

**Age-Related Differences in Intelligence, Processing
Speed and Memory among Adults and Elderly with
Intellectual Disability compared with Adults with Typical
Development: Accelerated or Parallel Trajectory**

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Abstract

The present study was conducted in order to examine age-related differences in intelligence, processing speed and memory among adults with nonsyndromic intellectual disability (NS-ID) compared to their peers with typical development (TD). The uniqueness of the study was the systematic and extensive inquiry into functional differences for a variety of variables in a wide range of ages in a NS-ID population. There were two goals at the center of study. The first was to examine age-related differences (stable or declining) across four cohorts (30-39; 40-49; 50-59; 60-69) among participants with TD and NS-ID. The second goal was to examine the trajectory along which these differences occur (accelerated trajectory or parallel trajectory) in NS-ID compared to TD. These issues were examined for crystallized and fluid intelligence, processing speed, working memory and episodic memory. In each domain, two questions were asked. First, are there differences between the cohorts? Second, will the basic gap in cognition between adults with NS-ID and adults with TD increase or remain unchanged as they age? The accelerated trajectory was based on the cognitive reserve theory (CRT; Katzman, 1993; Staz, 1993). According to this theory, a larger decline was assumed to occur among individuals with intellectual disability (ID) because of their lower cognitive reserve. On the other hand, according to parallel trajectory, unique protective factors are thought to exist in the population with ID. Therefore, age-related differences were assumed to occur at the same ages as the TD group, with no change in the basic cognitive gap between the two groups as they age.

A series of tests from the Wechsler batteries (Wechsler, 1997a, 1997b) as well as Rey-AVLT (Vakil & Blachstein, 1993, 1997) were used in order to examine the research questions. Participating the study were 100 adults with NS-ID and 83 adults

with TD, in four age cohorts (30-39; 40-49; 50-59; 60-69). All were tested individually by the researcher. All necessary approvals were received from the relevant government office and the legal guardians of the adults with NS-ID.

The results were mixed, and the study hypotheses were partially or fully confirmed. In both groups, age-related decline was found in fluid intelligence, processing speed, and the verbal modality of working memory. Crystallized intelligence, the visuo-spatial sketchpad component of working memory, total verbal learning and delayed effect of episodic memory were found to be stable.

In addition to the parallel trajectory, which ruled out qualitative functional differences among adults with NS-ID, a decelerated trajectory (DT) was also found. It indicated qualitative functional differences in the NS-ID group compared to the control group. An explanation for this trajectory might be attributed to NS-ID population's basic functional level across measurement instruments, which included a floor effect. Another possible explanation is proposed, based on Lifshitz-Vahav's innovative theory of late compensation (in press). The main conclusion was that the low level of cognitive reserve might be accompanied by other processes, which together result in slower cognitive aging.

This study has several implications. Theoretically, it contributes important knowledge to the literature about functional profiles in a variety of domains for the largest subgroup in the population with ID. Diagnostically, the mixed results point to the objective need for developing sensitive measurement instruments suitable for a population with ID. Clinically, the results may serve professionals planning and adapting strategies and interventional supports to meet the needs of adults and elderly people with ID. Practically, comprehension of the process occurring in the domains

studied could contribute to self-advocacy and quality of life for elderly people with ID and their parents.