

Analysis Brief

Pre-Birth and Early Life Indicators of School Performance

Rittman DS, Parrish JW

March 2020

Background

Educational attainment is critical to an individual's future economic success and overall health. Poor early school performance has been linked to multiple negative adolescent and adult health and safety outcomes¹. While multiple metrics can be used to evaluate early school performance, 3rd and 4th grade reading scores have an extensive literature documenting their association with future literacy, high school graduation rates, college enrollment, and multiple adult health outcomes².

The Alaska Longitudinal Child Abuse and Neglect Linkage Project combines the 2009–2011 Pregnancy Risk Assessment Monitoring System (PRAMS) and 2012–2014 Childhood Understanding Behaviors Survey (CUBS) with various statewide administrative data in order to conduct retrospective longitudinal cohort studies. The PRAMS and CUBS surveys are weighted to represent the total Alaska birth population. For this analysis we linked PRAMS and CUBS data with the Department of Education & Early Development (DEED) and Office of Children's Services (OCS) data to better understand the factors that impact early school performance.

The purpose of this analysis was to focus on the pre-birth and infancy factors that are associated with 3rd grade reading score level (PEAKS), kindergarten developmental profiles (ADP), and attendance rates. The PEAKS score is categorized as Advanced (best), Proficient, Below Proficient, and Far Below Proficient (worst). We combined levels into Advanced/ Proficient and Below/Far Below Proficient due to small sample size. ADP uses 13 specific measures (or goals) to evaluate student readiness. Meeting 11 or more goals is considered adequate learning preparedness. Chronic absenteeism is defined as attending less than 90% of the total school days.

Third grade reading score

Overall, 64% of children born in Alaska (nearly 2 out of every 3) scored Below/Far Below Proficient (BP/FBP) on the 3rd grade PEAKS assessment.

- 90% of children born to mothers who experienced homelessness before and/or during pregnancy scored BP/FBP
- 86% of children born to mothers who did not graduate high school scored BP/FBP on the 3rd grade PEAKS assessment
- 81% of children born to mothers who smoked marijuana during pregnancy scored BP/FBP
- 79% of children experiencing a first report to OCS scored BP/FBP on the PEAKS assessment

Kindergarten profile

Overall, 69% of children (nearly 7 out of every 10) born in Alaska did not meet the 11 goal threshold on the ADP.

- 84% of children born to mothers who experienced homelessness before and/or during pregnancy fell below 11 goals
- 81% of children born to mothers who did not graduate high school did not meet the 11 goal threshold
- 78% of children born to mothers who smoked marijuana during pregnancy did not meet 11 goals
- 77% of children experiencing a first report to OCS did not meet the 11 goal threshold

Attendance

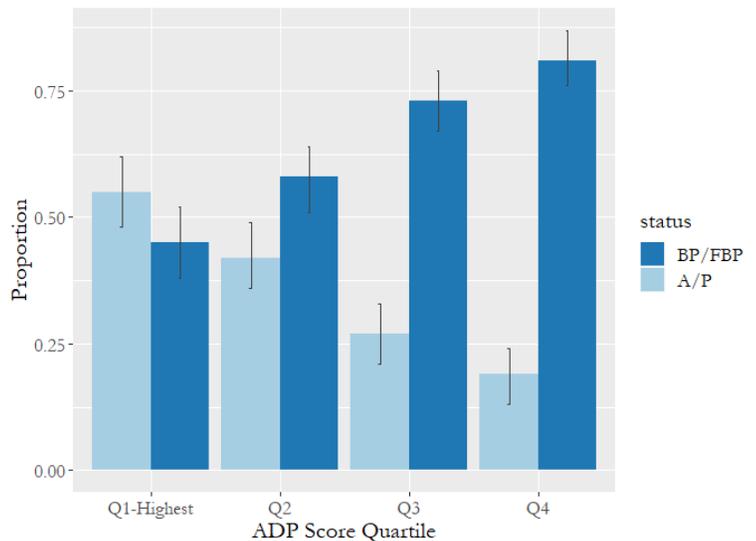
Overall, 20% of Alaskan children (1 out of every 5) born during 2009–2011 were classified as being chronically absent.

- 39% of children born to mothers who did not graduate high school were chronically absent
- 37% of children born to mothers who experienced homelessness before and/or during pregnancy were chronically absent
- 32% of children born to mothers who smoked marijuana during pregnancy were chronically absent
- 32% of children experiencing a first report to OCS were chronically absent

Relationship between kindergarten profile and third grade reading scores

We assessed the relationship between the ADP and 3rd grade PEAKS score. We grouped ADP score into four quartiles: Q1 (12+ goals met), Q2 (7–11 goals met), Q3 (2–6 goals met), Q4 (0–1 goals met).

- Among students in Q1 on the ADP, the majority score A/P at the 3rd grade PEAKS assessment
- As children score worse on the ADP, the proportion at 3rd grade scoring BP/FBP increases
- The ADP appears to do a better job at predicting a child’s future poor reading performance



Implications and recommendations

The findings from this analysis suggest that a child’s school readiness as measured by reading score, development, and school attendance are largely influenced by a multitude of demographic, behavioral, financial, and safety factors present in the family. The clear relationship between low maternal education and offspring school readiness indicates the strong cross-generation impact education has. Many of the strongest indicators associated with poor education readiness and early performance are also associated with poor child and adult health outcomes. Therefore, education, child welfare, and public health should coordinate efforts and pool resources to support families early (including prenatally) and throughout childhood.

References

1. Early Childhood Development and Education. <https://www.healthypeople.gov/2020/topics-objectives/topic/social-determinants-health/interventions-resources/early-childhood-0>. Accessed March 5, 2020.
2. Pre-Kindergarten-Third Grade Literacy. <https://www.ncsl.org/research/education/pre-kindergarten-third-grade-literacy.aspx>. Accessed March 5, 2020.

