Effects of Food Insecurity and Dietary Factors on Sleep Quality and Perceived Stress


Abstract

Diet affects sleep quality and stress, with increased effects on individuals experiencing food insecurity (FI). There is limited research on the relationship between FI and sleep quality and diet in relation to FI. An anonymous online survey was distributed using several social media platforms. FI was negatively correlated with perceived stress and sleep quality. Perceived stress was positively associated with sleep satisfaction and consuming leafy green vegetables. FI was negatively correlated with sleep quality (Table 1).

Methods

- Individuals over the age of 18 were invited to complete an anonymous survey. Of these, 374 identified as female, 166 as male, and 21 identified as other or did not indicate.
- FI was negatively correlated with sleep quality (Table 1).
- Perceived stress was negatively associated with sleep satisfaction and consuming leafy green vegetables (Tables 2 and 3).
- Table 1: Pearson Correlations for Sleep and Food Insecurity

<table>
<thead>
<tr>
<th>Variables</th>
<th>Sleep Satisfaction</th>
<th>Staying awake all day without napping</th>
<th>Going to sleep between 2AM and 4AM</th>
<th>Waking or staying awake for equal to or &gt;30 minutes throughout the night</th>
<th>Not sleeping 6-8 hours a night regularly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worried about not having enough food to eat</td>
<td>—</td>
<td>—0.085*</td>
<td>—0.131**</td>
<td>—1.77***</td>
<td>—0.181**</td>
</tr>
<tr>
<td>Unable to eat healthy and nutritious food</td>
<td>—0.194**</td>
<td>—</td>
<td>—0.102*</td>
<td>—0.171**</td>
<td>—0.191**</td>
</tr>
<tr>
<td>Are you too thin or do you need to lose weight?</td>
<td>—0.173**</td>
<td>—0.107*</td>
<td>—0.142**</td>
<td>—0.122**</td>
<td>—0.255**</td>
</tr>
<tr>
<td>Went without eating for a whole day</td>
<td>—0.161**</td>
<td>—</td>
<td>—0.114**</td>
<td>—0.123**</td>
<td>—0.247**</td>
</tr>
</tbody>
</table>

Table 2: Pearson Correlations for Sleep and Diet

<table>
<thead>
<tr>
<th>Variables</th>
<th>Sleep Satisfaction</th>
<th>Staying awake all day without napping</th>
<th>Going to sleep between 2AM and 4AM</th>
<th>Waking or staying awake for equal to or &gt;30 minutes throughout the night</th>
<th>Not sleeping 6-8 hours a night regularly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average time fruits were consumed in a week</td>
<td>—0.112**</td>
<td>0.058*</td>
<td>0.076</td>
<td>0.121**</td>
<td>0.124**</td>
</tr>
<tr>
<td>Times breakfast was eaten in the past 7 days</td>
<td>0.242**</td>
<td>—</td>
<td>0.121**</td>
<td>0.229**</td>
<td>0.229**</td>
</tr>
</tbody>
</table>

Results

Data from 561 individuals were collected and analyzed. Of these, 374 identified as female, 166 as male, and 21 identified as other or did not indicate.

- Poor sleep quality can in turn cause physical health problems such as obesity, hypertension, and cardiovascular disease (St-Onge et al., 2016).
- Hypothesis: It is hypothesized that food insecurity will negatively impact sleep quality and perceived stress, and poor diet will negatively impact sleep quality.

Discussion

- Those who reported FI were more likely to indicate poorer sleep quality. They were also more likely to report a higher number of days with poor mental and physical health, and days where their ability to perform daily activities were impaired due to poor mental and physical health.
- Mental health and FI have a close relationship in young adults. Food insecure young adults are at a higher risk of developing mental health problems, such as depression, anxiety and panic disorders, and suicidal ideations (Nagata et al., 2019).
- Further research investigating the link between differing diets from various world regions in relation to sleep quality would provide further insight.

References

- McArthur et al., 2018.
- Nikolaus et al., 2020.
- Campanini et al., 2017.

Acknowledgements

Thank you to Dr. Lina Begdache and the BMINDS research team for the guidance, help, and instruction throughout the creation of this poster. Thank you to all participants who engaged in the surveys that allowed us to derive our data.