



# Pre-kindergarten attendance matters: Early chronic absence patterns and relationships to learning outcomes

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## ABSTRACT

Consistent school attendance is a critical component of education. Although research suggests that high rates of absenteeism is a significant issue for many students, minimal evidence exists focusing on absences among the nation's youngest students – those in pre-kindergarten. This study focused on students in a large, urban district and examined the prevalence of pre-kindergarten chronic absence for different student subgroups, its relationship to learning outcomes during pre-kindergarten, and its association with ongoing attendance patterns and learning outcomes through second grade. Results indicated that absence in pre-kindergarten was widespread, particularly among African American students and those who entered pre-kindergarten with the lowest skills. Chronically absent pre-kindergarten students—those who were absent 10% or more of their enrolled days—displayed lower levels of academic and behavioral kindergarten readiness and were more likely to be chronically absent in subsequent grades. By third grade, students chronically absent for multiple years exhibited the need for significant intervention to read at grade level. These findings suggest that providing supports to improve attendance in pre-kindergarten and early elementary years has the potential to reduce achievement gaps and redirect struggling students onto the pathway toward educational success.

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## 1. Introduction

Consistent school attendance is a critical component of education. Evidence shows that missing a substantial amount of school can be detrimental for students' academic achievement (e.g., Gottfried, 2009, 2010), social development (Gottfried, 2014), grade promotion (Nield & Balfanz, 2006), and likelihood of high school graduation (Allensworth & Easton, 2007; Rumberger, 1995). Recent national data from the Office of Civil Rights indicate that almost seven million students in kindergarten through twelfth grade missed at least three weeks of school (U.S. Department of Education, 2016). Although these numbers suggest that high rates of absenteeism is a significant issue for many students, they do not provide any indication about absenteeism among the nation's youngest students – those in pre-kindergarten (pre-k). Neither is there much evidence about whether high rates of absenteeism in pre-kindergarten have any impact on students' learning outcomes.

This study addresses these gaps in the research. Through a collaborative partnership with our local school district, we examine the prevalence of pre-k absences and assess their relationship with learning and behavioral outcomes. This study adds to the literature in a number of new ways by: (a) providing evidence on the prevalence of pre-kindergarten attendance in a large, urban district and across a wide array of sub-groups of students; (b) showing the relationship of absence with learning outcomes in pre-kindergarten and discerning the point at which it is associated with significantly lower achievement; (c) studying multiple outcomes, including behavior and social skills; and (d) showing the relationship between pre-kindergarten absence and longer-term outcomes (through the end of the second grade). We find that pre-k absenteeism is significantly related to learning outcomes in pre-k, and to learning outcomes in the early elementary grades through an increased likelihood of ongoing chronic absence—defined as missing at least 10% of enrolled school days—especially among the students who enter pre-k most at risk for academic struggles.

### 1.1. Research on early school attendance

Accumulating evidence suggests that student attendance is a significant problem and is closely tied to a range of educational outcomes, starting in the early years. Eleven percent of kindergarteners nationwide are chronically absent, missing more than 18 days, or

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three to four weeks per year (Chang & Romero, 2008; Romero & Lee, 2007). In urban areas, it is even higher. For example, in New York City, 20% of students in kindergarten through fifth grade miss at least one month of school (Nauer, White, & Yerneni, 2008). The consequences of chronic absence in the elementary grades are significant: young students who are chronically absent are more likely to be chronically absent in subsequent years and have lower levels of academic and socio-emotional learning (Chang & Romero, 2008; Cook, Crowley, Dodge, & Gearing, 2015).

Initial explorations of the relationship between attendance and outcomes among elementary grade students were correlational in nature (e.g., Applied Survey Research, 2011; Chang & Romero, 2008; Durham & Plank, 2010). As such, these findings did not account for factors that might affect *both* attendance and student outcomes, making it difficult to attribute lower outcomes specifically to attendance patterns. To address this concern, several studies have used longitudinal, student-level data and quasi-experimental analytic methods. For example, Gottfried (2010) added school, year, and grade fixed effects to analytic models and used distance to school as an instrument, arguing that while it was related to student attendance, it should only be related to outcomes *through* student attendance. Findings showed a significant and negative relationship between absences and grade point average. Gottfried (2011) accounted for even more potential omitted variable bias by adding family fixed effects using sibling data. In doing so, the negative relationships between absences and test score outcomes seen in prior work were even stronger. Other researchers have conducted similar analyses by adding student fixed effects and using other instruments to isolate the effect of absences on outcomes (Aucejo & Romano, 2016; Goodman, 2014). Gershenson, Jacknowitz, and Brannegan (2015) used national data from the Early Childhood Longitudinal Study-Kindergarten Cohort (ECLS-K) and conditioned kindergarten and first-grade student outcomes on classroom fixed effects as well as lagged test scores. Across studies, results consistently indicate significant and practically meaningful relationships between attendance and outcomes.

Research on student attendance also finds that students living in the most impoverished neighborhoods miss the most school (Balfanz & Byrnes, 2012; Connolly & Olsen, 2012; Fantuzzo, LeBoeuf, Rouse, & Chen, 2012; Nauer et al., 2008; Romero & Lee, 2007). Chronically absent students are more likely to be from low-income families, living with a single parent, and racial/ethnic minorities. An examination of NAEP scores for fourth- and eighth-grade students showed that economically disadvantaged students were much more likely to report missing a substantial amount of school in the prior month than their non-economically disadvantaged peers (Ginsburg, Jordan, & Chang, 2014). This is especially concerning because while the relationship between the number of days absent and student outcomes seems linear, absences are more detrimental for low-achieving students and those eligible for free or reduced-price lunch (FRL; e.g., Aucejo & Romano, 2016; Gershenson et al., 2015). For example, using ECLS-K data, Ready (2010) found a significant interaction between socio-economic status and absences on learning outcomes for students in kindergarten and first grade, such that the negative impact of absence was stronger for lower-SES students; these were also the students who were most likely to have more absences over the school year. Gottfried (2009) also found that students with behavior problems and those who were eligible for FRL were more likely to have unexcused absences (as opposed to excused), which in turn was related to lower outcomes.

## 1.2. The need to study pre-kindergarten attendance

While there is considerable evidence showing that students—particularly those who are at risk for academic

struggles—miss a substantial amount of school, less is known about whether this is the case for pre-kindergarten students. In order to understand why attendance in pre-kindergarten is so important to study, we must first acknowledge that pre-k plays a critical role in children's learning and development. Decades of research show that high-quality early learning has substantial impacts on students' academic and social-emotional school readiness, with effects as large as between a half and full year of additional learning (e.g., Auger, Farkas, Duncan, Burchinal, & Vandell, 2012; Child Trends, 2010; Lipsey, Farren, & Hofer, 2015; Lowenstein, Raver, Jones, Zhai, & Pess, 2011; Yoshikawa et al., 2013). Several studies have found that non-white and economically disadvantaged students benefit most from these high-quality preschool programs (Gormley, Gayer, Phillips, & Dawson, 2005; Weiland & Yoshikawa, 2013; Yoshikawa et al., 2013). Thus, pre-kindergarten provides young children with the critical opportunities to explore, interact with other children, develop social and emotional skills—including key skills such as self-regulation and executive function—and learn baseline academic skills necessary for a successful transition into kindergarten. When students are absent, they miss these opportunities. Furthermore, ongoing absences can cause a child to feel left out and may leave him struggling with how to develop the knowledge and skills her/his peers are advancing in.

Research has also explored the effect of *dosage* for children enrolled in early education programs. Studies find that higher dosage in center-based child care is positively related to higher cognitive outcomes (e.g., Magnuson, Ruhm, & Waldfogel, 2007; NICHD Early Child Care Research Network, 2002; Votruba-Drzal, Coley, & Chase-Lansdale, 2004). Research comparing multiple years of pre-k to a single year finds that more years of exposure are related to higher cognitive outcomes for children (e.g., Xue et al., 2016; Nores & Barnett, 2010). Similarly, the length of time spent in the classroom on a daily or weekly basis also appears related to outcomes (Loeb, Bridges, Bassok, Fuller, and Rumberger, 2007; Reynolds et al., 2014; Robin, Frede, & Barnett, 2006; Walters, 2015; Wasik & Snell, 2015). (Across several studies, however, dosage is also related to negative behavioral outcomes; e.g., Nores & Barnett, 2010; Loeb et al., 2007.) These findings suggest that time in the classroom might matter quite a bit for pre-k students' learning, but the question of whether attendance—as an indicator of dosage—is related to greater learning during pre-kindergarten and beyond has virtually no academically published evidence.

Initial descriptive evidence reveals that pre-k attendance may be particularly important to study, as many students have high absence rates when they are in pre-k. The first study we are aware of examining the prevalence of absenteeism for pre-k students emerged from Baltimore, showing that between 20 and 25% of pre-k students in that urban city were chronically absent between 2006–2007 and 2010–2011 (Connolly & Olsen, 2012). Data from Washington, D.C. show that roughly 30% of Head Start students in public schools are also chronically absent (Holla, 2015, 2016;). These rates seem high, but whether these absences rates are typical of pre-k students or are unique to these districts is not well understood, given the dearth of comparative information. If these rates are typical for pre-k students, this could suggest that absenteeism among our youngest students, that is, pre-k students, is a potential epidemic that the country simply does not know about yet. Therefore, one goal of the current study is to carefully explore the occurrence of absenteeism in a new context.

It is also critical to study whether absences—and the potential relationships with outcomes—differ across sub-groups of students. Based on research with older students, high-poverty and racial/ethnic minority students miss more school. The evidence reviewed above also shows that each additional day of absence is particularly detrimental for these students' outcomes. Know-

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