



# A longitudinal study on risk factors of grade retention among elementary school students using a multilevel analysis: Focusing on material hardship and lack of school engagement

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## ABSTRACT

Given the recent skyrocketing rates of grade retention and their adverse effects, better understanding is needed to identify intervention practices that ameliorate risk factors across school and family domains. This prospective, longitudinal study examines the relationship between material hardship, school engagement, and grade retention among at-risk elementary school children ( $N = 4329$ ) from 410 public elementary schools in Louisiana. The study utilized multilevel logistic regressions with a two-level hierarchical structure to address the nesting effects of children within schools. Baron and Kenny's mediation analysis approach was used to identify the mediating effect of school engagement on the relationship between material hardship and grade retention. Results show that 42.34% of children in the sample repeated at least one grade over the four school years examined in this study. Material hardship was associated with a greater likelihood of grade retention, and this association was partially mediated by levels of school engagement. This study suggests that children in families experiencing material hardship need interventions not only for basic needs, but also for interventions that increase levels of engagement in school. Addressing material hardship and low levels of school engagement may have profound implications on school success.

## 1. Introduction

Each year, about 7–15% of students in the United States are retained (Davoudzadeh, McTernan, & Grimm, 2015; National Center for Education Statistics [NCES], 2006; Warren & Saliba, 2012), and retentions in the early grades are prominent issues on a national level (Warren, Hoffman, & Andrew, 2014). Grade retention is associated with chronic absenteeism, school disengagement, and dropout (Andrew, 2014; Ou & Reynolds, 2010). Grade retention in the early elementary grades, in particular, has negative impacts on parents' educational expectations for their children (Jimerson, Carlson, Rotert, Egeland, & Sroufe, 1997) as well as their academic trajectories (Fine & Davis, 2003; Ou & Reynolds, 2010). Given the negative consequences of grade retention, it is important to identify predictors that make students prone to repeating a grade in school.

While previous research has shown that students from low-income families are more likely to be retained (Hauser, Pager, & Simmons, 2000; Jimerson, 2001; Meisels & Liaw, 1993), the association between poverty and the chance of being retained appears more complicated. Morris and Hawson (1993) reported that retentions for the elementary

grades through the 1980s were not related linearly to socioeconomic status (SES, as measured by the percentage eligible for FR/L). The complexity of the relationship between poverty and grade retention is further exemplified by studies finding non-significant associations between poverty and grade retention (e.g., Beebe-Frankenberger, Bocian, MacMillan, & Gresham, 2004; Ou & Reynolds, 2010; Willson & Hughes, 2006) and warrants further investigation on how poverty affects grade retention. It is worth noting that most previous studies examined the impact of poverty on grade retention employing federal poverty thresholds or free/reduced lunch (FR/L) as a poverty measure. Despite the fact that FR/L is considered a poor measure for capturing a student's access to economic resources (Harwell & LeBeau, 2010) student eligibility for an FR/L continues to be used as a measure of SES in educational research literature, including studies examining grade retention.

There has been an increasing interest in using material hardship measures as a proxy of poverty (Gershoff, Aber, Raver, & Lennon, 2007). Material hardship describes living conditions in which individuals have inadequate goods or services and experience low levels of functioning as a result (Nelson, 2011); therefore, material hardship is a better representation of economic condition than the outdated federal

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income thresholds measure. In the field of family and child development, numerous studies have linked material hardship to various child outcomes such as social adjustment (e.g., Mistry, Vandewater, Huston, & McLoyd, 2002), cognitive skills (e.g., Sektnan, McClelland, Acock, & Morrison, 2010), and behavioral problems (e.g., Yeung, Linver, & Brooks-Gunn, 2002). While numerous studies linked material hardship to the socio-emotional aspect of child well-being, few examined its impact on children's academic outcomes and grade retention in particular. To address this research gap, as well as the issue of the outdated poverty measure, this study explores 1) whether material hardship affects grade retention of elementary school students and 2) the mechanisms through which material hardship affects grade retention.

## 2. Background

### 2.1. Child characteristics

Demographic factors found to be associated with grade retention include male gender (Davoudzadeh et al., 2015; NCES, 2006), minority ethnicity (NCES, 2016), and young age for grade (Huang, 2014; Mantzicopoulos, 2003). In addition, past studies have consistently shown that child problematic behaviors were strong predictors for grade retention. Externalizing behaviors (e.g., delinquent, aggressive, and disruptive behaviors), in particular, put children at risk for grade retention. Studies comparing retained students with promoted students typically reported that retained students were more likely to exhibit poor self-regulation and adjustment in the classroom (Jimerson et al., 1997; Rhodes, 2011). In contrast, other studies yielded contradictory findings: the retained and the promoted students did not differ on behavioral problems (Beebe-Frankenberger et al., 2004; Davoudzadeh et al., 2015).

### 2.2. Peer relationships

Characteristics of peer relationships have garnered much attention, as previous studies typically found strong association between peer acceptance and children's concurrent and future school adjustment (Véronneau & Vitaro, 2007; Woodward & Fergusson, 2000). The impact of peer relationships appears as early as the elementary school years. Zucchetti, Candela, Sacconi, and Rabaglietti (2015) found that positive peer relationships among third graders predicted school achievement in the fourth grade. Overall, evidence has suggested that children who have difficulty getting along with peers during kindergarten and the elementary school years are at increased risk of negative school outcomes such as truancy, grade retention, and suspension. A growing body of research seems to suggest a dyadic relationship between peer relations and school performance (Caenrerer & Keith, 2015; Wentzel, 2005), yet few studies have tested both directions of the relationship.

### 2.3. Parental factors and familial context

Past studies have shown that children tend to be retained in school when they come from single parent homes, have a teen mother, or have a mother with a low level of educational attainment (Andrew, 2014; Corman, 2003). In addition, school and parent(s)/guardian collaboration is an important determinant of student outcomes. Although parental school involvement has been measured variably, it was found to have a strong effect on children's promotion/retention status; greater parental involvement in school activity was associated with a lower risk of grade retention (Holt & Garcia, 2005; Mantzicopoulos, 2003; Miedel & Reynolds, 1999). It is recognized that parental school involvement is especially critical in the early years. However, a rather large body of research exists linking parental involvement to children's school readiness and test scores (Seginer, 2006; Winsler et al., 2012), while a relatively small portion of this line of research focuses on grade retention as an outcome.

### 2.4. School engagement

The concept of school engagement is a construct that has evolved to contribute to the understanding of students' school experiences (Christenson, Reschly, & Wylie, 2012). School engagement is a multi-dimensional concept with core aspects related to the learning process including cognitive (e.g., student persistence, self-regulated efforts toward learning; Frederick & Hauser, 2008), affective-emotional (e.g., student interest, enjoyment, boredom, school belonging; Pekrun & Linnenbrink-Garcia, 2012), and behavioral dimensions (e.g., school attendance, active participation within school; Skinner & Pitzer, 2012). School engagement literature covers a broad spectrum in the school environment, and it has emerged to lend understanding to various school issues ranging from school dropout to how diverse school settings engage students. (Finn & Zimmer, 2012; Fredricks, Filsecker, & Lawson, 2016; Lawson & Lawson, 2013; Lawson & Masyn, 2015).

However, as much research has converged on school engagement dimensions, the definitional framework continues to develop more nuanced concepts. For example, earlier engagement constructs focused on students' conformity to school (Lawson & Lawson, 2013), which coincides with a teacher-centered classroom. An alternative lens is the approach of Reeve (2012) or Crick (2012), where teachers promote a student-focused learning environment, in which students are encouraged to be active learners.

Despite the consensus over the multidimensionality of school engagement and its evolving definitions, much research employs only one dimension in analyses, and a great variation exists in operational approaches used by existing studies (Betts, 2012). Nevertheless, findings from past studies converged to suggest that school engagement is a strong predictor of educational outcomes in both cross-sectional and longitudinal studies (e.g., Li-Grining, Votruba-Drzal, Maldonado-Carreno, & Haas, 2010). Specifically, studies showed that students who disengaged in learning and the classroom environment were less likely to progress in school and more likely to drop out of high school (Henry, Knight, & Thornberry, 2012; Rhodes, 2011).

### 2.5. Material hardship, school engagement, and grade retention

Most studies found that children from low-income households were 2 to 4 times more likely to be retained in school (Jimerson, 2001; Meisels & Liaw, 1993). When examining children in the early elementary school years, studies have shown that children living in poverty were 3 times more likely to be retained in kindergarten or first grade than those with family incomes above the poverty threshold (Hauser et al., 2000). However, much less attention has been paid to understand the mechanisms through which poverty affects grade retention.

Previous studies have shown how school engagement impacts academic performance (Galla et al., 2014; Wang & Holcombe, 2010). Scholars recognized that students' school engagement patterns were associated with family socioeconomic conditions (Ashabi, 2005; Garcia & Guerra, 2004). Recent studies suggested that school engagement often operates as a mediator between familial background, school contexts, and academic performance (Wang & Degol, 2014; Wang & Holcombe, 2010). When economic resources are scarce, children face challenges at multiple levels (e.g., health and emotional well-being, cognitive development) that may impact their likelihood to engage positively in school. Families that are struggling financially typically have fewer resources and more stressors that may negatively affect the time and attention spent on children's educational needs. Material hardships such as inadequate study environments, lack of transportation for school-related errands and lack of school supplies or school uniforms can lead to low levels of school engagement and consequently affect student's academic performance and eventual grade failure. However, to the best of our knowledge, no known study has explored how school engagement exerts influence on the association between material hardship and grade retention.

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