Association Between the Type of Household Fuel and the Prevalence of Some Respiratory and Cardiovascular Diseases in the Adult Population of Rafsanjan

Saleh Behzadi[1], Ali Esmaeili-Nadimi[2], Zahra Jamali[3*], Parvin Khalili[4], Fateme Ayoubi[5], Payam Masoudi[1]

[1]Student Research Committee, Rafsanjan University of Medical Sciences, Rafsanjan, Iran
[2]Department of Internal Medicine, Ali-Ibn Abi-Talib Hospital, Rafsanjan University of Medical Sciences, Rafsanjan, Iran
[3]Non-Communicable Diseases Research Center, Rafsanjan University of Medical Sciences, Rafsanjan, Iran
[4]Department of Epidemiology, School of Public Health, Rafsanjan University of Medical Sciences, Rafsanjan, Iran
[5]Occupational Safety and Health Research Center, NICICO, World Safety Organization and Rafsanjan University of Medical Sciences, Rafsanjan, Iran

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***Corresponding Author:**
Non-Communicable Diseases Research Center, Rafsanjan University of Medical Sciences, Rafsanjan, Iran

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ABSTRACT

Introduction: Indoor air pollution is the third most significant risk factor for global diseases. It seems that pollution from burning solid fuel is one of the practical factors in the occurrence of respiratory diseases, hypertension, cancer, and cardiovascular disease, resulting in the death of 2.5 million people worldwide. Previous studies have reported a significant positive relationship between biomass fuel consumption and cardiovascular diseases, respiratory diseases, and their risk factors, including hypertension. However, other studies have reported no association. This study aimed to investigate the relationship between the type of household fuel and the prevalence of certain respiratory and cardiovascular diseases in the adult population of Rafsanjan.

Methods and Materials: In this cross-sectional study, the research population included 10,000 people aged 35-70 participating in the Rafsanjan cohort study, selected by cluster random method. For all these people, demographic information, personal habits, type of fuel used for heating and cooking, anthropometric status, and medical history were measured using standard cohort study questionnaires. Using Stata 14 software, univariate regression statistical tests were used to determine the relationship between household fuel type and the prevalence of some respiratory and cardiovascular diseases. Multivariate logistic regression was used to remove intervening variables.

Results: Among the 8,121 participants in this study, 46.46% of the population were men. The average age of the studied population was 52.86 ± 8.07. The results showed that oil and diesel use for cooking and heating is significantly more in women than in men ($p = 0.05$). The use of wood for cooking and heating was significantly more in men than in women ($p = 0.001$). After removing the intervening factors in the final model in the smoking population, people who had used wood for cooking or heating for more than 20 years were 1.57 and 1.53 times more likely to suffer from ischemic heart disease, respectively. Also, in the final model of the total population, people who had used oil and diesel for heating for 26 to 36 years had a 1.5 times increased chance of heart attack. No significant relationship was found between the type of fuel consumed and the chance of chronic lung disease.

Conclusion and Discussion: The findings of this study indicate that people who use wood for cooking or heating for more than 20 years have a higher chance of developing ischemic heart disease. Moreover, those who use oil and diesel for heating for 26 to 36 years have a higher chance of having a heart attack.

Keywords: Heart disease, Lung disease, Myocardial infarction

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