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Early Detection of Mental Health Through Universal Screening at Schools

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Abstract

Depression, anxiety, and stress are common mental health problems among adolescents. Cross-sectional and longitudinal studies have found that students who suffer from mental health problems (e.g., ADHD, anxiety, or depression) tend to manifest school and social problems. It is urgent to identify and intervene early to help children with mental health problems to improve their life outcomes. Unfortunately, research has shown that a significant proportion of children who suffer from behavioral or emotional problems remain unidentified because their symptoms are too mild to be noticed through casual observation by caregivers and teachers. As a result, their symptoms continue to develop gradually and eventually become mental illnesses. When mild to moderate symptoms become a noticeable mental illness, treatment becomes long-term, more invasive, and expensive. Early detection of children who are at risk of behavioral or emotional problems is possible through universal mental health screening in the school setting. The present study focused on the Behavioral and Emotional Screening System (BESS; Kamphaus & Reynolds, 2007) to identify students who were at mild risk of mental health problems and to examine their academic trajectories over four years. The findings suggest that students at mild risk of behavioral and emotional problems showed similar academic performance as other students. As a result, students with mild to moderate symptoms can be easily overlooked if academic performance were relied on as an indicator of mental health risk. The current results lend support for conducting universal behavioral and emotional risk screening at schools. A brief screener, applied universally, appears to be an effective solution for identifying students at mild risk of behavioral and emotional problems and acting early to prevent these problems from worsening.

Keywords

Early Detection, Universal Screening, Behavioral and Emotional Risk, Longitudinal Effects

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RUNNING HEAD: Early Detection, Universal Screening, Behavioral and Emotional Risk, Longitudinal Effects

Background

Mental Health Problems Among Children and Adolescents

Mental health problems among children and adolescents often manifest as behavioral, emotional, and/or even social challenges (Coburn et al., 2020; Avenevoli et al., 2013; Visser et al., 2013). Depression, anxiety, and stress are common mental health problems among children and adolescents (Bor et al., 2014; Kieling et al., 2011; Sawyer et al., 2000), and approximately 20% of children in the United States have manifested these mental health problems (Cuddy & Currie, 2020; Perou et al., 2013). Cross-sectional and longitudinal studies have found that students experiencing mental health problems (e.g., ADHD, anxiety, or depression) also tend to have school problems. They find it difficult to sit and focus during lectures, have difficulty managing and prioritizing tasks, have difficulty talking and interacting with peers, and so on. As a result of these behavioral and emotional problems, they are likely to have delays in reading, high dropout rates, suspensions, and poor academic performance (Bradley et al., 2008; Lane et al., 2006; Wagner et al., 2005).

Some social problems, such as suicide among adolescents, are related to their mental health problems. Suicide is the main cause of death among adolescents, and its rate has risen even more. Adolescent depression or psychological distress has been acknowledged as one of the factors leading to suicide (Perou et al., 2013). These mental health problems continue to have an adverse effect into adulthood if proper treatment is not forthcoming (Currie, 2020; Keenan-Miller et al., 2007; Sonuga-Barke et al., 2017;). More than 70% of adults with ADHD symptom were diagnosed as being at behavioral and emotional risk when they were children. This diagnosis indicated that mental health symptoms develop in childhood and persist into adulthood unless they are identified and treated in a timely way (Cuellar, 2015; Currie, 2020). It has become urgent to identify and help children who are experiencing mental health problems so that their lives can improve in many aspects.

Issues of Unidentified Mental Health Risk

Research has shown that the rate of children suffering from behavioral or emotional problems often remains unidentified, resulting in their having little

chance to receive adequate prevention, early intervention, medical care, or special education services (Burns et al., 1995; Costello et al., 1996; Wood & McDaniel, 2020). There are several reasons for the poor identification of children's mental health problems. One reason is the lack of severity of the symptoms. Children who manifest severe mental health symptoms are easily noticed, so parents, teachers, and/or caregivers are likely to refer them for clinical assessment. On the contrary, children who have mild or subtle symptoms are hardly noticed and remain unidentified because they perform academically in ways that are often similar to how other students perform (Glascoe, 2000). As a result, these subtle symptoms develop gradually and remain undetected to the point of becoming mental illness.

When mild symptoms evolve to become mental illness, treatment becomes more challenging and of longer duration (Neufeld et al., 2017). Early detection of mild behavioral and emotional symptoms that indicate mental health risk has been viewed as key to preventing or resolving mental health disorders (Keyes, 2007). Early detection of children's mental health problems can help to improve academic outcomes, prevent the extension of mental health problems into adulthood, and ensure timely treatments and interventions (Biederman et al., 2010; Burnett-Zeigler et al., 2012; Cuellar, 2015; Deighton et al., 2018; Pingault et al., 2011).

Researchers have identified a significant and positive relationship between the timely detection of behavioral and emotional problems and academic performance (Deighton et al., 2018; Gutman et al., 2003; McEvoy & Welker, 2000). Children with ADHD symptoms tend to adjust well in school and are more likely to graduate from high school if they receive timely medical treatment (Biederman et al., 2010; Pingault et al., 2011; Xiang et al., 2020). Children who receive the appropriate medical services or intervention programs at school also are likely to have better academic outcomes, have greater participation in postsecondary education, and are less likely to drop out (Catalano et al., 2004; Deighton et al., 2018; McIntosh et al., 2008).

Early Detection Through Universal Screening

Early detection of the symptoms of mental health issues requires universal mental health screening, preferably in the school setting (Arango et al., 2018; Essex et al., 2009; Greenberg et al., 2017; Levitt et al., 2007; Wood & McDaniel, 2020). This methodology will increase the likelihood that most children and adolescents will be screened, regardless of whether or not they manifest symptoms. This approach is different from the typical, symptom-driven practice of detecting mental health issues: Children are tested only if they show symptoms that may be concerning to teachers and caregivers. Through universal screening, less

observable symptoms can be detected, thus facilitating the early detection of mental health issues (Arango et al., 2018). Once children's mental health concerns are identified, they often receive additional testing to determine formal treatments specific to prevention or early intervention protocols. Even when screening results indicate mild/subclinical behavioral or emotional problems, knowledge of this risk may result in teachers, parents, and/or counselors to more closely monitor children's behaviors and perhaps schedule follow-up screenings. These are some of the ways that universal mental health screening can increase the chances of identifying children experiencing behavioral and emotional problems, and contributing to improved academic performance and fewer mental health problems in adulthood.

More U.S. schools are adopting universal mental health screening in an effort to mitigate the impact of children's behavioral and emotional problems on their academic outcomes (Dowdy et al., 2015; E. K. Kim et al., 2019; Moore et al., 2019; Siceloff et al., 2017). There is broad availability of screening instruments (Glascoe, 2000), including the Child Development Inventories (Irenton & Thwing, 1985), formerly the Minnesota Child Development Inventories; the American Psychiatric Association's (2013) *Diagnostic and Statistical Manual*, Pediatric Symptom Checklist; Spence Children's Anxiety Scale (Orgilés et al., 2012); the Family Psychosocial Screening (Kemper et al., 1994); the Strengths and Difficulties Questionnaire (Muris et al., 2003); and the Behavioral and Emotional Screening System (BESS; Kamphaus & Reynolds, 2007, 2015).

We used the student self-report form of the first edition of the BESS (Kamphaus & Reynolds, 2007), a universal screening tool that has been used widely in the school setting ranging from preschool to high school. The BESS is a multitiered support system used not only to detect behavioral and emotional problems early but also to serve empirically validated interventions in a timely fashion in the general education setting. The goal of implementing the BESS is to provide children with more intensive support earlier in an effort to improve their educational and mental health trajectories (Dowdy et al., 2010). The BESS assesses children's behavioral and emotional problems for an array of constructs, including personal adjustment, inattention/hyperactivity, internalization of problems, and school problems. The BESS has been established by various types of reliability and validity evidence to identify children experiencing behavioral and emotional problems (Dever et al., 2012; J. Kim & Kamphaus, 2018).

Through BESS universal screening, we examined if academic trajectories over a 4-year period showed the distinct pattern among normal-risk students and students with elevated risk due to the identification of behavioral and emotional

problems. Under the hypothesis that the emotional and behavioral symptom affects children's academic performance, three research questions guided our study:

1. How do students' academic performance trajectories differ over a 4-year period after BESS universal screening?
2. To what extent is academic performance the best indicator of behavioral and emotional risk?
3. What other factors, for example, demographic and school variables, explain trajectories of academic performance over time?

Methods

Procedure/Samples

At the beginning of the 2008-2009 academic year, students in Grades 3 to 5 across multiple elementary schools in the Los Angles United School District (LAUSD) were screened for behavioral and emotional problems using the BESS (Kamphaus & Reynolds, 2007) Student form. Although BESS Parent and Teacher form are available, the Student form was used to increase student participation rates. The students were able to choose the form in either English or Spanish. An opt-out parental consent protocol approved by the LAUSD was used to allow the screening of students in groups in classrooms. Researchers proctored the screening in each classroom using a protocol that included obtaining student assent to participate in the screening. The screening form was completed by the students in a single class period. The entire student population was screened in about half of a school day. Only students who filled out the English version of the BESS form, whose parents consented the use of the data for research, and whose California Standardized Test (CST) mathematics scores were available for at least 1 year of the 2008-2012 academic years (4 academic years) participated in the study. The CST math scores were provided by the LAUSD.

A total of 269 students participated in the BESS (Kamphaus & Reynolds, 2007) universal screening and provided 4 years of academic performance as measured by the CST mathematics scores. Of the 269 students, 51.7% ($n = 139$) were female students. The grade-level sample sizes were 29.8% ($n = 78$) in Grade 3, 40.1% ($n = 105$) in Grade 4, and 30.2% ($n = 79$) in Grade 5. The majority of the students were of Hispanic/Latinx heritage (87.4%, $n= 209$); 81% ($n = 219$) of the students were identified as "normal risk" status by the BESS, 16.7% ($n = 45$) were identified as "elevated" (mild symptoms), and 1.9% ($n = 5$) were identified as "extremely elevated" (severe symptoms; see Table 1).

Table 1

Demographic Characteristics of Students in Grades 3 to 5 (N = 269)

Demographics		*n* (%)
Gender	Female	139 (51.7%)
	Male	130 (48.3%)
Race	Asian	6 (2.5%)
	Black	7 (2.9%)
	Filipino	2 (0.8%)
	Hispanic	209 (87.4%)
	Pacific Islander	3 (1.3%)
	White	12 (4.5%)
Grade	3	78 (29.8%)
	4	105 (40.1%)
	5	79 (30.2%)
Language proficiency	Limited English proficiency (LEP)	70 (29.3%)
	Initially identified fluent English proficient (IFEP)	29 (12.1%)
	Reclassified fluent English proficient (RFEP)	75 (31.4%)
	English only (EO)	65 (27.2%)
BER risk level	Normal	219 (81.4%)
	Elevated	45 (16.7%)
	Extremely elevated	5 (1.9%)

Note. BER = behavioral and emotional risk.

Measures

The BESS Student form (Kamphaus & Reynolds, 2007) is a 30-item instrument designed to measure self-reported levels of risk for behavioral and emotional problems using a 4-point Likert scale (i.e., *never (0)*, *sometimes (1)*, *often (2)*, *almost always (3)*). It takes less than 10 minutes to complete the form. The BESS Student form requires no informant training and is available in Spanish and English. The BESS was developed using a norming sample of 12,350 teachers, parents, and students (Grades 3-12) from 233 cities in 40 U.S. states. The sum of the raw responses is transformed to a total *T* score, in which higher scores reflect more behavioral and emotional risk. Then the total *T* score is categorized as one of three classification of BER: 20-60: "Normal" level of risk; 61-70: "Elevated" (mild to moderate symptoms) level of risk and scores of 71 or higher: and "Extremely elevated" (severe symptoms) level of risk. The three classifications labels are determined by receiver operator characteristic curve analyses and in accordance with the distance of the scores from the norming sample mean (Kamphaus & Reynolds, 2007).

The psychometric properties of the BESS Student form are generally acceptable (split-half reliability of .95-.98; test-retest reliability of .80). Additional information regarding the psychometric properties of the BESS are provided in the BESS manual (Kamphaus & Reynolds, 2007; Reynolds & Kamphaus, 2015). The CST is used for students in Grades 2 to 8 to assess English language arts (ELA), mathematics, science, and history-social science academic domains. All questions are multiple choice, and the scaled score of each subject ranges from 150 to 600.

Analyses

The primary analytic method was latent class growth modeling (LCGM) using SAS Proc Traj. The LCGM was proposed and developed by Jones et al. (2001) as a sophisticated psychological research method for classifying unobserved populations with similar characteristics and subsequently evaluating their growth patterns over time. The LCGM is one of the growth mixture models that allows unequal spacing between data time points. In this study, the first step of the LCGM was to identify the optimal number of distinct trajectories representing students' academic trajectories over time and to determine if a distinct pattern of academic trajectories between normal-risk students and students with mild to moderate symptoms of mental health issues existed. We started estimating a single trajectory group and added another trajectory one at a time until we achieved an optimal model fit, defined as the lowest possible value for the model's Bayesian Information Criterion (BIC; Jones & Nagin, 2001). Changes in BIC, posterior probabilities (group membership greater than 0.70), descriptive statistics, and substantive decision making were used to identify an optimal number of subgroups for differentiating longitudinal academic performance in mathematics (Andruff et al., 2009). The CST mathematics was used as the outcome variable for estimating the latent trajectories of students' academic progress over time.

Once we identified the optimal number of academic trajectories, we conducted further analyses using latent trajectories' probabilities as outcome variables to identify the significant effect of predictors linked to each trajectory. The primary predictor for indicating the effect of early screening among children was the total T score on the BESS (Kamphaus & Reynolds, 2007) Student form. Demographic variables (i.e., gender, race, language proficiency level) and school variables (i.e., free or reduced price of lunch and school absence rate) also were included to predict academic performance over time. Gender was coded as female (1) or male (2). Given the bimodal demographic characteristics of the sample, race/ethnicity was coded as Hispanic (1, reference category) or Other (2). Language proficiency was coded as LEP (1, reference category); IFEP (2); RFEP (3); and EO (4). Free or reduced lunch was coded as no (0) or yes (1). School absence was

calculated as the total number of absences (in days) for the school year. All analyses were conducted using SAS 9.3, and statistical significance was set at alpha < .05.

In addition, 36 students with mild to moderate behavioral and emotional issues were followed to determine whether or not they received any intervention as a result of their elevated BESS (Kamphaus & Reynolds, 2007) screening results. The academic performance differences between students with "special education received (coded as yes, 1)" and "did not receive special education (coded as no, 0)" were then compared using independent samples t tests. The mean difference between Year 1 and Year 4 was the dependent variable.

Results

As shown in Table 2, for students identified as showing "elevated" risk on the BESS (mild to moderate symptoms; Kamphaus & Reynolds, 2007), male students were overrepresented (72.7%, $n = 32$) ($\chi^2(2, n = 251) = 17.64, p < .05$), as were students classified as LEP (61.4%, $n = 27$) ($\chi^2(2, n = 251) = 14.52, p < .05$). Race and grade were not significantly associated with behavioral and emotional risk status.

Table 2
Association Between Demographic Characteristics and Symptoms

Demographic variables		BER level			Sig.
		Normal	Elevated	Extremely elevated	
Gender	Female	117 (57.6%)	12 (27.3%)	0 (0%)	$p < .05$
	Male	86 (42.4%)	32 (72.7%)	4 (100%)	
Race	Hispanic	176 (86.7%)	39 (88.6%)	4 (100%)	$p = .67$
	Other	27 (13.3%)	5 (11.4%)	0 (0%)	
Grade	3	59 (29.6%)	15 (35.7%)	1 (33.3%)	
	4	82 (41.2%)	13 (31.0%)	2 (66.7%)	$p = .56$
	5	58 (29.1%)	14 (33.3%)	0 (0%)	
Language proficiency	LEP	94 (46.3%)	27 (61.4%)	0 (0%)	$p < .05$
	IFEP	23 (11.3%)	3 (6.8%)	2 (50.0%)	
	RFEP	32 (15.8%)	2 (4.5%)	0 (0%)	
	EO	54 (26.6%)	12 (27.3%)	2 (50.0%)	
	total	219 (81.4%)	445 (16.7%)	5 (1.9%)	

Note. BER = behavioral and emotional risk. Three classifications were normal, elevated (mild symptoms), and extremely elevated (severe symptoms).

Pattern of Academic Trajectories Over a 4-Year Period

We examined the pattern of academic trajectories over time to identify distinct patterns among students who were identified as having mild (elevated) and/or severe (extremely elevated) behavioral and emotional risk by BESS (Kamphaus & Reynolds, 2007) scores. The selection of the optimal number of trajectories representing mathematics performance over 4 years was based on three criteria: ΔBIC, posterior probabilities, and group membership. First, change of *BIC* was examined (see Table 3). The *BIC* decreased as the number of trajectories increased between two and three ($\Delta BIC= -17.3$). In addition, group membership in the three trajectories was more fairly distributed than was the case for four trajectories. The average posterior probabilities of three trajectory solutions were > .70, suggesting that three trajectories served a good indicator of mathematics performance over time (i.e., Trajectory 1: 92%; Trajectory 2: 95%; Trajectory 3: 94%).

As shown in Figure 1, we found three distinct levels of mathematics performance at the base time point (i.e., Year 1): Trajectory 1 had the lowest latent class probability, followed by Trajectory 2, which was followed by Trajectory 3. About 39.2% ($n = 99$) of students were in Trajectory 1, the low-performance group in mathematics. The average mathematics score in this trajectory group was 305.24 at the base time point (Year 1). About 47% ($n = 117$) of students were classified in Trajectory 2 (i.e., middle performance group) which had an average mathematics score of 389.01. Approximately 14.3% ($n = 36$) of students were classified in Trajectory 3, showing the highest performance among the three trajectories with an average mathematics score of 487.71. About three quarters of students with elevated behavioral and emotional risk demonstrated medium or high mathematics performance trajectories. A total of 67% ($n = 26$) of students with elevated risk were in Trajectory 2, and 7.7% ($n = 3$) were in Trajectory 3 (see Table 4). The remaining 25.6% ($n = 10$) were in Trajectory 1. All three trajectories showed similar growth patterns, including a slight decrease in mathematics performance over time. These findings suggest that mathematics performance hardly differentiated between the normal risk and elevated risk students.
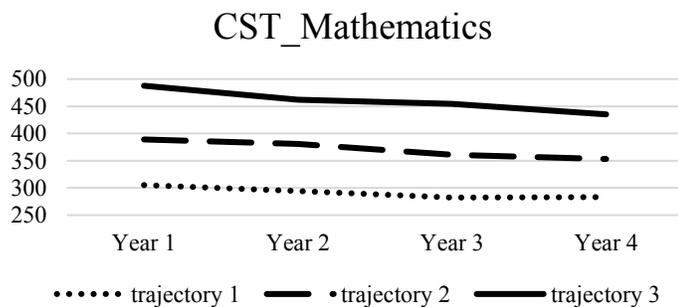
Table 3

Latent Class Growth Modeling Creating Trajectories and Group Memberships

No. of trajectory	Trajectory	Math Membership	BIC	ΔBIC
1	1	252 (100%)	-5263.7	
2	1	153 (60.7%)	-5069.9	193.83
	2	99 (39.3%)		
3	**1**	**99 (39.2%)**	**-5087.2**	**-17.3**
	2	**117 (46.5%)**		
	3	**36 (14.3%)**		
4	1	96 (38.3%)	-4978.1	109.1
	2	97 (38.3%)		
	3	52 (20.8%)		
	4	7 (2.6%)		

Table 4

Summary of Students at Trajectory Groups by Three Classification (n; %)

Trajectory	Normal	Elevated	Extremely elevated
1	73 (42.0%)	10 (25.6%)	2 (50.0%)
2	74 (42.5%)	26 (66.7%)	1 (25.0%)
3	27 (15.5%)	3 (7.7%)	1 (25.0%)
Total	174 (100%)	39 (100%)	4 (100%)

Note. Three BER classifications of normal, elevated (mild symptoms), and extremely elevated (severe symptoms).

Figure 1

Academic Trajectories Over 4 Years

Effects of Baseline Predictors on Each Academic Trajectory

Table 5 displays the parameter estimates relative to Trajectory 1 (reference) and tests of significance for the LCGM model with the addition of baseline predictors (BESS [Kamphaus & Reynolds, 2007] *T* scores, demographic variables, and school characteristic variables). The BESS *T* score was marginally significant at Trajectory 2, indicating that students with higher *T* scores were more likely to be in Trajectory 2 than Trajectory 1 (log odds = 0.04, *p* = .06 in Trajectory 2). Language proficiency also was a significant predictor. Students who were fluent in English were more likely to be in Trajectory 1 than in Trajectory 2 (log odds = -3.41, *p* < .00 of IFEP in Trajectory 2; log-odds = -1.90, *p* < .00 of RFEP in Trajectory 2). The remaining variables of race/ethnicity, gender, number of days of school absence, and free or reduced-price lunch were not significantly associated with the three trajectories. Realistically, these results suggested that language proficiency was the only variable that could be considered influential on academic trajectory.

Table 5
Baseline Predictor Estimates for CST Mathematics

| Traj. | Parameter | CST_mathematics | | | |
		Estimate	*SE*	*T*-value	*p* >| T|
1	Constant	0.00	.	.	.
2	Constant	-0.40	1.67	-0.24	.81
	T score (BER)	0.04	0.02	1.90	.06
	Gender	0.06	0.39	0.16	.87
	Others	-0.29	0.80	-0.37	.71
	IFEP	-3.41	1.12	-3.03	.00**
	RFEP	-1.90	0.71	-2.67	.01*
	EO	-0.26	0.58	-0.44	.66
	Lunch	-1.08	0.84	-1.29	.20
	absence	0.03	0.04	0.90	.37
3	Constant	12.17	54.89	0.22	.82
	T score (BER)	-0.05	0.03	-1.69	.09
	Gender	1.00	0.55	1.81	.07
	Others	-11.65	54.94	-0.21	.83
	IFEP	0.72	0.71	1.01	.31
	RFEP	1.19	0.65	1.84	.07
	EO	1.43	0.75	1.90	.06
	Lunch	-1.12	1.10	-1.01	.31
	absence	-0.06	0.07	-0.93	.35

Note. Traj. = trajectory. *p < .01; *p < .05.

There was one additional noteworthy finding associated with elevated risk scores on the BESS. Of the 36 students with elevated risk, six were receiving special education services. The six special education program participants showed an increase in mathematics academic performance between the first year and the last year ($d = 10.17$; $t(34) = -2.36$, $p < .05$). The 30 students not receiving special education services showed a decrease in academic performance between the first year and last year (see Table 6). This finding suggests that adequate and timely academic interventions can improve academic performance even when elevated BER is present.

Table 6
Mean Difference in Performance by Students Attending a Special Education Program

		Elevated (mild symptom)
Special education received?	Yes	10.17 ($SD = 48.31$)
	No	-45.47 ($SD = 44.35$)

SD = standard deviation.

Discussion

We explored the pattern of trajectories describing students' academic performance over a 4-year period after they had completed the BESS (Kamphaus & Reynolds, 2007) universal screening system. Students in this study were screened, regardless of level of behavioral or emotional mental health symptoms: normal (BESS T score = 59 or less), elevated
(T score = 60-69), and extremely elevated (T score = 70 or higher). We confirmed that the BESS universal screening system identified about 18% of students who had mild behavioral and emotional symptoms and 2% of students who had severe symptoms. The students were from elementary schools in a large urban school district in California. These percentages were consistent with research indicating that about 20% children in the United States experience mental health problems (Costello et al., 2003; Cuddy & Currie, 2020; Glascoe, 2000; Perou et al., 2013; U.S. Department of Health and Human Services and Centers for Disease Control and Prevention, 2012).

We found three distinct trajectory groups in standardized mathematics test scores, revealing three heterogeneous academic trajectories over 4 years of the study: low-, medium-, and high-performing groups. Among the three trajectory groups, the majority of students manifesting mild to moderate symptoms fell into

the medium- or high-performing mathematics achievement groups at the baseline year (i.e., Year 1). Over a 4-year period, the trajectories showed similar performance between students classified as having "normal" behavioral and emotional risk, as measured by the BESS (Kamphaus & Reynolds, 2007) Student self-report form, and students with symptoms of mental health problems. Mild mental health problems were not associated with mathematics achievement performance trajectories, but with LEP school classification status. This result was not anticipated. It appears that universal mental health screening is particularly relevant for children with LEP.

We also followed up with students with elevated BER (i.e., mild or emerging mental health symptoms) who were enrolled in special education programs. These students showed an increase in their academic performance over time when compared to students with elevated BER who did not receive special education services. This finding suggests that students with mild to moderate symptoms could maintain their academic growth if they are identified before their problems become worse.

Early identification makes it possible for children to receive appropriate care and interventions with support from teachers, parents, and school counselors (Biederman et al., 2010; Bradley et al., 2008; Burnett-Zeigler et al., 2012; Cuellar, 2015; Pingault et al., 2011). This finding lends support to the case for the early detection of students who are experiencing behavioral and emotional problems, regardless of their severity. Furthermore, prior research has demonstrated that early screening could prevent the onset of mental health disorders among children (Atkins et al., 2003; Catalano et al., 2004; McIntosh et al., 2008; Wagner et al., 2005). We lend support to this body of prior research by demonstrating the longitudinal positive impact to be derived from employing a universal screening system.

Limitations

The composition of the current sample comprised mainly Hispanic/Latinx students. This sampling limited the generalizability of the findings to other target populations. Future research with larger and more diverse samples is necessary to understand the importance of early and timely detection and confirm the patterns of these trajectories. In addition, future investigations need to be conducted to understand how students reached the special education intervention programs.

Another limitation lie in interpreting the findings from LCGM because the analysis was exploratory and theoretical. Even though LCGM is an ideal analytical

method for evaluating the trajectory of change over time by classifying an observed population with similar characteristics into multiple subpopulations reflecting distinct patterns, the trajectory groups identified in this study were approximations. The number of trajectories relied on BIC, posterior probabilities, and univariate analysis, which was based on a priori expectations estimating the number of groups, and group membership distribution, rather than supported by literature on individual differences in change or development. Nonetheless, the results of this study will contribute to the body of research into the behavioral and emotional problems of children by showing the significance of early detection through a longitudinal approach. Despite relevant research on the BESS (Kamphaus & Reynolds, 2007) and its effectiveness, the longitudinal effects of academic trajectories among late elementary grade students has been studied less frequently.

Conclusions and Implications for Children's Mental Health

The present study demonstrated the importance of the early and timely screening of children at risk of behavioral and emotional problems, and it brought attention to the need for the use of a systematic universal screening system in the school setting. Students in the study who had mild to moderate symptoms of mental health issues had academic performance that was consistently similar to that of their normal-risk peers, indicating that mild behavioral and emotional symptoms can develop gradually and without parents or teachers being aware.

The results of this study suggested that universal screening can be an effective tool to identify these students early and in a timely fashion. School administrators and educational policymakers can be proactive for youth experiencing mental health issues by being systematic and strategic in providing universal screening in schools for early detection, which may then trigger early intervention and prevention services.

In addition, the COVID-19 crisis is likely to cause a decrease in children's academic achievement and an increase in their behavioral and emotional issues (Gassman-Pines et al., 2020). To prevent the negative impact of the COVID-19 pandemic on children's mental health, early detection is essential so that parents and teachers can check their children's mental health conditions and act promptly.

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