- **Name of the study:** Changes in Cognitive, Social and Adaptive Behavior among Adults with Comorbidity of Autism and Intellectual Disability :Accelerated or Stable Trajectory
- **Year:** 2025
- **Type of research:** master's degree
- **Catalog Number:** 890-719-2023
- **Authors:** Dorit Chacham, Supervised by: prof. Hefziba Lifshitz
- **Research Authority:** Bar-Ilan University

Abstract

This work was supported by a grant from Shalem Fund

Background. In recent decades, there has been a steady increase in the life expectancy of individuals with special needs; however, there is a paucity of research exploring the cognitive and functional changes that occur with age in populations with comorbid autism spectrum disorders (ASD) and intellectual developmental disabilities (IDD).

Overall Objective. To examine age-related changes in cognitive, social, and adaptive behavior domains among adults with comorbid ASD and IDD, through the lens of two possible developmental trajectories: the accelerated aging trajectory and the stable development .(Fisher & Zeeman, 1970; Lifshitz, 2020) trajectory

Operational Objectives and Hypotheses:

1. To examine differences between age groups in measures of crystallized intelligence, fluid intelligence, adaptive behavior, and social functioning:

Hypothesis*:* According to "Compensatory Age Theory" (Lifshitz, 2020), scores of the 35-44 age group will be higher than those of the 25-34 age group in crystallized intelligence, fluid intelligence, adaptive behavior, and social skills. There will be no significant differences between the 35-44 age group and the 45+ age group in all the measures, in accordance with the stable developmental trajectory model which indicates stability until ages 50-60.

2. To examine correlations between measures of crystallized intelligence, fluid intelligence, adaptive behavior, and social functioning:

Rationale. A relationship has been found between general intelligence (g) and daily functioning in the population with IDD (Murray et al., 2014).

Hypothesis*:* Significant positive correlations will be found between all measures.

3. To examine the factors of age, gender, and ASD severity to explain variances in crystallized intelligence, fluid intelligence, adaptive behaviors, and social skills:

Hypothesis. These variables will contribute significantly to explaining variance in the dependent variables.

Participants. The study included 78 adults with comorbid ASD and IDD (24 women, 54 men), aged 25.9-63.3 years, residing and working in settings designed for adults on the autism spectrum with high support needs. Participants were divided into three age groups: 25-34 (n=24); 35-44 (n=29); and 45+ (n=25).

Instruments. A battery of tests were used including a demographic questionnaire, crystallized and fluid intelligence tests, assessments of autism characteristics, and an evaluation using adaptive behavior and social skills scales.

Results and Interpretation. Regarding the age-related changes, the hypothesis for crystallized intelligence was partially rejected - stability was found between the 25-34 and 35-44 age groups, but contrary to expectations, a significant decline was observed in the 45+ age group across all three measures, indicating an accelerated aging trajectory beginning at age 45.

For fluid intelligence, the hypothesis was partially confirmed - a significant improvement was found in the 35-44 age group compared to 25-34, indicating a prolonged trajectory consistent with the "compensatory age" theory. This finding also aligns with the strengths of individuals on the autism spectrum in fluid abilities (such as working memory and visuospatial abilities) compared to their difficulties in abilities related to crystallized intelligence (such as acquired knowledge and verbal abilities). Stability was found between ages 35-44 and 45+, indicating a stable developmental trajectory.

For adaptive behavior and social skills, the hypothesis was confirmed - stability was found between the 25-34 and 35-44 age groups, and a significant decline in the 45+ age group, indicating an accelerated aging trajectory.

Regarding the correlations, the hypothesis was confirmed - significant positive correlations were found between measures of crystallized intelligence, fluid intelligence, adaptive behavior and social skills. This finding indicates that both types of intelligence are separate constructs that are related to each other and share common cognitive factors. The significant relationship between crystallized intelligence and adaptive behavior and social skills emphasizes the importance of acquired knowledge and verbal skills for daily functioning (Murray et al., 2014; Dakopolos et al., 2024). In contrast, the relationship between adaptive behavior and fluid intelligence did not reach significance, suggesting that fluid abilities contribute less to daily and social functioning among individuals on the autism spectrum with IDD.

Regarding the regression and contribution of demographic characteristics to explain variance in the dependent variables, the hypothesis was partially confirmed - a significant contribution of age was found for adaptive behavior and social skills; as age increased, adaptive behavior and social skills scores decreased. In contrast, autism characteristics contributed significantly to all variables. A contribution (8.9%-16.7%) of autism characteristics was found for crystallized intelligence, adaptive behavior, and social skills, and a moderate contribution (8.7%) for fluid abilities. This finding indicates that fluid intelligence is not dependent on social and communication characteristics and remains more stable among populations with comorbidity of autism and IDD.

Theoretical Implications. The study indicates two parallel developmental trajectories: an accelerated trajectory in crystallized intelligence and adaptive behavior starting at age 45, compared to a prolonged-"compensatory" trajectory at ages 35-44 followed by stability in fluid intelligence, even in populations on the autism spectrum with ID. These findings support the "compensatory age" theory (Lifshitz, 2020) also in populations with comorbidity of autism and ID. However, they point to differentiation between various cognitive functioning domains in this population.

Practical-Educational Contribution. There is a need to develop differential intervention programs for adults with ASD and IDD. For ages 25-44, it is recommended to strengthen cognitive and social skills that will delay the expected decline in functioning. On the over hand, for ages 45 and above, the focus should be on preserving existing abilities, slowing the rate of decline, and developing compensatory strategies, while utilizing the relatively stable strengths in the fluid domain as a basis for compensating for the decline in verbal abilities, social skills, and daily living skills. This approach recognizes that intervention goals should match the developmental stage - transitioning from development and improvement in younger ages to preservation and compensation in older age.

Keywords

Autism and IDD comorbidity, aging in autism, compensatory age, crystallized and fluid intelligence, adaptive behavior in autism, adults on the autism spectrum, cognitive developmental trajectories, accelerated aging in intellectual disability.

- For the Full text in Hebrew>>
- To the Shalem Fund research database>>

- To the Shalem Fund research tool database>>
