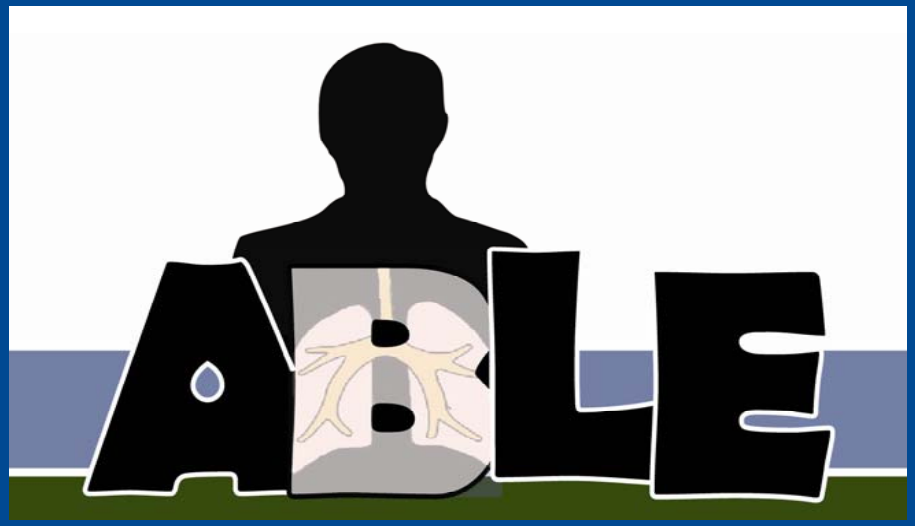
Asthma Beliefs and Literacy in the Elderly



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Background: *Asthma*

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- Asthma is a chronic lung disease requiring routine self-management
  - Adherence to controller medications (2 puffs 2x a day)
  - Proper use of inhaler devices
  - Monitoring symptoms
- Lack of proper self-management leads to increased severity of symptoms and asthma attacks
- Health literacy (HL) and disease-specific beliefs influence how successfully patients manage their disease

Background: *Asthma in the Elderly*

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- Additional disease management challenges for this group
  - cognitive decline
  - frailty and fatigue
  - managing multiple co-morbidities
- In comparison to younger asthmatics, older asthmatics are…
  - 4x more likely to die of asthma-related complications
  - 2x more likely to be hospitalized for asthma
  - stay in the hospital for longer periods of time
- Despite higher morbidity and mortality, elderly asthmatics remain under-studied

The **A**sthma **B**eliefs and **L**iteracy in the **E**lderly study: Learning what makes you ABLE to breathe easy!

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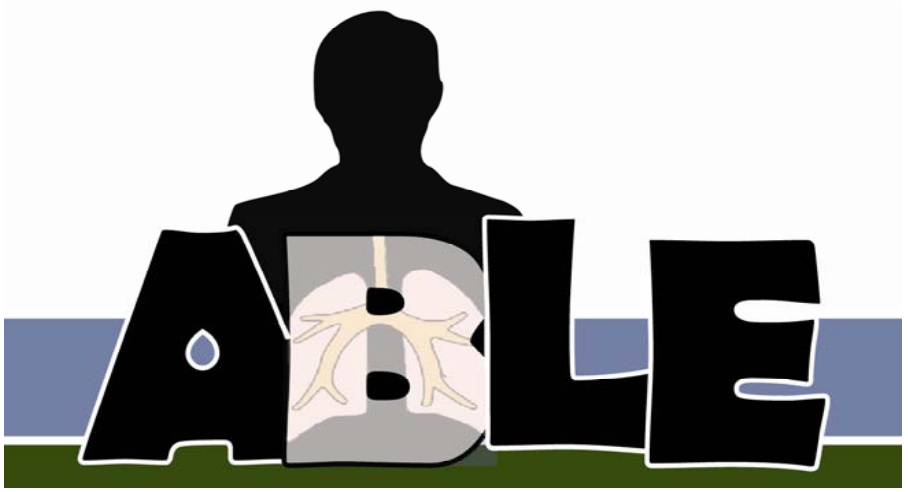
- **A**sthma **B**eliefs and **L**iteracy in the **E**lderly (ABLE) was designed to address this gap in the literature

- The ABLE Study is the first to examine the pathways leading to asthma morbidity in elderly asthmatics



ABLE Study Schema

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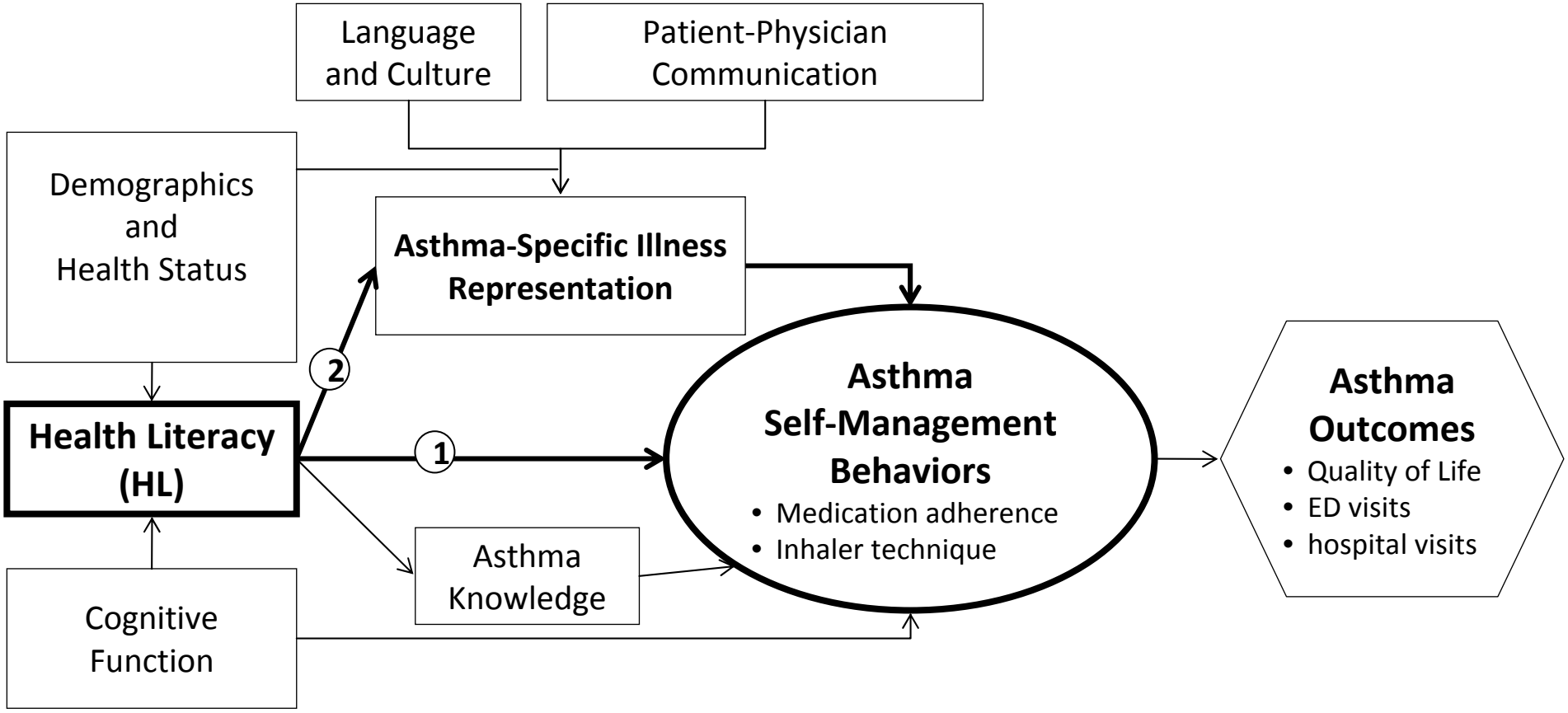

Specific Aim 1

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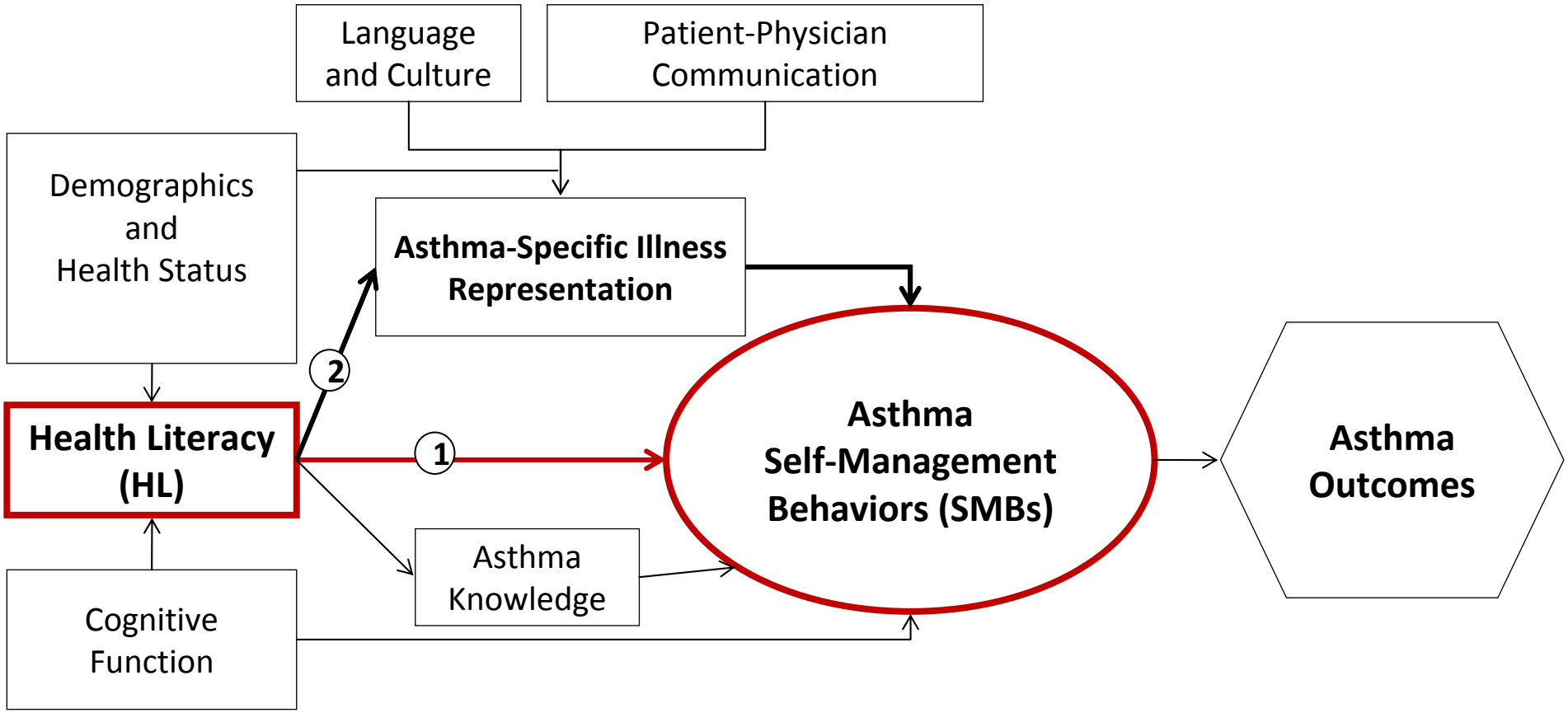
Determine the association between HL and asthma SMBs



Specific Aim 2

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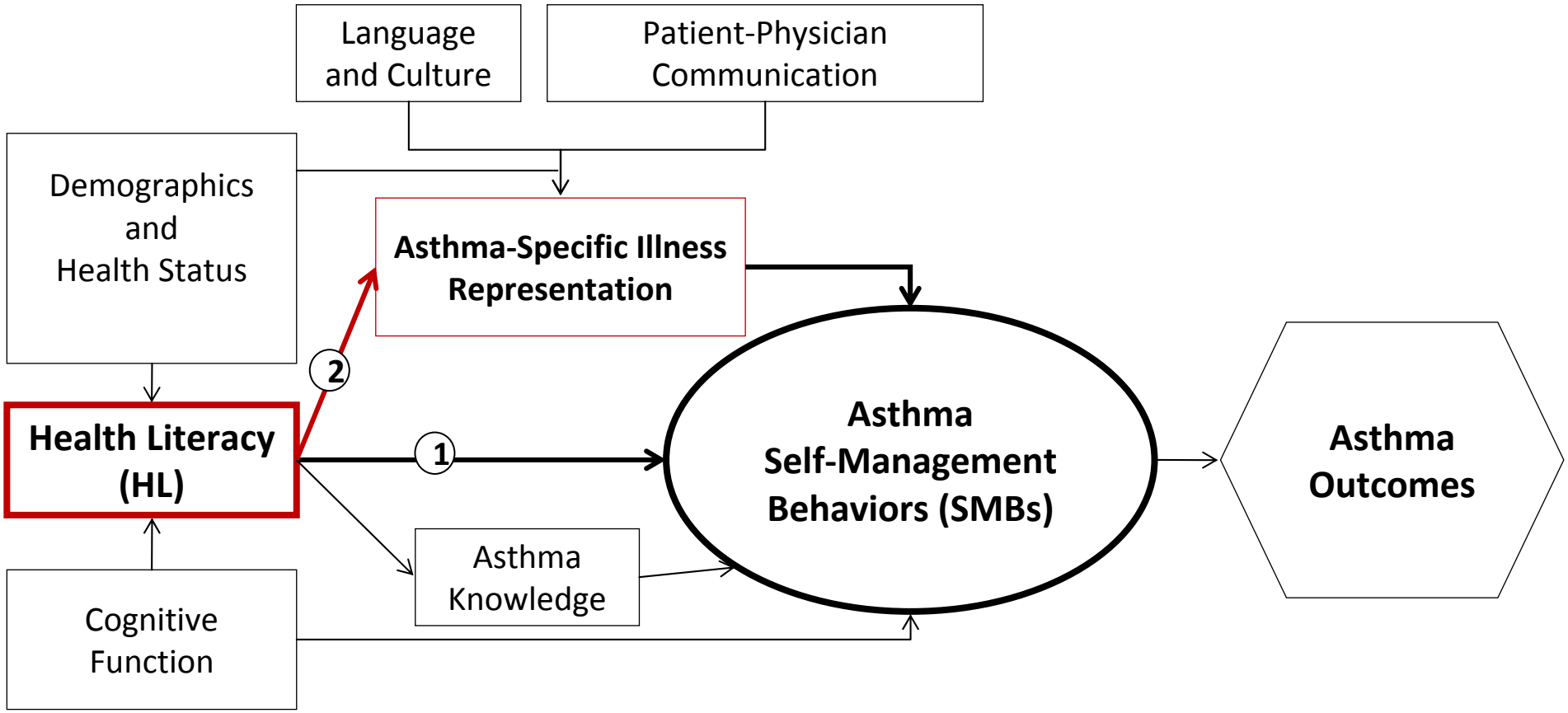
Determine the association of HL with asthma-specific beliefs



Specific Aim 3

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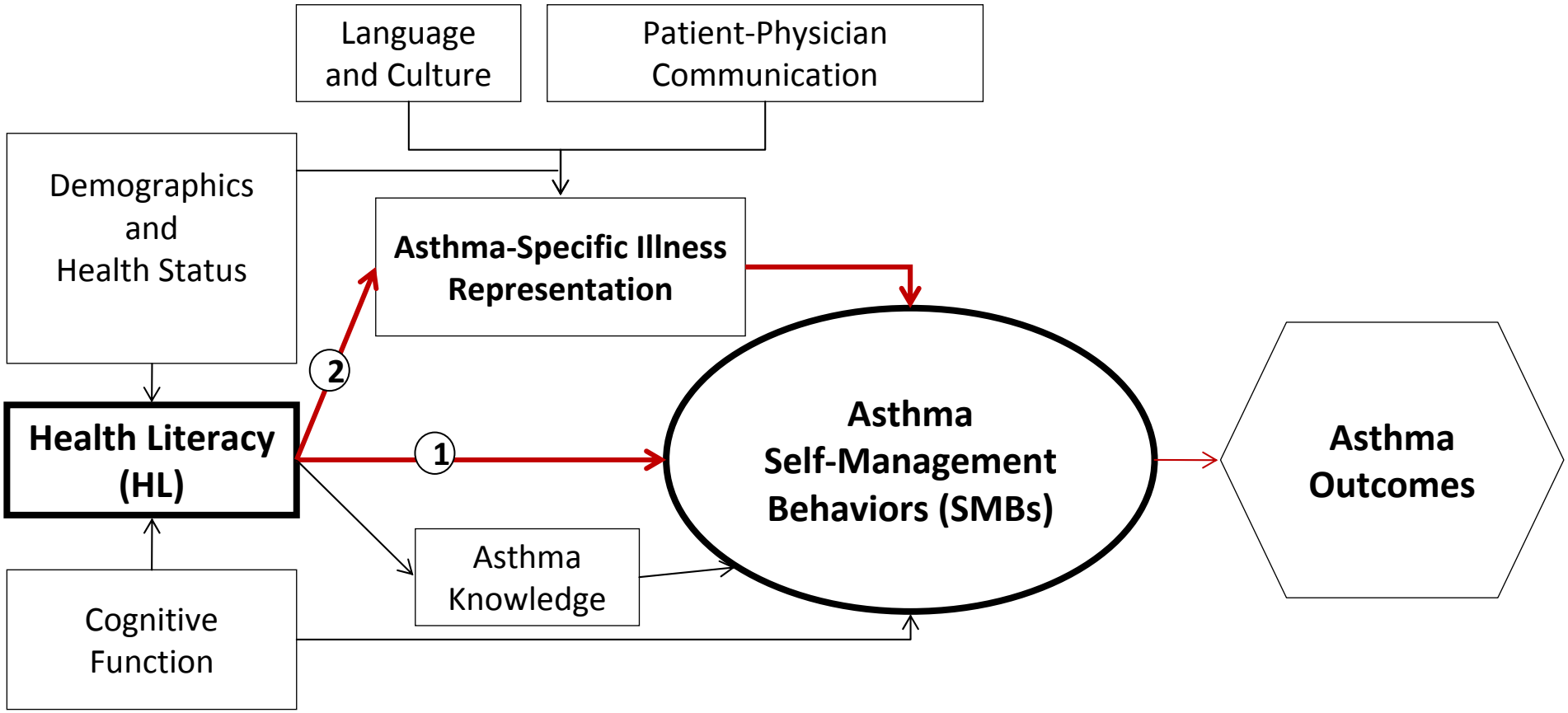
Identify the causal pathways linking HL and asthma beliefs with asthma SMBs, using structural equation modeling



Research Setting

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- **New York City practices/clinics**
  - Mount Sinai Medical Center
    - General internal medicine, pulmonary, geriatrics
  - Lutheran Medical Center
    - Sunset Park and Park Slope Family Health Centers
- **Chicago practices/clinics**
  - Northwestern Memorial Faculty Foundation
    - General internal medicine and allergy/immunology clinics
  - Mercy Family Health Center
  - Erie Family Health Center

Methods

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- **Patients are identified through the electronic medical record using ICD-9 codes**
- **Inclusion criteria**
  - Mild, moderate, or severe persistent asthma (NIH guidelines)
  - Age ≥60 years
  - English- or Spanish-speaking
- **Exclusion criteria**
  - Diagnosis of other chronic respiratory illness
  - ≥10 pack-year history of cigarette smoking
  - Dementia

Methods

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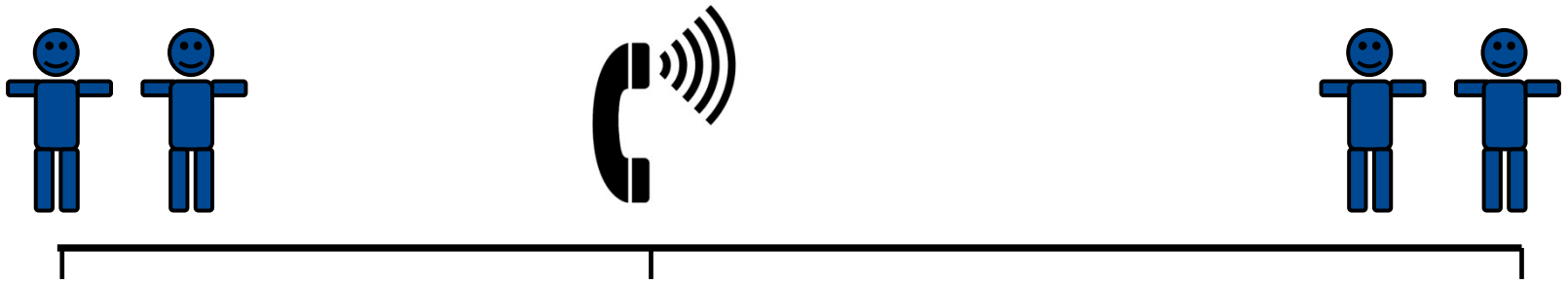
- We recruit patients over the phone and in-person
- Patients are asked to complete 3 interviews over 1 year



Baseline
- 2-hr interview
- In-person

3-Month Follow Up
- 25-min interview
- Telephone

12-Month Follow Up
- 1.5-hr interview
- In-person

Retention

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- Retention is very high among our study patients

TIME POINT	EXPECTED	COMPLETED	% COMPLETED
Baseline	-	441	-
3-Month	429	420	98%
12-Month	316	282	89%

- Additional strategies used by the study team:
  - Holiday cards
  - Birthday cards with lottery scratch offs
  - Newsletters
  - Completion certificates

Main Outcomes

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OUTCOME	MEASURES
Control	Asthma Control Questionnaire (ACQ)
Quality of Life	Mini-Asthma Quality of Life Questionnaire (AQLQ)
Self-Management Behaviors	Medication Adherence Report Scale (MARS)
	Objective Adherence
	Metered Dose Inhaler (MDI) Technique
Resource Utilization	Emergency Department and Hospital Admissions
Lung Function	Spirometry Assessment (FEV_1)

Main Predictors

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PREDICTOR	MEASURE	DETAILS
Health Literacy	Short Test of Functional Health Literacy (S-TOFHLA)	• Reading comprehension and numeracy
Cognition	Mini-Mental Status Exam (MMSE) Trail Making Tests Animal Naming Test WMS Story A Letter-Number Sequencing Pattern Comparison	• Cognitive impairment • Working memory • Verbal ability • Inferential reasoning • Processing speed
Asthma-Specific Health Beliefs	No Symptoms, No Asthma	• Belief that you only have asthma when symptoms are present
	MD Can Cure	• Belief that your asthma can be cured
	Not Always Have Asthma	• Belief that you will not always have asthma

Analytic Approach

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Aims 1 (HL and SMBs) and 2 (HL and Beliefs):

- Multivariate longitudinal analyses
  - Generalized Estimating Equation (GEE)
  - Linear mixed models

Aim 3 (Causal Pathway):

- Structural Equation Modeling

Demographics

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Table 1. Baseline Characteristics (n=441)			
Age		**Education**	
60-64	44%	Less than 12 years	35%
65-69	24%	High School / GED	17%
70+	32%	1-3 Years of College	19%
Sex		College degree or higher	30%
Female	84%		
Race		**Asthma Health**	
Non-Hispanic White	22%	Years since diagnosis *(med, IQR)*	29.0 (35)
Non-Hispanic Black	30%	Use of a Controller Medication	79%
Hispanic	39%	Ever Intubated	9%
Other	9%		
Monthly Income			
$0-$750	25%	**Low Health Literacy**	36%
$751-1350	30%	**Cognitive Impairment**	59%
$1351-3000	24%		
>$3000	21%		

Asthma Self-Management Behaviors and Beliefs

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Table 2. Asthma Self-Management Behaviors and Health Beliefs (n = 441)	
Poor Asthma Self-Management Behaviors	
Poor Controller Medication Adherence	
Self-Reported	62%
Diskus Device	37%
Improper Technique Using Inhaler	63%
No Doctor in charge of asthma care	39%
Erroneous Asthma-Specific Health Beliefs	
No symptoms no asthma	53%
Will not always have asthma	30%
Doctor can cure my asthma	20%

Findings To Date

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- **Aim 1:** Examine the association of HL with asthma SMBs
  - Low HL is also associated with poor adherence
  - Low HL is associated with worse asthma outcomes
- **Aim 2:** Examine the association of HL with asthma beliefs
  - Low HL is associated asthma beliefs, including the belief "No symptoms, no asthma"
- **Aim 3:** Identify the causal pathways that link HL with asthma beliefs and self-management behaviors
  - *Pending*

Conclusion

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- ABLE is the largest study to date to examine asthma beliefs, asthma self-management, health literacy, and cognition among elderly asthmatics

- Findings will have implications to support the development of asthma self-management interventions tailored to older adults with asthma

Thank You!

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- Our Team →

New York City Team

Chicago Team

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Citations

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