Over Consumption of Processed Foods During Covid-19

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By,Zachary Wehlie

Goal of this Project

The pandemic altered daily life for individuals worldwide, introducing new stressors such as isolation, fear of illness, and disruptions to work and social routines. One notable behavioral change during this time was the shift in dietary habits, with many people turning to ultra-processed foods (UPFs) as a source of comfort or convenience.

This project aims to explore the relationship between the pandemic and the consumption of UPFs. Emotional eating in itself is categorized as either positive or negative and may have played a critical role in influencing eating patterns during the pandemic.

By examining these variables, the study aims to identify the psychological and behavioral factors contributing to changes in dietary habits during this specific time period.

Information About the Dataset

The dataset is titled **"Addiction to Ultra-Processed Foods as a Mediator Between Psychological Stress and Emotional Eating During the COVID-19 Pandemic"** and was obtained from <u>Mendeley Data</u>.

It contains data from **368 university students** aged **18 to 30 years**, with an average age of **21.8 years** and a standard deviation of **2.9 years**.

Quantitative variables:

- **BMI** (Body Mass Index) ranges from **15 to 40**.
- **CSM (Coronavirus Stress Measure)** quantifies pandemic-related stress, with values ranging from **0 to 100**.
- **Negative Emotional Eating** (eating in response to negative emotions) and **Positive Emotional Eating** (eating in response to positive emotions) are measured on a scale of **0 to 10**.
- **Nova Score**, which measures the consumption of ultra-processed foods, also ranges from **0 to 10**.

- **Categorical variables**:
  - **Food Addiction** is categorized as "Addicted" or "Not Addicted."
  - **Pandemic Stress Level** is grouped into "Low Stress," "Moderate Stress," and "High Stress."
  - **Emotional Eating Category** is divided into "Low," "Moderate," and "High."
  - **Food Diversity** represents dietary diversity and is classified as "Low Diversity," "Moderate Diversity," or "High Diversity."

Categorical Analysis

The FREQ Procedure

Nova Score for the consumption of UPFs				
Nova_Score	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	27	7.34	27	7.34
1	48	13.04	75	20.38
2	70	19.02	145	39.40
3	57	15.49	202	54.89
4	57	15.49	259	70.38
5	41	11.14	300	81.52
6	28	7.61	328	89.13
7	24	6.52	352	95.65
8	6	1.63	358	97.28
9	6	1.63	364	98.91
10	3	0.82	367	99.73
12	1	0.27	368	100.00

What is a Nova Score?

- A measure of ultra-processed food consumption, ranging from **0 (low)** to **10+ (high)**.

The **most frequent scores** are **2** (19.02%) **3 as well as 4** (15.49%), suggesting moderate consumption of ultra-processed foods is common.

Around **70% of participants** scored **4 or lower**, indicating that the majority consume ultra-processed foods at moderate or lower levels.

Scores **8, 9, and 10** are rare, each representing **less than 2% of participants**, showing that high levels of consumption are uncommon. The dataset has **one outlier** with a score of **12**, which represents **0.27% of participants**.

Histogram of Nova Score

This histogram visualizes the distribution of the *Nova Score*, a measure of **ultra-processed food consumption**, for the participants in this dataset.

The red density curve suggests how the data would look if it followed a perfectly normal distribution.

The **right skew** in the data might indicate that stress or emotional triggers during the pandemic pushed a subset of individuals toward **higher consumption of ultra-processed foods**.

Distribution of Nova Score (Ultra-Processed Food Consumption)
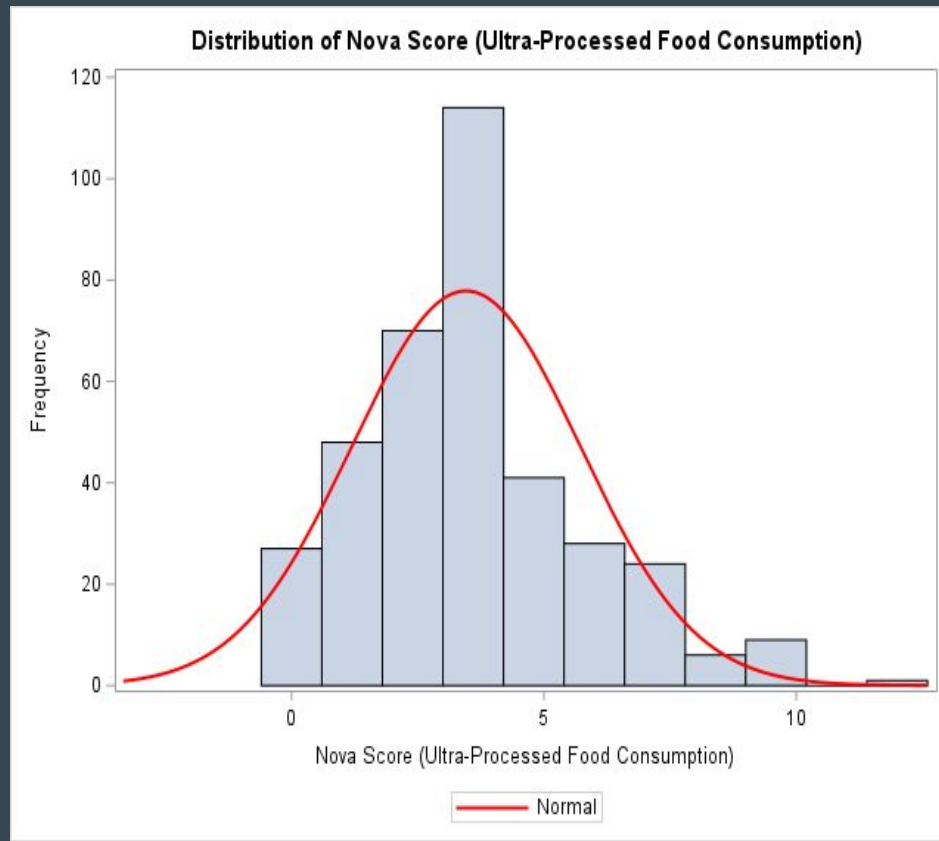
Quantitative Analysis

Variable	Label	N	Mean	Median	Std Dev	Variance	Minimum	Maximum
BMI	Body Mass Index	73	23.48	22.27	5.10	26.01	15.99	37.46
CSM_score	Coronavirus Stress Measure	73	14.77	16.00	4.62	21.38	3.00	20.00
Negative_Emotional_Eating	Negative Emotional Eating	73	4.75	5.00	1.81	3.26	1.00	8.30
Positive_Emotional_Eating	Positive Emotional Eating	73	4.72	5.00	1.63	2.66	1.00	8.60
Nova_Score	Ultra-Processed Food Consumption	73	3.41	4.00	1.97	3.88	0.00	8.00

Participants' **Body Mass Index (BMI)** had a mean of 23.48, indicating that most fell within the normal BMI range. The median was 22.27, with a standard deviation of 5.10, showing moderate variability. BMI values ranged from 15.99 (underweight) to 37.46 (obese).

The **Coronavirus Stress Measure (CSM)** had a mean of 14.77 and a median of 16.00, indicating relatively low stress levels on average, with scores ranging from 3.00 to 21.38 and a standard deviation of 4.62.

Negative Emotional Eating, the mean was 4.75, and the median was 5.00, suggesting moderate levels of negative emotional eating. Scores ranged from 1.00 to 8.30, with a standard deviation of 1.81. Similarly, **Positive Emotional Eating** showed a mean of 4.72, a median of 5.00, and scores ranging from 1.00 to 8.60, with a standard deviation of 1.63.

Nova Score, representing ultra-processed food consumption, had a mean of 3.41 and a median of 4.00, indicating moderate consumption overall. The scores ranged from 0.00 (no consumption) to 8.00 (high consumption), with a standard deviation of 1.97

Results

This study examined the impact of the COVID-19 pandemic on ultra-processed food consumption, focusing on emotional eating and stress levels. Results showed that 70% of participants had low to moderate consumption, with scores of 2, 3, and 4 being the most common. High consumption (scores of 8, 9, and 10) was rare, representing less than 2% of participants, with one outlier scoring 12.

A positive relationship was found between emotional eating (positive and negative) and higher Nova Scores, indicating that emotional eating behaviors influence ultra-processed food consumption. Pandemic-induced stress likely contributed to these patterns.

So this means that while there was a slight increase in the consumption of ultra processed foods, most people had a relative balance with it being moderate to low in over eating processed meals. Only a small subset of people were affected in a big way.