

Preliminary Results

Health and Household Benefits Attributable to the Knoxville Extreme Energy Makeover

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OUTLINE

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Tennessee Valley Authority's Extreme Energy Makeovers

- TVA-funded initiative to address energy affordability needs of limited-income families in seven communities
- Targeted 25% electric energy savings at no cost to participants
- Homes \geq 20 years old
- Maximum spend of \$10.00 per square foot
- Community and participant education and outreach required

Partners



Research Design

Spring and
Summer 2017

A phone survey was administered to three groups of homes:

- Already received weatherization (Comparison with Treatment - CwT)
- Will receive weatherization during course of study (Treatment - T)
- Will not be weatherized during course of study (Control Waiting List - CwL)

The survey collected data on reported health conditions, home conditions, budget issues and demographics.

Fall 2018

The survey was re-administered. Door-to-door non-response follow-up is now being conducted.

Demographics – Collected

Pre-Treatment/Post-Treatment

Variable/Group	Comparison (N=150/130)	Treatment (N=88/66)	Control (N=191/91)
Respondent Gender: Female	73.1%/74.6%	78.4%/78.8%	78.7%/78.0%
Respondent Age	58/59	55/56	56/60
Average Household Size	2.03/2.06	2.03/2.08	2.17/2.01
Black or African American	44.7%/46.2%	33.0%/37.9%	26.7%/25.3%
Respondent Employed	35.0%/31.5%	39.8%/34.8%	37.4%/35.7%
Respondent Retired	30.5%/32.3%	22.7%/21.2%	25.3%/34.1%
Respondent Married	19.8%/17.7%	22.7%/22.7%	26.7%/28.6%
Respondent Education: GED or less	50.2%/50.0%	43.1%/37.9%	58.0%/56.1%

Home Sometimes Kept at Unhealthy Temperature

	Comparison Group	Treatment Group	Control Group
Pre-weatherization	12.7%	51.2%	42.6%
Post-Weatherization	11.6%	15.2%	28.6%
Change	-1.1%	-36.0%	-14.0%

Home Was Observed To Be Drafty

	Comparison Group	Treatment Group	Control Group
Pre-weatherization	12.2%	45.4%	34.7%
Post-Weatherization	10.0%	15.2%	24.2%
Change	-2.2%	-30.2%	-10.5%

Number of Days Previous Month Mental Health Not Good Main Respondents

	Comparison Group	Treatment Group	Control Group
Pre-weatherization	4.8	9.7	8.0
Post-Weatherization	6.0	6.4	8.3
Change	+1.2	-3.3	+3

Number of Days Previous Month Rest/Sleep Not Good Main Respondents

	Comparison Group	Treatment Group	Control Group
Pre-weatherization	9.7	15.3	13.7
Post-Weatherization	11.6	12.1	11.7
Change	+1.9	-3.2	-2.0

It Is Hard to Pay Energy Bills

	Comparison Group	Treatment Group	Control Group
Pre-weatherization	50.8%	76.1%	65.4%
Post-Weatherization	57.7%	51.3%	52.8%
Change	+6.9	-24.8	-12.6%

Did Not Buy Food to Pay Energy Bills

	Comparison Group	Treatment Group	Control Group
Pre-weatherization	27.4%	35.2%	46.1%
Post-Weatherization	30.8%	28.8%	39.6%
Change	+3.4%	-6.4%	-6.5%

Missed Days of Work: Primary Wage Earner

	Comparison Group	Treatment Group	Control Group
Pre-weatherization	12.7	16.8	17.8
Post-Weatherization	7.1	7.5	17.0
Change	-5.6	-9.3	-0.8

How Often Receive a Disconnect Notice

	Comparison Group	Treatment Group	Control Group
Pre-weatherization	36.7%	51.1%	59.4%
Post-Weatherization	26.9%	39.4%	42.7%
Change	-9.8%	-12.7%	-16.7%

Research Next Steps



Complete re-survey of KEEM households.



Acquire energy savings estimates for CwT and T based on the analysis of weather-normalized utility bills.



Estimate health changes attributable to KEEM.



Monetize a subset of these benefits (e.g., asthma).



Conduct explanatory factors analysis to attribute health changes to specific and/or packages of wx measures.



Explore health benefits deriving from direct and indirect changes in household budgets from energy cost savings.

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