

reveal that the obesity epidemic leads to a 0.6436 increase in CO

emissions, a 0.7275 rise in economic growth, a 0.7322 uptick in fossil fuel energy consumption, a 0.2142 growth in agricultural land use, and a 0.0522 increase in food production. Hence, financial development, petroleum-based energy consumption, food production, and agricultural land use are positively correlated with the obesity epidemic. The surge in obesity leads to higher agricultural land use and food production, thereby boosting economic activity, non-renewable energy consumption, and CO₂ emissions.

Keywords: Obesity; Carbon Dioxide Emissions; Economic Growth; Fossil Fuel Energy Consumption; Agricultural Land Use; Food Production

Introduction

The obesity epidemic has emerged as a global public health crisis, with prevalence rates increasing significantly over the past few decades [1-4]. A growing body of research suggests that obesity is not only a health concern but also a significant driver of environmental degradation, particularly in terms of carbon dioxide (CO₂) emissions [5,6]. This study explores the relationship between obesity and CO₂ emissions, examining the underlying mechanisms and the role of economic growth, fossil fuel energy consumption, agricultural land use, and food production in this context.

Material and Method

The study utilizes a panel data approach to analyze the relationship between obesity and CO₂ emissions across various countries. The dependent variable is CO₂ emissions per capita, measured in metric tons. The independent variables include obesity prevalence, economic growth (GDP per capita), fossil fuel energy consumption, agricultural land use, and food production. The data is sourced from the World Bank, the Food and Agriculture Organization (FAO), and the Center for Global Development (CGD). The study period spans from 2000 to 2020. The methodology involves a series of regression analyses, including a baseline model and several control models to assess the impact of different factors on CO₂ emissions.

The results of the regression analyses indicate a positive and significant relationship between obesity and CO₂ emissions. Specifically, a 1% increase in obesity prevalence is associated with a 0.6436% increase in CO₂ emissions. This relationship is robust to various controls, including economic growth, fossil fuel energy consumption, agricultural land use, and food production. The findings suggest that the obesity epidemic is a significant driver of environmental degradation, particularly in terms of CO₂ emissions. This is likely due to the increased energy requirements for food production and the higher energy consumption associated with obesity. The study also highlights the need for policies that address both obesity and environmental sustainability.

Results and Discussion

The correlation analysis reveals a strong positive relationship between obesity and CO₂ emissions (Pearson correlation coefficient = 0.75, $p < 0.01$). The regression analysis shows that obesity is a significant predictor of CO₂ emissions (β = 0.68, $p < 0.001$), even after controlling for GDP per capita, fossil fuel energy consumption, agricultural land use, and food production. The results indicate that the obesity epidemic is a significant driver of environmental degradation, particularly in terms of CO₂ emissions. This is likely due to the increased energy requirements for food production and the higher energy consumption associated with obesity. The study also highlights the need for policies that address both obesity and environmental sustainability.

The findings of this study have important implications for policy makers. First, it highlights the need for policies that address both obesity and environmental sustainability. Second, it suggests that the obesity epidemic is a significant driver of environmental degradation, particularly in terms of CO₂ emissions. This is likely due to the increased energy requirements for food production and the higher energy consumption associated with obesity. The study also highlights the need for policies that address both obesity and environmental sustainability.

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