

Assessing Effectiveness of Educational Interventions on Subpopulations of Primary Caretakers From Pittsburgh Environmental Asthma Study Based on KAB Survey Scores

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Objectives

- Determine if educational interventions have a positive effect on primary caretaker's knowledge, attitudes and beliefs from Pre-Intervention to 1 month Post-Intervention.
- Determine if there was a persistence of effect from 1 month Post-Intervention to 6 months Post-Intervention.
- Evaluate if educational interventions show changes between a subpopulation of caretakers who smoke vs. non-smokers based on KAB scores.
- Identify vulnerable subpopulations of primary caretakers who will need supplementary educational intervention in future public health applications of this study design.



Background

Healthy Homes Resources At Home program was designed to positively influence the health of the asthmatic child by reducing environmental triggers found in the home.

- Study recruitment consisted of children from low income North-Side communities of the City of Pittsburgh through:
 - Clinics associated with Allegheny General Hospital.
 - Alliances with Community Outreach organizations.
- Children determined to have environmentally induced asthma via skin tests and pulmonary function tests.
- Pre-evaluation and post-evaluation ultimate outcome measurements included:
 - Use of rescue inhaler
 - Lost school days
 - Emergency Room Visits related to asthma
 - Number of asthma related symptom days
- Educational interventions identifying environmental triggers in the home were given to primary caretakers. Interventions included:
 - Asthma friendly cleaning tips
 - Smoking as a trigger
 - Environmental assessment of home
 - Walk-thru inside and outside of home
 - Fungi, Dust Mites and pet dander allergens
 - Air quality tests, lead, asbestos
 - Abatement of assessed triggers

Knowledge, Attitudes, and Beliefs (KAB)

- A pilot tested KAB Questionnaire was administered to primary caretakers of the child with asthma three times over the course of the study.
- Survey used as an instrument to measure knowledge, attitudes and beliefs of caretakers, regarding ability to care for asthmatic child.
- The KAB surveys were scored using a Likert Scale.
- The scale was measured using a 1-to-5 rating scale.
- 500 Total points possible on survey.
- Survey consisted of questions about asthma basics, asthma and the environment, actions in the house, and thoughts, feelings and beliefs on caring for the child.

The Three KAB surveys included:

- Pre-Intervention KAB
 - Given on 1st home visit on recruitment into study before any educational sessions were initiated.
- 1 Month Post-Intervention KAB
 - Given within 1 month following educational interventions.
- 6 Month Post-Intervention KAB
 - Administered 6 months later at conclusion of study.
 - Determine persistence of effect of educational interventions.

Examples of Questions from KAB Survey

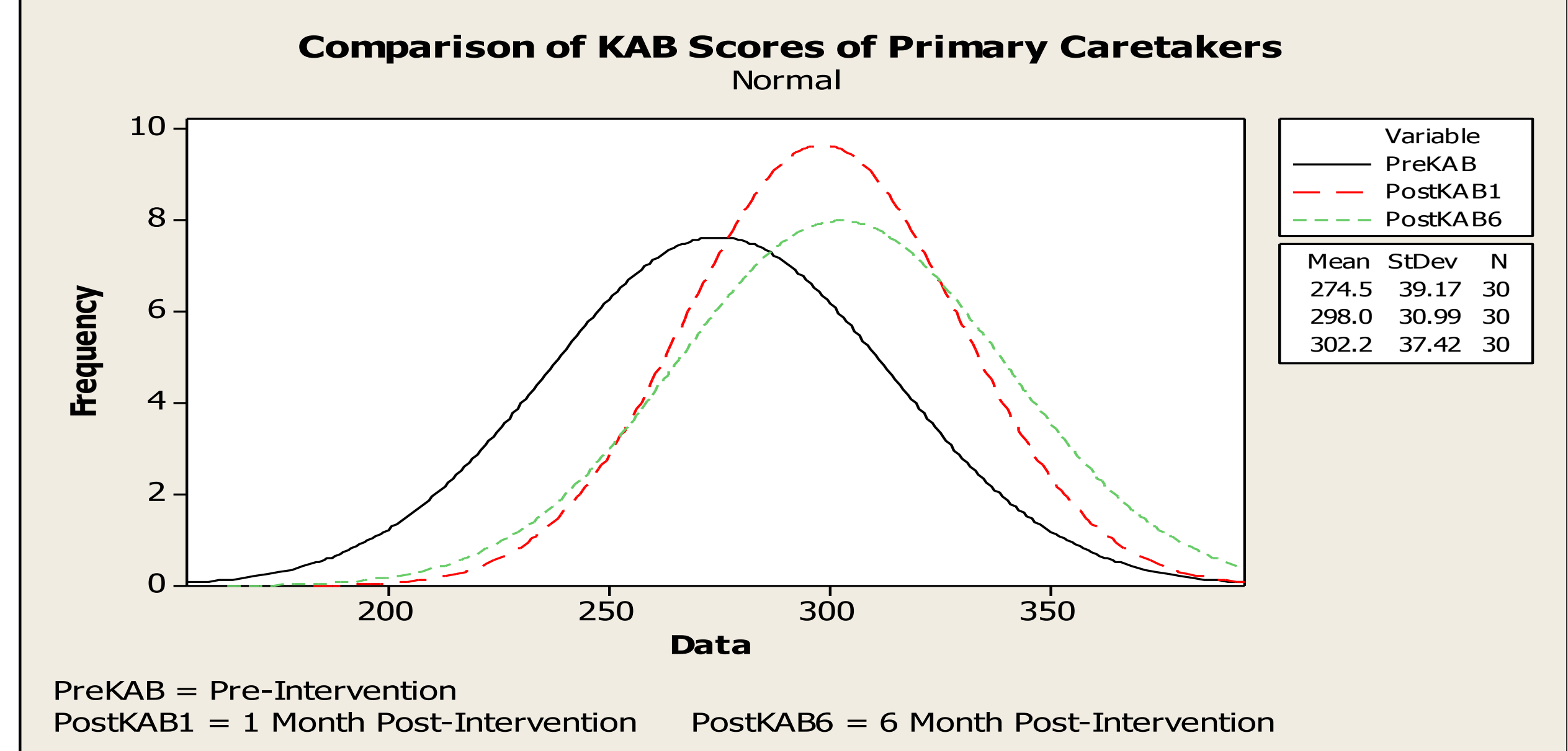
1. Dirty air can make my child's Asthma worse?
 Strongly Agree Agree Disagree Strongly Disagree Don't Know
2. Different people are sensitive to different triggers?
 Strongly Agree Agree Disagree Strongly Disagree Don't Know
3. Keep furry and feathered pets out of the child's room.
 Strongly Agree Agree Disagree Strongly Disagree Don't Know

Methods

- KAB surveys given to primary caretaker
- Scored using Likert Scale
 - Sums of scores from ratings tallied for a total score
 - Data entered into SPSS 16.0 Database
 - Data analyzed using Minitab 15 and SPSS 16.0 software
- Comparison of educational interventions given to subpopulations of caregivers to assesses improvement within groups and between groups
- Primary caregivers as an entire group
 - Primary caregivers who smoke vs. non-smokers
 - Descriptive statistics performed for each KAB survey time
 - 2-Sample t-tests between groups
 - Paired t-tests within each group
 - 2-sample t-test paired differences between groups

All Primary Caretakers

Primary Caretakers Paired T-Test	N	Mean	StDev	P Value	Confidence Interval (95%)
Pre-Intervention	114	275.7	38.1	0.000	(12.5, 26.8)
1 Month Post Intervention	114	295.4	31.1		
1 Month Post-Intervention	30	298.0	30.9	0.606	
6 Month Post-Intervention	30	302.2	37.4		
Pre-Intervention	30	274.5	39.1	0.001	(9.7, 45.7)
6 Month Post-Intervention	30	302.2	37.4		



Smokers vs. Non-Smokers

Smokers Paired T-Test	N	Mean	StDev	P Value	Confidence Interval
Pre-Intervention	30	274.1	34.6	0.231	
1 Month Post Intervention	30	282.6	35.2		
1 Month Post-Intervention	5	295.4	37.1	0.203	
6 Month Post-Intervention	5	299.2	36.8		
Pre-Intervention	5	278.8	29.0	0.237	
6 Month Post-Intervention	5	299.2	36.8		
Non-Smokers Paired T-Test	N	Mean	StDev	P Value	Confidence Interval
Pre-Intervention	82	277.7	39.6	0.000	(14.4, 31.5)
1 Month Post Intervention	82	300.6	28.3		
1 Month Post-Intervention	25	298.5	30.4	0.979	
6 Month Post-Intervention	25	298.8	37.4		
Pre-Intervention	25	273.6	41.3	0.033	(2.2, 48.3)
6 Month Post-Intervention	25	298.8	37.4		

Results

- Primary Caretakers show significant increase in survey scores from Pre-Intervention KAB to 1 Month Post-Intervention KAB with p = 0.000
- Primary Caretakers show no significant changes in survey scores from 1 Month Post-Intervention KAB to 6 Month Post-Intervention KAB survey scores with p = 0.606, showing persistence of effect.
- Overall, Primary Caretakers show persistence of effect based on Pre-Intervention KAB to 6 Month Post-Intervention KAB survey scores with p = 0.004
- Smokers did not show significant changes from Pre-Intervention KAB to 1 month Post-Intervention KAB survey scores with p = 0.231
- Smokers show persistence of no change continued through conclusion of study based on Pre-Intervention KAB to 6 Month Post-Intervention KAB survey scores with p = 0.237
- Non-Smokers show significant increase in survey scores from Pre-Intervention KAB to 1 Month Post-Intervention KAB survey scores with p = 0.000
- Non-Smokers show persistence of effect based on Pre-Intervention KAB to 6 Month Post-Intervention KAB scores with p = 0.033
- Study size of smoking group needs increased to assure statistical validity in future studies

Conclusions and Public Health Implications

Before similar studies begin, vulnerable subpopulations of primary caregivers, such as smokers, should be targeted to receive additional educational interventions. Valuable changes in protocol could have a positive effect on knowledge, attitudes and beliefs of study participants.

Additional data will be assessed on several other subpopulations of caretakers.

- Parents with/without asthma
- Primary caregiver ethnicity or race
- Primary Caretakers whose age ≤ 30 vs. > 30
- Caretaker with >1 asthmatic child vs. single child



More information

Final and quarterly evaluations of all outcome variables are available at www.chcc.pitt.edu –This is a project of the Center for Healthy Environments and Communities.

Acknowledgements

This project was funded by The Heinz Endowments and the U.S. Department of Housing and Urban Administration