Using Health Data to Provide Better Emotional Assistance to Children with ADHD

Christopher Youn

Follow this and additional works at: https://digitalcommons.chapman.edu/cusrd_abstracts
Using Health Data to Provide Better Emotional Assistance to Children with ADHD

Christopher Youn
Fowler School of Engineering, Chapman University

Introduction

- Children with ADHD tend to have inattentive and hyperactive or impulsive behaviors that often require the support from caregivers and treatments such as medication or behavioral interventions.
- Various smart watch applications have been used to support children and adults with intellectual disabilities.
- The use of health data in supporting children with ADHD through smart watches is not well studied.
- We are assessing heart rate as a stress marker in children with ADHD to determine the appropriate time and type of assistance to provide for the child.

Hypothesis

- Periods of higher heart rate will correspond to events of higher stress.

Methods

Participants

- Data has been collected from 12 children with ADHD over the course of 6 months.

Data Collection

- Data was collected and extracted through the Health app on Apple smart watches worn by the participants.
- Participants recorded their daily activities in a journal

Statistical Analysis

- Perform Student t-test to determine significance of differences in heart rate between events.

Results

<table>
<thead>
<tr>
<th>Stat</th>
<th>Overall</th>
<th>Sleep</th>
<th>Morning</th>
<th>Evening</th>
</tr>
</thead>
<tbody>
<tr>
<td>mean</td>
<td>90.23</td>
<td>76.15</td>
<td>94.05</td>
<td>96.68</td>
</tr>
<tr>
<td>std</td>
<td>23.29</td>
<td>15.10</td>
<td>24.41</td>
<td>22.63</td>
</tr>
<tr>
<td>max</td>
<td>208</td>
<td>190</td>
<td>208</td>
<td>203</td>
</tr>
<tr>
<td>min</td>
<td>29</td>
<td>41</td>
<td>29</td>
<td>29</td>
</tr>
<tr>
<td>count</td>
<td>32946</td>
<td>8709</td>
<td>12850</td>
<td>11387</td>
</tr>
</tbody>
</table>

Table 1: Statistics summarizing heart rate data from children with ADHD

Conclusions

- No conclusions can be made yet from these early stages of the analysis.
- We need to compare our results to results in current scientific literature if it exists.
- More heart rate data is required for our analysis to be more accurate.
- We must determine the source of the inconsistent data collection. It may stem from user error or errors in the smart watch device.
- We need a daily journal of the participants to know exactly when the stressful events occurred.

Acknowledgments

I thank Professor Franceli Cibrian for her guidance and support on this project.

References
