Having Your Heart Outside Your Body: The Relationship Between Child Heart Rate Variability and Parenting Behaviors

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BACKGROUND
• Heart rate variability (HRV) is the variation in the time interval between heartbeats.
• HRV has been shown to be negatively correlated with mental health concerns, including anxiety, antisocial behavior, and depression, and some parenting behaviors, like inconsistent discipline and corporal punishment.
• Positive parenting has also been shown to be positively correlated with a child’s HRV.
• Parental involvement is also a widely studied factor when it comes to parenting, and has been shown to be positively correlated with child HRV.
• There is a gap in the literature about how internalized parenting attitudes, like relational frustration and parental confidence, affect a child’s HRV.

QUESTIONS
• Research questions included:
  1. Is there a positive relationship between parental involvement and child HRV?
  2. Is there a relationship between relational frustration and child HRV?
  3. Is there a positive relationship between parental confidence and child HRV?

METHOD
• 32 children and their parents were administered a series of questionnaires and HRV measurements upon consent to research in PMHI outpatient clinic.
• Questionnaires included:
  • Parenting Relationship Questionnaire (PRQ)
  • Alabama Parenting Questionnaire (APQ)
• HRV was assessed during a 10-minute supine resting baseline condition. EKG and respiratory data was collected for calculating HRV using the Biotrace+ software.
• Artifacts were detected through automatic and manual processes and removed prior to data analysis.
• Data was analyzed through SPSS using correlation analysis.

RESULTS

Table 1. Demographic Information of Study Participants

<table>
<thead>
<tr>
<th>Gender</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>21 (65.6%)</td>
</tr>
<tr>
<td>Female</td>
<td>10 (31.2%)</td>
</tr>
<tr>
<td>Other</td>
<td>1 (3.1%)</td>
</tr>
</tbody>
</table>

Table 2. Descriptive Statistics of Study Variables

<table>
<thead>
<tr>
<th>Subscales</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parental Involvement</td>
<td>3.9</td>
<td>0.5</td>
<td>3.1-4.8</td>
</tr>
<tr>
<td>Relational Frustration</td>
<td>60.2</td>
<td>10.9</td>
<td>45-82</td>
</tr>
<tr>
<td>Parental Confidence</td>
<td>44.8</td>
<td>9.7</td>
<td>21-60</td>
</tr>
</tbody>
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Figure 1. A significant positive correlation was found between Parental Involvement and Child HRV (r=0.375, p=0.035).

Figure 2. No significant relationship was found (r=0.074, p=0.689).

Figure 3. No significant relationship was found (r=0.063, p=0.733).

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REFERENCES

IMPLICATIONS & FUTURE DIRECTIONS
• These results suggest that internalized parental attitudes may not affect a child’s baseline physiology.
• However, parental involvement may positively contribute to a child’s parasympathetic nervous system activity and serve as a protective buffer for a child’s emotional well-being.
• Parental attitudes, in comparison to parental behaviors, may be less salient to a child’s parasympathetic nervous system activity.
• Focusing treatment interventions on changing parenting behaviors (versus attitudes) may be most impactful to positive outcomes.
• Additional research should be conducted to further analyze the relationship between parenting attitudes/behaviors and child physiology.