Adverse Childhood Experiences (ACEs) in Children with Autism Spectrum Disorder (ASD)

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INTRODUCTION

- ACEs are traditionally defined to include three categories of childhood abuse which include psychological, physical, and sexual abuse and four categories of household dysfunction.
- ACEs affect both children with ASD and the mothers of these children.
- Prior studies have shown that a greater number of maternal ACEs leads to a greater likelihood of ASD and ADHD in offspring.
- Prematurity, low birth weight, and pregnancy duration have all been identified to increase likelihood of ASD in children.
- The UC Davis MARBLES (Markers of Autism Risk in Babies Learning Early Signs) is a prospective longitudinal study which began in 2006 and enrolls women who already have a child with autism to investigate the recurrence in future children.

OBJECTIVE

- Investigate whether there is an association between the number of maternal ACEs and the recurrence of autism in families with an autistic child.

METHODS

- Used Google Scholar to find research articles containing the words: Autism; Autism Spectrum Disorder (ASD); and Adverse Childhood Experiences; maternal ACEs
- Analyzed data containing information about maternal and child ACEs from the MARBLES study using parent and child responses
- Data used was collected through the ECHO study for the MARBLES cohort and includes responses from 3 surveys: Child Report, Parent Report, and Adult Primary Version

RESULTS

- Maternal ACEs have been shown to be associated with child development (Non-TD) were associated with the greatest number of average maternal ACEs equaling 3.3.
- The number of ACEs reported for the child by the parent was less for ASD and non-TD compared with TD children.
- The National Survey of Children's Health Data from 2017-18 reported that 30% of children experienced at least one ACE.
- Maternal ACEs have been shown to be associated with cognitive development concerns in children in another study using a Parental Evaluation of child development.

CONCLUSIONS

- Overall, children diagnosed with non-typical development (Non-TD) were associated with the greatest number of average maternal ACEs equaling 3.3.
- Provides insight to how maternal ACEs affect neurodevelopmental outcomes in offspring of high-risk families.
- Limited to data collected from the ECHO cohort in the MARBLES study and need bigger data set for future statistical analysis.

FUTURE DIRECTIONS

- Complete this analysis with a larger population.
- Look into epigenetic array data which may affect biological aging and mechanism resulting in cognitive delays in children.

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WHAT ARE ADVERSE CHILDHOOD EXPERIENCES?

- ACEs are traditionally defined to include three categories of childhood abuse which include psychological, physical, and sexual abuse and four categories of household dysfunction.¹
INTRODUCTION

WHY DO ACES MATTER FOR NEURODEVELOPMENTAL DISORDERS?

● Prior studies have shown that a greater number of maternal ACEs leads to a greater likelihood of ASD and even ADHD in offspring$^{2,3}$

● The UC Davis MARBLES (Markers of Autism Risk in Babies Learning Early Signs) is a prospective longitudinal study which began in 2006 and enrolls women who already have a child with autism to investigate the recurrence in future children$^4$
1. Investigate whether there is an association between the amount of maternal ACEs and the recurrence of autism in families with an autistic child.
METHODS

- Utilization of Google Scholar to find relevant research articles containing the words: Autism; Autism Spectrum Disorder (ASD); Adverse Childhood Experiences; maternal ACEs
- Analyzed data containing information about maternal and child ACEs from the MARBLES study using parent and child responses
- The data used is directly from the ECHO cohort in the MARBLES study and includes responses from 3 surveys: Child Report, Parent Report, and Adult Primary Version
ARD:
- Autism Spectrum Disorder
- Tested using Autism Diagnostic Observation Schedule (ADOS)

TD:
- Typical Development
- Determined based on results of ADOS and MSEL tests

non-TD:
- Non-typical Development
- Tested for using Mullen Scale of Early Learning (MSEL) to assess cognitive function

Diagram: Description of the 3 categories of child neurodevelopmental diagnosis used in this study
RESULTS

Figure 1. Percentage of Respondents from Child Report Questionnaire and Number of Stressful Events experienced by child

Figure 2. Percentage of Respondent from Parent Report Questionnaire and Number of Stressful Events experienced by child

Figure 3. Percentage of Respondents from Adult Report Questionnaire and Number of ACEs events for Child per Category of Child Neurodevelopmental Diagnosis

Figure 4. Average Number of Maternal ACEs per category of neurodevelopmental diagnosis in child as reported in Adult Primary Version Questionnaire
Figure 5. Percentage of Respondents from Adult Primary Version Questionnaire and Neurodevelopmental Diagnosis in Child

- TD: 71.5%
- ASD: 14.3%
- non-TD: 14.3%
Overall, children diagnosed with non-typical development were associated with the greatest number of average maternal ACEs equaling 3.3.
The number of ACEs reported for the child by the parent was less for ASD and non-TD compared with TD children.
CONCLUSIONS

- Maternal ACEs affect child development in high-risk families who already have an autistic child

- The results of this study did not support the hypothesis that children born to mothers reporting a greater number of maternal ACEs would be diagnosed with ASD. ⁷

STRENGTHS & LIMITATIONS

- Provides insight to how maternal ACEs affect neurodevelopmental outcomes in offspring of high risk families
- Limited to data collected from the ECHO cohort in the MARBLES study and need bigger data set for future statistical analysis

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