Background & Introduction

Research has demonstrated the profound effects of toxic stress on children, most especially in early childhood during periods of critical brain development.

 Toxic stress impacts range from brain size, plasticity, interhemispheric integration, and especially Hypothalamic-Pituitary-Adrenal Axis (HPA Axis) functioning, just to reference a few.

 The full-body impact of toxic stress becomes more evident considering the role of cortisol ("stress hormone"). Overtone chronic, persistent stress prompts over-activation and sustained engagement of the HPA-Axis, continuing cortisol release which prohibits the body from restoring homeostasis. The effects of continued exposure to cortisol lead to inflammation and possibilities that lead to poor life outcomes and even early death.

 Therefore, preventing or addressing stress is very important, especially in early childhood. Any and all interventions and treatment programs that strive to lower stress will also buffer negative physiological outcomes that lead to poor life outcomes and even early death.

 Research has further demonstrated the impact of positive experiences on child development as well. Many studies have shown:

 We can buffer the impact of stress by co-regulating with children to regulate their stress response system, providing persistent engagement.

 Increased resiliency (protective factors) allows for improved capacities that may be managed or decreased parents can have improved interactions with their children.

 CARE (relationships and play) (interpersonal learning, joy) help build resilience.

 Stress impacts parents’ relationships with their children, but when stress is managed or decreased parents can have improved interactions with their children.

 Objectives

 Considering this, we postulated that Joyful Together® improves relationships:

 Improves Relationships:  
 - Parent-child play with activities would improve relationships by lowering parent stress;
 - Non-client children would be impacted by Joyful Together®;

 Increases Resiliency:  
 - Improved relationships would increase childhood protective factors, building resilience.

 Improves Stress Response System Function:  
 - Decreases in parent stress would be reflected via decreased cortisol release; and correspond to self-reported data from parents.

 Study 1: Pilot

 **Methods**

 **Parent Child Dyads recruited locally from:**  
 - Help Me Grow, Childcare Center, and Early Childhood Mental Health Program

 **Study Sessions included in Standard Apointments**  
 - Child’s Cognitive System and Parent’s Stress (psy” Kosovo’

 **Trained Early Interventionists Recruited, Enrolled, Conducted Study Play Sessions & Collected Data**

 Study 1 Details:

<table>
<thead>
<tr>
<th>Intervention Group</th>
<th>Sample</th>
<th>Data Collection</th>
<th>Pre &amp; Post Tests:</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Families 8 Child/Dyad</td>
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 Study 2: Family Expansion with Salivary Cortisol Phase

 **Methods**

 **4 Families (Household Child Dynamic)**

 **Salivary Cortisol Results based on a subsample of Study 2:**

<table>
<thead>
<tr>
<th>Study 2 Subsample</th>
<th>Salivary Cortisol Results</th>
<th>Completed All Pre &amp; Post Tests:</th>
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</thead>
<tbody>
<tr>
<td>Intervention Group</td>
<td>Salivary Cortisol Collection</td>
<td>DECA/DESSA, PSF, SF, SCS, ANCOVA</td>
</tr>
<tr>
<td>2 Children in Household</td>
<td>Written and Picture Instructions Provided with Sample Kit</td>
<td>Salivary Cortisol Collection and Analysis</td>
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<tr>
<td></td>
<td>Paper: after Visit 1 day of Visit 2 (Post) day of Visit 6 (Pre)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Within 30 minutes of awakening (no later than 10 am)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No: Foods, Drinks, Nursing, Brushing, Smoking. Etc before collection</td>
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</tr>
<tr>
<td></td>
<td>Store in freezer until transported to Study Site/Research Lab</td>
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 **Results**

 **Total Protective Factor (TPF) Score**

<table>
<thead>
<tr>
<th>Average</th>
<th>Needs Attention Range</th>
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<tbody>
<tr>
<td>42.38</td>
<td>35.56</td>
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</table>

 **INCREASED CHILDFORD RESILIENCY**

 **Total Protective Factor (TPF) Score**

<table>
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<td>42.38</td>
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 **TYPICAL RANGE**

 **INTERVENTION**

 **CONTROL**

 **Lowered Parent Stress**

 **Significant Improvement: Intervention Difficult Child Parent Stress**

 **Parent Stress Index Difficult Child Subscale**

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<th>Average</th>
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<tbody>
<tr>
<td>33.3</td>
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 **INTERVENTION**

 **CONTROL**

 **Results**

 **overall average stress: lowered**

 **Overall Average Stress: LOWERED (Approx. 40% Percentile)**

 **Conclusions & Opportunities**

 Joyful Together® (a parent-child play-based model)  
 - **Improves Relationships (Difficult Child Parent Stress Reduced)**
 - **Builds Child Resiliency (Increased Total Protective Factor)**
 - **Lowered Parent Stress (Difficult Child & Overall Average Parent Stress Reduced)**
 - **Impacts Parent Relationship with Siblings/Household Family, even if not receiving clinical services**

 Based on findings, thus far, can conclude that play-based activities dampens effects of toxic stress by improving relationships and building resilience.

 Still opportunities exist:

 - Capture more data with larger sample size
 - Consider longitudinal study of impact on relationships and parent stress
 - Measure effects across age groups to examine if model more effective for particular ages/stages
 - Examine potential as preventative model to buffer toxic stress’ longer-term effects

 **Salivary Cortisol & Self-Reported Parent Stress:**

 **Correlation between Decreased Cortisol and Self-Reported Parent Stress in all but 1 Family**

 Further examination needed to elucidate connections between child and/or parent health histories, prescriptions with salivary cortisol, stress and protective factors.

 Consider examining Joyful Together’s impact on diurnal cortisol pattern for parents and children

 Examine demographic, social, economic, educational & political correlations and variances in data/future sample

 Explore potential causes of cortisol outliers (e.g. in Family C&A)

 **Acknowledgements**

 Authors acknowledge and thank all Research Assistants, OhioGuidestone Staff, Participants and Contributors, and all of the Families.

 A special thank you to Lead RA: Ashley Cunningham, CNP, BSN.