Influence of Visual Impairment and Depression on Rest-Activity Cycles

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Introduction

Research shows visual impairment is associated with decreased physical activity, and depression has a negative effect on physical activity.1,2,3 However, few studies have determined whether depression and visual impairment have independent effects on physical activity.

Using data collected from a community-based sample of older adults, we examined the interaction between visual impairment and depression on physical activity levels using actigraphy.

Methods

Data were collected from sixty older adults (69 ± 6 yrs) who participated in a study investigating relationships between visual dysfunction and circadian rhythms.

Of the sample, 33 were black and 27 were white [women; 71%]. Participants provided physical health data using the Comprehensive Assessment & Referral Examination. They also provided mood ratings using the Geriatric Depression Scale (GDS).

Participants (85%) reported being in good health; 14% received an eye diagnosis. Participants had an average BMI and GDS scores of 27.68 ± 5.72 and 7.83 ± 4.74, respectively.

The average sleep time, time to bed, and time out of bed were 8.35 ± 3.20; 22.75 ± 1.67; and 6.89 ± 2.49, respectively.

MANOVA results revealed that visual impairment had a significant effect on the level and timing of rest-activity cycles [F = 5.54, p = 0.02; F = 11.86, p = 0.01, respectively]. Results of the factorial MONOVA indicated a significant interaction between visual impairment and depression on the mesor of rest-activity [F = 4.29, p = 0.04]. With control for depression, a significant correlation between visual impairment and rest-activity timing was found [rp = -0.33, p = 0.01], whereas controlling for visual impairment yielded no significant correlation between activity timing and depression [rp = 0.20, p = 0.13].

<table>
<thead>
<tr>
<th>Variable</th>
<th>Yes Eye Disease</th>
<th>No Eye Disease</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean of Activity</td>
<td>77 ± 34</td>
<td>138 ± 13</td>
<td>5.54*</td>
</tr>
<tr>
<td>Timing of Activity</td>
<td>12.79 ± 0.52</td>
<td>14.60 ± 0.19</td>
<td>11.86*</td>
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</tbody>
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Results suggest that visual impairment mediated associations between depression and rest-activity. Early treatment of older individuals who are visually impaired may lead to improved rest-activity cycles, thereby decreasing negative moods and subsequently increasing physical activity.


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