



# New England Food Insecurity and ER Visit, Avg Risk Score Analysis

## Applied Business Analytics BAN5650

### **The Grand:**

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## ER Visits per 1000 and Food Insecurity Correlation

<i>Regression Statistics</i>	
Multiple R	0.510388541
R Square	0.260496463
Adjusted R Square	0.241534833
Standard Error	0.017634362
Observations	41

<i>ANOVA</i>					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	0.004272142	0.004272142	13.73808444	0.000651359
Residual	39	0.012127858	0.000310971		
Total	40	0.0164			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	0.013764799	0.023428419	0.587525729	0.560237218	-0.033623652	0.06115325	-0.033623652	0.06115325
ER VISITS PER 1000	0.000140392	3.78774E-05	3.706492202	0.000651359	6.37781E-05	0.000217007	6.37781E-05	0.000217007

- observed the variables relationship at 95% confidence intervals.
- presented a significant positive relationship with a coefficient of 0.000140392
- every 1000 unit increase in ER visits, food insecurity in these counties increased by an average of 0.14%.
- linear regression plot however indicates that the relationship could have been parabolic rather than linear.

## Avg Risk Score and Food Insecurity Correlation

Regression Statistics	
Multiple R	0.223129458
R Square	0.049786755
Adjusted R Square	0.025422313
Standard Error	0.019989418
Observations	41

ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	0.000816503	0.000816503	2.043418633	0.160827824
Residual	39	0.015583497	0.000399577		
Total	40	0.0164			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	0.052338289	0.033487777	1.562907265	0.126153478	-0.015397132	0.120073711	-0.015397132	0.120073711
AVG RISK SCORE	0.049786755	0.03482853	1.429481946	0.160827824	-0.020660597	0.120234107	-0.020660597	0.120234107

- tested for a linear relationship between food insecurity % and average risk scores at the 95% confidence level.
- regression analysis indicated a positive coefficient of 0.0498,
- every 1 unit increase in the average risk score, the food insecurity percentage increases by 0.0498%.
- p-value of 0.16 suggests this relationship is not statistically significant.
- The R-squared of 0.05 also indicates a weak linear correlation.

## Factors affecting ER Visits per 1000 and Food Insecurity relation

- Food insecurity can exacerbate **existing medical conditions and induce new health issues** : chronic stress, anxiety, depression, malnutrition and substance abuse that require ER treatment.
- Low-income individuals facing food insecurity may **delay preventative care or doctor visits** to save money, leading to emergent cases later that require costly ER utilization.
- States with more **rural populations** like ME, VT have longer travel times to medical facilities, leading residents to utilize ERs instead of primary care.
- Urban states with **abundant healthcare access** like MA have relatively lower ER use.

FOOD INSECURITY

## Factors affecting Avg Risk Score and Food Insecurity relation

- Higher food insecurity backed by the risk of poor nutrition, stress, anxiety and depression worsens physical and mental health problems increases their risk scores.
- Individuals succumb to **unhealthy habits** like substance abuse, smoking, alcohol consumption that elevates Risk scores.
- States with **older populations** like CT, ME and VT may have higher average risk scores since age is a key driver of risk.
- Risk scores tend to increase with age as chronic conditions become more common.



A top-down view of various fresh vegetables and fruits arranged around a central text on a dark background. The items include: a head of green lettuce in the top left; several small, round, yellow potatoes in the middle left; a single red apple in the bottom left; a bunch of orange carrot slices and two whole carrots in the bottom left; a bunch of green sprouts in the bottom left; a bunch of sliced cucumbers in the top center; a whole ear of yellow corn in the top right; a whole red radish in the top right; several whole and sliced mushrooms in the bottom right; and a whole onion in the bottom center. The central text is framed by a white decorative border.

THANK  
YOU!