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# Absenteeism Interventions: An Approach for Common Definitions in Statewide Program Evaluations

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## Abstract

Chronic absenteeism is related to poor academic performance, delinquency, and other high-risk behaviors. Although research has found some promising interventions to reduce absenteeism, the literature lacks clarity on operationalizing absenteeism and when programs should intervene with youth who have varying absenteeism patterns. Using the Response to Intervention (*RtI*) framework to classify youth into tiers based on their degree of absenteeism, the present study evaluated 12 absenteeism programs, across 137 schools, with a sample of 1,606 youth as part of a statewide evaluation in which programs provided attendance data using a common measurement system. The findings indicated that youth with the highest rates of absenteeism (Tier 3) showed significant improvement in attendance during intervention, whereas youth with fewer absences (Tiers 1A, 1B, and 2) did not significantly improve attendance. Using a mixed repeated measures analysis to compare attendance prior to the program to attendance while in the program, results revealed that tier classification and school explained change in attendance for both excused and unexcused absences. Using common measurement for absenteeism and tier classifications is a useful framework for comparing attendance patterns and program success across programs within different schools, school districts, and states whose measurement of attendance may vary.

## KEYWORDS

Response to Intervention (*RtI*); school absenteeism; tier classification; juveniles; excused absences; unexcused absences

## Introduction

Chronic absenteeism is related to a number of negative outcomes, including poor academic performance, substance abuse, gang activity, sexual promiscuity, involvement in criminal activities, and school dropout (Baker, Sigmon, & Nugent, 2001; Monahan, VanDerhei, Bechtold, & Cauffman, 2014; Sutphen, Ford, & Flaherty, 2010; Thornberry, Huizinga, & Loeber, 1995). Given the relationship between absenteeism and negative outcomes, many states have adopted mandatory attendance laws, which have led to the development of community programs aimed at improving attendance. Despite the emergence of programs aimed at improving attendance, relatively little research has been conducted to determine what interventions are successful at reducing absenteeism. A systematic review of studies on truancy interventions from 1990 to 2007 found only 16 peer-reviewed studies (Sutphen et al., 2010). Although the authors found six studies with promising strategies (e.g., contingency management, school reorganization, punitive measures, community partnerships, and family-oriented activities), they specifically noted the need for additional research to inform effective interventions because of previous “methodological shortcomings, inconsistent definitions, and lack of replication” (Sutphen et al., 2010, p. 1; see also Bennett, Mazerolle, Antrobus, Eggins, & Piquero, 2018; Klima, Miller, & Nunlist, 2009; Maynard et al., 2015).

One prominent issue within absenteeism literature is the lack of clear and consistent definitions for absenteeism (Gottfried, 2009; Reid, 2005). Because researchers often define absenteeism differently, or aggregate different absence types, the operationalization of absenteeism has not been well-established. To complicate matters, the measurement of attendance and definitions of chronic absenteeism often differ across states, jurisdictions, school districts, schools, and programs—making multi-site program evaluations challenging. For example, it may be that in one school, a phone call from a parent about a medical appointment is considered an excused absence, whereas another school may consider this an unexcused absence because it is not accompanied by a doctor’s note. In addition to measuring absenteeism, there is also not a clear picture of when a youth is

considered “at-risk” for requiring intervention. For instance, programs often wonder whether they should intervene early, prior to court involvement; or whether resources are best utilized once a youth has been referred to juvenile court. While some evaluations have focused on the effects of early intervention on youth with fewer absences, and others have focused on the effects of interventions for youth who have had enough absences to be court-involved (Bennett, et al. 2018; Haight, Chapman, Hendron, Loftis, & Kearney, 2014; see Sutphen et al., 2010), typically evaluations have not included youth who have varying degrees of absenteeism. As such, previous research has provided little guidance on when it may be best to intervene.

The central goal of this research is to test whether absenteeism programs can reduce absences while a youth is under supervision and/or receiving some form of intervention. Furthermore, to address the above mentioned limitations, there are two additional goals of this paper. The first goal is to provide a framework for operationalizing absenteeism for the purposes of program evaluations that span multiple sites and may measure absences differently. To do so, we examined change in both excused and unexcused absences from pre-intervention to intervention, while describing a process for collecting data across multiple absenteeism programs in a statewide evaluation. Data were collected from absenteeism programs that served a range of youth spanning early intervention to court-involvement, using a common measurement system and common definitions of absences. The second goal is to explore the profile of youth who have different absenteeism patterns, whether those patterns predict who responds best to interventions, and when it may be most effective to intervene. To do so, we assessed the utility of separating youth into tiers, as outlined in the Response to Intervention (*RtI*) model, based on their proportion of absences to required attendance, and whether tier classification predicted change in attendance patterns.

### ***Measuring absenteeism***

Although the importance of absenteeism research has been established,

these studies lack clear and consistent measurement of absenteeism, which makes drawing conclusions from previous studies challenging (Gottfried, 2009). Often, the terms absenteeism and truancy are used interchangeably to mean “absent from school” (see Gentle-Genitty, Karikari, Chen, Wilka, & Kim, 2015; Reid, 2005), without being well-defined. Operationalizing absenteeism is further complicated by differing state statutory definitions of chronic absenteeism that specify the number of absences that could refer a student to juvenile court (Gentle-Genitty et al., 2015; Smink & Heilbrunn, 2006). For instance, in Nebraska, all students who are absent more than 20 days may be reported to the county attorney; prior to 2010, this only included truant absences, but legislation passed in 2010 widened the focus to all absence types (Neb. Rev. 79–209, 2018; Voices for Children in Nebraska, 2016). Contrast this with Florida, for which a petition may be filed if the student “has had more than 15 *unexcused* absences in a 90-calendar-day period” (emphasis added, FL Statute 984.151). Even if state definitions of chronic absenteeism are consistent within a given state, absence definitions may not be consistent across school districts, (Gentle-Genitty et al., 2015; Smink & Heilbrunn, 2006), schools, or absenteeism intervention programs.

In addition to measurement issues, research has often neglected to separately assess the impact of excused and unexcused absences. Although much of the research within juvenile justice has focused on delinquent or truant behavior (i.e., absences for which parents are unaware), within other disciplines, researchers have also examined non-truant “excused” absences stemming from medical/mental health, family issue or poverty, employment, religion, bullying, or school refusal (e.g., Havik, Bru, & Ertesvåg, 2015; Malcolm, Wilson, Davidson, & Kirk, 2003; Maynard et al., 2015). While this has generated a diverse body of research on problematic and chronic absenteeism, it can also create confusion about when to respond, how to respond, and for whom interventions should be directed. Researchers have indicated the importance of disaggregating absences and operationalizing absenteeism separately by excused and unexcused absences (Gottfried, 2009; Havik et al., 2015). For instance, in a longitudinal study of elementary students, Gottfried (2009) compared academic achievement for

students with a high proportion of excused and unexcused absences. Overall, student achievement tended to be worse when students missed school for unexcused reasons, as compared to those with a higher proportion of excused absences. From this study, it is apparent that aggregating absences into a single variable may contribute to hidden or even misleading findings.

### **Identifying youth for intervention**

Despite the research dedicated to absenteeism, scholars have noted a “lack of consensus about a pragmatic and coordinated assessment and intervention approach” (Kearney & Graczyk, 2014, p. 1). One prominent model that has emerged within juvenile justice intervention research to reduce recidivism is the Risk-Need-Responsivity framework (RNR; Andrews, Bonta, & Hoge, 1990; Andrews & Bonta, 2010). According to the RNR framework, youth have varying needs that include dynamic risk factors and criminogenic needs, both of which should be the target of rehabilitation programming (Andrews et al., 1990; Andrews & Bonta, 2010). The risk principle speaks to *who* should be treated and with how much treatment they should be given; the needs principle prescribes *what* should be treated and distinguishes between criminogenic and non-criminogenic needs; and the responsivity principle is concerned with *how* to intervene and relates to the style and modes of service to influence specific types of needs of offenders and appropriately matching services to the learning style of offenders (Andrews et al., 1990; Andrews & Bonta, 2010). As such, the framework recommends assessing risk and needs with a validated tool, then referring those assessed as higher risk with greater criminogenic needs to more services and a greater breadth of services (Andrews & Bonta, 2010). Because youth with absenteeism may get drawn into the juvenile justice system for absenteeism, the RNR framework could be an effective approach for classifying youth risk and proposing services. One limitation of applying the RNR framework to absenteeism programs, however, is that the RNR framework is largely concerned with assessing risk for delinquency and reducing recidivism. As such, it may be less applicable to those youth in early intervention programs. In fact, one of the recommendations stemming from RNR research is that

interventions are most effective and cost effective when applied to higher risk youth (Andrews & Bonta, 2010).

Another framework that has emerged within education intervention research is the Response to Intervention (RtI) approach (Kearney & Graczyk, 2014; Kearney, 2016), which proposes that interventions should be matched to the student by utilizing a multi-tier system, with each tier becoming increasingly responsive based on the students' need for the intervention (Hoover & Patton, 2008). The RtI framework has typically been applied to student achievement, including identifying students with learning disabilities. The RtI model promotes early identification of student problems (Gresham, 2005) instead of the "wait to fail" model, where a student's GPA had to fall below 2.0 to determine whether a student had an educational need (Hoover, Baca, Wexler-Love, & Saenz, 2008). As applied to absenteeism, the RtI model promotes proactive interventions for school absences "as it first occurs, and before other, more intransigent or comorbid problems develop" (Kearney & Graczyk, 2014). Although both the RNR and RtI approaches attempt to address student needs in a responsive manner, the two approaches do differ in terms of over-arching philosophy. Namely—while the RtI framework promotes early intervention, the RNR framework identifies later intervention as most effective.

### **Operationalizing youth into tiers**

Often absenteeism programs are unclear on when to intervene and there is little guidance in the literature on what "magic number" of absences is appropriate for intervening. Kearney and Graczyk (2014) identify three tiers based on degree of absenteeism and describe recommended interventions. For Tier 1 youth, Kearney and Graczyk (2014) recommend that the interventions be based on universal prevention, which may include a letter explaining to the family that attendance is required. Tier 2 strategies are targeted at early intervention, which may include a meeting with the family and school officials to inquire about why attendance is a problem. Tier 3 interventions are more intensive interventions targeted at youth who are chronically absent and include services like functional family therapy. Although the Kearney and Graczyk (2014) developed the tiered

system and propose interventions within each system, the framework does not operationalize the degree of absenteeism that should fall within each tier. To fill this gap, we turned to Attendance Works, a national initiative aimed at improving chronic absenteeism that has defined the degree of absenteeism using a similar tiered structure with specific recommendations (Attendance Works, 2018). Youth are grouped into Tiers strictly based upon their rate of absenteeism: Tier 1A includes students missing less than 5% of required school attendance; Tier1B includes students missing between 6% and 10% of required school attendance; Tier 2 includes students missing 11–19% of required school attendance; and Tier 3 includes students missing 20% or more of required school attendance (Attendance Works, 2018). Using a tiered approach that categorizes youth based on their degree of absenteeism is promising because it could offer objective guidance for attendance programs on how to assess and intervene when a student is absent. Although this approach may be useful to guide practitioners, there has been little empirical work testing this approach to determine whether, the specific percentages offered by Attendance Works are a useful way to assess youth and determine the appropriate intervention.

### **The current study**

Using intervention frameworks from both juvenile justice and education literature, and the specific tiered structure defined by Attendance Works (2018), the present study describes an ongoing statewide evaluation effort to assess the effectiveness of absenteeism programs. Absenteeism was defined as including all types of absences, categorized into eight absence types and classified as both excused absences (administrative/school activity, suspension, religious/funeral, and medical/illness) and unexcused absences (truant, parent acknowledged, medical/illness, and unverified). Recognizing that programs serve youth from multiple schools and across several school districts, a common measurement system and common definitions for each absence type were established statewide. Furthermore, because schools utilize varying metrics for absences (i.e., days, half days, periods, and minutes), the common measurement system standardized these



for the purposes of comparison. To examine the utility of this common measurement process, as well as common definitions for a tier classification of youth by exhibited attendance problems, the current study tested the impact of each program on change in attendance patterns for excused and unexcused absences, and examined whether tier explained improvement in attendance, while controlling for age, race, gender, school, and program.

## **Method**

### ***Sample***

The sample included 1,606 students from 12 attendance programs and 137 schools across the state of Nebraska. To be included in the sample, the student had to have both pre-enrollment and enrollment attendance data so that we could calculate percent absent prior to the program and percent absent while in the program. Data for either pre-enrollment or enrollment may have been missing for several reasons including, moving to or from another school for which data could not be obtained by the program or open cases that did not yet have enrollment data. If a youth dropped out of school or did not complete the program, they were included in the sample, and their attendance data was included up until their discharge date.

The sample was approximately 50.2% female and 49.7% male, ranging in age from 5 to 19 ( $M \frac{1}{4} 14.28$ ,  $SD \frac{1}{4} 2.97$ ). Most youth referred to attendance programs were White (73.3%), followed by Hispanic (16.4%) and Black (5.5%). Fewer youth were Native American (2.5%), Asian (0.04%), Native Hawaiian/Pacific Islander (0.2%), other (0.06%) and multiple races (1.1%). For one youth, race and/or ethnicity was unspecified (0.1%). Most of the youth participating in the attendance programs were referred to the programs from the school (84.2%), some by the county attorney (13.8%), with fewer referrals from a parent (0.2%) or other sources (0.2%). Students attended one of 137 schools and the school was included as a control variable within our analysis. The schools included 43 elementary schools ( $N \frac{1}{4} 244$ ), 30 middle schools ( $N \frac{1}{4} 294$ ), and 64 high schools ( $N \frac{1}{4} 1,068$ ).

### ***Absenteeism programs***

Each of the 12 programs are independent of one another and as such, they implement a variety of interventions (i.e., they do not follow a single prescribed model). Three of the programs were in more metropolitan areas of the state, while nine were in rural areas. Most programs have minimal intervention for youth with minor attendance issues, and may only send a “warning letter,” without ever interacting with the youth or family. For youth with more substantial absenteeism issues, programs identified a wide range of programming with no two agencies using the same approach. For example, Program A makes phone contact with youth classified as Tier 1. However, for Tiers 2 and 3, they evaluate the youth using the MAYSI-II and refer the youth to a counselor who comes to the school. Program B assesses youth using the SRAS and utilizes a single approach for youth regardless of Tier. Other programs simply monitor attendance for youth in Tier 1 and create an individualized plan for youth with more substantial attendance issues, which may include interventions like anger management, tracker services, counseling, community-coaching, prosocial activities, parenting classes, summer school, after school programming, and tutoring. Programs E, G, H, and J only work with youth that have substantial absenteeism, often as part of a diversion program once a youth has been referred to court. The interventions range from matching the youth to an employee within the school to traveling to the youth’s home to wake them and accompanying the youth to school. Program G is similar to a problem-solving court where the school and juvenile justice officials require the absent youth and parent to appear before them at the school throughout the program.

Table 1. Pre-enrollment and enrollment percent absent by tier and program ( $N = 1,606$ ).

	N	Tier 1B	Tier 2B	Tier 2	Tier 3	Pre-enroll (M)	Enroll (M)	% of youth that successfully complete
Program A	142	4	13	53	72	26.10 %	22.33 %	60.5%
Program B	296	26	86	107	77	19.24 %	19.90 %	46.0%
Program C	31	11	7	10	3	10.72 %	15.93 %	1.0%
Program D	166	3	0	13	150	39.20 %	36.88 %	65.0%
Program E	110	1	11	64	34	19.10 %	18.41 %	26.3%
Program F	231	102	90	28	9	7.51 %	5.88 %	90.9%
Program G	109	2	7	30	70	24.08 %	18.96 %	35.0%
Program H	86	2	7	63	14	16.45 %	13.39 %	14.0%
Program I	57	4	20	22	11	13.79 %	12.88 %	61.4%
Program J	86	0	0	13	73	34.68 %	18.82 %	47.6%
Program K	202	22	62	85	32	13.79 %	12.88 %	59.4%
Program L	90	5	11	31	43	19.90 %	16.00 %	16.6%

Given the diversity of the interventions within each program, we controlled for program in subsequent analyses. Table 1 displays the number of youth served in each of the programs and the mean percent absent (both excused and unexcused) during pre-enrollment and enrollment within the respective programs. Although we include the overall “success rate,” this should be interpreted with caution. Programs designate “successful completion” for their own internal purposes and this is not a uniformly defined term. For example, one might assume that to successfully complete a truancy program the student’s attendance must improve, but we found cases that indicated this is not the case, and instead successful closure may be because the youth completed other program requirements (e.g., counseling, homework). Programs were coded A-J to maintain anonymity.

## Measures

### Attendance

#### Absence types

Absence patterns included both excused absences (administrative/school activity, suspension, religious/funeral, and medical/illness) and unexcused absences (truant, parent acknowledged, medical/illness, and unverified). Schools vary greatly in how they classified absences (i.e., one school district utilized 144 ways of codifying absences), therefore, the researchers worked closely with the programs to map their attendance codes into one of the eight absence categories. Some schools count medical absences as “unexcused” until appropriate

documentation is obtained from a family, but others may classify any medical reason as excused. Because absences classified as “excused” or “unexcused” will ultimately be held against the student, programs were advised to remain within these categories as the schools define them. Parent acknowledged included absences that the parent is aware of but does not necessarily condone (i.e., if the parent could not persuade the child to go to school, but there is no medical reason, or the parent does not wish to excuse the absence). Some school districts count administrative/school activity as an excused absence, so it is included in the common measurement system; however, for the purposes of analyses, we did not include administrative and school activity absences because youth are not officially missing school those days, even if off campus. Approximately 33.9% of the sample had a higher proportion of excused than unexcused absences; and 66.1% of the sample had a higher proportion of unexcused than excused absences.

### ***Absence metrics***

Across schools, absences are measured using one of four metrics: days, half days, periods, and minutes. To make comparisons across schools that use these different metrics, absences were measured using a percent absent score, which was calculated using: the total number of absences divided by the total required attendance x 100. For the number of absences, programs entered the number in the metric provided by the school (i.e., days, half days, periods, or minutes) and indicated the metric used from a drop-down field. For required attendance, programs entered the total number of days that youth was required to be at school (i.e., based on the number of days in the given period). If the school measured attendance in any metric other than days or half days, the programs also included the number of periods the youth had (to multiply by the number of days) and/or the number of minutes in each period (to multiply by the number of days and periods).

### ***Pre-enrollment***

This included absences prior to the student enrolling in the program for one

to two semesters. Programs were required to report at least one semester of attendance prior to the enrollment date and were permitted to enter up to two semesters prior to enrollment. All pre-enrollment absences were combined across semesters resulting in an overall percent absent prior to intervention.

### ***Enrollment***

This included absences during any period while the student was enrolled in the program until the student was discharged from the program, which was typically either one or two semesters. Similar to the pre-enrollment period, enrollment absences were combined across semesters, resulting in an overall percent absent while enrolled in the intervention.

### **Tier classification**

Each youth was classified into a tier based on the number of absences they had during the pre-enrollment period. The tiers were based on the Rtl framework (Kearney & Graczyk, 2014) and operationalized using the four tier classification from Attendance Works. Specifically, Tier 1A included students who missed less than 5% of required school attendance, Tier 1B included students who missed between 6% and 10% of required school attendance, Tier 2 included students who missed between 11% and 19% of required school attendance, and Tier 3 included students who missed 20% or more of required school attendance. Most of the sample was in Tier 3 (36.7%), and Tier 2 (32.4%), followed by Tier 1B (19.6%), and Tier 1a (11.4%).

### **Design and procedure**

The absenteeism programs involved in this evaluation are statutorily required to report individual youth data to receive state allocated funds. This requirement is fulfilled when programs enter youth information and attendance records into the statewide Juvenile Case Management System (JCMS), which is a secure, web-based case management system. One goal of the JCMS is to allow for statewide evaluation of programs since they utilize common definitions, regardless of what

school or school district they fall under. To establish consistent definitions across key data elements, like types of absences, we held several webinars and in-person training sessions and gathered attendance codes from school districts statewide.

To measure whether interventions impact student attendance patterns, we worked with programs to enter both excused and unexcused absence data for at least one semester prior to the youth's enrollment in the program – thereby documenting the pattern of absenteeism prior to the intervention. Programs also entered excused and unexcused absences during the time the youth was in enrolled in the program to document the pattern of absenteeism following the intervention.

### **Research questions and analytic strategy**

Overall, we sought to determine whether absenteeism programs reduce absences, at least in the short term while the youth is monitored and/or receiving the intervention. In addition to this over-arching goal, we more specifically sought to demonstrate whether using common definitions of absenteeism is an approach that can be useful to programs and evaluators, and to understand whether categorizing youth according to the Rtl tiers, and the more specific percentages offered by Attendance Works, is a meaningful strategy to implement. To address these aims, we first examined youth demographics by tier, to determine whether youth display significant differences in attendance patterns by age, gender or race. Second, we examined change in attendance for both excused and unexcused categories for each of the four tier classification groups using a between groups repeated measures ANOVA. Between groups repeated measures ANOVA explains variance between participants (i.e., whether there are group differences on percent absent), within participants (i.e., whether percent absent changes from pre-enrollment to enrollment in the absenteeism program) and the interaction between the two (i.e., whether the between groups variables explain the change in attendance from pre-enrollment to enrollment). Third, we estimated another between groups repeated measures ANOVA to test whether tier classification was still predictive of change in attendance patterns, while controlling for race (coded

as White ¼ 1, Black ¼ 2, American Indian ¼ 3, Hispanic ¼ 4, and Other Race ¼ 5), gender (coded as 0 ¼ female and 1 ¼ male), age (continuous variable), school (categorical variable with 137 schools), and program (categorical variable with 12 programs).

Table 2. Demographic characteristics within each tier.

Gender Tier	Age		Race/Ethnicity				
	Female (%)	M	White (%)	Black (%)	Hispanic (%)	American Indian (%)	Other (%)
Tier 1A	42.3% <sup>a</sup>	13.69 <sup>a,b</sup>	12.5% <sup>a,b</sup>	2.2% <sup>a</sup>	10.0% <sup>a,b</sup>	15.0% <sup>a,b</sup>	3.1% <sup>a</sup>
Tier 1B	51.0% <sup>b</sup>	13.42 <sup>a</sup>	22.3% <sup>b</sup>	4.5% <sup>a</sup>	15.7% <sup>b</sup>	10.0% <sup>b</sup>	6.3% <sup>a</sup>
Tier 2	51.6% <sup>b</sup>	14.11 <sup>b</sup>	33.8% <sup>a</sup>	19.1% <sup>a</sup>	33.0% <sup>a,b</sup>	15.0% <sup>b</sup>	34.4% <sup>a</sup>
Tier 3	51.4% <sup>b</sup>	15.07 <sup>c</sup>	31.4% <sup>c</sup>	74.2% <sup>b</sup>	34.4% <sup>a</sup>	60.0% <sup>a</sup>	56.3% <sup>a</sup>
Total	50.4%	14.28	100.0%	100.0%	100.0%	100.0%	100.0% <sup>a</sup>

Note. Matching superscripts indicate tier groups that are not significantly different from each other within each variable at  $p < 0.05$ ; Different superscripts indicate tier groups that are significantly different from each other within each variable at  $p < 0.05$ . Gender is based on  $n = 1,602$ ; Age is based on  $n = 1,594$ ; Race/ethnicity is based on  $n = 1,599$ .

## Results

### *Demographic characteristics by tier*

Table 2 displays the demographic characteristics of each tier. Overall, the tier groups did not significantly differ by gender  $X^2(3) = 5.38, p = 0.15$ ; however, when comparing the column proportions, gender was significantly different within Tier 1A. In Tier 1A, there were significantly more males (57.7%) than females (42.3%). Overall, the mean age across each tier was significantly different  $F(3,1590) = 26.73, p < 0.001$ , with youth in Tier 3 being significantly older than the other three tiers. Post hoc analysis revealed that two comparisons were not statistically different: Tiers 1A and 1B were not different from each other and Tiers 1A and Tier 2 were not different from each other. For race/ethnicity, the pattern significantly differed within each tier  $X^2(12) = 95.84, p < 0.001$ . The proportions that within each race/ethnicity, Black youth (74.2%), American Indian youth (60.0%), and youth categorized in the other category (56.3%) are in Tier 3 at a higher proportion than the lower tiers; whereas White youth and Hispanic youth are more evenly proportioned within each of the tiers.

### *Excused absences*

First, we estimated the main effect of attendance during pre-enrollment to enrollment without any additional predictors. Overall, youth enrolled in an

attendance program significantly decreased the number of excused absences from an average of 6.59% ( $SE \frac{1}{4} 0.21$ ) to 5.71% ( $SE \frac{1}{4} 0.22$ ),  $F(1,1605) \frac{1}{4} 14.46$ ,  $p < 0.001$ ,  $r^2 \frac{1}{4} 0.01$  from pre-enrollment to enrollment. This change is approximately an 0.88% decrease, which in an 85-day semester, amounts to about 0.7 of a day. Next, we included tier as a between groups variable to investigate the interaction between tier and change in absences from pre-enrollment to enrollment (Table 3). The main effect of absence was no longer significant  $F(1,1599) \frac{1}{4} 3.11$ ,  $p \frac{1}{4} 0.08$ ,  $r^2 \frac{1}{4} 0.01$ ; however, the interaction between tier and the within groups measure of absence was significant,  $F(3,1599) \frac{1}{4} 8.02$ ,  $p < 0.001$ ,  $r^2 \frac{1}{4} 0.02$ . The estimated simple means revealed that excused absences did not shift from pre-enrollment to enrollment for Tiers 1A, 1B and 2; however, Tier 3 demonstrated a significant decrease in excused absences from pre-enrollment to enrollment (Table 3). The next model included tier, gender, and race/ethnicity as between groups factors, age as a covariate, and controlled for each program and the school the youth attended (Table 4). With respect to the between groups effects, excused absences significantly differed by tier. In addition, race/ethnicity was statistically significant with post hoc analyses revealing that White youth had more excused absences than Hispanic youth, but that there were no other differences by race/ethnicity. There were no gender effects, suggesting that males and females had excused absences at a similar rate to each other. Program and school both demonstrated significant between groups effects indicating that youth within different programs or certain schools are experiencing varying rates of excused absence issues than youth in other programs or schools.

Table 3. Pre-enrollment and enrollment absences by tier ( $N \frac{1}{4} 1,606$ ).

Tiers	Period	Excused		Unexcused	
		M	SE	M	SE
Tier 1A; less than 5%	Pre-enrollment	1.41%	0.57	1.94%	0.91
	Enrollment	2.55%	0.64	3.66%	1.25
Tier 1B; between 6 and 10%	Pre-enrollment	3.69%	0.44	5.07%	0.70
	Enrollment	3.39%	0.49	6.18%	0.95
Tier 2; between 11 and 19%	Pre-enrollment	5.79%	0.34	9.18%	0.54
	Enrollment	5.38%	0.38	8.18%	0.74
Tier 3; 20% or more	Pre-enrollment	10.47% <sup>***</sup>	0.32	25.80% <sup>***</sup>	0.51
	Enrollment	8.24% <sup>***</sup>	0.36	20.39% <sup>***</sup>	0.70

Note. \*\*\*  $p < 0.001$



Table 4. Repeated measures pre-enrollment and enrollment absences ( $N = 1,606$ ).

Effect	Excused Absences			Unexcused Absences		
	df	F	r <sup>2</sup>	df	F	r <sup>2</sup>
<b>Between Subjects</b>		<b>27.05***</b>				
Intercept	1		0.02	1	0.03	0.01
Tier	3	46.07****	0.09	3	80.20****	0.15
Age	1	5.72^	0.01	1	8.92^^	0.01
Race	4	2.55*	0.01	4	0.25	0.01
Gender	1	0.01	0.01	1	1.30	0.01
Program	3	6.84^^	0.01	3	4.98^^	0.01
School	130	3.26***	0.23	130	8.92***	0.17
Error	1413					
<b>Within Subjects</b>					6.52*	
Absence	1	0.14	0.01	1		0.01
Absence^Tier	3	19.27****	0.04	3	10.29****	0.02
Absence^Age	1	0.26	0.01	1	4.20^	0.01
Absence^Race	4	0.39	0.01	4	1.38	0.01
Absence^Gender	1	0.17	0.01	1	3.51	0.01
Absence^Program	3	0.75	0.01	3	1.16	0.01
Absence^School	130	2.13***	0.16	130	1.25^	0.10
Error	1413					

Note. \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

With respect to the within-subjects effects, the absence rate for excused absences did not change from pre-enrollment to enrollment but there were significant inter- action effects with the between-subjects factors. Both tier and school significantly interacted with change in attendance, indicating that both tier classification and the school the youth attends have an impact on attendance patterns from pre-enrollment to enrollment. The effects of the school are the largest for both the between and within groups level of the model, therefore, unique circumstances within schools (e.g., how attendance is measured, school climate) appears to be one of the strongest predictors of improvement in attendance. Neither age, gender, nor race/ethnicity explained change in attendance from pre-enrollment to enrollment. And it appears that programs are similarly impacting change in attendance because program did not significantly impact change in attendance patterns.

### **Unexcused absences**

In examining the main effect of pre-enrollment unexcused absences and enrollment unexcused absences, in general, the rate of unexcused absences decreased from 13.63% ( $SE = 0.39$ ) to 11.73% ( $SE = 0.45$ ),  $F(1,1605) = 23.89$ ,  $p < 0.001$ ,  $r^2 = 0.02$ . This change is approximately an 1.90% decrease, which in an 85-day semester, amounts to about 1.6 days. Next, we estimated the model with tier

as a between groups variable to investigate the interaction between tier and change in absences from pre-enrollment to enrollment (Table 3). Both the main effect of absence,  $F(1,1599) = 4.44, p < 0.05, r^2 = 0.01$  and the interaction between tier and absence were significant,  $F(3,1599) = 18.29, p < 0.001, r^2 = 0.03$ . Similar to the pattern for excused absences, the estimated simple means revealed that unexcused absences did not shift from pre-enrollment to enrollment for Tiers 1A, 1B and 2, but did significantly decrease for Tier 3 from pre-enrollment to enrollment (Table 3).

As with the excused absence model, the next model included tier, gender, and race/ethnicity as between groups factors, age as a covariate, and controlled for each program and the school the youth attended (Table 4). With respect to the between groups effects, youth across each tier had significantly different rates of unexcused absences. There were, however, no significant effects of race/ethnicity or gender, but age did significantly predict change in attendance patterns for unexcused absences. Again, both absenteeism program and school the youth attended demonstrated significant between groups effects indicating that youth within different programs or certain schools are experiencing varying rates of unexcused absence issues than youth in other programs or schools.

With respect to the within groups effects, the absence rate for unexcused absences did significantly shift from pre-enrollment to enrollment; however, this was qualified by several interactions. Tier, age, and school all significantly predicted attendance pattern changes, but race, gender and program did not. Similar to the pattern for excused absences, the effect of school was strongest as both a between and within group factor, followed by tier classification.

## **Discussion**

A number of studies have found that early problematic behavior is a meaningful predictor of later misbehavior (Beaver & Wright, 2007; Caspi, Roberts, & Shiner, 2005), and that absenteeism, specifically, may be related to academic failure (e.g., Gottfried, 2009), school dropout (e.g., Kokko, Tremblay, Lacourse, Nagin, & Vitaro, 2006), and delinquency (e.g., Monahan et al., 2014). Despite the

interest in developing programs to address absenteeism and research attention on evaluating these programs, intervention efforts have traditionally been geared towards measuring unexcused absences, and often neglecting to include excused absences (Gottfried, 2009; Sutphen et al., 2010), much of the research lacks adequate operationalization of absenteeism (Bennett et al., 2018), and few studies have evaluated programs that serve a range of absence levels from early intervention to court-involved youth. Our study sought to provide a framework for operationalizing absenteeism, assessing the profile of youth who have different absenteeism patterns, and provide a starting point for determining when programs should intervene.

For this statewide evaluation of all absenteeism programs receiving state funds, one of the earliest challenges was deciding how programs could be compared using a common metric and common measurement, when there were so many differences in how absenteeism was measured. This was achieved by creating a common data entry system that each program could access, defining absenteeism more broadly to include more than just truancy, mapping attendance codes to each category, and providing technical assistance to programs on data entry. The operationalization of absenteeism for this study included all absence types (although we ultimately excluded administrative excused absences), as separated by excused and unexcused absences. While the findings were largely similar for excused and unexcused absences, there were some differences that warrant continued attention to analyzing them separately. Furthermore, having common measurement and common definitions allows for comparing programs, which would not be possible otherwise.

Although we did not have specific hypotheses about whether programs would successfully reduce both excused and unexcused absences, overall, programs appear to be making some difference in youth attendance rates for both types of absences, at least while the youth is being monitored or supervised in the program. Typically, within juvenile justice research, research focuses on truant behavior as a precursor for academic failure, disengagement with school, school dropout, and future delinquency (e.g., Gentle-Genitty et al., 2015; Zhang et al.,

2010); however, missing school for any reason could contribute to negative outcomes. For example, a student who is chronically absent for health reasons could be just as likely to disengage from school and dropout as a student who is chronically absent for truant reasons. Alternatively, excused absences could just be an “excused” way to be absent from school but could indicate truant behavior that a parent supports. Programs participating in this evaluation indicated that at times a parent will “cover” for a student by calling the absence in as an excused absence, even if the student is not absent for an excused reason. As the data in this study supports, interventions that address both excused and unexcused absences are worthy of implementation and can improve both types of absences.

Youth with varying rates of absenteeism demonstrated some differences relevant to program responsiveness. We compared the four tiers on the various demographic characteristics to develop a profile of youth that fall within each of the tiers. Black, American Indian, and youth classified as other, were significantly more likely to be in Tier 3 as compared to the other tiers. White and Hispanic youth, were more evenly distributed across tiers. When programs understand the different characteristics and types of absences, they can implement more responsive and effective policies. For instance, one rural program in this evaluation reported that Black youth were leaving school earlier on Friday afternoons for religious prayer time. In response, schools in that area now dismiss class earlier on Fridays. Previous research has found that Black youth miss more days of school at a rate that is higher than their representation in the school district (Richtman, 2007), indicating there could be cultural or socioeconomical reasons behind absenteeism; however, there may also be systematic issues related to disproportionality in school discipline and justice system contact for minority youth (Skiba et al., 2011) because the Tier 3 programs in our sample are most likely to be programs for which youth who are juvenile justice involved (i.e., Truancy diversion programs).

Similarly, our results also show that males were more likely to be referred to programs earlier than females, as evidenced by a higher proportion of males in Tier 1A. And that older youth were more likely to be in Tier 3. Although some research has not found gender differences for truant behavior (Richtman, 2007),

others have noted that even though boys are disproportionality referred for school disciplinary problems in general, girls are more likely to be referred for truancy (Skiba, Michael, Nardo, & Peterson, 2002). Moreover, research has found that girls are more likely to be referred to the juvenile justice system for truancy offenses than other types of offenses (Zhang et al., 2010)—suggesting that truancy could be the starting point for system involvement for girls. Although it is not clear from this data or previous research whether there are gender differences in absenteeism rates or responsiveness to interventions, programs should examine whether there are gender differences in rates of absenteeism and specifically attend to the needs of boys and girls in programming.

We also found promise for the tiered approach. The results indicated that Tier 3 was the only significant change from pre-enrollment to enrollment for both excused and unexcused absences. Although this analysis cannot determine whether tier classification alone is responsible for improved attendance or whether the interventions for the Tier 3 youth (i.e., stronger or better interventions that are more responsive to this group) is responsible for this improvement, the results do indicate that something is happening based on youth with higher attendance problems. Educational and juvenile justice systems both seek to respond more effectively to absenteeism; however, the philosophy for handling absenteeism differs. Those who study absenteeism from an educational lens (i.e., the Rtl Approach) may advocate for early identification and intervention to ensure students do not fall behind academically and to minimize school detachment. Conversely, the RNR approach advocates that it is more effective to intervene with higher risk populations (Bonta & Andrews, 2010) and juvenile justice practitioners are often reluctant to intervene with low level offenders because it may lead to net-widening, over-supervision, and exposure to delinquent peers by blending low and high risk juvenile populations. While our findings are supportive of a tiered approach outlined in education theory, the intervention outcome results are more consistent with the juvenile justice approach to interventions. These findings are consistent with Lipsey's (2009) meta-analytic approach, which advocates programming for higher risk youth – who have a greater need for treatment and more room for

improvement (see also Lipsey, Howell, Kelly, Chapman, & Carver, 2010).

It is critical that our systems determine the right time to intervene, especially considering the conflicting stances on appropriate and effective responses to absenteeism. A multi-tier approach assumes that interventions become increasingly more responsive based on the students' need for the intervention. A tiered approach is attractive to practitioners because it proposes a formulaic approach for gradually increasing interventions, in effect – a recipe for when to intervene and how intense the intervention should be. Although there was not significant change in attendance for the students with fewer absences, the results cannot speak to whether this was a product of the tiers themselves or whether the interventions being used with Tier 1A, 1B & 2 youth (e.g. letters, monitoring, and phone calls) do not influence significant changes in attendance. Research should continue to examine the tiered approach, with a more specific goal of analyzing service deliver to these youths.

Within this sample, the youth in Tier 3 are those youth most likely to be justice involved, and as such, may most benefit from being assessed for risk and needs, and then being connected to services to address these needs. Research should continue to develop these frameworks, including validating risk assessment tools for absenteeism so that programming can be tailored to their risk level and needs. Utilizing the tiered approach, programs could first identify students who are higher risk—those classified as Tier 3 (e.g., missing 20% or more of required school attendance), and develop programming that addresses their specific needs. While there is not yet consensus on a single effective intervention for improving attendance, most researchers advocate for a multidisciplinary approach that includes individual case management and ongoing support, as opposed to more punitive, single entity or one-size fits all approaches (Ekstrand, 2015; Epstein & Sheldon, 2002; Mallett, 2016; Kearney, 2016; White, Fyfe, Campbell, & Goldkamp, 2001).

### **Limitations and future directions**

One limitation of the current research is that, while being able to evaluate

multiple programs at once under this statewide evaluation, the diversity of program interventions makes it difficult to provide any recommendations for best practices in absenteeism interventions. Most agencies served youth across tiers and implemented diverse approaches to serving youth in Tiers 2 and 3. However, for almost every program there was a clearly different approach for youth in Tier 1A, as compared to the other Tiers. That is, youth who missed only a handful of classes are generally monitored, which means that the program simply received attendance records to see if the youth's attendance improved, without intervening. Although this may explain why attendance did not improve, it could also be that programs are not appropriately matching youth to services based on risk and needs. Although the tiered approach may be used as a proxy for risk level of attendance problems, it does not address the underlying needs of the students in an effort to individually tailor programming.

Another limitation of our study is that the data were only collected while the youth were in the program, and follow-up was not completed after the youth was no longer enrolled in the program. As such, it is not clear whether the decrease in absenteeism would sustain beyond the scope of the program's supervision of the youth. Additional research should document attendance for at least one semester after being enrolled in the attendance program, to determine if tiers remains a significant predictor of improved attendance and whether programs have long-lasting effects on attendance, or other long-term goals such as scholastic achievement and graduation.

Finally, even though one of the goals of this research was to describe a process for evaluating absenteeism programs across sites that may measure absenteeism differently. One issue that does present itself in doing this, however, is that school policies and things like school climate surrounding attendance may differ across schools. For instance, how the school classifies absences and responds to attendance issues appears may be an important influence over whether a youth improves. Because the school was a strong predictor for change in attendance patterns, even while controlling for program, there are likely school-related factors that influence school attendance that warrant further investigation.

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