

# Relationship of Perception of Radon as a Health Risk and Willingness to Engage in Radon Testing and Mitigation

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**Purpose/Objectives:** To gather data on radon levels and determine correlations among subjects' characteristics, willingness to test for radon, and perceptions of radon as a health risk.

**Design:** Descriptive correlational.

**Setting:** Rural DeKalb County in northern Illinois.

**Sample:** 473 respondents from a group of 1,620 randomly selected county residences.

**Methods:** Participants were surveyed via telephone using the Community Radon Program questionnaire. Radon measurements were taken with home radon test kits.

**Main Research Variables:** Gender, income, age, educational level, smoking status, race, home ownership, willingness to test for radon, and radon risk perception.

**Findings:** Most participants were familiar with radon but did not view it as an immediate health hazard and would not have screened for radon on their own. 88% of the radon measurements exceeded the U.S. Environmental Protection Agency's moderate risk potential level, and 53% exceeded the action level (i.e., 4 pCi/L).

**Conclusions:** Perception of radon as a health risk was correlated positively with planning to conduct further radon testing and to employ radon mitigation methods. More research is needed on people's willingness to obtain radon emission levels and the cancer rates in areas that have high potential for radon.

**Implications for Nursing:** According to the environmental literature, the effect of household radon emissions on the development of lung cancer is as great a health risk as second-hand smoke. Virtually no nursing literature on the subject has been published. As the primary source of health information in many rural counties, nurses, especially public health nurses, are at the forefront in public health educational efforts. Nurses are the most likely healthcare professionals to enter patients' homes and can play a significant role in disseminating information about radon as a potential carcinogen.

**R**adon, a colorless, odorless, radioactive gas, is produced as a result of the decay of uranium and radium, radioactive elements that are found in various concentrations throughout the Earth's crust. Radon can enter and accumulate in homes as a result of the differential pressure between homes and the ground under them, reaching potentially hazardous levels. According to the U.S. Environmental Protection Agency (EPA) (1992b), exposure to indoor radon gas poses a significant risk of lung cancer and causes an estimated

## Key Points . . .

- ▶ Radon is classified by the U.S. Environmental Protection Agency and the World Health Organization as a Class A carcinogen.
- ▶ Although residents in this study were aware of the high levels of radon in their county, they did not perceive it as an immediate health risk in their own homes and neighborhoods.
- ▶ In rural areas, nurses often are the primary healthcare providers and the most trusted resources for public outreach programs. Therefore, they should educate residents about radon's health risks.

7,000–30,000 deaths in the United States each year. The Harvard Center for Risk Analysis ranked the inhalation of radon gas as the most important potentially fatal hazard in the home, estimating the annual cause-specific mortality rate to be 5.8 per 100,000 people (DeAscentis & Graham, 1998).

Concerns about the risk of lung cancer from repeated exposure to radon arise from the fact that radon decay produces polonium-218 and -214 isotopes that attach readily to airborne dust. When inhaled, the radioactive particles can lodge in the bronchioles, where they continually emit ionizing radiation to

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