

Education COMPENDIUM

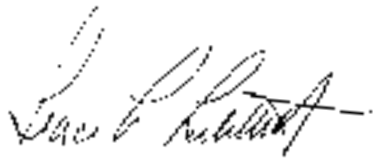
This collection of Minn-Link research briefs and accompanying discussion guides is designed to inform and engage educators and associated practitioners about practice and policy-relevant research. Minn-Link studies are developed using integrated data crossing multiple systems, with the intent of supporting practice. Findings of each Minn-Link study are detailed in brief format with accompanying discussion guides created for enhancing conversations about integrating research and practice.

Introduction

Since its inception in 2003, the Minn-LInK project has brought together researchers, policy makers, administrators, educators, and practitioners to explore and better understand the experiences of children and families who are multi-system involved. Using integrated data from multiple service systems (including education, social services, and criminal justice), Minn-LInK staff and collaborative partners have furthered our understanding of the well-being of children and families in Minnesota. We've selected five research briefs and accompanying discussion guides to highlight our collaborative work over the last five years — with a focus on issues critical to education.

Although this compendium includes just a few briefs and their corresponding discussion guides, many others are available on our website. In addition, as we continue in our mission to support the well-being of Minnesota's children and families, new briefs and discussion guides are developed and made available throughout the year.

We hope you find these selections of interest and useful in your work with children and families.



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REPORT BRIEF

Child Protection and the Achievement Gap

PURPOSE OF THE STUDY

The purpose of this study was to evaluate the educational outcomes of youth involved in Child Protective Services (CPS) at varying levels, including involvement in an accepted case of child protection (CP) and involvement in out-of-home placement (OHP). This study focused on analyzing the achievement gap associated with involvement in CPS, and determined whether more extensive involvement in CPS yielded increasingly negative academic outcomes.

BACKGROUND & PURPOSE

In the 1950s, scholars began to analyze differences in the academic achievement of various groups of youth. They coined this difference “the achievement gap.” Over the last half century, scholars from multiple disciplines have devoted significant time and energy to studying the achievement gap. This research has primarily focused on the achievement gap as it relates to two demographic characteristics: socioeconomic status and race.

More recently, scholars began documenting associations between child maltreatment and poor educational outcomes for youth involved in Child Protective Services (CPS; Eckenrode, Laird, & Doris, 1993; Kurtz, Gaudin, Wodarski, & Howing, 1993; Leiter & Johnsen, 1994; Perez & Widom, 1994). This research continues today, with

greater focus on understanding the role of contributing factors in the achievement gap, including experiencing child maltreatment and out-of-home placement (OHP). Research has demonstrated that youth who experience maltreatment score significantly lower on standardized achievement tests than their peers (Eckenrode et al., 1993; Kurtz, Gaudin, Wodarski, & Howing, 1993; Piescher, Hong, & LaLiberte, 2012). Youth who experience OHP also struggle academically (Blome, 1997; Burley & Halpern, 2001; Smithgall et al., 2004).

Considering the vulnerability and experiences of youth with CPS involvement, academic disparities may not be surprising. However, few studies have attempted to address the academic performance of youth involved in CPS while controlling for factors that may influence academic outcomes, such as socioeconomic status and race. Extent of CPS involvement is another key factor left out of much of the current research.

This study sought to understand the academic achievement of youth in CPS compared to their peers by answering the following questions:

- 1. Is there evidence of a CPS achievement gap after controlling for differences in socioeconomic status and race?**
- 2. If so, is more extensive involvement in CPS associated with increasingly poor academic outcomes?**



RESEARCH HAS DEMONSTRATED THAT YOUTH WHO EXPERIENCE MALTREATMENT SCORE SIGNIFICANTLY LOWER ON STANDARDIZED ACHIEVEMENT TESTS THAN THEIR PEERS. YOUTH WHO EXPERIENCE OHP ALSO STRUGGLE ACADEMICALLY.

METHODS

Three groups were created (based on extent of CPS involvement) to assess the relationship between CPS involvement and academic achievement: Child Protection (CP), Out-of-Home Placement (OHP), and General Population (GP). Student proficiency on statewide standardized MCA-II math and reading tests were examined based on extent of involvement in CPS, race/ethnicity, and socioeconomic status.

Through Minn-LInK, child welfare data (CPS and OHP experience) from Minnesota's Department of Human Services were linked to Minnesota's Department of Education records from the Minnesota Automated Reporting Student System (MARSS) and Minnesota Comprehensive Assessment (MCA-II). Three groups were created. The Child Protection (CP) group included youth who attended school in the 2009-2010 academic year and were involved in a child protection or assessment case in Minnesota during or prior to that academic year; these youth did not experience OHP. The Out-of-Home Placement (OHP) group included youth who attended school in 2009-2010 and had prior or current CPS involvement and OHP. The General Population (GP) group included all kindergarten-12th graders who attended public school in Minnesota during the 2009-2010 academic year and who did not appear in the CPS or OHP groups. Odds ratios of student proficiency on MCA-II math and reading tests were examined based on extent of CPS involvement (CP, OHP, or GP), race/ethnicity, and socioeconomic status (i.e., eligibility for free or reduced lunch) using logistic regression analyses. For this analysis, two levels of MCA-II proficiency were used – proficient (students who met or exceeded grade-level standards) and not proficient (students who did not meet or only partially met the standards).

Table 1. Number of Youth Taking MCA-II Math and Reading Tests by CPS Involvement, 2009-2010

| | General Population (GP) | Child Protection (CP) | Out-of-Home Placement (OHP) |
|----------------|-------------------------|-----------------------|-----------------------------|
| Math | 398,617 | 6,562 | 2,009 |
| Reading | 410,488 | 6,875 | 2,122 |

FINDINGS

Findings suggest that an achievement gap exists for youth in CPS as compared to youth who haven't had CPS involvement. The proportion of youth that were proficient on MCA-II math and reading tests was consistently lower in the CP and OHP populations than for the general student population, even after controlling for race and socioeconomic status.

As can be seen in Figure 1, the proportion of youth that were proficient on MCA-II math and reading tests was consistently lower in the CP and OHP groups than for the general student population. While approximately 70% of youth in the general population demonstrated proficiency on these tests, less than half of the youth in the CP and OHP groups demonstrated proficiency. Additionally, prior to adjusting for race/ethnicity and socioeconomic status, the odds of a child from the CP or OHP groups demonstrating proficiency on these tests were significantly lower compared to the odds of a child from the general population demonstrating proficiency. (See Figure 2.) In fact, CP youth were 2.8 times less likely ($p < .01$) to demonstrate proficiency in math and 2.9 times less likely ($p < .01$) to demonstrate proficiency in reading than their peers who didn't have CPS involvement (i.e., the GP group). Youth with OHP were 3.8 times less likely ($p < .01$) to demonstrate proficiency in math and 3.5 times less likely ($p < .01$) to demonstrate proficiency in reading than their peers from the GP group. These significant differences among youth suggested that an achievement gap exists for youth with CPS involvement (regardless of whether they go on to experience OHP) as compared to youth who have not had CPS involvement.

ALTHOUGH THE ODDS OF DEMONSTRATING PROFICIENCY INCREASED FOR CPS-INVOLVED YOUTH WHEN CONTROLLING FOR SOCIOECONOMIC STATUS AND RACE/ETHNICITY, SIGNIFICANT DIFFERENCES BETWEEN CPS -INVOLVED AND NON-CPS -INVOLVED YOUTH CONTINUED TO EXIST REITERATING THAT AN ACHIEVEMENT GAP EXISTS FOR YOUTH WITH CPS INVOLVEMENT REGARDLESS OF WHETHER THEY GO ON TO EXPERIENCE OHP.

Because of the racial/ethnic and socioeconomic disparities that exist in CPS and in the achievement gap overall, additional regression analysis was conducted to control for these factors. As can be seen in Figure 2, for youth with CPS involvement, the odds of demonstrating proficiency on standardized tests of reading and math increased when race/ethnicity and socioeconomic status were included in the analysis. When controlling for differences in

socioeconomic status across groups, CP youth were 1.8 times less likely ($p < .01$) to demonstrate proficiency in math and 1.7 times less likely ($p < .01$) to demonstrate proficiency in reading than their peers who didn't have CPS involvement (as compared to 2.8 and 2.9 times for math and reading, respectively, prior to controlling for differences in socioeconomic status across groups). Youth with OHP were 2.2 times less likely ($p < .01$) to demonstrate proficiency in math and 1.9 times less likely ($p < .01$) to demonstrate proficiency in reading than their peers from the GP group. When controlling for differences in socioeconomic status and race/ethnicity across

THERE WAS NO EVIDENCE TO SUPPORT THE HYPOTHESIS THAT MORE EXTENSIVE INVOLVEMENT IN CPS PRODUCED A LARGER ACHIEVEMENT GAP AFTER CONTROLLING FOR BOTH SOCIOECONOMIC STATUS AND RACE.

groups, CP youth were 1.8 times less likely ($p < .01$) to demonstrate proficiency in math and reading than their peers who didn't have CPS involvement (as compared to 2.8 and 2.9 times for math and reading, respectively, prior to controlling for differences in race/ethnicity across groups). Youth with OHP were 1.9 times less likely

($p < .01$) to demonstrate proficiency in math and 1.8 times less likely ($p < .01$) to demonstrate proficiency in reading than their peers from the GP group when controlling for socioeconomic status and race/ethnicity. Although the odds of demonstrating proficiency increased for CPS-involved youth when controlling for socioeconomic status and race/ethnicity, significant differences between CPS-involved and non-CPS-involved youth continued to exist thus reiterating that an achievement gap exists for youth with CPS involvement regardless of OHP experience.

To further investigate whether deeper involvement in CPS produced a larger achievement gap, the odds of

demonstrating proficiency on math and reading tests for youth in CP relative to OHP were compared. When controlling for socioeconomic status, CP youth were 1.2 times more likely ($p < .01$) to demonstrate proficiency in math and 1.1 times more likely ($p < .05$) to demonstrate proficiency in reading than their peers who experienced OHP. This analysis suggested that deeper involvement in CPS produced a larger achievement gap. However, after controlling for both socioeconomic status and race, there was no longer a gap between the performance of CP and OHP youth in either math or reading. The odds of proficiency for CP youth were not significantly different from the odds of proficiency for OHP youth in math (odds ratio = 1.069) or reading (odds ratio = .959). Thus, there was no evidence to support the hypothesis that deeper involvement in CPS produced a larger achievement gap after controlling for both socioeconomic status and race.

Figure 1. Proportion of Youth Proficient in Math and Reading by CPS Involvement

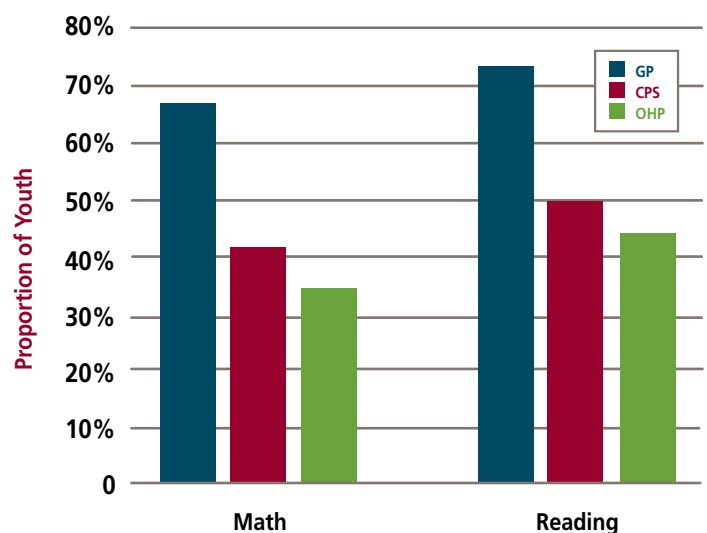
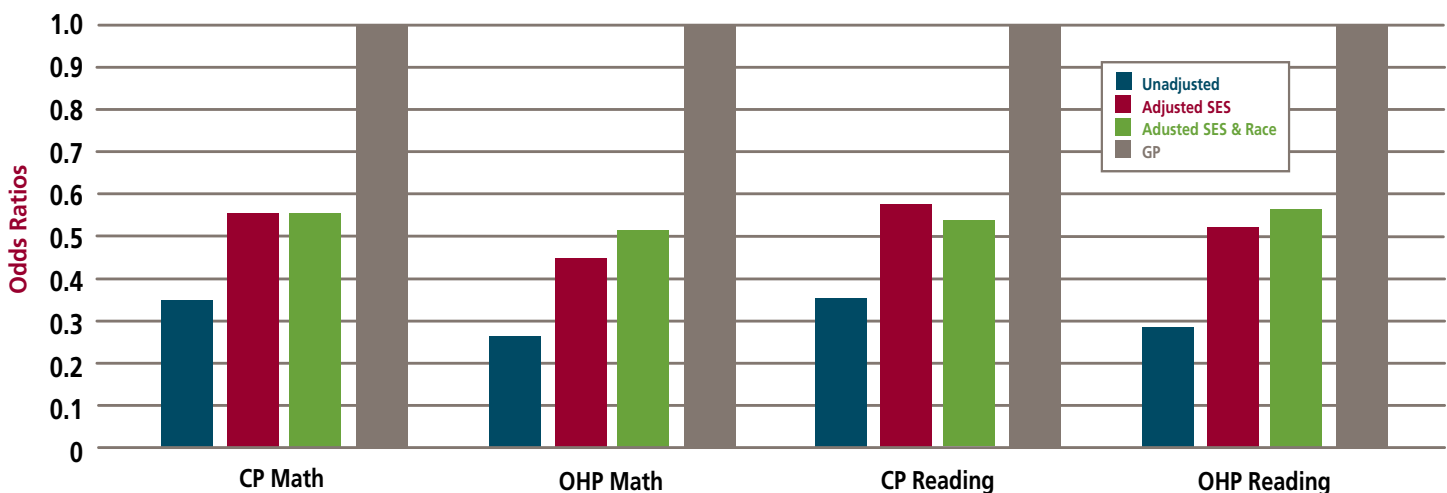


Figure 2: Odds Ratios for Proficiency in MCA-II Math and Reading by CPS Involvement as Compared to the General Population



Conclusion

This study sought to better understand the academic achievement of youth who have been involved in the Child Protection System and those that have experienced out-of-home placement as compared to the academic achievement of their peers. This study extended the present literature by isolating the unique circumstances of being involved in CPS and controlling for potentially confounding variables (Berzin, 2008; Blome, 1997). Findings of this study suggest that an achievement gap for youth who are involved in the Child Protection System exists. Even after controlling for socioeconomic status and race, the academic performance of youth with CPS involvement was significantly lower than for youth without CPS involvement.

This study also sought to add to the literature by analyzing the relationship between academic outcomes and extent of CPS involvement. While unadjusted analyses suggested that more extensive CPS involvement was associated with lower academic achievement, the inclusion of race in analysis removed the achievement differences between the CP and OHP groups. This finding may be evidence of the racial disproportionality seen in Minnesota's OHP (Minnesota Department of Human Services, 2010) rather than the presence of an achievement gap associated with more extensive involvement in CPS.

In sum, this study revealed that youth involved in CPS demonstrated poorer academic proficiency across both reading and math (regardless of whether they experienced OHP) than their peers. These findings are consistent with previous studies that demonstrated significant differences in academic achievement through standardized testing measures and grade-level expectations (Blome, 1997; Eckenrode et al., 1993). The finding of no difference in academic performance between youth in CPS and OHP suggests that interventions that wait for an OHP may be too late. The achievement gap is present by the time a youth is involved in CPS and therefore cross-system collaboration and information sharing should occur early in the CPS process. Although CPS involvement is not the cause of this achievement gap, educators and social service providers may use CPS involvement as a potential collaborative intervention point for ameliorating the achievement gap for these vulnerable youth.

LIMITATIONS

The study combined youth with previous and existing CPS involvement in the constructed CPS and OHP groups. As such, the time between a maltreatment event and the academic measurement was not accounted for by this study. Additionally, only two measures of academic achievement were assessed: the MCA-II math and reading standardized tests. Other markers of academic achievement were not captured in this analysis.

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The Center for Advanced Studies in Child Welfare (CASCW) is a resource for child welfare professionals, students, faculty, policy-makers, and other key stakeholders concerned about child welfare in Minnesota. **Minn-LInK** is a unique collaborative, university-based research environment with the express purpose of studying child and family well being in Minnesota using state administrative data from multiple agencies.

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Child Protection and the Achievement Gap

Translating research to practice may be difficult, yet a better understanding of current research is necessary to ensure child welfare workers engage in best practices when working with children and families. The Minn-LInK Discussion Guide is designed to help facilitate thoughtful discussions about the information presented in the research brief in order to inform practice and enhance discussion surrounding meaningful issues.

In this issue, the academic achievement of youth with and without child protection system (CPS) involvement was explored to determine if an achievement gap exists at varying levels of an accepted case. In particular, this study analyzed whether a CPS achievement gap existed after controlling for differences in socioeconomic status and race and whether more extensive involvement in CPS yielded increasingly negative academic outcomes. Findings suggested that an achievement gap exists for youth in CPS compared to youth without CPS involvement. The proportion of youth that were proficient on MCA-II math and reading tests was consistently lower in the child protection and out-of-home placement populations than for the general student populations, even after controlling for race and socioeconomic status. However, there was no evidence to support that more extensive involvement in CPS produced a larger achievement gap.

Discussion on Practice Implications

1. Both youth involved in CPS and those experiencing out-of-home placement (OHP) were significantly less likely to demonstrate proficiency on standardized measures of reading and math, even when socioeconomic status and race were controlled. What programs are available to support the academic success of youth involved in CPS? What can we as professionals do to ensure youth involved in CPS receive appropriate educational services and assistance?
2. It appears that the achievement gap exists for youth with CPS involvement regardless of whether they go on to experience more extensive involvement within CPS (e.g., out-of-home placement). This finding suggests that interventions that wait for youth to experience OHP may be too late. This finding also suggests that the way we think about well-being in child welfare (i.e., as part of the OHP process) does not adequately address the needs of all CPS-involved children. How can we promote early intervention services for youth involved in CPS? How can we better assess whether our systems are meeting the needs of all CPS-involved children?

Discussion on Agency- & System-Level Changes

1. This study revealed that the achievement gap between youth with and without CPS involvement is present by the time youth become involved in CPS. This may mean that waiting for a child to enter CPS may already be too late. How can cross-collaboration ensure youth involved in CPS receive early intervention services? What steps need to be taken for child welfare workers and school personnel to collaborate for the academic success of youth involved in CPS?
2. Cross-system collaboration between child welfare workers and school personnel is critical to ameliorate the poor academic outcomes of youth involved in CPS. What barriers exist in cross-system collaboration efforts? How can we work to overcome these challenges and barriers?
3. Information sharing between systems may allow us to identify and monitor youth who are at-risk of school failure. Describe your experiences sharing information with other systems. What are some of the challenges you have faced? What has made it easier?
4. Addressing child well-being from a holistic perspective is a controversial issue, with some individuals proposing that safety (and safety alone) is the role of child protection and other individuals arguing that safety by itself isn't a large enough focus for child protection. What do you think is the role of child protection in ensuring well-being? How do you see your agency's role in ensuring well-being? What barriers exist within your agency from adopting a more holistic perspective? In what ways is your agency already using a holistic perspective in child protection practice?

RESEARCH BRIEF

The school-counselor-to-student ratio: Does having a school counselor matter?

PURPOSE OF THE STUDY

The purpose of this study was to better understand the effect school-counselor-to-student ratios have on academic achievement.

Minnesota has one of the largest achievement gaps and worst school-counselor-to-student ratios in the nation (ASCA, 2016a; Condrón, Tope, Steidl, & Freeman, 2013). While the American School Counseling Association (ASCA) recommends the counselor-to-student ratio to be 1:250, Minnesota's ratio is 1:743 (ASCA, 2015).

BACKGROUND & PURPOSE

Licensed school counselors are an influential resource for students (e.g., Lapan, Whitcomb, & Aleman, 2012). Smaller school-counselor-to-student ratios have been associated with reduced disciplinary problems, and increased school connectedness and well-being (Carrell & Carrell, 2006; Carrell & Hoekstra, 2014; Lapan, Wells, Peterson, & McCann, 2014; Lapan, Whitcomb, & Aleman, 2012), yet research of the effect school counselor ratios have on the achievement gap does not exist.

Minnesota has one of the largest racial and economic achievement gaps (Condrón, Tope, Steidl, & Freeman, 2013) and one of the worst school-counselor-to-student ratios in the nation (ASCA, 2016a). The American School Counseling Association (ASCA) recommends a counselor-to-student ratio of 1:250 (ASCA, 2015). Minnesota's school-counselor-to-student ratio is far from meeting this best practice, with a reported ratio of 743 students per licensed school counselor (ASCA, 2016a).

Recent Minnesota legislation emphasized the need for an increased presence of helping professions in rural Minnesota schools (MINN. STAT. 144.1501, 2014) yet it remains unclear how this may influence student academic achievement. This brief highlights the status of school counseling in Minnesota. The research questions provide understanding about Minnesota children and achievement based on individual and school factors. The results of which can impact the way resources are implemented to support urban and rural academic achievement.

The research questions were as follows:

- 1. Do standardized test scores differ for eighth grade students who have a licensed school counselor compared to students who do not have a licensed school counselor?**
- 2. What effects does school-counselor-to-student ratio have on middle school standardized test scores when controlling for individual and school factors?**



MINNESOTA HAS ONE OF THE WORST SCHOOL-COUNSELOR-TO-STUDENT RATIOS IN THE NATION. IOWA, NORTH DAKOTA, SOUTH DAKOTA, AND WISCONSIN (ALL STATES BORDERING MINNESOTA) HAVE COUNSELOR-TO-STUDENT RATIOS THAT ARE LESS THAN 400 STUDENTS PER COUNSELOR AND MANDATES IN PLACE TO SUPPORT LOWER RATIOS. MINNESOTA'S RATIO IS 1:743, FAR FROM THE RECOMMENDED RATE OF 1:250.

METHODS

Using secondary data from the Minn-LInK project, eighth grade students who completed the MCA-III in the academic year 2013-14 were included in the study. Individual (e.g., race/ethnicity) and school (e.g., teacher-to-student ratio) factors were accounted for. Statistical assumptions were met.

FINDINGS

Many of Minnesota's eighth grade students lacked access (or had limited access) to a licensed school counselor; students without access were more likely African American/Black or Native American and from poor families. Students who had access to a licensed school counselor scored significantly higher across all MCA-III subjects than students who did not have access to a licensed counselor.

Using data from the Minn-LInK project, a sample of Minnesota eighth grade students who completed the MCA-III in the academic school year of 2013 – 2014 was selected. Students who did not have MCA-III scores from the previous year were excluded from analysis due to the inability to control for their previous scores. Demographic variables included individual factors of race and ethnicity, limited English proficiency, free/reduced lunch eligibility, number of months on state assistance (provided by the Minnesota

Department of Human Services Minnesota Family Investment Program), school attendance and mobility, and homelessness; school factors included geographic setting (Rural-Urban Commuting Area [RUCA] codes; USDA, 2014), teacher-to-student ratio, teacher licensure rates, teacher longevity in the field, and the factor of interest, school-counselor-to-student ratio. An independent samples t-test for research question one and hierarchical multiple regression (HMR) for research question two were executed with SPSS 23 (IBM Inc., 2014). Relevant statistical assumptions were tested. Correlation observation of the variables revealed that some independent variables were highly correlated; however, because the collinearity statistics (i.e., Tolerance and VIF) were all within accepted limits, the assumption of multicollinearity was deemed to have been met (Coakes, 2005). Residual and scatter plots indicated the assumptions were reasonably satisfied.

SCHOOL COUNSELORS IN MINNESOTA

Only four Minnesota counties had an average school-counselor-to-student ratio for eighth graders that adhered to ASCA's recommendation of 1:250. Twenty-seven counties had average ratios of 1:400 or less. This left the majority of Minnesota counties (n=54) with an average school-counselor-to-student ratio greater than 1:400, including 10 counties that were without a single school counselor for middle schoolers (see Figure 1).

Nearly one out of every five eighth grade students in Minnesota was without access to a licensed school counselor at the student's school (n = 10,713). As can be seen in Figure 2, only six counties provided every eighth grade student with access to at least one school counselor within the student's school. In one third of Minnesota's counties (n=29), the majority of eighth grade students were without access to a school counselor at the student's school. Counties with limited to no access to a school counselor were likely to be in rural settings, especially in western Minnesota. In addition, a greater proportion of students without access to licensed school counselors were Black or Native American and/or were eligible for free or reduced price lunch, as compared to the proportion of students who did have licensed school counselors (see Table 1).

ACCESS TO A SCHOOL COUNSELOR AND ACHIEVEMENT

Differences in standardized test scores for students who were without access to a licensed school counselor were compared with students who did have access to a licensed school counselor. Independent samples t-test analyses revealed that, on average, across all MCA-III subjects (math, reading, and science), students who had access to a licensed school counselor performed significantly better than students who were without access to a licensed school counselor in their school (see Figure 3).

Table 1. Characteristics of students

| Descriptor | No Licensed School Counselor (n = 10,713) Percent | Licensed School Counselor (n = 47,749) Percent |
|--|--|---|
| Race or ethnicity | | |
| American Indian or Alaskan Native | 3.5 | 1.9 |
| Asian or Pacific Islander | 5.8 | 6.8 |
| Hispanic | 6.7 | 6.7 |
| Black, non-Hispanic | 10.7 | 9.3 |
| White, non-Hispanic | 73.3 | 75.3 |
| Free/reduced lunch eligibility | | |
| Ineligible | 59.0 | 65.6 |
| Reduced price meal | 7.8 | 7.2 |
| Free meal | 33.2 | 27.2 |

NOTE: Bolded numbers indicate significant differences in proportion between students who do not have a licensed school counselor and students who have a licensed school counselor at $p < .05$.

SCHOOL-COUNSELOR-TO-STUDENT RATIO AND ACHIEVEMENT

Three five-stage hierarchical multiple regressions were conducted observing a dependent variable of scaled test score for either math, reading, or science. Individual factors were entered at stage one (e.g., race or ethnicity, number of months receiving MFIP), geographic setting was entered at stage two, school factors were entered at stage three (e.g., teacher-to-student ratio), and finally school-counselor-to-student ratio was entered at stage four, given that it was the variable of interest after controlling for the previous three stages. The variables were entered in this order as it was theoretically appropriate to start with variables most closely related to a student's identity and grow to account for family and then environmental factors. Each student's MCA-III scaled score from the previous academic year was controlled in the model.

Figure 1. Average school-counselor-to-student ratio by county for schools with a school counselor

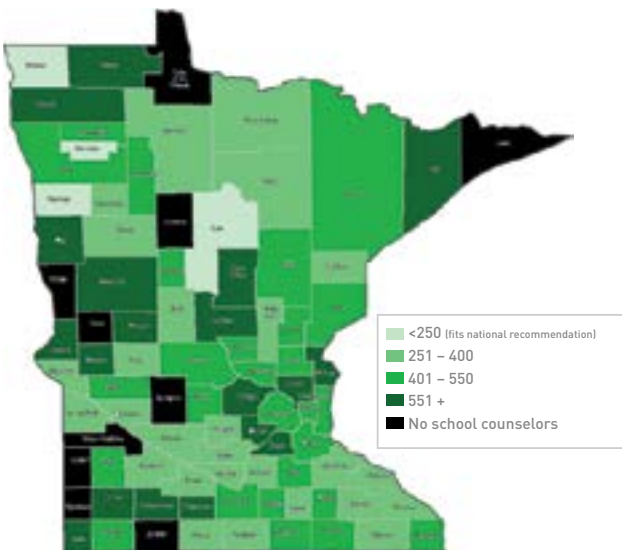


Figure 2. Percent of students without access to a licensed middle school counselors by county

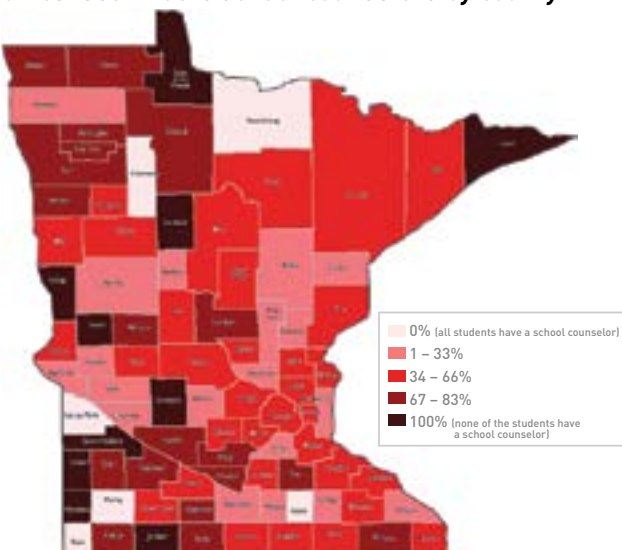
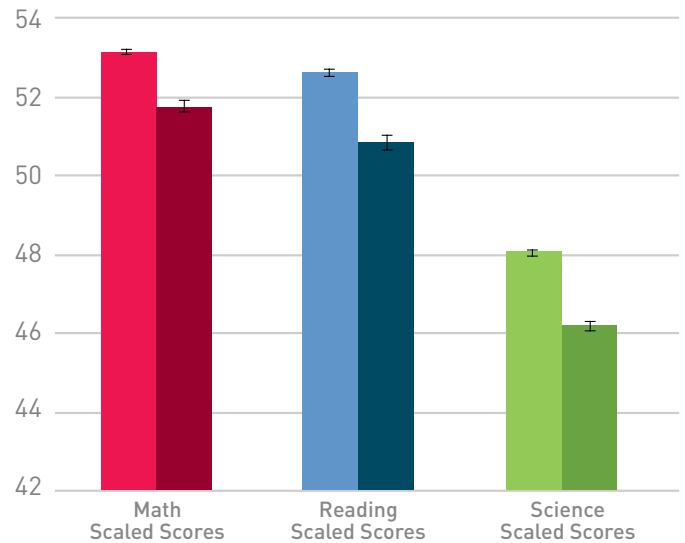


Figure 3. MCA-III scaled scores for students with and without access to a school counselor



Note. Differences in scaled scores were significant for math, reading, and science when compared by school counselor access.

Results revealed that this combination of variables significantly predicted a proportion of variance in student scaled scores. Specifically, the variables predicted 75% of the variance in math scaled scores ($F(13, 52,152) = 12,056.27, p < .001$), 65.4% of the variance in reading ($F(13, 52,376) = 7,614.09, p < .001$), and 23.6% of the variance in science ($F(12, 55,396) = 1,425.90, p < .001$). While each model showed significant change among each level, R^2 stayed constant after level three for both math and reading. For each subject, although school-counselor-to-student ratio appeared significant, it did not meaningfully add to our ability to predict MCA-III scores after accounting for other variables in the model.

It is important to note that a greater proportion of the variance in the math and reading scores were accounted for due to the inclusion of the previous year's MCA-III scores in the regression model. Previous science scores could not be accounted for in the model because the science scale scores from the academic year of 2013 - 2014 are not vertically equated to the academic year of 2010 - 2011 as the students took an earlier version of the test, the MCA-II.

Many of Minnesota's eighth grade students lacked access (or had limited access) to a licensed school counselor; students without access were more likely African American, Native American, or from poor families. Students who had access to a licensed school counselor scored significantly higher across all MCA-III subjects than students who did not have access to a licensed counselor. Although school-counselor-to-student ratio did not meaningfully add to the ability to predict MCA-III scores above and beyond other individual and school factors, the presence of a licensed school counselor made a difference in student achievement.

Conclusion

The current study revealed that one in five Minnesota eighth graders do not have access to a school counselor within the student's school. Students without access to a counselor tended to be African American/Black or Native American, eligible for free or reduced price lunch, and/or in a rural county - all demographics that are related to achievement gaps (Condrón, Tope, Steidl, & Freeman, 2013). Comparisons between students with and without access to a school counselor revealed that students with access to a licensed school counselor had significantly higher standardized test scores (in reading, math, and science) than students without access to a counselor.

This study also confirmed previous research that individual and school factors influence standardized test scores (Carrell & Hoekstra, 2014; Lapan, Wells, Petersen, McCann, 2014). Smaller ratios have been connected to fewer disciplinary problems, especially for students of color and students in poverty (Carrell & Carrell, 2006) – populations that tend to fall into the achievement gap (Lacour & Tissington, 2011).

While future research is needed to disentangle the effects of poverty, school resources, students' involvement in disciplinary incidents, and school-counselor-to-student ratios on student achievement, the current research has implications for policy. Minnesota has a school-counselor-ratio of 1:743, yet each of its Midwestern neighbors - Iowa, North Dakota, South Dakota, and Wisconsin have average ratios that are less than 1:400 (ASCA, 2016a). Wisconsin, North Dakota, and Iowa mandate a licensed school counselor be present for all grade levels. Furthermore, Iowa and North Dakota mandate counselor-to-student ratios of 1:350 and 1:250, respectively (ASCA, 2016b). It is imperative for Minnesota to catch up to neighboring states and the entire nation. These results call for a licensed school counselor for every Minnesota student with a mandated school-counselor-to-student ratio that is consistent with ASCA best practice recommendations.

LIMITATIONS

The presence of a licensed school counselor predicts higher standardized test scores; however, whether a school has a counselor at all is likely influenced by a number of school-related factors. For example, the presence of a school counselor is likely directly related to not only the amount of financial resources a school has available but also the characteristics and needs of students at that school.

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Suggested citation: Cronin, S. (2016). The school-counselor-to-student ratio: Does having a school counselor matter? (Minn-LInK Brief No. 28). Available at http://cascw.umn.edu/portfolio_tags/minn-link/

Manuscript citation: Cronin, S., & Ohrtman, M. (in preparation). The school-counselor-to-student ratio and the achievement gap: Does having a school counselor matter?

Funding & Other Acknowledgements: This material is based upon work supported by the National Science Foundation under grant No. SMA1338489. Any opinions, findings, and conclusions or recommendations in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

The Center for Advanced Studies in Child Welfare (CASCW) is a resource for child welfare professionals, students, faculty, policy-makers, and other key stakeholders concerned about child welfare in Minnesota. **Minn-LInK** is a unique collaborative, university-based research environment with the express purpose of studying child and family well being in Minnesota using state administrative data from multiple agencies.

For more information, contact **Kristine Piescher (Editor)** at **612-625-8169** or email at kpiesche@umn.edu

The School-counselor-to-student ratio: Does having a school counselor matter?

Translating research to practice may be difficult, yet a better understanding of current research is necessary to ensure child welfare workers engage in best practices when working with children and families. The Minn-Link Discussion Guide is designed to help facilitate thoughtful discussions about the information presented in the research brief in order to inform practice and enhance discussion surrounding meaningful issues.

In this issue, we sought to better understand the effect of school-counselor-to-student ratios on academic achievement. Minnesota has one of the largest achievement gaps and worst school counselor-to-student ratios in the nation. In this study, we were interested in understanding whether standardized test scores differed for 8th grade students who had a licensed school counselor compared to students who did not have a licensed school counselor, and the effect of school counselor-to-student ratios on standardized test scores when controlling for individual and school factors. Overall, findings indicated that many 8th grade students, including African American, Native American, and low-income students, lacked access to a licensed school counselor. Students who had access to a licensed school counselor scored significantly higher across all MCA-III subject areas than students who did not have access to a licensed counselor.

Discussion on Practice Implications

1. This study indicates that students with access to licensed school counselors fare better academically than those who do not have access. Yet, the school counselor role can vary tremendously among schools and districts. What is the role of the school counselor in your local school district(s)? In what ways do you work with local school counselors to support student success, especially the success of students with traumatic backgrounds? How might these working relationships be improved?
2. How can schools, and the professionals who work within and in collaboration, meet the needs of students when they lack access to a school counselor? In what ways can you support students who lack access to a counselor in your role?

Discussion on Agency- & System-Level Changes

1. Recent legislation requires schools and counties to identify liaisons for particular groups of students, including students who are homeless or highly mobile and students in foster care. In addition, some counties assign social workers as liaisons to schools to form stronger relationships and increase their ability to quickly respond and offer support for students of concern to both institutions. These relationships allow both entities to more clearly understand agency roles and identify ways to productively work together. What formal relationships exist between your local county human service agency and school districts? What additional forms of agency-school relationship make sense for your institution to promote the wellbeing of students?
2. Given the fact that much of the funding for school districts comes from local sources, it may be that decisions about hiring a licensed school counselor are made simply due to availability of funding (or lack thereof). What policy changes are needed at the local, state, or national level to ensure that all students have access to a licensed school counselor?

RESEARCH BRIEF

Out-of-school Suspension and Recidivism among Crossover Youth

PURPOSE OF THE STUDY

The purpose of this study was to investigate the risk factors associated with recidivism among youth with child protection and juvenile justice system involvement, specifically the relationship between out-of-school suspension and reoffending.

BACKGROUND & PURPOSE

Youth who are known to be involved with both child welfare and juvenile justice systems are referred to as “crossover youth” (Stewart, Lutz & Herz, 2010). Crossover youth are at an increased risk of experiencing recidivism. Overall, crossover youth are twice as likely to commit subsequent offenses as their counterparts who are involved in the juvenile justice system but not the child welfare system (Halmeba et al., 2004). The literature highlights social bonds that decrease or increase the risk of reoffending among crossover youth, including consistent supervision, a supportive family, positive interactions with school, and extracurricular activities (Lee & Villagrana, 2015; Ryan et al., 2013).

School is particularly an important contextual factor, as crossover youth often exhibit poor outcomes in this area, including higher rates of suspension, mobility, drop-out, and low academic achievement (Herz & Ryan, 2008; Krezmien, Mulcahy & Leone, 2008; Rubin et al., 2013). Out-of-school suspension, the most commonly recognized method of addressing conduct infractions, is found to contribute to increasing the risk of delinquency among those youth (Halmeba et al., 2004; Herz & Ryan, 2008). Specifically, Fabelo et al. (2011) found that suspension or expulsion for a discretionary school violation triples the risk of juvenile court involvement in the general student population. However, little is known about the impact of suspension on recidivism among crossover youth. Addressing this gap, this study utilizes administrative educational data that contains specific information on behavior resulting in suspension. This study also provides a longitudinal examination of data on the relationship between out-of-school suspension and recidivism among crossover youth. Specifically, this study will address the following questions:

1. *What proportion of crossover youth reoffend?*
2. *What are the survival trajectories for recidivism?*
3. *To what extent does out-of-school suspension impact recidivism?*



.....
CROSSOVER YOUTH ARE TWICE AS LIKELY TO COMMIT SUBSEQUENT OFFENSES AS THEIR COUNTERPARTS WHO ARE INVOLVED IN THE JUVENILE JUSTICE SYSTEM BUT NOT THE CHILD WELFARE SYSTEM. OUT-OF-SCHOOL SUSPENSION, THE MOST COMMONLY RECOGNIZED METHOD OF ADDRESSING CONDUCT INFRACTIONS, IS FOUND TO CONTRIBUTE TO INCREASING THE RISK OF DELINQUENCY AMONG THOSE YOUTH.
.....

METHODS

An integrated analytic data set was created for this study by merging statewide administrative data sets through the Minn-LInK project to examine the relationship between out-of-school suspension and reoffending for crossover youth. For the purpose of this study, 1,211 crossover youth were tracked longitudinally to examine their reoffending trajectories over a 3-year period following their initial offense.

FINDINGS

Findings suggest that crossover youth continue to remain vulnerable to experiencing subsequent offenses after their first offense. In particular, out-of-school suspensions increase the risk of recidivism among crossover youth. Youth with a higher number of suspensions at the time of their reoffending are more likely to recidivate.

Through Minn-LInK, juvenile delinquency court records from the State Court Administrator's Office were linked with education records from the Minnesota Department of Education and child protection data from the Minnesota Department of Human Services. The target population for this study was identified using the following procedures (as illustrated in Figure 1). First, 70,438 youth (born between 1994 and 2001) whose offenses resulted in adjudication were identified using juvenile court records; these records were subsequently linked to state-level educational records (AY 2013). Of those youth, 6,687 (9.5%) were identified as having a maltreatment history through linkages with administrative child protection records. The sample was restricted to those youth who were identified as having a maltreatment history and who committed their first offense between September 1st, 2009 - August 31st, 2011 (n=1,211).

Recidivism rates were calculated using a three-year longitudinal study design. In particular, the youth's first re-offense across a 90 day observation period was tracked for 1,080 days, or 12 intervals. Cox regression analysis was used to model time to reoffending among crossover youth while taking into account the timing of reoffending (i.e., recidivism). Out-of-school suspensions were measured as a time-dependent variable. In this study, recidivism was measured when a given youth had his/her first re-offense adjudicated by juvenile courts.

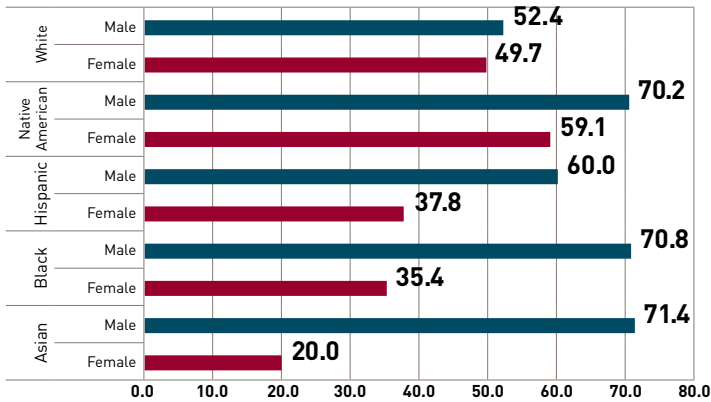
The characteristics of crossover youth in this study (n=1,211) varied. Most crossover youth were male (64%). Almost half of all youth (44%) were Caucasian whereas 34% were African American, 13% were Native American, 8% were Hispanic, and 1% was Asian. A large majority of youth (77%) came from low-income families, as evidenced by youth's receipt of free or reduced price school lunch. Nearly half (49%) received special education services while in school via an Individualized Education Program (IEP); 32% of youth were receiving special education services for emotional or behavioral disorders (EBD). The average age of youth's first involvement with child protection system was 8.8 years (SD=3.6 years). Sixty-seven percent of the youth first entered the child protection system between the ages of 6 and 13 for allegations of maltreatment. The average age at the time of first offense using juvenile court records was 14.4 years (SD=1.4 years). Fifty percent of adjudicated youth were charged with property offenses, followed by violent offenses (38%), and drug or substance abuse (8%). Prior to their first offense, 55% of youth had experienced out-of-home placement, with an average of 3.5 (SD=3.6) placement moves experienced per youth. At school, 57% of crossover youth experienced out-of-school suspension as identified in the Minnesota Department of Education Disciplinary Incident Reporting System (DIRS) before their first offense; the average number of suspensions was two. Of the total 1,928 school disciplinary incidents, the most common incident resulting in out-of-school suspension was violent behavior (39%; including fighting, harassment, or intimidation), and the next most common incident was disruptive/disorderly conduct or insubordination (32%).

Fifty-nine percent of crossover youth in this study experienced recidivism within three years of their first offense. Recidivism most often-occurred within a year following the first offense (mean=358 days, SD=282.4 days). It is worth noting that non-White, male youth committed

Figure 1. Sampling Procedure



Figure 2. Percent of crossover youth experiencing recidivism by race



a second offense at disproportionately higher rates; more than 70% of African-American, Native American, and Asian males experienced recidivism as compared to 52% for White males (see Figure 2). Native American youth experienced the highest recidivism rate (59%) among females while Asian youth (20%) experienced the lowest recidivism rate.

FIFTY-NINE PERCENT OF CROSSOVER YOUTH IN THIS STUDY EXPERIENCED RECIDIVISM WITHIN THREE YEARS OF THEIR FIRST OFFENSE. RECIDIVISM MOST OFTEN-OCCURRED WITHIN A YEAR FOLLOWING THE FIRST OFFENSE.

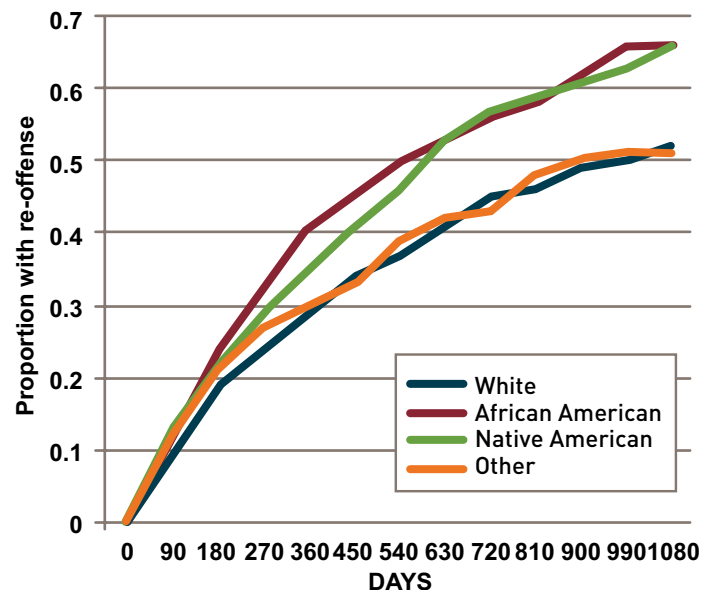
The cumulative recidivism rates after initial offense for each racial group are presented in Figure 3. Because the Hispanic and Asian groups consisted of a small portion of the entire sample (9%), they were combined into one group, "Other". Overall, the survival curve reveals a steady accumulation of reoffending over the 3-year study period. The steeper curves that are visible until the second observation point (180 days) indicate a relatively high proportion of reoffending within a short period of time. In addition, racial differences in recidivism rates become more evident over time, especially after 630 days. As can be seen in Figure 3, African American and Native American youth exhibited similar patterns of recidivism, which continued to the end of the study period. On the other hand, White and Other youth showed similar recidivism trajectories to one another. At the end of the study period, the recidivism rates were 52% for White youth, 51% for Asian and Hispanic youth, and 66% for both African American and Native American youth.

The results of Cox regression show the risk factors associated with recidivism among crossover youth (see Supplemental Table 1). The cox regression model with all predictors better fits to the data than the null model ($\chi^2 =$

71.24, $p=.000$). A hazard ratio less than 1 indicates a lower likelihood of recidivism. If 1 is subtracted from the hazard ratio and the remainder is multiplied by 100, the result is equal to the percentage change in the hazard of reoffending.

The odds of recidivism increase by 23% for male youth compared to female youth ($OR=1.23, p=.014$). As compared with White youth, African-American and Native American youth were more likely to recidivate with 20% and 28% increases in the odds of recidivism, respectively. Youth who received special education services were less likely to reoffend ($OR=0.72, p=.004$). Youth with emotional or behavioral disorders (EBD) were more likely to commit subsequent offenses. Their recidivism rate was 38% higher than youth without EBD ($OR=1.38, p=.006$). Any experience that youth had in child protection and juvenile justice systems prior to the first offense appears to have no statistically significant impact on recidivism except for school discipline. In this model, the total number of out-of-school suspensions prior to the youth's first offense significantly predicted the risk of recidivism ($OR=1.07, p=.000$). This means that youth with a higher number of suspensions prior to their first offense were more likely to recidivate. While the total number of out-of-home placements between the first offense and re-offense decreased the risk of recidivism ($OR=0.87, p=.003$), the number of placement settings increased the risk of recidivism ($OR=1.72, p=.000$). The risk of recidivism increased by 7% with each different placement setting crossover youth experienced. Lastly, the number of out-of-school suspensions at the time of reoffending had a predictive effect. The risk of recidivism increased by 32% with each out-of-school suspension crossover youth experienced.

Figure 3. Time (in days) between first offense and re-offense by race for crossover youth



Conclusion

Consistent with existing research (Halemba et al., 2004; Huang et al., 2015), this study shows that a substantial proportion of crossover youth (59%) experienced recidivism within three years of their first offense. Recidivism tended to occur within one year of youth's first offense, with youth experiencing recidivism approximately 358 days after their first offense.

For maltreated youth, school can serve as a protective context by providing a structured environment and exposing youth to a wider range of prosocial skills and supportive role models (Crooks, Scott, Wolfe, Chiodo, & Killip, 2007). By contrast, school also can provide "risk-prone contexts" when youth experience punitive reactions from school personnel without addressing their needs. Behavior problems that at-risk youth might exhibit may be reinforced by inappropriate school response (Dumas et al., 1999; Leone & Weinberg, 2010; Reid & Eddy, 1997). Out-of-school suspension may expedite adverse outcomes for crossover youth, including recidivism.

The current study builds the knowledge base with regard to school discipline of crossover youth and its relation to recidivism. This study also provides statistical support for policymakers, practitioners, and school personnel to facilitate policy changes through multi-system collaboration to develop alternatives for punitive responses to behavioral issues exhibited by crossover youth, thus breaking the cycle of at-risk youth involvement in multiple systems (Tuell, Heldman & Wiig, 2013; Wiig, Tuell & Heldman, 2013). The multi-dimensional needs and the level of risk factors that crossover youth present cannot be solved by an effort from a single system. Increased attention to youth's status in child welfare and school systems following juvenile court involvement may be needed to prevent youth from progressing further into the juvenile justice system.

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LIMITATIONS

The association between out-of-school suspension and recidivism for crossover youth as compared to non-crossover youth was not a focus of this study; future research in this area is warranted. Results of this study also were limited by available data that did not include all variables of interest, such as family and school characteristics. In addition, the results were limited to crossover youth whose first offense was adjudicated while enrolled in the local public schools and adult court involvement was not considered. Caution is needed in generalizing the findings to other subgroups of crossover youth.

Suggested citation: Cho, M. (2016). *Out-of-school suspension and recidivism among crossover youth*. (Minn-LInK Brief No. 30). Available at http://cascw.umn.edu/portfolio_tags/minn-link/

Funding & Other Acknowledgements: This material is based upon work supported by the National Science Foundation under grant No. SMA1338489. Any opinions, findings, and conclusions or recommendations in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

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Out-of- school Suspension and Recidivism among Crossover Youth

Translating research to practice may be difficult, yet a better understanding of current research is necessary to ensure child welfare workers engage in best practices when working with children and families. The Minn-LInK Discussion Guide is designed to help facilitate thoughtful discussions about the information presented in the research brief in order to inform practice and enhance discussion surrounding meaningful issues.

In this issue, we investigated the risk factors associated with recidivism among youth with child protection and juvenile justice system involvement, specifically the relationship between out-of-school suspension and reoffending. In particular, we were interested in measuring the proportion of crossover youth that reoffends, what the trajectories for recidivism are, and to what extent out-of-school suspension impacts recidivism. Overall, findings suggest that crossover youth continue to remain vulnerable to experiencing subsequent offenses after their first offense. In particular, out-of-school suspensions increase the risk of recidivism among crossover youth. Youth with a higher number of suspensions at the time of their reoffending are more likely to recidivate.

Discussion on Practice Implications

- 1.** This study acknowledged the fact that youth's needs often extend beyond the available resources of a single agency. Collaborating with the other professionals involved with crossover youth (social workers, corrections officers, and school personnel) is best practice. How can you as a practitioner ensure regular meetings with other professionals and parents occur?
- 2.** Considering issues of privacy and confidentiality, what types of information should be shared among service professionals to support crossover youth? How should this information be shared and with what frequency? In what situations are parental releases to share information among professionals needed? What educational and engagement strategies can you use to obtain parent releases?
- 3.** In searching for alternatives to out-of-school suspension, what additional school personnel or programs are available to support crossover youth?

Discussion on Agency- & System-Level Changes

- 1.** Is your agency part of an interagency team established to support crossover youth? If not, can your agency be a catalyst to start one? What barriers might exist? How can you overcome these barriers?
- 2.** Does your agency have a periodic or annual meeting of social services, corrections, court, and education staff to discuss strategies for collaboratively supporting crossover youth? What things are working well? What things could be improved?
- 3.** What consequences other than school suspension can be used in response to unacceptable behavior? Are there programs that supporting agencies (social services, corrections, etc.) can use or promote to fill in gaps?

RESEARCH BRIEF

Youth with Disabilities in Minnesota's Juvenile Delinquency Courts

PURPOSE OF THE STUDY

The purpose of this study was to investigate whether youth with disabilities were overrepresented in the juvenile court system as a group and whether youth with particular disability labels were overrepresented.

BACKGROUND & PURPOSE

The United States has a juvenile incarceration rate that is five times higher than the next highest country and costs U.S. taxpayers six billion dollars annually (Hazel, 2008). Involvement in the juvenile justice system is associated with a number of negative long-term outcomes (e.g., not completing high school, low wages, unemployment; Aizer & Doyle, 2013; Mendel, 2011; Western & Beckett, 1999).

An alarming number of youth in the juvenile justice system are racial or ethnic minorities, come from impoverished backgrounds, and have an education-related disability (youth with disabilities [YD]). Prevalence estimates of YD in secure juvenile facilities vary from 33% to 58% (Bullis & Yovanoff, 2005; Quinn et al., 2005), indicating that YD are 2.5 to 4.5 times more likely to be incarcerated than their non-disabled peers. In addition, youth with disabilities risk receiving inadequate educational services (Leone & Cutting, 2004) and have higher recidivism rates than their non-disabled peers (Zhang et al., 2011).

Previous research on youth in the juvenile justice system has typically not included disability status, has aggregated all disability categories, or focused on only one disability category (e.g., learning disabilities), while ignoring others. In addition, most research on youth involvement in juvenile justice has focused on youth who are incarcerated. Studies on incarcerated youth only include information about juvenile offenders who committed more egregious offenses or were repeat offenders, and do not reflect the whole population of juvenile offenders.

The purpose of this study was to investigate whether YD were overrepresented in the juvenile court system as a group and by individual disability category. The following questions guided the study:

- 1. What is the risk of court appearance for youth with disabilities compared to non-disability identified peers?**
- 2. How does risk of court appearance vary by disability category compared to non-disability identified peers?**



.....
YOUTH WITH DISABILITIES ARE 2.5 TO 4.5 TIMES MORE LIKELY TO BE INCARCERATED THAN THEIR NON-DISABLED PEERS.
.....

METHODS

Minnesota Department of Education disability category was used to identify youth disability (or lack thereof).

Logistic regression was used to gauge the extent to which youth with disabilities were involved in Minnesota's juvenile delinquency courts. The first instance of court involvement was used as the outcome of the study, with disability status, gender, race and ethnicity, and free and reduced-priced lunch status included as covariates.

FINDINGS

Youth with disabilities are more likely to make an appearance in juvenile court. After controlling for gender, race and ethnicity, and free- and reduced-priced lunch status, youth with emotional behavioral disorders and other health impairments were 2.11 times and 1.36 times more likely to end up in court than their non-disabled peers, respectively.

Through Minn-LInK, Minnesota Department of Education and State Court Administrator's Office data were linked. Juveniles in fifth through eighth grade during the 2008-09 academic year were followed for four years. Youth gender, race/ethnicity, and disability status were identified from education records. The most recent disability status prior to juvenile delinquency court appearance was used for court-involved youth. For non-involved youth, a disability was recorded if they had ever received special education services or had a section 504 plan on file during the four-year study period. (See Table 1 for disability status categories.) Logistic regression was used to investigate the risk of delinquency court involvement for youth with disabilities compared to youth without disabilities. Because juvenile court involvement was higher than 10% in the population, Zhang and Yu's (1998) odds ratio to relative risk equation was used to more accurately capture the risk of delinquency court involvement.

As shown in Figure 1, over the course of four years approximately 18% of youth were involved in Minnesota's juvenile delinquency courts (regardless of adjudication). The majority of youth did not receive special education services or accommodations under section 504. As can be seen in Table 2, males, youth of color, those who received FRL, and those who had a disability all had higher court involvement rates than would be expected given their prevalence in the population.

Results of logistic regression analyses revealed all coefficients were statistically significant ($p < .001$). Because this is common with large sample sizes, relative risk ratios were used to more accurately determine over- and underrepresentation. To adjust odds ratios provided by logistic regression, the following equation from Zhang and Yu (1998) was used: $OR / [(1-P) + (P*OR)]$, where OR represents the adjusted odds ratio from the logistic regression and P represents the prevalence of youth without a disability who entered the juvenile court system. For relative risk ratios, a risk level of one indicates that the group of interest (e.g., youth with EBD) have the same risk of court involvement as the comparison group, while relative risk indices greater than 1.25 or less than 0.75 indicate over- and underrepresentation, respectively.

Logistic regression results indicated that YD in Minnesota were overrepresented in the juvenile court system. YD were 1.38 times more likely than a non-disabled peer to appear in court. After controlling for youth gender, race/ethnicity, and receipt of free- or reduced-priced lunch, YD were only slightly more prevalent in the court system than their non-disabled peers

Table 1. Disability status categories

| | |
|--------------------|--|
| ASD | Autism Spectrum Disorder |
| EBD | Emotional-Behavioral Disorder |
| SLD | Specific Learning Disabilities |
| SLI | Speech-Language Impairment |
| P&S | Physical or Sensory Impairment (<i>deaf/hard of hearing, blind/ visual impairment, deaf-blind, traumatic brain injury, severe-multiply impaired</i>) |
| OHI | Other Health Impairments |
| DCD | Developmental Cognitive Disability (<i>mild-moderate and severe</i>) |
| Section 504 | Accommodations via a Section 504 Plan |

Figure 1. Youth Involved in Juvenile Delinquency Court (2008-2013)

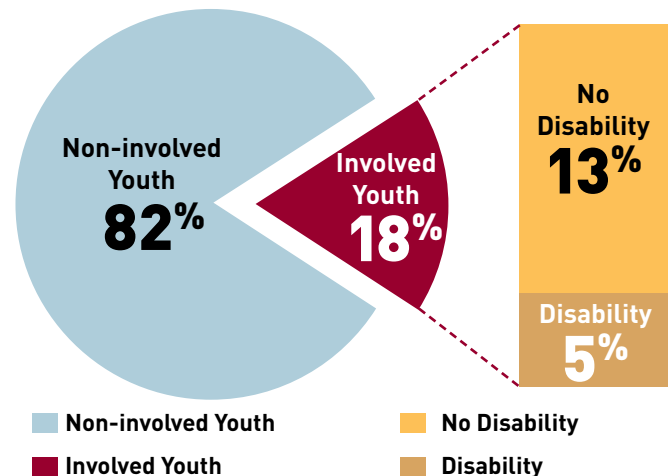


Table 2. Demographic Characteristics of Youth (2008-13)

| | No Court (N=188,947) | Court Involved (N=41,813) |
|----------------------------------|-------------------------|------------------------------|
| Gender | | |
| Male | 48% | 64% |
| Female | 52% | 36% |
| Race/Ethnicity | | |
| White | 80% | 68% |
| Black | 07% | 16% |
| Hispanic | 05% | 08% |
| Native American | 02% | 05% |
| Asian American | 06% | 03% |
| Free-Reduced Priced Lunch | | |
| Receipt | 38% | 64% |
| Special Education/504 | | |
| Receipt | 18% | 26% |
| ASD | 05% | 02% |
| EBD | 08% | 16% |
| SLD | 15% | 16% |
| SLI | 06% | 02% |
| P&S | 02% | 01% |
| OHI | 09% | 11% |
| DCD | 03% | 02% |
| Section 504 | 06% | 03% |

NOTE: Percentages are column percentages.

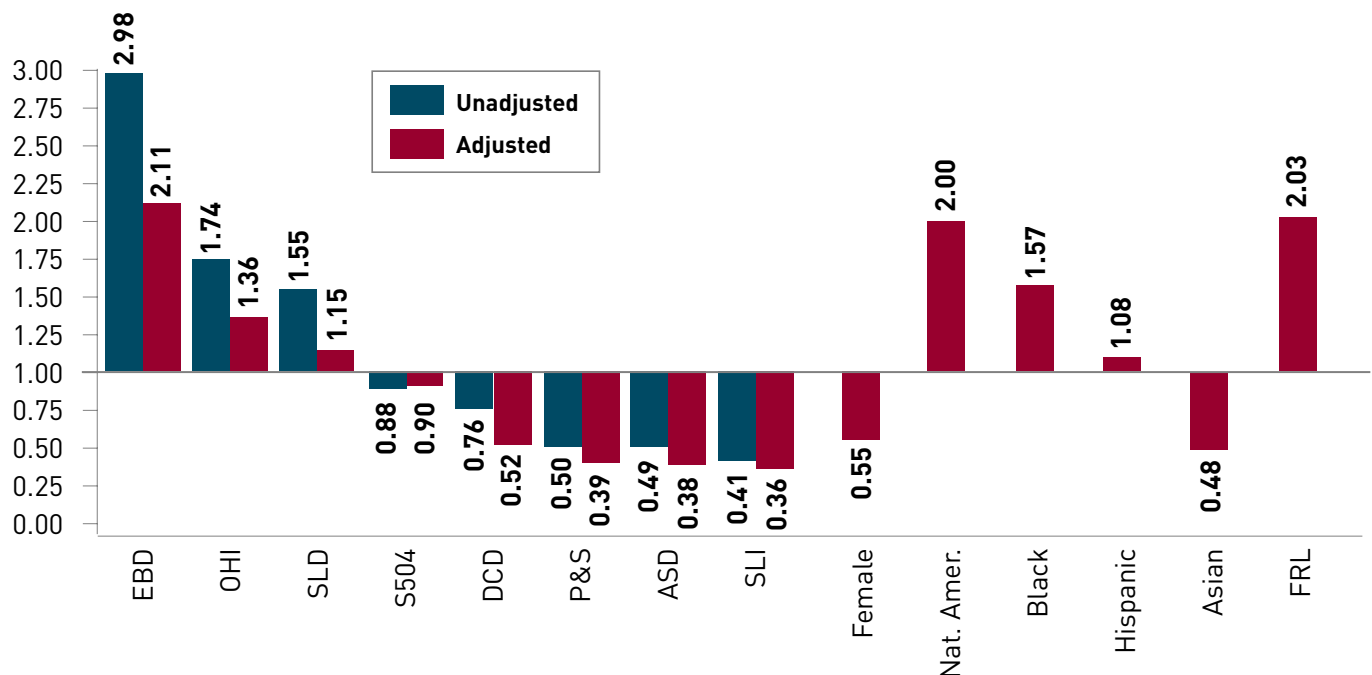
(relative risk = 1.07). Including the additional controls also improved model fit (McFadden *pseudo-R*² = .05 compared to *pseudo-R*² = .01).

As can be seen in Figure 2, some disability categories were overrepresented in Minnesota’s juvenile delinquency courts while others were underrepresented. Without controlling

for student gender, race/ethnicity, or FRL status, youth who were diagnosed with EBD, OHI, and SLD were 2.98 times, 1.74 times, and 1.55 times more likely to appear in juvenile court, respectively, than youth without a disability. Youth diagnosed with P&S (Relative Risk = 0.50), ASD (Relative Risk = 0.49), and SLI (Relative Risk = 0.41) were underrepresented in the juvenile court system as compared to their non-disabled peers.

Controlling for demographic characteristics improved model fit (McFadden *pseudo-R*² = .09 compared to *pseudo-R*² = .03) and reduced the effect of disability status on court involvement. Youth with EBD and youth with OHI were 2.11 and 1.36 times more likely to be involved in court, respectively. Youth with SLD were 1.15 times more likely to be in the juvenile court system, indicating that their non-covariate adjusted overrepresentation may have been due in part to their race/ethnicity and FRL status. Youth with DCD were underrepresented (Relative Risk = 0.52) compared to nondisabled peers. Youth with physical sensory impairments, ASD, or SLI continued to be underrepresented in the juvenile court system. Females were less likely to be involved than males (Relative Risk = 0.55). Native American youth were 2.00 times more likely to end up in juvenile court than their White peers, and Black youth were 1.57 times more likely to be involved in juvenile court. Hispanic youth were involved in juvenile court at a rate similar to their White peers (relative risk = 1.08). Asian American youth were under-represented compared to White peers (relative risk = 0.48). Lastly, youth who qualified for FRL were 2.03 times more likely to become involved in the juvenile court system than youth who had not received FRL.

Figure 2. Relative Risk of Juvenile Court Involvement by Demographic Characteristics



Conclusion

This study sought to illuminate the relationship between youth with an educational-disability (YD) and juvenile court involvement. YD were significantly overrepresented in the juvenile court system. However, following adjustment for gender, race, and FRL status, YD were no longer overrepresented in the juvenile court system. Additional analyses demonstrated that youth involvement by disability category is heterogeneous, with some categories of youth overrepresented (e.g., EBD and OHI) and others underrepresented (e.g., ASD) even after controlling for demographic information.

The higher rate of youth with EBD in juvenile courts is concerning given that many juvenile correction facilities do not use best practices in behavior management, such as positive behavior support systems (Danielson et al., 2007), and put security above education, which may lead to inadequate educational experiences for detained or incarcerated youth (Leone & Cutting, 2004). However, there are programs and interventions that may reduce court involvement and recidivism for at-risk youth. Counseling and skill-building services (e.g., cognitive-behavioral therapy), monitoring where youth are and what they are doing, and providing strong, research-based and effective academic and behavioral interventions in school when youth are struggling could reduce youthful offending (Christle et al., 2005; Lipsey, 2009). After-school and summer intervention courses would both increase academic skills and reduce the amount of time youth could commit offenses. In addition, providing safe spaces for youth to gather and participate in choice activities would allow for greater monitoring in a positive atmosphere. School, juvenile court, and state-level officials should consider alternative programs that focus on counseling, skill-building, and academic remediation as opposed to traditional incarceration.

While we do not know why these youth are more likely to be involved with the juvenile court system, we do know that some YD are overrepresented. Further analyses should investigate additional factors related to both risk and resiliency, the types of offenses youth with disabilities commit, and what programs may help reduce the overrepresentation of YD in the juvenile courts.

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Suggested citation: Kincaid, A. P. (2016). *Youth with disabilities in Minnesota's juvenile delinquency courts*. (Minn-LInK Brief No. 31). Available at http://cascw.umn.edu/portfolio_tags/minn-link/

Funding & Other Acknowledgements: This material is based upon work supported by the National Science Foundation under grant No. SMA1338489. Any opinions, findings, and conclusions or recommendations in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

LIMITATIONS

This study may underestimate the relative risk of court involvement for youth with disabilities due to the way disability status was conceptualized for youth not involved in the juvenile justice system (See methods). Court involvement included adjudicated and non-adjudicated cases. These analyses do not explain why certain groups are over- or under-represented, which may be due to differential propensities to commit offenses, varying arrest rates, diversion program completion, or factors not included in analyses.

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Youth with Disabilities in Minnesota's Juvenile Delinquency Courts

Translating research to practice may be difficult, yet a better understanding of current research is necessary to ensure child welfare workers engage in best practices when working with children and families. The Minn-LInK Discussion Guide is designed to help facilitate thoughtful discussions about the information presented in the research brief in order to inform practice and enhance discussion surrounding meaningful issues.

In this issue, we investigated whether youth with disabilities were overrepresented in the juvenile court system as a group and whether youth with particular types of disability were overrepresented. In particular, we were interested in the risk of court appearance for youth with disabilities compared to their non-disability identified peers, and in understanding how risk of court appearance varies by disability type as compared to their non-disability identified peers. Overall, findings indicate that youth with disabilities are more likely to make an appearance in juvenile court. After controlling for gender, race and ethnicity, and free- and reduced-priced lunch status, youth with emotional behavioral disorders and other health impairments were 2.11 times and 1.36 times more likely to end up in court than their non-disabled peers, respectively.

Discussion on Practice Implications

- 1.** In this study we learned that youth with emotional and behavioral disorders are twice as likely as their non-disability identified peers (i.e., those without an IEP) to appear in juvenile court. In what ways can you help reduce court involvement and recidivism (for those who have already been involved with the juvenile justice system) for youth with disabilities, and especially for youth with emotional and behavioral disorders?
- 2.** Oftentimes systems that serve youth are unaware of the disability diagnoses of the youth they serve, and privacy and confidentiality laws can prohibit information sharing. In what ways have you found success in sharing pertinent information across systems to support youth with disabilities? What information should be shared, at what point(s) in time, and with whom? How can you engage parents in these conversations?

Discussion on Agency- & System-Level Changes

- 1.** The author of this research brief suggests a number of ways to reduce court involvement and recidivism, such as providing counseling and skill-building opportunities for youth with disabilities. What programs are available in your school district or county that can support youth with disabilities? What improvements are needed to make these opportunities accessible and effective?
- 2.** What policy changes are needed at the local, state, or national level to better support youth with disabilities and reduce their interaction with the juvenile justice system?

RESEARCH BRIEF

Autism, Service Delays, and Educational Outcomes

PURPOSE OF THE STUDY

The purpose of this exploratory study was to examine the effects delayed starts in early intensive behavior intervention (EIBI) on later educational outcomes for Medicaid-enrolled children who were diagnosed with autism spectrum disorder between the ages 3-5.

BACKGROUND & PURPOSE

Autism spectrum disorder (ASD) is a developmental disability that is estimated to impact 1 in 68 children nationwide (CDC, 2015). Estimates in Minneapolis, Minnesota among 7 to 9 year olds are closer to 1 in 48 children (Hewitt et al., 2013). Children diagnosed with ASD have impairments in communication and social functioning, and engage in repetitive and or restricted behavior (CDC, 2015). Impairments associated with ASD can have deleterious effects on quality of life (e.g., challenging behavior, limited communication, and social skills).

With increased diagnoses of ASD over the past decade, it is imperative that children and families have early access to high quality services (Chasson, Harris, & Neely, 2007). Treatment for ASD is essential, but costly. The long-term cost attributed to the needs of a person with ASD is estimated at \$3.2 million dollars (Ganz, 2007). Research suggests that these costs can be significantly reduced with effective early diagnosis and early intervention services (Jarbrink & Knapp, 2001).

Early Intensive Behavioral Interventions (EIBI) can be effective for remediating ASD symptoms (Lovaas, 1987; Matson, 2007; Matson & Konst, 2013). EIBI is based on applied behavior analysis principles and is usually an intensive home-based program (e.g., one on one services for up to 40 hours per week for 2 years; Reichow, 2011). Research suggests that EIBI is among the top evidence-based behavioral treatments for young children with ASD (Matson & Smith, 2008).

There is a need to investigate the effects of service delay on outcomes for children with ASD due to reported waitlists for both ASD diagnosis and services (Hewitt et al., 2012). This study focused on two research questions:

- 1. Does a delay in early intensive behavioral intervention services for children with ASD (aged 3-5) impact later educational outcomes?**
- 2. Does average delay to start early intensive behavioral intervention differ by region within Minnesota?**



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METHODS

Secondary data analyses of educational records of children enrolled in Medicaid with an ASD diagnosis were conducted. Average delay to start EIBI was calculated and compared by region within Minnesota. Delay to start EIBI was also compared to assess if educational outcomes differed for children with a delay in service of 5 months or more versus those who did not.

Through Minn-LInK, Medical Assistance (MA) records from the Minnesota Department of Human Services (DHS) were used to create a cohort of 3 to 5 year olds who received a diagnosis of ASD between January 1st, 2008 and December 31st, 2010. This cohort was matched with Minnesota Department of Education (MDE) records from the 2013-2014 academic year (AY14; 94.5% match rate). All children ($n=607$) received EIBI services before entering elementary school. (Demographic characteristics are presented in Table 1.)

Delay to EIBI services in months was calculated by subtracting the date of ASD diagnosis (ICD-9 CM 299.0) from the first billing date associated with an EIBI service provider (H2014 UA/HR). The dependent variables included: an educational diagnosis of ASD, the instructional placement (general education, special education resource room, separate classroom, and or a separate school for special education [i.e., a Level 4 restrictive setting]), and Minnesota Comprehensive Assessment-III (MCA-III) scores for reading, math, and science.

Exploratory analyses included relative risk, one-way ANOVA, and logistic regressions to investigate the relationship between delay in months to start EIBI services and educational outcomes at 4-6 years of follow up. Delay was recoded as a binary categorical variable for relative risk estimates based on the 50th percentile estimate (5-months).

FINDINGS

Delays in starting EIBI services were observed for 70% of children. The average delay was approximately nine months and significantly differed by Minnesota region. A delay of five months or more was associated with more restrictive instructional placement settings for some children.

DELAY TO EIBI SERVICE START

Overall, average delay within the cohort of 3-5 year olds who received an ASD diagnosis was 8.9 months (SD=10.7 months, range= 0-45 months) from date of diagnosis to the start of EIBI services. Approximately 30% of the cohort had no delay to EIBI services. Figure 1 displays the distribution of the average delay to start EIBI by Minnesota region. Southwest Minnesota had the smallest delay ($n=5$, $M=4.4$ months, $SD= 4.4$ months) while the Northeast had the largest average delay ($n=33$, $M=10.7$ months, $SD=12.9$ months). There was a statistically significant difference between regions as determined by a one-way Welch's ANOVA for unequal variances ($F(6,45.07) = 15.42, p<.001$).

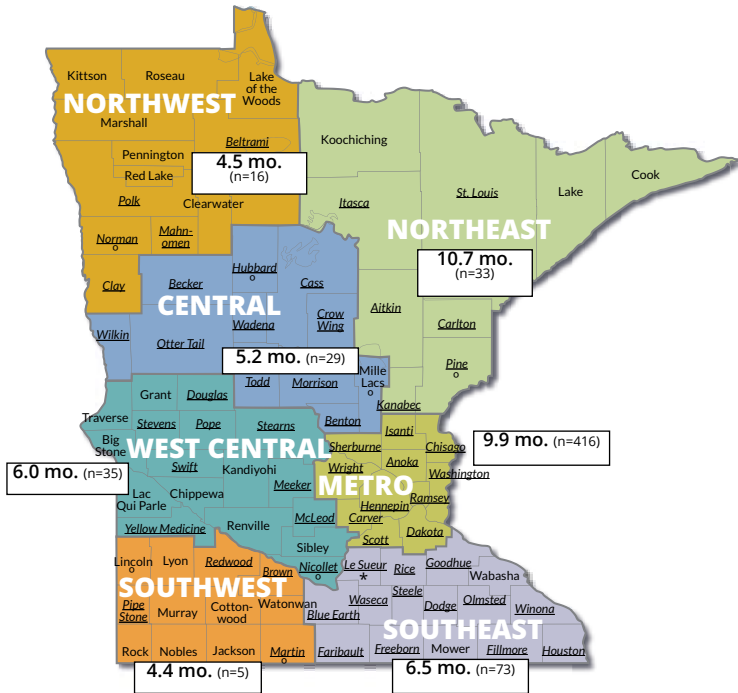
EDUCATIONAL OUTCOMES

Using education data from AY14 allowed for four to six years of follow up from the age of ASD diagnosis. At that time, 94% of the cohort was eligible or received special education services. For those children, the average total number of special education service

Table 1. Demographic Characteristics (n=607)

| Demographics | % of sample or mean (sd) |
|---|--------------------------|
| Gender | |
| Female | 17.6% |
| Male | 82.4% |
| Race/ethnicity | |
| American Indian | 2.6% |
| Asian | 4.6% |
| Hispanic | 5.9% |
| Black | 14.0% |
| White | 72.8% |
| Age at ASD diagnosis | |
| 3- years old | 38.6% |
| 4 -years old | 35.3% |
| 5 -years old | 26.2% |
| Free/Reduced Price Lunch | 54.5% |
| Homeless/Highly Mobile | 1.8% |
| Limited English Proficient | 4.1% |
| Comorbid Disability | |
| Language disorder | 38.1% |
| Developmental delay | 15.3% |
| Mild intellectual disability (IQ 50-70) | 8.1% |
| Moderate intellectual disability (IQ 35-49) | 6.1% |
| Severe intellectual disability (IQ 20-34) | 3.3% |
| Profound intellectual disability (IQ <20) | 0.8% |
| Unspecified Intellectual disability | 20.6% |
| Average hours of EIBI per week | 19.4 (14.2) |
| Received Speech and Language Therapy | 50.4% |
| Received Occupational Therapy | 42.7% |
| Received Physical Therapy | 12.4% |

Figure 1. Average Delay (in Months) to Start EIBI Services by Region



NOTES: *Italicized underlined counties indicate that the sample included this county, ° indicates no delay of service within the county, * indicates the county with the largest delay in the sample.*

Table 2. Logistic Regression Results

| Variable | B | SE | Odds ratio | p |
|---|------|-----|------------|----------|
| General Education | | | | |
| Gender | -.16 | .23 | .85 | .48 |
| Intellectual Disability | 1.27 | .20 | 3.55 | <.001*** |
| Delay in months | -.03 | .01 | .97 | <.001*** |
| Constant | -.63 | .20 | .53 | .001*** |
| Special Education | | | | |
| Gender | -.32 | .42 | .73 | .46 |
| Intellectual Disability | 1.47 | .61 | .23 | .02* |
| Delay in months | .05 | .03 | 1.06 | .04* |
| Constant | 3.69 | .62 | 39.94 | <.001*** |
| MCA-III Reading/Math participation | | | | |
| Gender | .06 | .28 | 1.07 | .82 |
| Intellectual Disability | 1.18 | .22 | 3.24 | <.001*** |
| Delay in months | -.02 | .01 | .98 | .03* |
| Constant | -.44 | .23 | .65 | .05* |
| MCA-III Science participation | | | | |
| Gender | -.44 | .54 | .64 | .42 |
| Intellectual Disability | 1.22 | .42 | 3.39 | .004** |
| Delay in months | -.01 | .02 | .99 | .56 |
| Constant | -.36 | .45 | .70 | .42 |

hours received was 117.98 hours (range= 0-2,017 hours; *SD*=290.84 hours). Approximately 70% of the cohort retained a primary educational diagnosis of ASD at follow up. Of the students that were in grades 3 through 6, 53% took MCA-III reading and math assessments. Similarly, 53% of 5th graders from the cohort took the MCA-III science assessment. Overall, 40.4% met or exceeded the passing standards for the reading section of the MCA-III. For the math MCA-III, only 30.8% of the cohort that took it met or exceeded the standards. Finally, of the 5th graders in the cohort, 35.1% MCA met or exceeded the standards in science.

Relative risk estimates (RR) were calculated to evaluate the likelihood of being placed in restrictive instructional settings and of receiving a primary educational diagnosis of ASD based on delay of EIBI services (five or more months of a delay vs four months or less). Statistically significant findings were evident across restrictive instructional placements with the exception of placement in a resource room (RR= 1.12; 95% CI [0.81, 1.55]). Children who had a delay in EIBI of five or more months were 1.27 times more likely to be in a separate special education classroom (95% CI [1.04, 1.57]); and 2.59 times more likely to be in a separate (more restrictive) school (95% CI [1.23, 5.44]) compared to children whose delay to EIBI was four months or less.

Children with a greater delay also were 1.18 times more likely to retain a diagnosis of ASD (95% CI [1.06, 1.32]).

Logistic regressions were performed to assess if gender, intellectual disability (ID) status (binary), and delay to EIBI significantly predicted whether or not children were placed in general education (i.e., least restrictive environment), received special education, and if they participated in the MCA-III for math, reading, or science at follow up (see Table 2). All models were statistically significant and explained, at most, 15% of variance. Results revealed that children with ID were 3.6 times more likely to be placed in general education. Greater delay to EIBI was associated with a reduction in the likelihood of being placed in general education. Prediction of special education receipt showed that for each 1-month delay, the odds of receiving special education increased by 1.06 times. Children with ID were also more likely to receive special education. MCA-III participation for both reading/math (3rd-5th grade, n=429) and science (5th graders only, n=107) indicated that a shorter delay in EIBI was associated with an increased likelihood of MCA-III participation. Only science MCA participation did not yield statistically significant results.

Conclusion

EIBI has the potential to remediate areas of deficit associated with ASD for some children (Lovaas, 1987; Matson, 2007; Matson & Smith, 2008). However, it is imperative that children diagnosed with ASD receive services during critical times of early development (i.e., when the brain is still developing). Recent implementation of Minnesota's early intensive developmental and behavioral benefit (EIDBI; DHS, 2016) requires Medical Assistance to cover EIBI, yet stakeholders describe waitlists and delays in accessing needed services. The long term effects of waitlists and delay of services for individuals with ASD are not well understood.

This study was developed to investigate if a delay in EIBI services affected later educational outcomes for Medicaid-enrolled children with a diagnosis of ASD. Overall, approximately 70% of children in this study experienced a delay to EIBI services, with an average delay of nine months. Delays to EIBI varied throughout regions of the state, perhaps driven by lack of service providers in regions of Minnesota outside the metro area. In addition, findings of this study reveal that delays of five months or more are significantly associated with more restrictive instructional placement settings for children in the public education system. In sum, although some children received EIBI services before a diagnosis of ASD was given, there are waitlists and delays to services around the state which may be detrimental to children's educational experiences and outcomes in the K-12 setting.

While more research is needed to assess how delays to EIBI affect outcomes over time, current delays may be limited by alternative service delivery strategies. For example, a telehealth (internet based video-conferencing) model of service could potentially bridge the gap in service delivery time after diagnosis. Implications of this type of research include more efficient allocation of services for families and children with ASD throughout Minnesota.

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- Suggested citation:** Dimian, A. (2016). *Autism, service delays, and educational outcomes*. (Minn-LInK Brief No. 32). Available at http://casw.umn.edu/portfolio_tags/minn-link/

Funding & Other Acknowledgements: This material is based upon work supported by the National Science Foundation under grant No. SMA1338489. Any opinions, findings, and conclusions or recommendations in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

LIMITATIONS

A limitation of this preliminary study is that the educational outcomes were limited to those available in administrative data (i.e., MCA-III scores and placement information). Other indicators for academic achievement were not available, such as the individualized education plans for the students receiving special education services. Another limitation is that only one school year was examined and so inferences regarding change over time with educational outcomes are limited.

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Autism, Service Delays, and Educational Outcomes

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In this issue, we examined the effects of delayed starts in early intensive behavior intervention (EIBI) on later educational outcomes for Medicaid-enrolled children who were diagnosed with autism spectrum disorder between the ages of three and five. In particular, we were interested in whether a delay in early intensive behavioral intervention services for children with ASD impacted later educational outcomes, and whether average delay to start early intensive behavioral intervention differed by region within Minnesota. Overall, findings showed that delays in starting EIBI services were observed for 70% of children. The average delay was approximately nine months and significantly differed by Minnesota region. A delay of five months or more was associated with more restrictive instructional placement settings for some children.

Discussion on Practice Implications

1. With delays in starting EIBI services observed for 70% of children diagnosed with ASD and delays associated with more restrictive placement settings for some children, earlier referrals may counteract negative effects. In working with or observing children, what signs can alert you that an ASD screening is appropriate? How do you differentiate what is within the wide range of normal as compared to what may be of concern? What kinds of additional training might be helpful and appropriate for you in your current role?
2. As a professional working with children diagnosed with ASD, being knowledgeable and informed is imperative. What ASD services are available in your community? Where should a family turn if there is a concern? How can you support families who are seeking assistance?

Discussion on Agency- & System-Level Changes

1. Formal and informal relationships between schools and county social services agencies, and within county social services agencies, can serve to provide awareness and improve information available. What kinds of relationships like this exist within your community? For example, does your county have a conferencing relationship between child welfare and children's mental health that can be easily accessed by practitioners and educators seeking information about ASD? What barriers exist within your community in accessing information? What could organizations (including schools and social service agencies) do to improve the availability of information?
2. With such high occurrence of ASD diagnoses in Minnesota, what training is available to you and your colleagues to support your work with children diagnosed with ASD? What can your agency do to lessen the delay between diagnosis and receipt of EIBI? What connections and networks exist to raise the issue?

