Executive functioning differences across genders: An examination of the Children’s Kitchen Task Assessment.

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Introduction

- Executive functions include the formulation of goals, planning strategies, selective attention, working memory, and inhibitory control (Zelazo, 2004). All of these tasks are required in the rubric of everyday life participation.

- With the introduction of brain mapping, evidences of functional gender differences have since been supporting previous behavioral and neuropsychological results showing a sex-specific brain organization (Boghi et al., 2006). This difference in brain organization leads to a belief that executive functioning may also be dissimilar in some ways between genders.

- An examination of specific gender differences in executive functioning has yet to be studied extensively, specifically of gender differences during childhood. A broad search of current and past literature did not present a strong basis of research within this area to support significant gender differences.

- The purpose of this study was to determine whether there are identifiable differences in the executive functioning across genders as indicated by the Children’s Kitchen Task Assessment (CKTA).

- The hypothesis was that there would be no significant differences between genders on any CKTA subcategories. This hypothesis was formulated based on the lack of current research supporting gender differences in executive functioning, specifically the lack in research in the child population.

Research Design & Methods

This study was developed as an exploratory, observational research design to determine the relationship between gender and CKTA scores.

Participants

- 24 school-age children, 9 boys and 15 girls, as well as their parents and caregivers. The children were between the ages of 7 to 11 in grades 2 through 5.

- Recruited from the Dane County and south-central Wisconsin community. All children who agreed to participate in the study were included, regardless of race, gender, socioeconomic status, or involvement in special education.

Methods

- After assent, each child completed the CKTA to assess the child’s executive functioning. All testing was conducted by graduate students in the UW-Madison Occupational Therapy program trained in the administration of the assessment.

- Each parent completed a demographic questionnaire which included information regarding their child’s medical conditions or developmental disabilities, if any were present, the child’s birth history, parents’ occupation and education levels as well as how many people were involved in the child’s daily care.

Children’s Kitchen Task Assessment

- A performance-based assessment of executive functions in the childhood population that uses a safe, age-appropriate, and goal-directed activity for children (making play dough) to determine the cognitive capacity and the level of assistance needed for successful task completion (Rocke et al., 2005).

- Scoring areas of executive functioning include: initiation, organization, planning and sequencing, judgment and safety, and completion.

- The Total Score is based on the number and type of cues needed to complete the activity. The cueing levels range from 0.5 and there are 15 possible steps and components for the child to complete. The highest weighted score possible is 400, and a lower score denotes less help needed to complete the task.

- The CKTA Cuing Levels

<table>
<thead>
<tr>
<th>Score</th>
<th>Cue Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No cue required</td>
<td>The participant requires no help or reassurance</td>
</tr>
<tr>
<td>1</td>
<td>Verbal guidance</td>
<td>The participant requires prompting with an open-ended question or a definition that will help him or her move on</td>
</tr>
<tr>
<td>2</td>
<td>Gesture guidance</td>
<td>The participant requires gesture prompting; tester is not physically involved with the child</td>
</tr>
<tr>
<td>3</td>
<td>Direct verbal assistance</td>
<td>The participant requires a direct phrase or command; tester tells the participant what to do</td>
</tr>
<tr>
<td>4</td>
<td>Physical assistance</td>
<td>Tester is physically assisting the participant with the step but not during the participant</td>
</tr>
<tr>
<td>5</td>
<td>Do for participant</td>
<td>The tester is required to do the step for the participant</td>
</tr>
</tbody>
</table>

Results

- Data analyses show no significant differences between genders on any areas of CKTA total scores or any other subcategories of executive functioning. This supports the original hypothesis that there would not be differences across genders.

- In review of literature on executive functioning, there is a great deal of variability in findings, however there is no strong evidence of significant differences between genders on any areas of executive functioning.

- The results from this study are supportive of the general goal toward determining the ecological validity of the CKTA. Given that we believe that this assessment tool can be utilized reliably in pediatric clinical practice, it is important to determine its ecological validity and reliability amongst the child population.

- Limitations of this study include a small sample size of children due to restricted resources, and a limited variability in race and socioeconomic status. Future research should continue in the same direction, but attempt to collect a larger sample size with a greater variability in race and socioeconomic status. This can be done by pulling a sample from other areas surrounding the greater Madison, WI area.

Conclusions

- There is a need for a pediatric assessment tool that is ecologically valid. Due to the ease of use and reliability of the Children’s Kitchen Task Assessment in comparison with other known executive functioning pediatric tools, the CKTA should be more widely utilized in clinical practices. It is a fun assessment tool in which the child can participate and enjoy while the occupational therapist can view the child’s strengths and weaknesses and identify factors that facilitate or inhibit performance. Both boys and girls in this study enjoyed making the play dough; it is an appropriate activity across all genders.

Implications for Practice

- A special thank you to Dr. Julia Wilbarger, Ph.D., OTR, the UW-Madison Occupational Therapy program, and the Gertrude Gaston Fund for all of the guidance and financial support to make this project possible. Thank you to Christine Berg, Ph.D., OTR, and all of the willing participants for their patience and time.

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References