

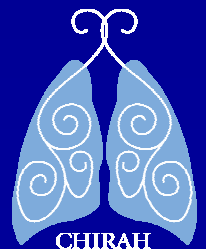
# **The Efficacy of a Community Asthma Team Intervention To Improve Asthma Self-Efficacy for Urban African American Adults**

**Molly Martin, MD**  
**Rush University Medical Center**

**The Chicago Initiative to Raise Asthma Health Equity  
(CHIRAH)**

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**John H. Stroger, Jr. Hospital of Cook County and  
Northwestern University**



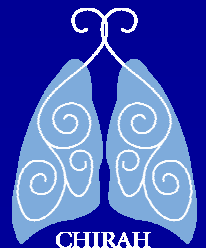


## Presenter Disclosures

### **Molly Martin, MD**

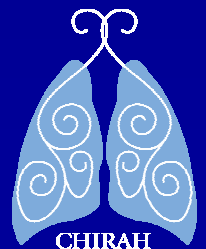
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**No relationships to disclose.**



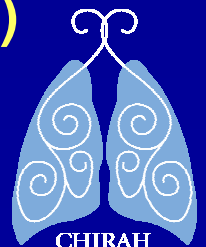
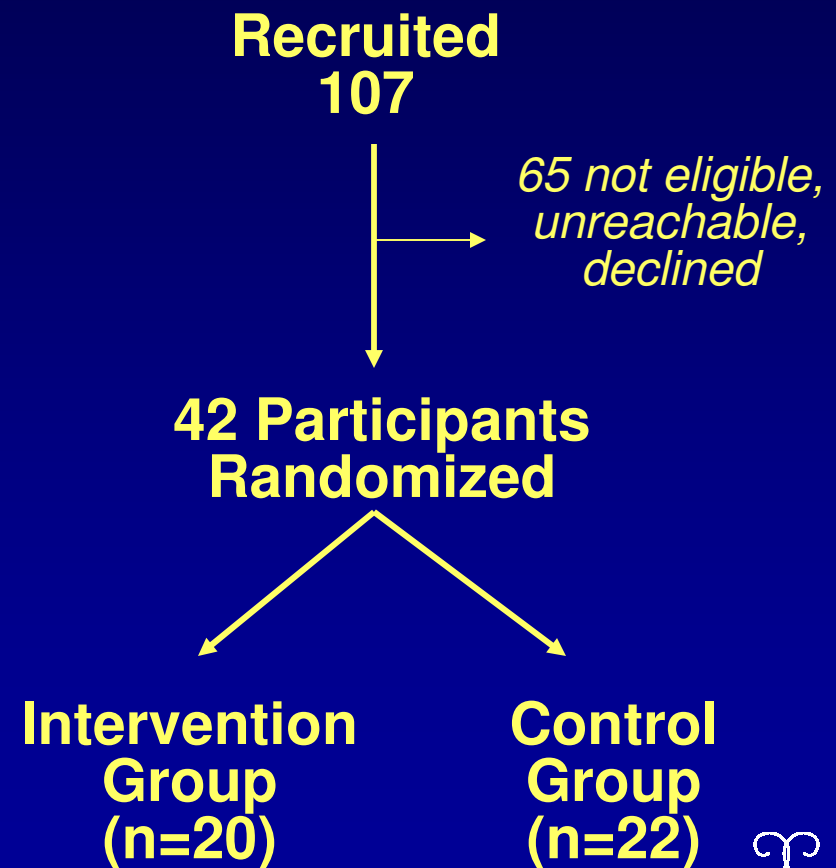
# Objective

To test an intervention to improve asthma self-efficacy for self-management behaviors in African American adults with poorly controlled persistent asthma



# Recruitment and Randomization

- Recruited through two primary care clinics located in a low income African-American neighborhood
- Used prescription records and chronic disease registries



# Study Group Contents

Active Phase

Maintenance Phase

## Intervention Group

4 group sessions lead by a social worker and 6 CHW home visits

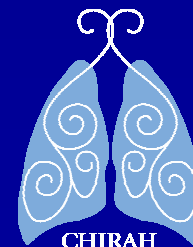
Baseline  
Data  
Collection

3 Month Data  
Collection

6 Month Data  
Collection

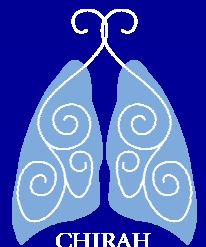
## Control Group

Written asthma education  
material sent by mail



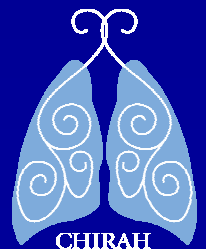
# Intervention Details

- **Informed by self-efficacy and social learning theory**
  - Social/group persuasion, peer modeling, and repeated practice build asthma self-efficacy
- **Intervention content**
  - Asthma anatomy and physiology, mediations, triggers, stress, physical activity, social support, symptom recognition, smoking cessation, communicating with providers
- **Compensation**
  - \$25 each group session
  - \$10 each home visit
  - \$30 control group after final mailing



# Intervention Staff Training

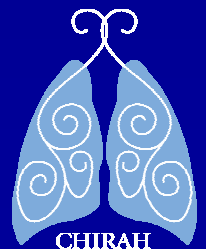
- 113 hours of training
  - Formal asthma courses from the American Lung Association
  - Specific training by investigators
  - Hands-on experience in asthma education in an asthma clinic
- Weekly ongoing support/supervision meetings with investigators



# Instruments - 1

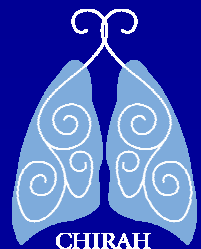
## Asthma self-efficacy

- Five dimensions
  - Managing an acute attack
  - Asthma control
  - Remembering daily controller
  - Managing emotions/environment
  - Doctor relationship
- Cronbach's alpha from 0.77 to 0.82
- Total asthma self-efficacy = average of 5 dimensions



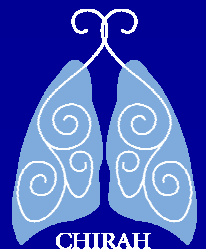
# Instruments - 2

- **Coping skills**
  - Coping Orientations to Problems Experienced Scale (COPE)
  - 6 items
- **Quality of life**
  - 15 item Juniper Mini-Asthma Quality of Life Questionnaire
- **Depressive symptoms**
  - 20 item Center for Epidemiologic Studies Depression scale (CES-D)



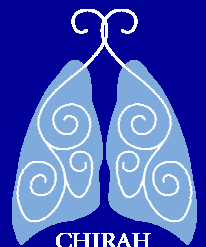
# Analysis Plan

- **Power**
  - Group size of 20-25
  - 80% power to detect an effect size of 1.0 or greater in asthma self-efficacy
- **Propensity score**
  - Includes all potential confounders measured at baseline where there was unequal distribution between groups ( $P < 0.3$ )
- **Regression**
  - To assess for differences in study groups at 3 months and 6 months of follow-up
  - Controlling for the propensity score and baseline values



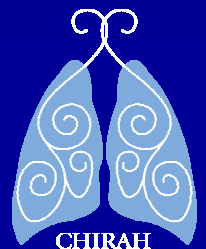
# Participant Baseline Demographics

	Control (n=22)	Intervention (n=20)	P value
<b>Age, mean (range)</b>	37 (21–50)	33 (18–50)	0.24
<b>Women</b>	77%	60%	0.32
<b>Black/African American</b>	86%	100%	0.23
<b>Education</b>			<b>0.04</b>
Some high school	41%	20%	
High school graduate/GED	14%	50%	
More than high school	45%	30%	



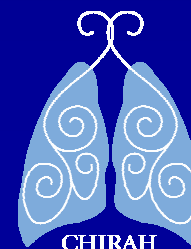
# Participant Baseline Demographics

	Control (n=22)	Intervention (n=20)	P value
<b>Household Income, annual</b>			<b>0.03</b>
< \$15,000	59%	20%	
\$15,000-\$30,000	23%	35%	
> \$30,000	18%	25%	
<b>Health Insurance</b>			<b>0.06</b>
No insurance	18%	45%	
Medicaid	68%	55%	
Private	14%	0%	



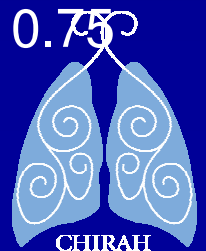
# Participant Baseline General Health

	Control (n=22)	Intervention (n=20)	P value
<b>General health (%)</b>			<b>0.04</b>
Excellent or Very Good	9%	20%	
Good	23%	45%	
Fair or Poor	68%	35%	
<b>Current smoker (%)</b>	36%	20%	0.31
<b>Depressive symptoms, mean</b>	22	17	0.28
<b>Coping skills, mean</b>	3.2	3.2	0.90



# Asthma Baseline Characteristics

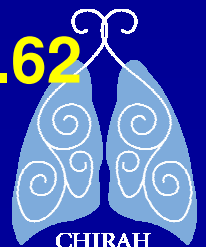
	Control (n=22)	Intervention (n=20)	P value
<b>Lifetime History</b>			
Prescribed oral steroids for asthma	82%	70%	0.48
Admitted to hospital for asthma	64%	65%	1.0
In intensive care for asthma	27%	35%	0.74
<b>Recent History</b>			
Times used inhaled steroids over past 2 wks, mean	9.6	6.6	0.21
Symptomatic nights over past 2 wks, mean	5	2.5	0.10
At least one exacerbation requiring urgent care in past 6 months	68%	60%	0.75



# Baseline Asthma Self-Efficacy

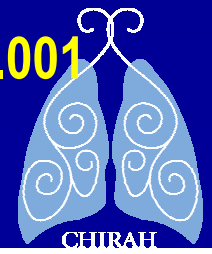
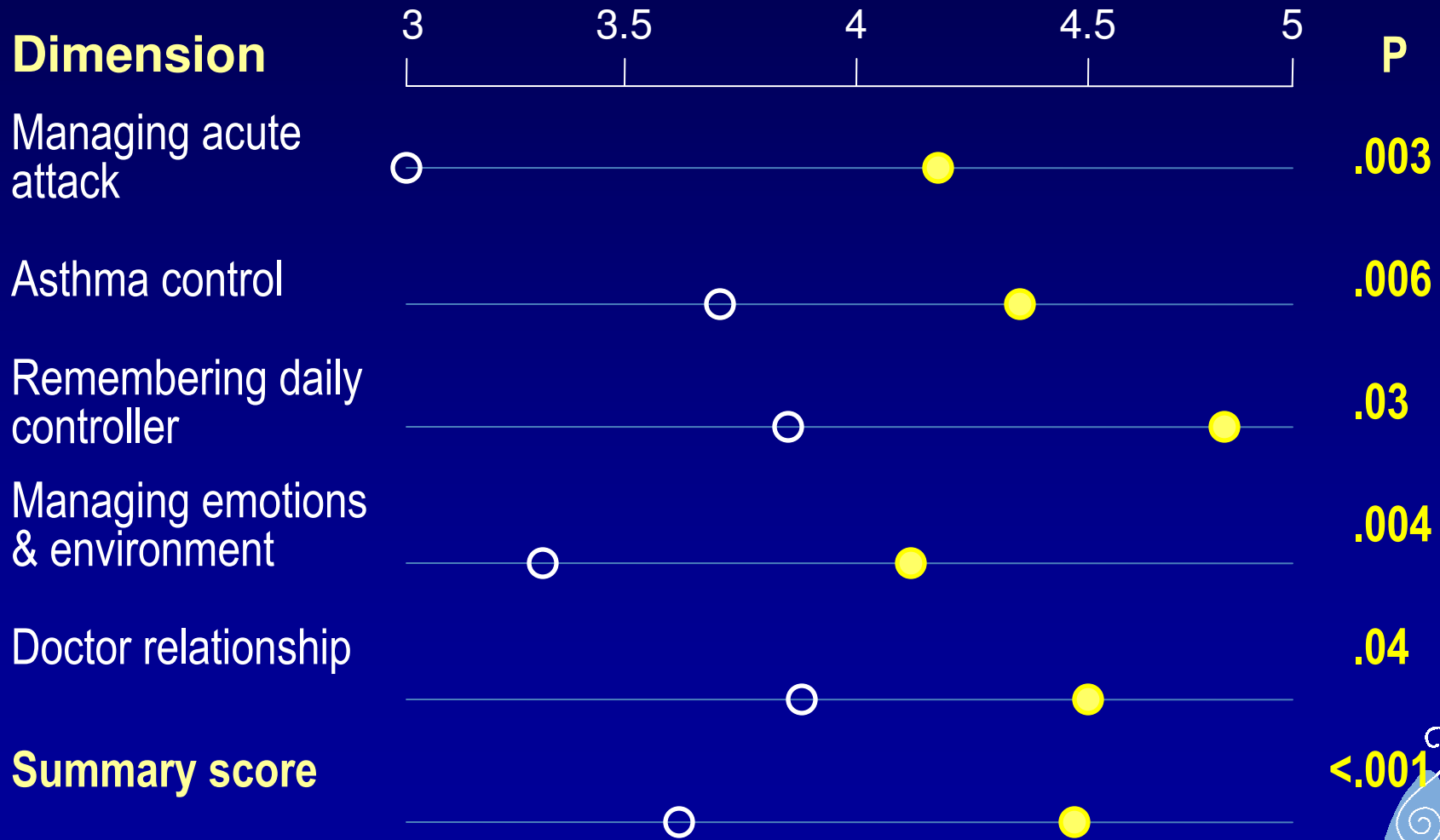
(1=not confident → 5=extremely confident)

Dimension (mean)	Control (n=22)	Intervention (n=20)	P value
1. Managing acute attack	4.0	4.0	0.79
2. Asthma control	3.9	4.2	0.60
3. Remembering daily controller	4.4	4.1	0.16
4. Managing emotions & environment	3.5	3.4	0.92
5. Doctor relationship	4.1	4.3	0.40
<b>Summary score</b>	<b>4.0</b>	<b>4.0</b>	<b>0.62</b>



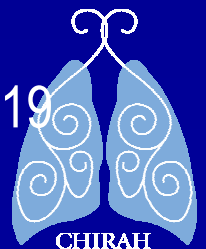
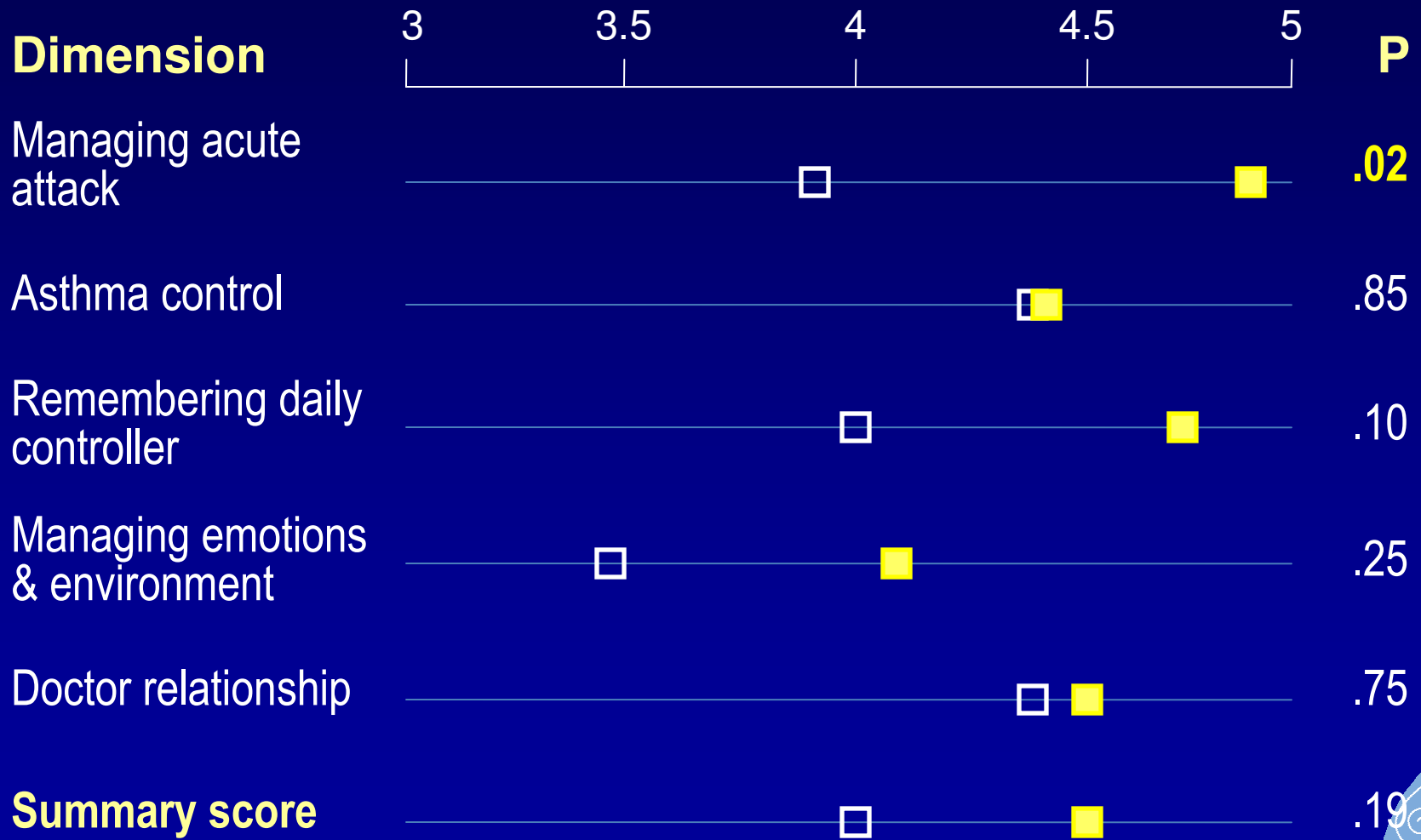
# Self Efficacy: 3-months

(adjusted for baseline value and propensity score)



# Self Efficacy: 6-months

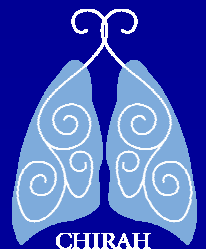
(adjusted for baseline value and propensity score)



# Other Outcomes: Group Differences

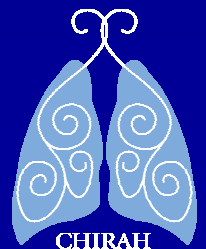
(adjusted for baseline value and propensity score)

	3 months (I minus C)	p value	6 months (I minus C)	p value
Asthma QOL	0.7	.27	1.8	.002
Coping skills	0.2	.57	0.8	.009
Spacer	46%	.11	43%	.13
Used inhaled steroids (2 wk)	3.5	.48	4.4	.49
Symptomatic days (2 wk)	-1.9	.27	-0.9	.68
Symptomatic nights (2 wk)	-1.8	.36	-1.5	.30



# Limitations

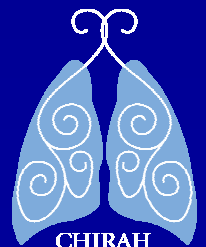
- Self-efficacy instrument not formally validated in a large sample
- Control and intervention groups both received an intervention
- Small sample size
- Groups were different at baseline
- Single community



# Summary

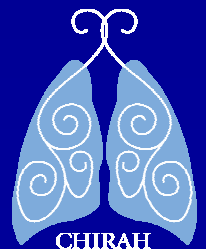
This community-based educational intervention (group sessions and home visits) among high-risk urban adults with asthma:

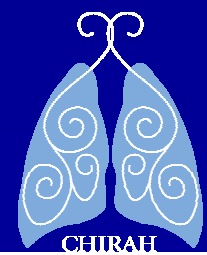
- Improved asthma self-efficacy at 3 months
  - Sustained at 6 months
- Improved quality of life and coping at 6 months
- Produced favorable trends in
  - Use of inhaled steroids and spacers
  - Reduction of symptoms



# Acknowledgements

- **All the CHIRAH investigators**
- Lori Weiselberg, MPH (the original project director)
- Research assistants Marjorie Charles Damte, RN, Kathleen Murray, MA, and Perdita Johnson
- Computer Assisted Telephone Interview (CATI) Staff Robert Sprengel, Mary Marre, Pearl Burks, Carla Cowens
- Staff at the PCC Community Wellness Center and Austin Wellness Center
- Bernadine Edwards (social worker)
- Charlie Mae Norsworthy, Pat Perkins, and Lydia Williams (CHWs)

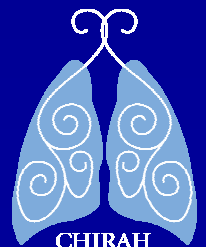




CHIRAH

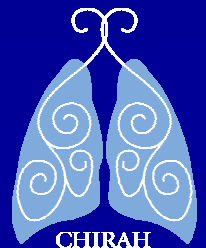
# Recruitment and Randomization - Details

- 107 patients with asthma
  - 39 were not eligible
  - 14 could not be reached
  - 10 declined
  - 2 withdrew before randomization
- 42 randomized
- Follow-up data missing
  - 6 participants (14%) at 3 months
    - 2 intervention; 4 control
  - 4 participants (10%) at 6 months
    - 1 intervention; 3 control



# Inclusion Criteria

- between the ages of 18 and 50 years
- diagnosed with persistent asthma
  - > 2 days bothered by asthma symptoms on recall of past 14 days and 1 or more urgent care or emergency room visit or requirement for oral corticosteroid in the past 12 months
- not currently pregnant
- lived within the target clinic area



# Propensity Score

(all  $p < 0.3$ )

- Age
- African-American or not
- Education level
- Zip code
- Living with at least one person with asthma
- Medicaid or private insurance
- Social desirability scale
- Self-perceived general health
- History of hypertension, high cholesterol, depression, anxiety
- Total score on CES-D
- Drank alcohol or used drugs more than meant to in last 3 months
- Number correct on asthma knowledge test

