of Social Cognitive Theory (SCT) for Asthma Self-Management

Personal Factors
- Asthma Knowledge & Health Literacy

Environmental Factors
- Social Support, Asthma Triggers

Asthma Self Efficacy

Behaviors
- Asthma Self-Management, Medication Adherence, Asthma Control, and Sleep Quality

Asthma QOL

Theoretical framework adapted from the Social Cognitive Theory (Bandura, 1986)
Research Design & Methods

- Correlational design.
- 39 African American adults (20-70 years of age) recruited from South Georgia.
- Data were collected using a seven-day asthma diary and self-report questionnaires.
- IRB approval obtained from GSU & Valdosta State University.
Non-Random Sample of African American Adults

**Inclusion Criteria:**
- Diagnosis of asthma by self-report and taking bronchodilators > 2 times per week (at least mild persistent asthma)
- Self-identified as of African American ethnicity
- Ages from 20 to 70
- Ability to read, write, and speak English

**Exclusion Criteria:**
- Reported an acute exacerbation or infection in the last six weeks
- Diagnosed with a cognitive deficit problem, or severe psychopathology (e.g., schizophrenia, depression)
Instruments to Operationalize Theoretical Variables

**Personal Factors**
- Asthma Knowledge (scale of KASE-AQ)
- Health Literacy – (REALM-SF)

**Behavioral Factors**
- Asthma Self-Management (ASMQ)
- Medication Adherence (Morisky Adherence scale)
- Asthma Control (Asthma Control Test)
- Sleep Quality (Pittsburgh Sleep Quality Index)

**Environmental Factors**
- Social Support (Medical Outcome Survey- Social Support Survey)
- Asthma Triggers (Asthma Trigger Inventory)

**Asthma QOL** (Asthma Quality of Life-Standardized)

Theoretical framework adapted from the Social Cognitive Theory (Bandura, 1986)
Instruments

Participant Characteristics Form:

- Age, gender, marital status, annual income, insurance status, education level.
- BMI, PEFR status, smoking history, exercise status, asthma education, comorbidities.
- 7-day asthma diary – am and pm symptoms, sleep, bronchodilator use
Results – Sample Characteristics (N = 39)

- Mean age of 55.0 ±7.99 years
- 64% female
- 63% are married
- 59% are insured
- 59% reported income $30,000/year or less
- 72% had a high school education or greater
Sample Health Characteristics

- On average, 22.1 ± 18.28 years with asthma
- 67% had received asthma education $M = 4.03 \pm 7.38$ years
- 72% did not have a peak flow meter
- 87% were non-smokers, 33% smoking hx.
- 69% reported some form of exercise weekly
- On average obese, BMI $M = 34.0 \pm 10.78$
<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>(SD)</th>
<th>Observed Range</th>
<th>Possible Range</th>
<th>Cut-Off Score</th>
<th>% Meeting Cut-Off Score</th>
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Association of Asthma Self-efficacy, Asthma Control and Medication Adherence

- Higher confidence in managing their asthma self-efficacy was significantly associated with better asthma self-management and better asthma control (ACT) ($r = -0.49$ and $r = 0.53$, $p < .01$).

- Medication adherence was not significantly related to self-efficacy. ($r = -0.24$, ns).
## The Impact of Education and Social Support on Asthma Self-Efficacy

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## Contribution of Sleep Quality to Asthma QOL above BMI & Asthma Control

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*p = .01* indicates statistical significance at the .05 level.
# Seven-day Asthma Diary Components

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<tr>
<td>Times woken at night by asthma</td>
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<td>Symptoms when you woke up</td>
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<td><strong>Questions for PM</strong></td>
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<tr>
<td>How limited you were because of your asthma?</td>
<td>1.30</td>
<td>(1.05)</td>
<td>0-5</td>
<td>0-6</td>
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<tr>
<td>Amount of shortness of breath today?</td>
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<td>(1.15)</td>
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<td>0-6</td>
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<tr>
<td>How much time did you wheeze today?</td>
<td>1.19</td>
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<tr>
<td>Total number of puff(s) of bronchodilator taken in the past 24 hours</td>
<td>1.97</td>
<td>(1.91)</td>
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The Relationships Among Daily Asthma Symptoms, Sleep Quality and Asthma QOL

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<th>Symptoms Bedtime Diary</th>
<th>*Sleep Quality</th>
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<tr>
<td>Symptoms Bedtime Diary</td>
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<td>.59**</td>
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* Indicates Spearman rho
## The Predictors of Sleep Quality

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<td></td>
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<td>SE B</td>
<td>β</td>
<td>B</td>
<td>SE B</td>
<td>β</td>
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<tr>
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*(p value model)*

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<th>p = .001</th>
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Discussion

- HCP may need education on current asthma guidelines and the use of asthma action plans.
- African American persons with asthma need education on
  - asthma action plans and guidelines for when to use maintenance versus rescue drugs.
  - importance of using a peak flow meter in asthma self-management.
Acknowledgments

Dissertation Committee Members:

• Pat Clark, PhD, RN, FAHA, FAAN (Chair)

• Shih-Yu (Sylvia) Lee, PhD, RNC

• Lynda Goodfellow, EdD, RRT, AE-C
Questions and Comments
Blacks are more likely to have asthma than both Whites and Hispanics.
## Relationship Among Adult African American Asthmatic Characteristics and Theoretical Predictor Variables

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<th></th>
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<th>aKNOW</th>
<th>ATI</th>
<th>aMOS</th>
<th>SE</th>
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<th>aMorisky</th>
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## Relationships Among Theoretical Predictor Variables

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<td>.53**</td>
<td>.59**</td>
<td>-.50**</td>
<td></td>
</tr>
<tr>
<td>AQLQ</td>
<td>.36*</td>
<td>.16</td>
<td>-.38*</td>
<td>.36*</td>
<td>.59*</td>
<td>.44*</td>
<td>.02</td>
<td>-.65**</td>
<td>-.73**</td>
<td>.72**</td>
<td>-.51**</td>
</tr>
</tbody>
</table>

Note: * denotes significance at the 0.05 level; ** denotes significance at the 0.01 level.