

BREATHING RADON AND TOBACCO SMOKE: A Dangerous Combination

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Bridging Research Efforts and Advocacy
Toward Healthy Environments

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Background



- ▣ Lung cancer is the second most commonly diagnosed cancer in the US, with the highest mortality rate of all cancers.
- ▣ Smoking is the leading cause of lung cancer, followed by radon and secondhand smoke (SHS) exposure.
- ▣ Racial and ethnic inequities exist with lung cancer incidence and mortality.
- ▣ Socioeconomic status is highly correlated with cancer rates as well as progression of the disease.

Background

- ▣ Lung cancer is almost totally preventable by eliminating smoking and exposure to secondhand smoke and radon.



- ▣ The risk factors of tobacco smoke and radon are related, with more radon-related lung cancers occurring in individuals with a history of exposure to tobacco smoke.

FRESH: Dual Home Screening for Lung Cancer Prevention



FRESH Study Design

- RCT to test the effects of a dual home screening and personalized environmental report-back intervention
- Two recruitment strata
 - Smoker(s) living in the home (yes/no)
- Two study groups
 - Treatment - free radon and air nicotine home test kits in primary care settings and brief problem-solving intervention
 - Control – coupon for free test kits at enrollment



Purpose of Today's Presentation

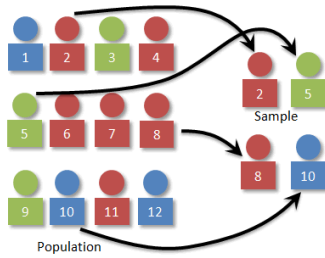
To examine the short-term impact of FRESH on perception of risk from combined exposure (synergistic risk) to radon and secondhand smoke among homeowners.



Hypothesis

Homeowners who receive a personalized environmental report-back intervention for high nicotine and/or radon levels in the home will have higher perceived synergistic risk at 3-months than those who do not receive the intervention.





Sample

- ▣ Quota sample of homeowners ($N=319$) in the South recruited in outpatient clinics, university locations, and community events who completed the three month follow-up survey.
- ▣ 153 and 166 homeowners were from treatment and control groups, respectively
- ▣ 17% were current smokers.
- ▣ 43% had self-reported SHS exposure in the home.

FRESH Intervention

- Dual home screening for radon and SHS
 - Letters with results
 - Telephone conversation if radon ≥ 4.0 pCi/L and/or air nicotine ≥ 0.1 $\mu\text{g}/\text{m}^3$
- Brief problem-solving intervention
 - Mitigation
 - Smoking cessation
 - Smoke-free home
 - Targeted printed materials



Measures and Analysis

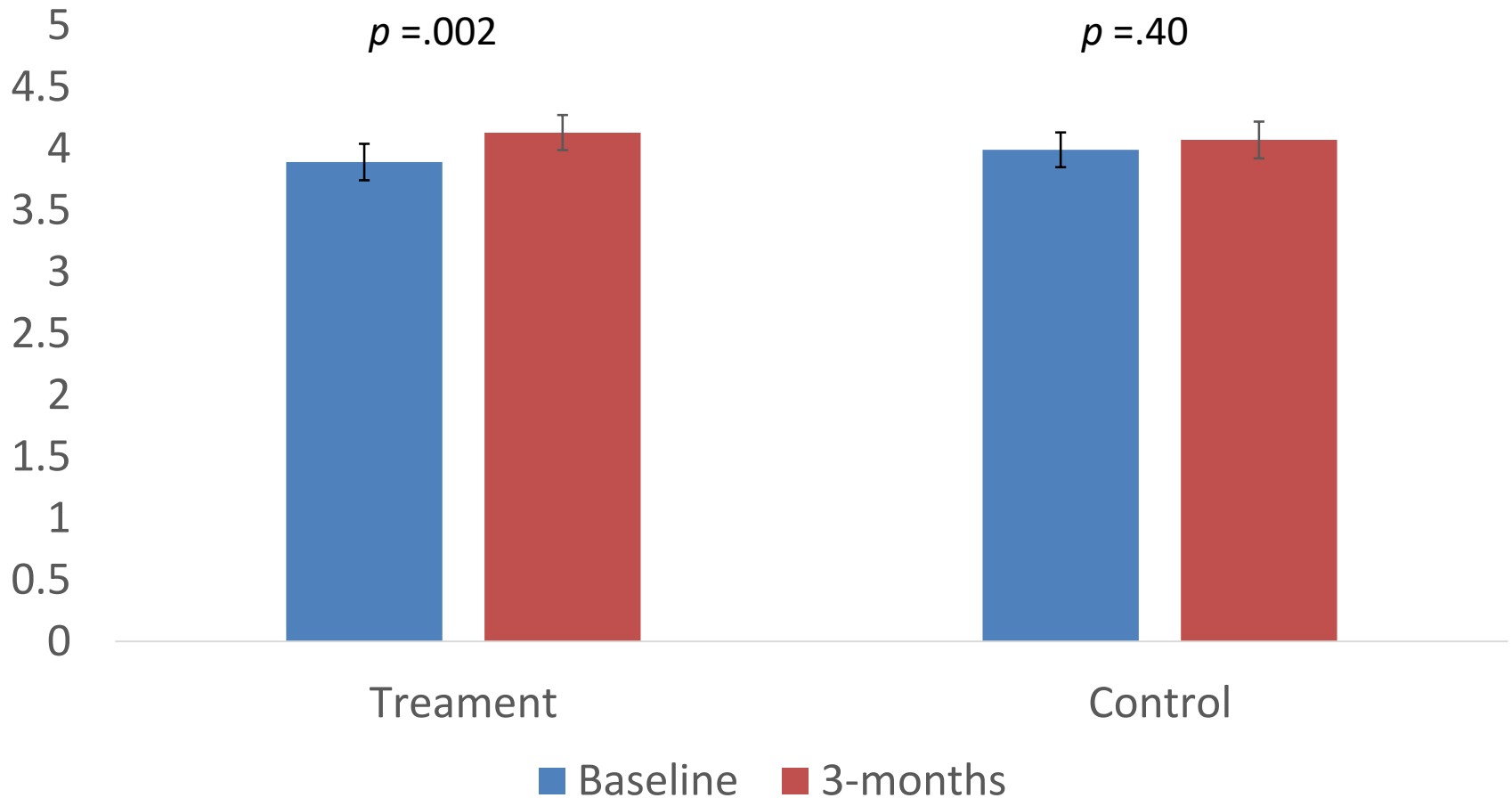
- **Synergistic risk:** single item asking participants to rate the risk from being exposed to radon AND smoking a pack of cigarettes per day, compared to the risk of only smoking a pack of cigarettes a day with no radon exposure.
- 5-point Likert scale ranging from (1) ‘Much less risky’ to (5) ‘Much more risky.’
 - Change in synergistic risk perception was compared by study group using a paired t-test.

Demographic Characteristics of Sample of Homeowners (*N* = 319)

Demographic characteristic	Percent
Female	69%
White, non-Hispanic	85%
High school diploma or higher	98%
Household income below \$60,000	42%
Married	67%

Note: Mean age 52.8 years (*SD* = 12.6)

Perceived Synergistic Risk by Study Group Over Time



Results

- ▣ Between baseline and 3 months post-intervention, there was a significant increase in perceived synergistic risk of radon and secondhand smoke among those in the treatment group ($t=3.1, p = .002$)
- The control group's synergistic risk scores did not change over time ($t=0.8, p=.40$).



Conclusions



- Dual home screening for radon and tobacco smoke and personalized environmental report-back may enhance perceived risk for combined environmental exposures.
- Continued efforts to educate the public on the *combined* health effects of radon and tobacco smoke exposure and to motivate everyone (especially those with current and past tobacco smoke exposure) to test for radon are critically important.

Conclusions



▣ More research is needed to:

- examine sociodemographic variations in perceived risk for lung cancer
- test the effects of innovative interventions (including policy change) to reduce exposure to radon and SHS in the home

Free Radon Continuing Education Course



Radon Continuing Education Course

MODULE OUTLINE

Module 1: Radon and Health

Module 2: Sources of Radon

**Module 3: Radon Testing and Mitigation to
Protect Health**

**Module 4: Public Health Responses to
Frequently Asked Questions About Radon**

**Module 5: Radon Policy and What Health
Professionals Need to Know**

**Module 6: What Patients Need to Know about
Radon and Summary**



<https://ky.train.org/DesktopModules/eLearning/CourseDetails/CourseDetailsForm.aspx?courseId=1056655>

Questions?

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