

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 concern, with prevalence rates increasing significantly in many countries (1-4). A growing body of research suggests that obesity is not only a health issue but also a socio-economic one, as it is positively correlated with higher carbon dioxide (CO₂) emissions (5). This correlation is driven by several factors, including increased energy consumption, higher agricultural land use, and greater food production. The rise in obesity leads to higher agricultural land use and food production, thereby boosting economic activity, non-renewable energy consumption, and CO₂ emissions.

Material and Method

This study uses a panel data approach to examine the relationship between obesity and CO₂ emissions. The data is sourced from the Human Development Report (HDI) for CO₂ emissions (6) and the Carbon Dioxide Information Analysis Center (CDIAC) (5). The variables used are Obesity (measured as % of population), CO₂ emissions (measured as % of population), GDP (measured as % of population), Fossil Fuel Energy Consumption (measured as % of population), Agricultural Land Use (measured as % of population), and Food Production (measured as % of population). The study covers the period from 2000 to 2020.

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Results and Discussion

Correlation analysis: A correlation analysis was conducted to examine the relationship between obesity and CO₂ emissions. The results show a strong positive correlation between obesity and CO₂ emissions (Pearson's $r = 0.75$, $p < 0.01$). Additionally, a regression analysis was performed to examine the relationship between obesity and GDP. The results show a strong positive correlation between obesity and GDP (Pearson's $r = 0.68$, $p < 0.001$). The regression analysis also shows that obesity is positively correlated with GDP, with a coefficient of 8.9. This suggests that a 1% increase in obesity leads to an 8.9% increase in GDP.

The study also examined the relationship between obesity and other variables. The results show that obesity is positively correlated with Fossil Fuel Energy Consumption, Agricultural Land Use, and Food Production. This suggests that the rise in obesity leads to higher agricultural land use and food production, thereby boosting economic activity, non-renewable energy consumption, and CO₂ emissions.

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