



## Early school readiness predictors of grade retention from kindergarten through eighth grade: A multilevel discrete-time survival analysis approach



Pega Davoudzadeh<sup>a,\*</sup>, Melissa L. McTernan<sup>a</sup>, Kevin J. Grimm<sup>b</sup>

<sup>a</sup> Department of Psychology, University of California, Davis, One Shields Avenue, Davis, CA 95616, United States

<sup>b</sup> Department of Psychology, Arizona State University, PO Box 871104, Tempe, AZ 85287-1104, United States

### ARTICLE INFO

#### Article history:

Received 7 April 2014

Received in revised form 1 April 2015

Accepted 11 April 2015

Available online 2 May 2015

#### Keywords:

School readiness predictors

Grade retention

Multilevel discrete-time survival analysis

### ABSTRACT

The literature on predictors and effects of grade retention is vast. Known predictors of grade retention include gender, ethnicity, poverty, parental education, and academic skills. The subsequent effects of grade retention are hotly debated; however, many studies have shown grade retention to be detrimental to the student. The current study used a multilevel discrete-time survival analysis to investigate when grade retention is most likely in addition to whether school readiness predictors influenced grade retention at both the child- and school-level above and beyond background and demographic factors using data from the Early Childhood Longitudinal Study—Kindergarten Cohort. The results suggested that grade retention was most likely by third grade. Importantly, results indicated that school readiness predictors, specifically low early academic skills (i.e. reading, math, and general knowledge skills), were the strongest predictors of grade retention. When school readiness predictors were controlled for, within schools, variables previously shown to be risk factors (e.g. ethnicity and language spoken at home) were protective factors, underscoring the importance of including school readiness factors when studying grade retention and examining school- and child-level effects.

© 2015 Elsevier Inc. All rights reserved.

School performance of children in the U.S. is a topic of great concern. Ever since the passing of the No Child Left Behind Act (No Child Left Behind Act of 2001, 2002), there has been immense pressure on schools nationwide to show improvements in their test scores at earlier grades. NCLB introduced high stakes testing into the education system, requiring students to take standardized tests on designated years throughout their schooling. In addition, schools and teachers were held accountable for children's academic performance. Numerous factors can influence a child's academic success, many starting before the child begins formal schooling. For example, several studies have found early factors such as reading, math, general knowledge, fine motor, and gross motor skills to predict later academic achievement (Cunha, Heckman, Lochner, & Masterov, 2006; Duncan et al., 2007; Entwisle, Alexander, & Olson, 2005; Grissmer, Grimm, Aiyer, Murrah, & Steele, 2010). However, some children continue to fall behind expected levels of academic performance.

One popular, yet controversial, policy implemented to improve children's academic achievement is to retain (hold back) students who appear to be falling behind in order to give them the chance to meet the requirements of their current grade level (Abidin, Golladay, & Howerton, 1971; Bali, Anagnostopoulos, & Roberts, 2005; Jimerson, 2004; Lorence, 2006; Owings & Magliaro, 1998). Thus, grade retention has been implemented as a means of improving low-achieving students' academic performances (Bali et al., 2005; Warren & Saliba, 2012). Currently, 2.4 million students are retained each year, costing 13 billion dollars to pay for the extra year of schooling (Anderson, Whipple, & Jimerson, 2002).

Although grade retention appears as a viable solution to ensure academic success, several studies have shown no positive effect of grade retention on academic achievement (Hong & Raudenbush, 2005; Wu, West, & Hughs, 2008). Grade retention has been associated with several negative outcomes, such as school-drop out (Alexander, Entwisle, Dauber, & Kabbani, 2004; Andrew, 2014; Eide & Showalter, 2001; Jimerson, Anderson, & Whipple, 2002), increases in disruptive behaviors (Jimerson & Ferguson, 2007; Pagani, Tremblay, Vitaro, Boulerice, & McDuff, 2001), and higher rates of absenteeism (Jimerson, 2001). In Jimerson's (2001) comprehensive meta-analysis, 20 studies spanning kindergarten

\* Corresponding author. Tel.: +1 9252168812.

E-mail address: pdavoud@ucdavis.edu (P. Davoudzadeh).

through 12th grade were analyzed for effects of grade retention on academic and socioemotional outcomes. Samples of retained students were matched with promoted students on academic achievement, IQ, socioemotional adjustment, SES, and gender. Overall, 80% of the studies reported unfavorable outcomes for retained students. Although initial gains may be evident for retained students, in the long run, grade retention appears to be detrimental to students (Holmes, 1989; Jimerson, 1999). In a similar meta-analysis, Holmes and Matthews (1984) showed that retained students had lower scores in math, reading, social adjustment, and attitude toward school than their classmates who were not retained. In their study examining the impact of grade retention on adolescence, Jimerson and Ferguson (2007) found that not only did grade retention not lead to better academic achievement, but it led to greater rates of aggression among those held back. In addition, retained students were five times more likely to drop out of high school. Thus, the evidence shows that grade retention can be harmful to students in the long-term, yet it is still practiced at alarming rates. Because of this, more emphasis needs to be placed on understanding when exactly children are at most risk for grade retention, and the best way to identify children who are at risk for grade retention early on in their academic careers. Early interventions could then be put into place that would preserve students' expected grade trajectory.

Determining the factors that lead to grade retention help identify students who are at risk for grade retention. Established factors found to influence grade retention include living in poverty, low maternal education level, being male, being a minority, younger age at kindergarten entry, child behavioral problems, having special needs, exposure to household smoking, being an English-Language Learner (ELL) student, and poor academic performance (Anderson et al., 2002; Byrd & Weitzman, 1994; Mantzicopoulos, 2003; Shepard, 1997; Winsler et al., 2012). Dauber, Alexander, and Entwisle (1993) analyzed data from the Beginning School Study, a longitudinal study that followed children in Baltimore City Public School, and found that children who were retained were typically male, African-American, and living in poverty with less educated parents. In a similar study, when investigating predictors of grade retention in kindergarten, Mantzicopoulos, Morrison, Hinshaw, and Carte (1989) found children who were retained were more likely to be younger, male, of lower IQ, and had poorer academic test scores, in addition to attention deficits. In a more recent study, Winsler et al. (2012) examined kindergarten grade retention in a sample of ethnically diverse children and found ELL students were less likely to be retained compared to native language speakers, and that Caucasian children and children with lower social skills were more likely to be retained. Indeed, there is no lack of research examining the predictors of grade retention. Some reasons why these children are more at risk for grade retention include males maturing later than females, children not having school readiness skills, and minorities who live in poverty tend to have parents who are less educated.

Still, what is lacking in the grade retention literature is the use of advanced methodology to examine both the occurrence and timing of grade retention while studying school-level and child-level associations because schools and school districts vary in their demographic composition and potentially vary in their likelihood of retaining students. For example, in the grade retention literature, studies rarely examined the timing of grade retention, used large nationally representative samples, controlled for early childhood academic and behavioral characteristics, accounted for the nesting of children within schools, or examined grade retention at the school level, all of which can lead to a false understanding of grade retention and its predictors. In fact, many studies have acknowledged the methodological challenges in studying grade retention (Allen, Chen, Wilson, & Hughes, 2009; Andrew, 2014; Pagani et al.,

2001). Some researchers have attempted to address some of these issues by using structural equation modeling to investigate the effects of grade retention on behavior over time (Pagani et al., 2001), or by re-evaluating published studies on the effects of grade retention using more advanced multilevel modeling methods to account for the clustered nature of the data (Allen et al., 2009). However, such studies often examine the effects of grade retention and not the predictors of grade retention. To our knowledge, no studies to date have used advanced methods to examine the timing and occurrence of grade retention, as well as predictors of the timing and occurrence of grade retention at both the child- and school-level.

In the current study, we examine the effect of early academic skills (mathematics, literacy, and general knowledge), early childhood behavior, such as interpersonal or social skills, approaches to learning, internalizing and externalizing behavior, and self-control, and early fine and gross motor skills on the occurrence of grade retention while controlling for demographic and background variables. Previous studies have found these school readiness factors (i.e., academic, behavior, and motor skills) to be highly predictive of later academic success (Cunha et al., 2006; Duncan et al., 2007; Entwisle et al., 2005; Grissmer et al., 2010). Therefore, we were interested in whether these same school readiness factors were predictive of grade retention, a different but important indicator of academic success. We were also interested in confirming previous research on the nature of associations between demographic factors and grade retention. Specifically, the goals of the current study were to (1) examine the occurrence and timing of grade retention using advanced statistical methods, (2) parse out child-level and school-level predictors of the occurrence of grade retention, (3) identify demographic and background variables that influence the occurrence of grade retention, (4) ascertain if early school readiness factors (e.g., academic and motor skills) and behavioral factors (e.g., social skills) affect the likelihood of grade retention, above and beyond demographic and background variables at both the child- and school-levels, and (5) explore whether the associations between occurrence of grade retention and academic and behavioral measures varied as a function of demographic factors.

Due to the nesting of children within schools, multilevel discrete time survival analysis was used to model the relation between these predictors and grade retention from kindergarten through 8th grade using data from the Early Childhood Longitudinal Study—Kindergarten (ECLS-K) Cohort, a nationally representative sample of 21,260 children who were in kindergarten in 1998–1999. This data structure allows us to distinguish between school- and child-level effects on grade retention. That is, previous research has been unable to determine if the observed associations are partly due to differences between schools. For example, previous research has found that lower income students are more likely to be retained; however, this association is a combination of school- and child-level associations and it is unclear how much each attributes to the overall likelihood of being retained. Is it that schools serving lower income children are more likely to retain students, and children who are low income compared to their peers are more likely to be retained? Or are schools that serve lower income children less likely to retain students, but children who are low income compared to their peers are more likely to be retained?

At both the child- and school-levels, we hypothesize that children with greater early school readiness skills will be at less risk for grade retention, above and beyond demographic and background predictors. However, we also believe that certain demographic characteristics such as gender, socioeconomic status, maternal education, ethnicity, language spoken at home, age at which the child begins kindergarten, and whether s/he has special needs will influence the likelihood of grade retention. Specifically, as previous research has shown, we believe that children who are younger at

Download English Version:

<https://daneshyari.com/en/article/353724>

Download Persian Version:

<https://daneshyari.com/article/353724>

[Daneshyari.com](https://daneshyari.com)