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The Heterogeneity of Truancy among Urban Middle School Students: A Latent Class Growth Analysis

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Abstract This longitudinal study explores heterogeneity of middle school students by identifying subgroups of youth characterized by distinct truancy trajectories and by determining disability profiles that distinguish these subgroups. Participants comprised an entire 7th through 9th grade student population, with approximately 58,000 students, in a large urban school district. Latent class growth analysis was used to identify subgroups of truant youth. This analysis yielded five distinct truant subgroups: Very-Low (37 %), Low (43.4 %), Declining (3.3 %), Rising (12.8 %), and Chronic (3.6 %). Further, differential disability profiles were found in each subgroup with the control of demographic characteristics (i.e., gender, race/ethnicity, free/reduced lunch, Limited English Proficiency, grade, and prior school absences), students with serious emotional disturbance and learning disabilities demonstrated amplified risks of being classified in the Chronic or Rising subgroups, which show chronic or incremental upward truant trajectories over time. These findings are discussed in terms of their implications for future research.

Keywords Truancy · Unexcused absences · Urban middle school students · Disabilities

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Introduction

Defined as an unexcused school absence, truancy is a pervasive problem in the American education system. According to the National Center for Education Statistics (NCES 2012), national school absence rates are alarmingly high across the school years. Nearly 7 % of fourth-graders, 6 % of eighth-graders and 8 % of twelfth-graders missed five or more days of school in a given month. In particular, truancy has been a critical and long lasting challenge for educators in urban schools (Balfanz and Byrnes 2012). In a regional analysis of truancy in six states, Balfanz and Byrnes (2012) estimated that up to one-third of students in high poverty urban areas are chronically absent, defined as missing school 10 % or more of a school year. In that study, the chronic absence rates in urban areas appeared to rise in middle school with an incremental upward trend continuing through 12th grade. Further, students in high poverty urban areas who dropped out started to have low attendance during middle school (Balfanz et al. 2007). While problems in middle school have been found to be significantly associated with later adjustment (Estell et al. 2007; Roeser and Peck 2003), investigations of truancy among urban early adolescents would provide possible avenues of prevention and attenuate its potential contribution to eventual school dropout.

Students with higher absenteeism rates tend to have lower academic performance (NCES 2012) and chronically absent students also show maladaptive behaviors outside of the classroom and well into adulthood (Gottfried 2009). Researchers have linked truancy with school dropout (Balfanz et al. 2007; Lan and Lanthier 2003), substance abuse (Hallfors et al. 2002), delinquency (Mueller et al. 2006; Zhang et al. 2007), and other serious criminality (Rodríguez and Conchas 2009). Given truant youths'

propensity for educational failure and social maladjustment, this issue calls for research to address and develop a nuanced understanding of truancy to support school adjustment and long-term educational success (Balfanz and Byrnes 2012).

Truancy is a complex phenomenon, affected by the interplay of multiple determinants at individual, family, school, and community levels (Aud et al. 2012; Balfanz and Byrnes 2012; Epstein and Sheldon 2002; Finlay 2006; Goldstein et al. 2003; Henry 2007; Kearney 2008b; Wagner et al. 2003; Zhang et al. 2007). Prior research on demographics also suggested that race/ethnicity was strongly associated with truancy among youth in middle and high schools (Henry 2007). Poverty appeared to be one of the strongest demographic correlates with truancy (Aud et al. 2012; Finlay 2006; Zhang et al. 2007). Considerable evidence also showed that student demographics including male, minority, low-income status, and disabilities differentiated school absence patterns (Maynard et al. 2012; Schoeneberger 2012).

Concerns about truancy are warranted in urban school systems. Students in urban areas often have higher truancy rates in comparison to students from rural and suburban areas (Sheldon and Epstein 2004). Given poverty, residential segregation, and health care disparities, urban school systems are challenged to engage students to learn and to mitigate gaps in academic achievement and attainment (Rodríguez and Conchas 2009). Chang and Romero (2008) indicated that poor children were more likely to have chronic absences than their peers due to factors like homelessness, high mobility, and living in single-parent households. These findings speak to the complexity of truancy issues among urban youth living in low-resource communities and the importance of investigating such critical issues among an already disadvantaged population (Metraux et al. 2013).

Truancy is also problematic and acute among youth identified with disabilities (Wagner et al. 2003). Students receiving special education services were at greater risk of being absent from school than their general education peers (Zhang et al. 2007). While students with disabilities have faced academic, social, and behavioral difficulties, their chronic truancy can interrupt their instruction time and hinder their learning opportunities (Newman et al. 2003). Their school attendance problems have appeared to be the critical predictor that contributes to educational failure and school dropout (Wagner et al. 2003). Investigations of disability profiles of truant students might facilitate our understandings to support school adjustment for those who face significant academic and behavioral challenges.

Aside from the heightened school truancy rates and associated risk factors found in urban schools, the underlying patterns of truancy have not been well identified among individual students. A growing body of research has found heterogeneity among students in school adjustment (Estell et al. 2002, 2003; Roeser and Peck 2003). Subgroups of students with distinct patterns of social behavior have been associated with school adjustment (e.g., academic achievement and social/behavior functioning) in different developmental stages (Estell et al. 2002). Findings on developmental pathways also showed multiple dimensions of individual and contextual factors were differentially associated with school adjustment over time among subgroups of individuals (Roeser and Peck 2003). Clearly, the empirical illustrations of how different patterns and pathways are shaped among distinct subgroups of individuals in early adolescence will help us understand the developmental nature of school adjustment. However, the underlying heterogeneity representing differential truancy patterns still remains largely unaddressed (Maynard et al. 2012).

The person-centered approaches have demonstrated the feasibility to classify subgroups representing differential patterns (Bergman and Magnusson 1997; Bergman and Trost 2006; Swartout and Swartout 2012). As exemplified by two empirical studies, distinct truancy patterns were identified by employing person-centered approaches (Maynard et al. 2012; Schoeneberger 2012). One example of this approach is found in a cross-sectional study by Maynard et al. (2012) when they used an array of predictors (i.e., school engagement, activities participation, grades, parental involvement, and missing school days) to identify subgroups of truant youth. Latent profile analysis was used to analyze heterogeneity and identify four distinct patterns of truant youth: achievers, moderate students, academically disengaged, and chronic skippers.

Another example is evident in a longitudinal study that empirically identified individual variation in the progression of truancy over time and classified divergent trajectory patterns based on yearly data (Schoeneberger 2012). Findings based on latent class growth analysis suggest that students can be classified into four distinct groups, including constant attendees, developing truants, early truants, and chronic truants. The findings highlight the complexity of the developmental patterns of truancy. Besides chronic truants, those who showed instability of trajectories, either increasing or decreasing, were at greater risk of school dropout.

Prior research has empirically addressed differential truancy patterns, but the line of inquires was not clear for urban middle school students, especially to one of the most critical attendance problems, unexcused absences. A more in-depth investigation and a better differentiation of the potential heterogeneity among urban middle school

students is critical for laying the groundwork for early identification of early truant youth and for more targeted intervention to support the adaptation of urban youth (Metraux et al. 2013). However, two gaps in the empirical literature make such research challenging: the lack of the differentiation between excused and unexcused absences and the use of the arbitrary threshold measures to classify truant groups. Researchers often fail to distinguish between excused and unexcused absences, and the majority of studies have focused on total school absences (Gottfried 2009). In a review of 16 studies on truancy, only one distinguished between excused absences and other types (Sutphen et al. 2010). Yet research has shown the differential negative effects of unexcused absences on student adjustment. Students experiencing unexcused absences were twice as likely to be involved in risk behaviors (Eaton et al. 2008) and poor academic achievement (Gottfried 2009, 2011) than those experiencing excused absences. Whereas the term "absenteeism" can broadly refer to excused or unexcused absences, "truancy" is defined as unexcused absences often associated with delinquency and academic problems (Kearney 2008a). This may explain mixed findings regarding identification, cause, effect, and intervention outcomes for truancy (Kearney 2008b; Reid 2005).

The second challenge to studying the heterogeneity of this population is that most studies employed arbitrary thresholds to classify subgroups of truant youth, rather than using empirically data-driven approaches to reflect underlying truancy patterns (Pellegrini 2007). Some studies proposed to classify students using the accumulated days of students' missing school in a given period of time (Henry 2010). Others adopted various thresholds to differentiate heterogeneous subgroups of truancy. For example, Vaughn et al. (2013) identified students as non-school (0 days), moderate (1–3 days), and high skipping (4 or more days). Recent studies have begun to classify subgroups of individuals with differential patterns empirically using person-centered approaches (Bergman and Magnusson 1997; Bergman and Trost 2006; Swartout and Swartout 2012). However, distinct patterns found in these studies were school absences in general; neither solely focused on unexcused absences (Maynard et al. 2012; Schoeneberger 2012).

To address the problems of truancy among urban youth, this longitudinal population-based study was guided by two complementary aims. The first aim was to identify subgroups of students with distinct truant trajectories that were derived from school data on unexcused absences over an entire school year. The second aim was to identify distinct disability status that might further differentiate subgroups of distinct truancy trajectories.

Method

Participants

This longitudinal population-based study consisted of entire populations who were enrolled in 7th, 8th, and 9th grades in a large urban public school district in the 2004–2005 school year, with approximately 58,000 participants. Table 1 displays sample means for characteristics of the youth cohort. On average, more than half of students were male (51.7 %). The majority of students were from minority groups: 66.1 % were African-American and 14.9 % were Latino. Nearly 46 % of students were eligible for receiving free or reduced lunch. Additionally, 18.8 % of students were identified with disabilities and received special education services (i.e., serious emotional disturbance (SED, N = 1247), intellectual disabilities (ID, N = 1245), learning disabilities (LD, N = 7028), autism (N = 163), speech and language impairments (SLI, N = 804), and other disabilities (N = 424). Fewer than 10 % of participants were identified as students with limited English proficiency.

Procedure

This population-based study used an integrated administrative data system maintained by the school district that involved the integration of administrative, child-level daily school attendance data (e.g., absence types and reasons) for the entire youth cohort of seventh-, eighth-, and ninth-grade students (Culhane et al. 2010). Data management included reliability and validity auditing of all data

Table 1 Demographic characteristics of the youth cohort (N = 58,000)

Variables	Youth cohort
Gender (male, %)	51.7
Race/ethnicity	
African-American (%)	66.1
Latino (%)	14.9
White (%)	13.8
Other (Asian, Native American, etc. %)	5.3
Free/reduced lunch (%)	45.6
Limited English proficiency (%)	9.3
Grade	
7th grade (%)	30.2
8th grade (%)	30.2
9th grade (%)	39.5
Prior school absence ($\geq$25 days, %)	28.1
Disability status (%)	18.8

elements and the maintenance of data standards for quality. This resulted in a comprehensive administrative dataset that included individual students' school enrollment and daily attendance data (excused and unexcused absences) over time, which enabled us to undertake a population-based examination of youth truant behavior longitudinally in a school year window. With the longitudinal data showing student monthly attendance, it was possible to determine patterns of truancy trajectories based on the individual-level data for an entire cohort of urban youth during a school year and to identify student characteristics associated with the distinct trajectory patterns.

Measures

Truancy

This variable indicated unexcused absences as defined by the school district attendance policy. An unexcused absence occurred when a child did not attend school for reasons other than those approved (e.g., illness of student, death in family, or religious holiday) and no written notification of the legal cause was provided by a parent/guardian to the school (refer to Policy No. 204, the School District of student attendance policy). Truancy was a continuous variable created by dividing the number of unexcused absences by the total number of days of scheduled attendance in each month based on the daily attendance data tracked by the school district. Truancy was measured in ten waves from September to June in the 2004–2005 school year for each individual student.

Disability Status

Disability status indicated whether students were identified with disabilities (i.e., serious emotional disturbance (SED), intellectual disabilities (ID), learning disabilities (LD), autism, speech and language impairments (SLI), and other disabilities) and received special education services according to the records from the school district. Students might have multiple disabilities, but this study only used students' primary disabilities to indicate their disability status.

Demographic Characteristics

Demographic characteristics were background information collected from records in the school district, which included gender, race/ethnicity, free/reduced lunch, grade level and limited English proficiency. Free/reduced lunch indicated students' eligibility for any participation in the free/reduced lunch program anytime in the 2004–2005 school year. The school district used the status of Temporary

Assistance for Needy Families (TANF) to determine eligibility of free/reduced lunch. Limited English Proficiency (LEP) status indicated that a student's primary or home language was not English and his/her ability to read, speak, write, or understand English was limited.

Prior School Absences

This variable indicated any history of students missing school 25 days or more in the 2003–2004 school year based on the information obtained from the school district. Since the school district only provided information on the total absences in school year 2003–2004, this variable used in this study included prior unexcused and excused absences.

Data Analyses

Descriptive analysis was conducted to determine the percentage of time students were truant each month in the 2004–2005 school year among urban youth at the individual level. This study classified the trajectory patterns of truancy through latent class growth analysis (LCGA), a person-centered approach, which modeled distinct subgroups of patterns of change of truancy across multiple points of time (Jones and Nagin 2007; Nagin 2005; Nagin and Odgers 2010). Unlike conventional growth modeling, which expects that all individuals change toward the same direction with an estimated average trajectory over time, LCGA considers that individuals might experience a multinomial pattern of changes across time (Jones and Nagin 2007; Nagin 2005; Nagin and Odgers 2010). With this person-centered approach, this study used LCGA to differentiate whether students showed multiple patterns (clusters/subgroups) of truancy trajectories in a school year.

Using a finite mixture approach conducted via Proc TRAJ in SAS, the unobserved individual differences of changes in truancy was determined by a finite set of polynomial functions (Jones and Nagin 2007; Nagin 2005; Nagin and Odgers 2010). This study estimated the trajectory models and selected the optimal number of groups which best fitted the data. While analyzing the trajectory clusters of truancy, each school year consisted of ten waves of data points that denoted the monthly absence rates from September to June in the 2004–2005 school year. The current study compared seven models with a different number of clusters.

After a series of analysis with different numbers of group patterns, the number of group trajectory patterns was estimated and the final model was determined through multiple indices and criteria including the comparison of Bayesian Information Criterion (BIC), the group size, and

the shape of change in each trajectory across time (i.e., linear, quadratic, or cubic) (Nagin 2005; Nagin and Odgers 2010). Additionally, posterior probability for each trajectory, which showed the probability of participants assigned to a specific trajectory subgroup, was averaged to determine whether the model aggregated students with similar patterns of changes and discriminated students with dissimilar patters of changes. If average posterior probability for each trajectory was greater than .70, the model showed ideal reliability of each trajectory and proper assignment of group membership to each participant (Jones and Nagin 2007; Nagin 2005; Nagin and Odgers 2010). Missing data on the outcome variable, unexcused school absences (September, October…, June, from which to conduct estimated trajectory subgroups), were assumed to be missing at random (MAR) in Proc TRAJ in SAS. Participants that had at least one observation with valid data on unexcused absences were included in the growth curve modeling.

Last, the current study examined whether disability status differentiated the trajectory subgroups of truancy. Multinomial logistic regression analysis was used to identify if disability status was associated with specific trajectories of truancy for urban middle school students with the control of demographic characteristics such as gender, race/ethnicity, free/reduced lunch, limited English proficiency, grade, and prior school absences. To make the analytical modeling more rigorous, this study further controlled for prior school absences (25 days or more), which might be associated with later incidence of truancy.

Results

Trajectory Patterns of Truancy

Students missed an average of 19 days of school without excuse (SD = 26.74) and nearly 4 days of excused absence (SD = 6.99), legally defined by the school district's attendance policy. Figure 1 shows that on average students
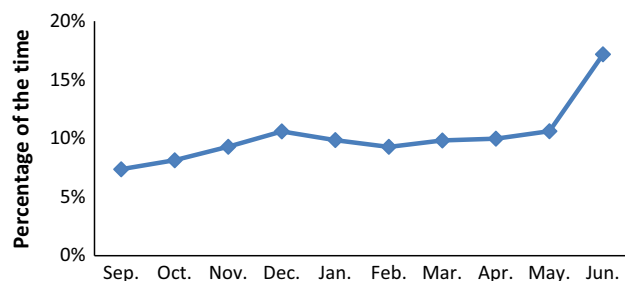

Fig. 1 School truancy among urban youth

were truant from schools nearly 10 % of the time in the 2004–2005 school year. The average truancy rate increased gradually over time and peaked in the last month of the school year (range 7.4 % [SD = .15]–17.2 % [SD = .24]).

Using a finite mixture approach conducted via Proc TRAJ in SAS 9.1 (Nagin 2005; Nagin and Odgers 2010), several models were examined with different numbers of subgroups ranging from one to seven latent classes. The BIC scores for each group were −295783.8 (one class), −219837.5 (two classes), −185582.8 (three classes), −173251.8 (four classes), −159730.1 (five classes), −153939.3 (six classes), and −146800.9 (seven classes), respectively. The model fits showed improvement as the number of groups was increased. Considering model parsimony, goodness of fit, as well as efficiency, five classes were selected, each with distinct group trajectory patterns, as the optimal model statistically based upon the comparison of BIC.

The youth cohort was classified into five trajectory subgroups: Very-Low, Low, Declining, Rising and Chronic (see Fig. 2). The mean posterior probability of the five-group membership ranged from .92 to .97 (Very-Low = .93, Low = .92, Declining = .94, Rising = .92, Chronic = .97), which were above the threshold of .7 (Nagin 2005). This showed good reliability for each trajectory subgroup and good model fit to the truancy data. In Fig. 2, the solid lines showed the observed means of truancy over time, and the dash lines indicated the predicted means of truancy based on the model estimates.

Although the majority of students were clustered in the Very-Low (37 %) and Low (43.4 %) groups over the entire school year, falling below the 10 % average truancy rate in any given months and showing low trajectories consistently, three groups had dissimilar trajectories. The Declining group (3.30 %) began with high level of absences in September, at an average rate of 37.41 %, and then gradually declined to low level of absences at an average rate of .48 %. Conversely, the Rising group, who accounted for nearly 13 % of participants, experienced a pattern of a moderate start and consistently rising trajectory course. In September, these students were truant 16.18 % of the time, which was above the average truancy of the entire study group. These students also showed an increase in truancy through June, with an average rate of nearly 50 %. The Chronic group, who constituted about 4 % of participants, had the most severe and persistent school attendance problems among the cohort. Students demonstrated a high initial level of truancy with an average rate of 30.9 %, which was above the average of truancy of the entire study group. These students also showed a consistent increase in truancy through June, with an average rate of nearly 65 %.

Fig. 2 Trajectories of truancy among urban youth
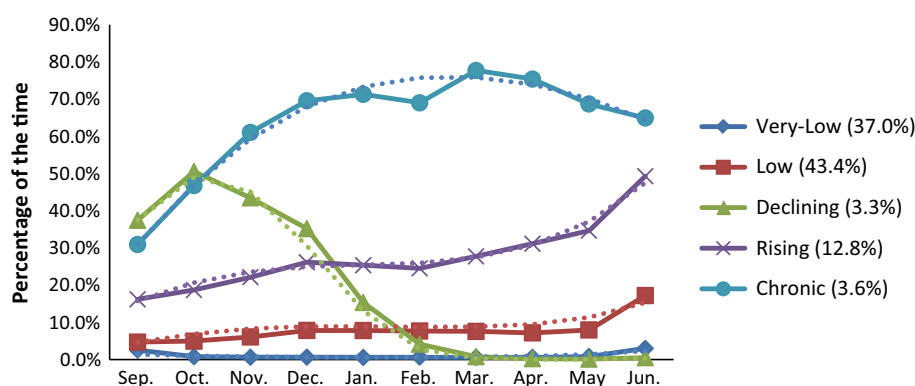
Disability Status Associated with Truancy Trajectories

This study further identified disability status of the students in distinctive truancy trajectories. Using Very-Low group as reference group in the multinomial logistic regression analysis, this study demonstrated whether disability status was associated with students' specific group membership in distinct truancy trajectories with the control of gender, race/ethnicity, free/reduced lunch, LEP, grade level, and prior school absences (25 days or more). The coefficients showed the multinomial logit estimate for one unit increase in predictor for specific truancy trajectories relative to Very-Low group while holding other variables constant. As shown in Table 2, findings indicated that disability status differentiated the subgroups of distinct truancy trajectory patterns. Below we specifically emphasized the differentiation of Chronic, Rising, and Declining subgroups by disability status.

Students with SED (.670, $p < .001$) and LD (.240, $p < .001$) were more likely to be classified as subgroups with Chronic than Very-Low truancy trajectories. In contrast, students with other disabilities were less likely to be involved in Chronic than Very-Low subgroups (−1.372, $p < .001$).

Students with SED (.591, $p < .001$) and LD (.328, $p < .001$) demonstrated amplified risks of being identified as subgroups with Rising than Very-Low truancy trajectories. On the contrary, students with autism (−2.117, $p < .001$) and other disabilities (−.927, $p < .001$) were less likely to experience Rising than Very-Low truancy trajectories.

Lastly, students with SED (.532, $p < .001$) were more likely to be classified as subgroups with Declining than Very-Low truancy trajectories. In contrast, students with ID (−.773, $p < .001$) and other disabilities (−1.039, $p < .01$) were less likely to experience Declining than Very-Low truancy trajectories.

Discussion

The present study focused on a targeted sample, urban middle-school youth, to identify truancy patterns across subgroups. Especially unique to this study is the examination and the specification of truancy as unexcused absences (as opposed to school absences in general) as a variable. This study found considerable heterogeneity and identified five distinct trajectories of truancy. Findings also indicated disability status that further differentiated group memberships in distinctive trajectory patterns. This study can be used as a point of departure and may have important implications for early identification of urban truant youth, the utilization of data-driven approaches and ongoing data monitoring and strategies tailored to promote school attendance.

Overall, distinct trajectories of truancy found in this study advance the understanding of the heterogeneity in typologies of truant urban youth as early as in middle school through longitudinal data. Subgroups representing divergent patterns were classified across truancy studies regardless of total school absences (Maynard et al. 2012; Schoeneberger 2012) or unexcused absences specified in this study. While looking at the longitudinal patterns of unexcused absences, it was evident that the trends were not linear. This shows the importance of ongoing monitoring on not only the regular incidences, but also the change and stability of unexcused absences to identify youth who are at risk for chronic early truancy and those who are in need of constant support. For those classified as the Rising group in unexcused absences, the upward trend could be a red flag signaling youths' incremental vulnerability over time. However, for those identified as the Declining group, these unexpected deviations could be evidence of resilience over time. Future research involving prodigal analyses (see Cadwallader et al. 2003; Cairns and Rodkin 1998) needs to gauge the unknown individual and contextual factors (e.g., parent involvement, school climate) that might help

Table 2 Disability status associated with trajectory subgroups of truancy

Variables	Low versus Very-Low		Declining versus Very-Low		Rising versus Very-Low		Chronic versus Very-Low	
	Coef.	Std.Err.	Coef.	Std.Err.	Coef.	Std.Err.	Coef.	Std.Err.
Gender (male)	.058	(.020)**	.306	(.053)***	.100	(.032)**	.110	(.052)*
Race/ethnicity								
African-American	.609	(.029)***	.255	(.074)***	.973	(.053)***	.368	(.076)***
Hispanic/Latino	.360	(.038)***	.321	(.096)***	.718	(.066)***	.416	(.097)***
Other	−.344	(.054)***	−.566	(.178)***	−.101	(.105)	.223	(.147)
Free/reduced lunch	.307	(.020)***	.114	(.053)*	.507	(.032)***	.392	(.052)***
Limited English proficiency	.164	(.040)***	−.004	(.111)	.073	(.067)	.066	(.105)
Grade								
8th grade	−.026	(.024)	.130	(.090)	−.046	(.045)	.206	(.103)*
9th grade	.083	(.024)***	1.678	(.075)***	1.249	(.039)***	2.215	(.085)***
Prior school absence (≥25 days)	.864	(.028)***	3.155	(.060)***	2.593	(.035)***	3.489	(.064)***
Disability status								
Autism	−1.354	(.203)***	−1.988	(1.020)	−2.117	(.601)***	−1.074	(.749)
Serious emotional disturbance	.131	(.079)	.532	(.138)***	.591	(.098)***	.670	(.138)***
Intellectual disabilities	−.155	(.067)*	−.773	(.204)***	−.154	(.101)	.057	(.149)
Learning disabilities	.147	(.031)***	−.071	(.078)	.328	(.045)***	.240	(.072)***
Speech and language impairments	.012	(.079)	−.330	(.261)	−.118	(.143)	−.138	(.253)
Other disabilities	−.552	(.111)***	−1.039	(.340)**	−.927	(.199)***	−1.372	(.401)***

Observation number = 54,252. Log likelihood = −58105.924. White, 7th grade and students without disabilities as reference group

* $p < .05$; ** $p < .01$, *** $p < .001$

explain why some students are at risk for early-onset truancy problems but end up having more promising developmental patterns. It also calls for future research on factors accounting for why some students have risks of increasing truancy and how to defer their progression of becoming chronic truants.

Even though most studies defined the thresholds on the continuum of missing school days to categorize truant youth, the classifications might not well describe the within-group differences. The divergent trajectory patterns statistically defined from this study warrants special attention and points to the importance of identifying the within-group differences using empirical data-driven approaches (Balfanz and Byrnes 2012; Weitzman et al. 1986; Vaughn et al. 2013). In addition, the findings point out the potential advancement of using administrative data management systems to provide ongoing data monitoring of student attendance performance and guide the efforts of identifying at-risk students early in the school year (Culhane et al. 2010), especially in urban youths who experience high truancy rates. Overall, using the integrated data, the school systems would have the capacity to track and identify patterns that indicate youth risk for early or chronic truancy and provide timely response (Spencer 2009).

The distinct truancy trajectories provides a closer look of how truant youth disengage from schools over time and underscore the importance of timely support and tailored interventions to truant youth in ways to promote school attendance and adjustment. Practitioners and educators working with urban youth could benefit from increased awareness of the change and stability of youth truancy patterns and screen the students who have early chronic truancy or the rising or severe chronic patterns over time (Eaton et al. 2008). The truancy patterns observed in this study would help us address chronic early truancy and facilitate positive learning before it become intractable. In light of the distinct truancy patterns, rather than relying on one-size-fits-all strategies, there is a salient need to develop comprehensive programs in response to the differences found in subgroups to support adjustment among urban youth. Intervention such as the check and connect model has yielded promising impact on persistent attendance, increased school engagement and resiliency for urban youth with and without disabilities (Sinclair et al. 1998; Sinclair et al. 2005).

This study also yielded further insights into the disability profiles which discriminate the subgroups of truant urban youth. This investigation advanced prior findings regarding the relationships between disabilities and chronic truancy (Wagner et al. 2003; Zhang et al. 2007). Specifically, students with SED and LD were at heightened risk of being chronic truant and tended to experience higher truancy earlier in the school year and in more severe and

persistent forms over time, which singles a need for intensified interventions and ongoing support to facilitate their school engagement to deter potential dropouts (Scanlon and Mellard 2002). For students with SED and LD who have exhibited learning and behavioral challenges, their chronic truancy problems might affect their level of school engagement, escalate their academic and behavioral problems, and potentially contribute to educational failure and school dropout (Wagner et al. 2003; Zhang et al. 2007).

It is critical to recognize the problems students with SED and LD face and build up an engaging and supportive learning environment to promote school attendance that increases greater educational opportunities for students with severe, persistent learning and behavior challenges. There is emerging work on the development of intensive interventions to address the significant learning, emotional and behavioral challenges of students with disabilities in the school context (Kern and Wehby 2014; Fuchs et al. 2012). As the field moves forward to develop educational services to facilitate students' learning success in the classroom, it is necessary to consider the individual characteristics and their experiences in various social contexts (e.g., family and community) that might account for their school adaptation and long-term adjustment (Kern and Wehby 2014).

Limitations and Directions for Future Research

The implications for future research are threefold. First, the study shows the need and importance of examining heterogeneity of truancy. The person-centered approach provides a methodological fit with a close view of the salient trajectory patterns of truancy. Such perspectives identify subgroups of students with distinct truancy trajectories and provide insights about individual differences in school adjustment over time (Roeser and Peck 2003). A substantial body of research has uncovered the relationship between truancy and school dropout, substance abuse, delinquency, and other criminality (Baker et al. 2001; Lan and Lanthier 2003; Sheldon and Epstein 2004; Mueller et al. 2006; Teasley 2004; Zhang et al. 2007). In light of the heterogeneity of trajectory patterns of urban youth, there is a pressing need to identify associated educational and social/behavioral outcomes for youth with different group memberships. The differentiation of the pathways of truancy trajectories leading to specific outcomes may help to identify early signs of truancy risk that can be used to identify family and school supports to promote these students' school adjustment.

Second, in view of a holistic-developmental perspective (e.g., Cairns and Cairns 1994), future research on the process and mechanism of contexts, such as family, school,

and the peer groups contributions to truancy trajectories over time will be needed to provide insight on how we establish a developmentally constructive environment to promote and sustain school engagement over time. Previous studies have shown that there are individual and contextual factors that could contribute to student truancy (Balfanz and Byrnes 2012). The identification of specific mechanism leading to chronic or escalating truancy will help us know which risk factors place children at heightened risk for being habitual truants. On the other hand, the identification of specific mechanism leading to students' desisting courses from the involvement in truancy in the Declining group will help us know the potential protective factors mitigating the truancy trajectories of early truant youth and facilitating school engagement.

Third, to our knowledge the present study is the first one to systematically investigate the heterogeneity of unexcused absences throughout a school year among truant urban youth in middle school. Even though this study disaggregated the types of school absences and honed in on unexcused absences, it did not differentiate the excused absence from unexcused absence patterns over time. Regardless of reasons, students without regular school attendance might already disengage in learning and fall behind in class (Balfanz and Byrnes 2012). More investigation will be needed to make the comparisons of the subgroups with different types of school absences and discern the mechanisms which lead to students' excused and unexcused absence patterns over the course. Additionally, this study did not adequately investigate the longitudinal course of truancy over time; future research can extend the present study by collecting data across school years to gauge longitudinal nature of truancy.

Even though this longitudinal study examined the truancy patterns for an entire cohort of middle-school aged students, the generalization of the truancy patterns based upon the population-based data with comprehensive school attendance records for the urban youth is limited. While the focus on a single large urban school district enabled us to track student unexcused absences as each student progresses through a whole school year in middle school, we certainly recognized that it may not be appropriate to generalize the truant patterns found among urban youth to other populations in other urban or non-urban areas because this study specifically focused on a population of mostly minority students living in a high-poverty area (Metraux et al. 2013). Moreover, there is substantial variation regarding the definition of truancy and the standards used to label truant behavior across states or school districts (Balfanz and Byrnes 2012). Therefore, the generalization of the results from this study to other states or school districts will be limited. Future research can incorporate analyses employing datasets from nationally

representative sample to validate the divergent truancy patterns found in this study. It might be possible for future research to examine whether truancy patterns might vary from other school districts with varying urbanicity.

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