



Reduction in general intelligence and executive function persists into adulthood among very preterm or very low birthweight children

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WHAT IS ALREADY KNOWN ON THIS TOPIC

Reduced intelligence and executive function deficits have been reported in very preterm (VP) and very low birthweight (VLBW) survivors in childhood, adolescence and early adulthood.¹ The aim of the present study was to compare general cognitive ability (IQ) and executive functioning (EF) of adults born VP/VLBW with term born controls at 26 years.

METHODS OF THE STUDY

The study population consisted of 217 VP/VLBW and 197 controls aged 26 years from the Bavarian Longitudinal Study (a geographically defined prospective cohort study of neonatal at-risk children born in 1985/1986 in Southern Germany). IQ was assessed with six subtests from the Wechsler Adult Intelligence Scale (WAIS III) and executive function tests included the Stroop test, the Visual Search and Attention test (VSAT), the Regensburg Word Fluency test (RWT) and the Rapid Automatised Naming (RAN) test. Scoring was z-standardised according to the results in the control group. To test for specific EF deficits in the VP/VLBW adults, mean EF scores of VP/VLBW and control samples were compared in multivariate analyses of variance while controlling for IQ in addition to prenatal complications, small-for-gestational-age (SGA) birth, multiple birth and family's socioeconomic status (SES).

WHAT THIS PAPER ADDS

- ▶ The study reported that VP/VLBW adults performed inferior to controls on IQ and EF. On average there was 0.90–1.27 standard deviation (SD) units difference in IQ scores between the VP/VLBW and term adults, while the differences in EF measures ranged from 0.59 SD units to 1.15 SD units, indicating moderate to large effect sizes (Cohen's *d* 0.46–0.96).
- ▶ Effect of family SES was significant and had an additive impact on IQ scores amounted to 1.13 SD units between individuals born into high versus low SES in both study groups (figure 3).
- ▶ Contrary to controls, the VP/VLBW adults more often had multiple rather than specific cognitive problems. Only 27.3% of the VP/VLBW sample did not have any cognitive deficits, compared to 51.5% of the control sample.

LIMITATIONS

- ▶ Overall this is a very well-conducted study. However, being a 'historical' cohort it is difficult to know whether the gap in cognition scores found in adulthood between preterm born and term born individuals is true also for younger cohorts having received modern neonatal medicine resulting in improved neurosensory outcome.²

- ▶ There is always an issue with selection bias in such studies. The differences between the two groups may be underestimated, since studies have shown that the individuals with most problems usually are the ones lost to follow-up.³ There is also a risk that controls participating in long-term follow-up may be biased, presenting with above average SES scores, which also seems true for the present study.⁴

WHAT NEXT IN RESEARCH

There is a need for more longitudinal studies further into adulthood of survivors of VP birth and/or with VLBW. A major concern is whether these persons are at increased risk of pathological ageing and dementia because of their limited brain reserves.⁵ Follow-up studies of more recent cohorts of VP/VLBW children having received more advanced neonatal care including prenatal steroids, surfactant therapy and less invasive respiratory support are needed to compare outcome results and brain growth trajectories with time.

DO THESE RESULTS CHANGE YOUR PRACTICES AND WHY?

Yes. The clinical implications from this study are that those surviving VP birth or with VLBW do not outgrow their clinical impairments. Adult health and educational services should be aware of this and the need for more specific support related to VP birth.

Competing interests None declared.

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