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Association of Dietary Intake with Suicidal Ideation or Suicide Attempts in Adolescents

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Zenobia Bryant, PhD

Problem
Adolescent suicide in the United States continues to be a significant cause of death and an increasingly important public health issue. The effect of poor dietary habits upon suicidal ideation and suicide attempts is not well understood. If inadequate dietary intake is a risk factor for suicidal ideation in adolescents, then interventions and mental health practitioners may need to focus on building healthy eating habits early in life so that positive eating behaviors will continue into adulthood.

Theory or Framework
Social cognitive theory (Bandura, 1999) emphasizes the interaction of personal, behavioral, and environmental influences on human behavior. Three of the 9 central concepts are important to highlight: reciprocal determinism, outcome expectations, self-efficacy, as they relate to efforts to improve diet and intake of essential nutrients (Chung, 2017; Diep et al., 2014; Thomson & Ravia, 2011).

Relevant Scholarship
Adolescence is a period when children transition into adulthood and lifestyle habits are developed (Cavadini et al., 2000; Yim, 2015). Progression through the adolescent period is also associated with an increased risk of suicidal ideation, suicide attempt, and completed suicide (McLoughlin et al., 2015; Miranda et al., 2014).

Diet and nutrition play an essential role in some of the pathophysiological factors of depressive illness (Aligvand, Wardle, & Steptoe, 2001; Bodnar & Winer, 2005; Brody, 2002; Liu, Yan, Li, & Zhang, 2016). In fact, the consistent, daily intake of 1 - 2 servings of fruit and the consumption of 2 green vegetables is significant in decreasing the risk of depression (Kim et al., 2015).

A Western diet may increase the odds of an individual self-reporting depression (Jacka et al., 2010). Intake of fruits and vegetables is a central component lacking in the Western diet. Fruits and vegetables are important because they provide sources of fiber and other nutrients necessary for healthy growth and development (Farvid et al., 2016; Kimmons et al., 2009). Unfortunately, very few adolescents consume the recommended intake of fruits and vegetables.

Participants
The final sample size was 71,776 students in grades 9-12 residing in the U.S. The sampling strategy used was the three-stage cluster sample design (CDC, 2013).

Procedures
Data were obtained from the CDC’s Youth Risk Behavioral Surveillance Survey (YRBSS) conducted between 2007 and 2017.

The independent variable was dietary intake of fruit and vegetables, defined as the sum of how many times participants ate fruit, green salad, potatoes, carrots, and other vegetables in the past 7 days.

The dependent variables for this study were suicidal ideation and suicide attempts, defined as seriously considering or planning suicide and attempting suicide in the past 12 months.

The confounding variables were age, sex, race, and depression.

Analysis
Hypothesis testing was conducted using complex samples logistic regression.

Findings
These findings indicate that the higher an adolescent’s fruit and vegetable intake per week, the greater the odds of suicidal ideation and suicide attempts were.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Odds Ratio</th>
<th>Lower 95%</th>
<th>Higher 95%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Considered Suicide</td>
<td>1.019</td>
<td>1.010</td>
<td>1.028</td>
</tr>
<tr>
<td>Planned Suicide</td>
<td>1.027</td>
<td>1.016</td>
<td>1.037</td>
</tr>
<tr>
<td>Attempted Suicide</td>
<td>1.066</td>
<td>1.053</td>
<td>1.078</td>
</tr>
</tbody>
</table>

Interpretation
The results of this study were contrary to previous findings. Perhaps, experiencing withdrawal symptoms due to dietary changes, explains why the participants in this study with a higher intake of fruits and vegetables had greater odds of experiencing suicidal ideation and suicide attempts.

Limitations
Dietary measure of fruit and vegetable intake did not include unhealthy eating habits; measures of caloric intake; or a distinction between the different types of fruits and vegetables.

I did not account for socioeconomic status and cultural preferences in food choices.

Study was retrospective in nature and did not include random assignment into groups or experimentally controlled levels of dietary intake.

Recommendations
Recommendation for future research includes:
• Replicate with a more diverse sample.
• Replicate with close attention to other dietary components.
• Replicate accounting for socioeconomic status and cultural preferences.
• Replicate controlling for BMI.
• Conduct a longitudinal Study.
• Regulate dietary intake in children in order to avoid activating the dopaminergic “reward effect”.

Social Change Implications
A decrease in suicidal ideation and suicide attempts will increase the quality of life.

Research Questions
RQ1: Controlling for confounding variables, is there a relationship between the intake of fruits and vegetables and suicidal ideation in adolescents?
RQ2: Controlling for confounding variables, is there a relationship between the intake of fruits and vegetables and suicide attempts in adolescents?

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