

Students at Enrollment Into Community-Based Systems of Care: Characteristics and Predictors of Functioning in School

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Abstract

Community-based systems of care (SOC) provide a range of services to students with significant emotional and behavioral difficulties and their families. However, little is known about the educational characteristics and functioning of students at enrollment in SOC. The purpose of this study was to replicate and extend previous research by examining the educational characteristics and predictors of school functioning for students referred to SOC using a large and diverse national data source. Participants were 5,628 students ages 6 to 18 years who were enrolled in community-based SOC across 45 U.S. states, districts, and territories. Students' grades, discipline, and attendance (as reported by caregivers) were used as indicators of school functioning, and students' demographic characteristics, referral source, and emotional/behavioral functioning were used to predict functioning in school, including the testing of interaction effects. Findings revealed that, although many students earned average grades, a large portion of students had significant discipline and attendance problems. Results of the ordinal regression analyses indicated that most demographic variables and measures of clinical functioning significantly predicted students' grades, attendance, and discipline, and that age and special education status represented a significant interaction. Findings provide insight into the educational functioning of students at enrollment in community-based SOC and have implications for research and practice.

Keywords

emotional and behavioral disorders, school functioning, systems of care

Estimates indicate that 13% to 22% of students have significant behavioral and mental health difficulties that cause functional impairment across settings, including school (Costello, Mustillo, Erkanli, Keeler, & Angold, 2003; Merikangas et al., 2010). Although schools are one system through which students receive mental health services (Lyon, Ludwig, Stoep, Gudmundsen, & McCauley, 2013; Rones & Hoagwood, 2000; Stephan, Weist, Kataoka, Adelsheim, & Mills, 2007), most schools do not have the resources and available services to meet the complex social, psychological, and behavioral needs of students with mental health disorders and their families. Thus, another way in which the mental health needs of students and their families are met is with community-based mental health services provided through a systems of care (SOC) approach.

SOC refers to the provision of comprehensive and coordinated services to meet the various needs of children and adolescents with mental health difficulties and their families (Stroul, Blau, & Sondheimer, 2008; Stroul & Friedman, 1986). The SOC model was developed in the 1980s, primarily due to concerns that the mental health needs of children and adolescents were not being met appropriately. In

addition to a lack of child-focused mental services in many communities, the care that was available was fragmented, did not consider children's cultural or linguistic background, and did not engage families in services. As a part of the effort to reform the mental and behavioral health services available to children and families, the SOC approach emphasizes the delivery of community-based, family-driven services that are individualized, strengths-based, and culturally and linguistically competent. Another feature of SOC is the collaboration between individuals from multiple child and family service agencies, such as mental health providers and schools. Included in the framework are mental health, social, juvenile justice, recreational, vocational, substance abuse, health, and educational services. One important goal is that services provided by SOC result in

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improvements in a range of child outcomes, including indicators of school functioning such as attendance, grades, and discipline.

The Comprehensive Community Mental Health Services for Children and their Families program, which is also referred to as the Children's Mental Health Initiative (CMHI), provides funding to community organizations to develop and implement SOC across the United States and its territories. Enrollment in the CMHI is predicated on the student meeting diagnostic criteria for an emotional, mental, or behavioral disorder with significant impairment. Consistent with the SOC framework, students and their families are provided with a range of services to meet their needs. Findings from the national evaluation of the CMHI suggest significantly improved school outcomes for students 2 years after enrollment (Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Mental Health Services, 2015). That is, the proportion of students who attended school regularly increased from 83% to 90% and the percentage of students missing school at least once a month decreased from 77% to 65%. Furthermore, the percentage of students receiving average grades of A, B, or C improved from 63% to 76%, whereas the percentage of students who were expelled or suspended from school decreased from 44% to 30%.

A large body of research suggests that school functioning and mental/behavioral health are interrelated. More specifically, students who perform poorly in school are more likely to experience emotional and behavioral difficulties (Reinke, Herman, Petras, & Ialongo, 2008; Roeser, Eccles, & Freedman-Doan, 1999; Valdez, Lambert, & Ialongo, 2011). Likewise, students with mental health difficulties often have difficulties in school such as low grades (Masten et al., 2005), poor attendance, and discipline problems (Darney, Reinke, Herman, Stormont, & Ialongo, 2013). Extant research also documents that demographic variables, such as race, ethnicity, and gender, are related to mental health functioning (Kessler, Chiu, Demler, & Walters, 2005; Merikangas et al., 2010) and outcomes in school (e.g., achievement, discipline; National Center for Education Statistics, 2009; Wallace, Goodkind, Wallace, & Bachman, 2008). Moreover, evidence-based intervention for mental health problems not only leads to improvements in emotional/behavioral functioning, but in school functioning such as attendance, grades, discipline, and achievement (Baskin, Slaten, Sorenson, Glover-Russell, & Merson, 2010; Becker, Brandt, Stephan, & Chorpita, 2014; Jennings, Pearson, & Harris, 2000). Therefore, improved understanding of the educational functioning of students with significant mental health needs entering SOC services may better inform prevention practices and the identification of students who are at-risk for serious emotional disturbance. It may also be important for understanding the needs of students enrolling in SOC, and is a first step to providing

information on how SOC involvement may be related to school functioning.

Despite the potential implications, to date, very little published research has detailed the school functioning of students being served within SOC. Anderson, Wright, Smith, and Kooreman (2007) did, however, describe the educational functioning of a small number of students ($N = 224$) at enrollment in one system of care in the state of Indiana. In their study, participants were either African American (58%) or Caucasian (42%), and 73% were male. Findings indicated that 72% of students attended school regularly (defined as at least 75% of the time) and 60% of students had at least a C average in school. Caregiver report of the number of suspensions and expulsions received by students were also examined. Although 31% of students had no discipline infractions, nearly half (47%) had a recent history of out-of-school suspensions and expulsions, and 22% received in-school suspensions. Anderson et al. (2007) also conducted ordinal regressions to examine whether student demographics, referral source, psychiatric diagnoses, and clinical functioning predicted their attendance, grades, and discipline. Although none of the predictors were significantly related to attendance, findings indicated that students who were Caucasian, older, referred from either juvenile justice or schools, and who had poor emotional and behavioral strengths were significantly more likely to have below average grades. Regarding discipline, students receiving special education services and those with greater externalizing behavior problems were more likely to have expulsions and/or out-of-school suspensions, whereas students with more internalizing concerns had an increased likelihood of having no discipline problems.

Although Anderson et al. (2007) provided some insight into the educational characteristics and predictors of the school functioning of students entering one CMHI-funded community, there were limitations. First, based on our review of the literature, it was the only study that investigated the demographic and educational characteristics of students at entry to SOC services. Further, given the small sample size and study location, it is unclear whether their findings generalize to students outside of the geographic region in which data were collected. Therefore, the purpose of the present study was to replicate and extend the findings of Anderson et al. (2007) using a larger, more nationally representative data source. More specifically, we were interested in understanding the academic, attendance, and discipline problems of students at intake into SOC services. Furthermore, given evidence that specific individual characteristics are related to functioning and that poor mental health often co-occurs with poor functioning in school, we investigated whether student demographics, referral source, and emotional and behavioral functioning predicted functioning in school. Finally, we were interested in investigating interaction effects of age with special education status and race/ethnicity.

Table 1. Demographic Characteristics of Participants.

Variable	Current study (<i>n</i> = 5,628)	Excluded cases (<i>n</i> = 3,894)	Effect size
Age*	12.61 (<i>SD</i> = 2.91)	12.31 (<i>SD</i> = 3.71)	<i>d</i> = 0.08
Male	63.4%	65.4%	RR = 0.97
Race/ethnicity			
Caucasian*	41.9%	46.3%	RR = 0.91
African American*	28.3%	20.1%	RR = 1.41
Native American*	4.2%	7.0%	RR = 0.60
Hispanic/Latino	17.5%	17.4%	RR = 1.00

Note. *d* = Cohen's *d*; RR = relative risk ratios.

**p* < .001.

Method

Data Source

Data were obtained from the national evaluation of the CMHI, which is funded by the Substance Abuse and Mental Health Services Administration. This secondary analysis includes 77 grantees from programs across 45 U.S. states, districts, and territories that were funded in Phase IV (initially funded between 2002 and 2004), Phase V (initially funded between 2005 and 2006), and Phase VI (initially funded in 2008). The national evaluation of the CMHI consists of a cross-sectional descriptive study and a longitudinal outcomes study, both of which are conducted by grantees. During each funded period, participant recruitment and data collection were ongoing. Data collection for the CMHI longitudinal study consisted of structured interviews with caregivers and students who were at least 11 years old, which included the administration of several rating scales and questionnaires by qualified professionals at each site at intake (baseline) and subsequent 6-month follow-up periods (Time 1 [6 months], Time 2 [12 months], Time 3 [18 months], and Time 4 [24 months]). For the purposes of the current study, only baseline data (collected during each funded period) from the longitudinal study were used. A complete description of the CMHI data collection procedures and protocols is available elsewhere (Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Mental Health Services, 2015).

Participants

To be included in the current analysis sample, a student must have been (a) enrolled in the longitudinal evaluation study (*n* = 12,040); (b) between the ages of 6 and 18 (*n* = 9,522), as this corresponds with a school-age population; (c) enrolled in school (*n* = 8,108); and have (d) valid (i.e., non-missing) data on caregiver report of school-identified disability status (i.e., with or without disability; *n* = 7,961); (e) valid data for caregiver reported levels of

grades, discipline, and absences (*n* = 6,089); and (f) valid data for all predictor variables (e.g., gender, age, behavior rating scales; *n* = 5,628). Therefore, the final analysis sample included 5,628 students who were, on average, 12.61 years old (*SD* = 2.91 years). The sample consisted of a large percentage of male students (63.4%) and was diverse with regard to race and ethnicity: 41.9% Caucasian, 28.3% African American, 17.5% Hispanic or Latino, 5.5% multiracial, 4.2% Native American, and 2.4% Asian/Pacific Islander. Based on parent report, approximately half of students (49.4%) had a school-identified disability. Of the 5,202 families reporting their poverty status, approximately 55.33% (*n* = 2,878) reported living below the federal poverty line, 16.29% (*n* = 847) reported living at or near the poverty line, and 28.37% (*n* = 1,476) report living above the poverty line, as defined by federal guidelines.

To assess potential differences between the current sample (*n* = 5,628) and the age-restricted excluded cases from the larger data set (*n* = 3,894), characteristics of the current sample were compared with the larger data set on the demographic variables using chi-square and *t* tests. Effect sizes (i.e., relative risk ratios and Cohen's *d*) were also calculated to express the magnitude of differences between the current sample and the larger data set. Treating the larger data set as the reference group, relative risk ratios (RRs) were computed for each statistically significant difference. RRs indicate the increase in the rate of prevalence in the sample compared with the larger data set. There were minor, but statistically significant differences between this sample and the larger sample on age, gender, and race and ethnicity (see Table 1). More specifically, students in the current study were slightly older (12.61 years) than those who were excluded (12.31 years); however, this represents a very small effect (*d* = 0.08). Regarding race and ethnicity, there were 41% more African American students (RR = 1.41), 9% fewer Caucasian students (RR = 0.91), and 40% fewer Native American students (RR = 0.60) in the current sample, as compared with the excluded cases (see Table 1).

Dependent Variables

Caregiver report of school grades, discipline, and attendance over the 6 months prior to enrollment in SOC were used as dependent variables. These variables were extracted from items included in the *Education Questionnaire* (EQ), which was administered to caregivers at intake. Consistent with the aim of the current study, which was to replicate and extend the findings of Anderson et al. (2007), students were categorized on each dependent variable into one of three problem levels: low, moderate, or high problems, using the criteria described below.

Grades. The grades variable was derived from the EQ item that asked caregivers to rate the typical grades (i.e., As, Bs, Cs, Ds, Fs) their child received during the prior 6 months. Students were considered to exhibit low academic problems if they typically received grades of A or B, moderate problems if they typically received a grade of C, or high problems if they typically received grades of D or F.

Discipline. Discipline data were coded from four EQ items inquiring (a) whether the child had been suspended (in-school or out-of-school) or expelled in the prior 6 months; (b) the number of days, in the last 6 months, that the student served in-school suspensions; (c) the number of days that the student served out-of-school suspensions within the last 6 months; and (d) the number of days within the last 6 months that the student was expelled. Students were categorized as having low discipline problems if they had not been expelled or suspended; moderate problems if they had at least one in-school suspension, but had not been expelled or had an out-of-school suspension; and high discipline problems if they had at least one out-of-school suspension or expulsion.

Attendance. The attendance variable was extracted from the EQ item that asked caregivers to indicate the number of days, on average, their child was absent from school during the previous 6 months on a 6-point scale (0 = less than 1 day per month, 1 = 1 day per month, 2 = 1 day every 2 weeks, 3 = 1 day a week, 4 = 2 days per week, 5 = 3 or more days per week). Students were considered to have low attendance problems if they were absent from school 1 day a month or less, moderate problems if they were absent from school either 1 day every 2 weeks or once per week, and high attendance problems if they were absent from school 2 or more days each week.

Predictor Variables

Demographics. The following demographic characteristics were used as predictors: students' age, gender, and race/ethnicity. Of note, age was dichotomized so that students 6 to

11 were considered to be in elementary school and students 12 to 18 were considered to be in middle and high school. Whether or not students received special education services was also included as a predictor.

Referral source. Students were categorized as being referred from the education system, mental health organizations, child welfare, or juvenile justice. For the purposes of the current study, referral source was dummy-coded to represent whether or not the student was referred through their school. We choose this approach so that the focus was on whether students referred through school differed from students referred through other sources.

Child Behavior Checklist (CBCL). The CBCL (Achenbach & Rescorla, 2001) is a widely used, norm-referenced caregiver-report instrument that measures the emotional and behavioral functioning of children and adolescents 6 to 18 years old. It includes 113 Likert-type items that are rated on a 3-point scale from 0 to 2 (0 = not true, 1 = somewhat true, 2 = very true or often true). Endorsements on the CBCL produce an overall Total Problems *T*-score ($M = 100$, $SD = 15$), which is comprised of eight Syndrome Scales. Also included are *T*-scores for the Internalizing Problems and Externalizing Problems scales. The Internalizing Problems scale includes the three Syndrome Scales that measure inwardly directed problems: Anxious/Depressed, Withdrawn/Depressed, and Somatic Complaints. The Externalizing Problems scale measures conflicts with others and is reflected in the Rule-Breaking Behavior and Aggressive Behavior Syndrome Scales. According to the CBCL manual, *T*-scores less than 60 are indicative of typical functioning, *T*-scores 60 to 63 represent "at-risk" clinical functioning, and *T*-scores 64 and above fall within the "clinical" range. For the purposes of this study, the Internalizing Problems and Externalizing Problems *T*-scores were used and functioning was dichotomized as falling either in the typical range or the at-risk/clinical range.

Behavioral and Emotional Rating Scale—Second Edition (BERS-2). The BERS-2 (Epstein, 2004) is a norm-referenced and standardized measure of the emotional and behavioral strengths of students ages 5 to 18. Caregivers in this study rated each of the 52 items on a 4-point Likert-type scale from 0 to 3 (0 = not at all like, 1 = not much like, 2 = like, 3 = very much like). The BERS-2 produces scaled scores ($M = 10$, $SD = 3$) for the five subscales (Interpersonal Strengths, Family Involvement, Intrapersonal Strengths, School Functioning, and Affective Strengths) that comprise the Total Strength Index, which is reported as a standard score ($M = 100$, $SD = 15$). Total Strength Index scores were dichotomized as either being below average, as indicated by a standard score below 90, or average/above average for standard scores 90 or above. The psychometric properties of the

BERS-2 are well established (Epstein, 2004; January, Lambert, Epstein, Walrath, & Gebreselassie, 2015; Lambert et al., 2015; Mooney, Epstein, Ryser, & Pierce, 2005).

Data Analysis Plan

SPSS v22 was used to fit an ordinal regression model for each of the three dependent variables, including three two-way interactions. Ordinal regression was used to predict the level of school problems rather than linear regression, given that the outcomes were ordered categorical variables (and not continuous variables). In ordinal regression models, regression coefficients represent the change in the log-odds (logits) of the individual exhibiting a higher problem level (that is, the log-odds of exhibiting moderate problems compared with low problems *or* exhibiting high problems compared with moderate and low problems) for every one-unit change in the predictor variable, while holding other predictors constant. For example, if the coefficient for gender (coded as male = 1, female = 0) was 0.72, that reflects that males are 0.72 logits more likely to exhibit moderate or high problems. “Adjusted” odds ratios (ORs) were also computed for each predictor and express each effect in terms of the increase in the *odds* of exhibiting higher problems for the focal group (e.g., males) compared with the reference group (e.g., females). ORs are centered at 1 (i.e., no difference between groups), and values >1 indicate that the focal group had a higher likelihood of more severe problems and values <1 indicate the opposite. Statistical significance of the individual predictors was assessed at the .01 alpha level and the statistical significance of the interaction terms was assessed at the .05 alpha level due to a loss of statistical power when testing moderation.

Results

The educational characteristics of students based on the dependent variables (grades, discipline, attendance) are presented in Table 2. For the total sample, the distribution was approximately equivalent across the low, moderate, and high academic problems categories. Just over half (54.6%) of caregivers reported low discipline problems, whereas 37.8% reported that their child received out-of-school suspensions or expulsions. Although attendance was not an issue for most students, 42.4% of students were absent from school at least once every 2 weeks in the 6 months prior to enrollment in SOC.

Regression Analyses

Table 3 details the results from the three ordinal regression models and includes the unstandardized regression coefficient (*b*; reported in logit units) and proportional OR for each predictor within each model. Each regression model

was fit with the nine binary predictors and three two-way interactions: (a) Age \times Special Education Status, (b) Age \times African American, and (c) Age \times Hispanic/Latino. Note that by including interaction terms in the regression analysis, the regression coefficients may need to be interpreted differently than in regression analyses without interaction terms. For example, the regression coefficient for age is the effect when the special education, African American, and Hispanic/Latino predictors are held at zero. In other words, the regression coefficient for age is the simple effect of age for Caucasian, general education students (i.e., the difference in the log odds between Caucasian secondary school students and elementary school students in general education). When one or more interaction terms are statistically significant, then the simple effects of age differ across levels of the other predictor(s) (e.g., the effect of age is different for Caucasian and African American students). Conversely, when none of the interaction terms are statistically significant, the simple effects do not differ and therefore the regression coefficient can be interpreted as the main effect of the predictor.

Goodness-of-fit, log-likelihood ratio, and pseudo R^2 statistics are provided for each model reported in Table 3. A non-significant goodness-of-fit χ^2 statistic indicates that the predicted response does not differ from the observed responses (i.e., the model fits well). A significant log-likelihood ratio χ^2 statistic indicates that as a set, the predictors improve the fit of the model above and beyond the ‘intercept only’ model. Pseudo R^2 values convey the predictive accuracy of the model, with higher values indicating better accuracy.

Grades. The regression model for grades was an acceptable fit to the data, as indicated by the non-significant goodness-of-fit χ^2 statistic, and included several significant predictors and two significant interaction terms (Age \times Special Education and Age \times African American). There were significant main effects for gender ($b = 0.28, p < .001, OR = 1.32$), referral source ($b = 0.24, p < .001, OR = 1.27$), externalizing behavior severity ($b = 0.54, p < .001, OR = 1.72$), and behavioral strengths ($b = -0.72, p < .001, OR = 0.49$). According to parent report, male students were more likely to exhibit worse academic problems compared with female students ($OR = 1.32$); students referred through the school system were more likely to demonstrate worse problems than peers referred through other sources ($OR = 1.27$); students presenting with clinical-level externalizing behavior severity were more likely to exhibit worse academic problems than students with non-clinical levels ($OR = 1.72$); and students with “above average” behavioral and emotional strengths were less likely to exhibit academic problems ($OR = 0.49$).

The effects of age, race, and special education status were significant, but moderated by each other. Given the

Table 2. Descriptive Educational Characteristics of Students at Entry Into Systems of Care.

Outcome/Variable	Low problems		Moderate problems		High problems	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Outcome: Grades						
Total	1,925	34.2	1,756	31.2	1,947	34.6
Gender						
Male	1,184	33.2	1,103	30.9	1,281	35.9
Female	752	36.5	641	31.1	666	32.4
Race/ethnicity						
Caucasian	863	36.6	740	31.4	755	32.0
African American	476	29.9	485	30.5	631	39.6
Hispanic/Latino	344	35.0	291	29.6	348	35.4
Multiracial	110	35.4	98	31.8	102	32.8
Native American	96	40.8	84	35.6	56	23.6
Asian/Pacific Islander	43	31.2	43	31.2	52	37.7
Referral source						
Education	404	32.9	388	31.6	436	35.5
Mental health	608	33.9	556	31.0	630	35.1
Child welfare	185	35.7	168	32.4	165	31.8
Juvenile justice	196	29.5	193	29.1	274	41.4
Special education						
Yes	901	32.4	925	33.3	955	34.3
No	1,035	36.3	820	28.8	993	34.9
Outcome: Discipline						
Total	3,047	54.6	455	8.1	2,126	37.8
Gender						
Male	1,735	48.6	302	8.5	1,532	42.9
Female	1,313	63.7	153	7.4	594	28.8
Race/ethnicity						
Caucasian	1,443	61.2	211	9.0	704	29.9
African American	619	38.9	115	7.2	859	53.9
Hispanic/Latino	570	58.0	74	7.6	338	34.4
Multiracial	169	54.5	22	7.1	119	38.3
Asian/Pacific Islander	137	58.0	8	3.4	51	21.5
Native American	95	68.7	22	15.9	51	37.0
Referral source						
Education	610	49.6	89	7.3	530	43.1
Mental health	991	55.3	159	8.8	644	35.9
Child welfare	303	58.6	39	7.6	175	33.8
Juvenile justice	275	41.5	56	8.5	334	50.5
Special education						
Yes	1,451	52.2	224	8.1	1,105	39.7
No	1,596	56.1	230	8.1	1,021	35.9
Outcome: Attendance						
Total	3,244	57.6	1,287	22.9	1,097	19.5
Gender						
Male	2,149	60.2	748	21.0	671	18.8
Female	1,098	53.3	533	25.9	429	20.8
Race/ethnicity						
Caucasian	1,374	58.3	615	26.1	369	15.7
African American	903	56.7	309	19.4	381	23.9
Hispanic/Latino	565	57.5	210	21.4	207	21.1
Multiracial	175	56.5	68	22.1	66	21.4

(continued)

Table 2. (continued)

Outcome/Variable	Low problems		Moderate problems		High problems	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Asian/Pacific Islander	113	47.8	27	11.6	46	19.3
Native American	93	67.4	47	34.1	29	21.0
Referral source						
Education	790	64.2	257	20.9	183	14.9
Mental health	1,005	56.0	428	23.9	360	20.1
Child welfare	309	59.8	102	19.8	105	20.4
Juvenile justice	283	42.7	175	26.4	206	31.1
Special education						
Yes	1,543	55.5	660	23.7	578	20.8
No	1,705	59.9	621	21.8	522	18.3

Table 3. Ordinal Regression Predicting School Functioning.

Variable	Grades		Discipline		Attendance	
	<i>b</i>	OR	<i>b</i>	OR	<i>b</i>	OR
Demographics						
Age (middle/high school)	1.20***	3.32	1.30***	3.67	1.35***	3.86
Male	0.28***	1.32	0.72***	2.05	-0.14**	0.87
African American	1.03***	2.80	1.20***	3.32	0.35	1.42
Hispanic/Latino	0.38	1.46	0.31	1.36	0.21	1.23
Special education	0.37	1.45	0.62**	1.86	0.75***	2.12
Referral source						
Education system	0.24***	1.27	0.40***	1.49	-0.17**	0.84
Clinical measures						
Internalizing problems	-0.01	0.99	-0.33***	0.72	0.30**	1.35
Externalizing problems	0.54***	1.72	1.09***	2.97	0.80**	2.23
Emotional/behavioral strengths	-0.72***	0.49	-0.31***	0.73	-0.28**	0.76
Interactions						
Age × Special Education	-0.23*	—	-0.34**	—	-0.36**	—
Age × African American	-0.41***	—	-0.17	—	-0.07	—
Age × Hispanic/Latino	-0.11	—	-0.07	—	0.10	—
Goodness-of-fit χ^2	744.92	—	674.27	—	752.50	—
LRT χ^2	496.06*	—	728.59*	—	456.45**	—
McFadden pseudo R^2	.04	—	.07	—	.04	—
Nagelkerke pseudo R^2	.10	—	.15	—	.09	—

Note. *b* = unstandardized regression coefficient (logits); OR = proportional odds ratio; LRT = Log-Likelihood Ratio Test.

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

two significant interactions, the regression coefficient for age is interpreted as the simple effect for Caucasian general education students ($b = 1.20$, $p < .001$, OR = 3.32). For Caucasian general education students, the odds of a middle school or high school student exhibiting greater academic problems as compared with an elementary school student were more than triple (OR = 3.32). There was also a statistically significant simple effect of age for African American, general education students ($b = 0.79$, $p < .001$, OR = 2.20),

but the difference between secondary school students and elementary students was smaller for African American students compared with Caucasian students as indicated by the statistically significant interaction term ($b = -0.41$, $p < .001$). As for students in special education, there were also significant simple effects of age for Caucasian students ($b = 0.97$, $p < .001$, OR = 2.64) and African American students ($b = 0.56$, $p < .001$, OR = 1.75). The simple effects of age for Hispanic/Latino students did not differ significantly

from Caucasian students as indicated by the non-significant interaction term.

The effect of race was also moderated by age, whereas the simple effects of race (i.e., African American) differed for elementary and secondary school students. The regression coefficient for the African American predictor was statistically significant, indicating that African American students in elementary school were more likely than Caucasian peers to exhibit worse academic problems ($b = 1.03, p < .001, OR = 2.80$). There was also a significant difference between African American and Caucasian students in secondary school ($b = 0.62, p < .01, OR = 1.86$), but the difference was significantly smaller in secondary schools compared with elementary schools as indicated by the interaction term ($b = -0.41, p < .001$).

Discipline. The regression model for the discipline outcome fit the data acceptably, as indicated by the non-significant goodness-of-fit χ^2 statistic, and included several significant predictors and one significant interaction. There were significant main effects for gender ($b = 0.72, p < .001, OR = 2.05$), African American ($b = 1.20, p < .001, OR = 3.32$), referral source ($b = 0.40, p < .001, OR = 1.49$), internalizing problem severity ($b = -0.33, p < .001, OR = 0.72$), externalizing behavior severity ($b = 1.09, p < .001, OR = 2.97$), and behavioral strengths ($b = -0.31, p < .001, OR = 0.73$). Based on parent report ratings, male students were more likely to exhibit worse discipline problems compared with female students ($OR = 2.05$); African American students were more likely to demonstrate worse discipline problems compared with Caucasian students ($OR = 3.32$); students referred through the school system were more likely to demonstrate worse problems than peers referred through other sources ($OR = 1.49$); students presenting with clinical-level internalizing problems were less likely to exhibit discipline problems ($OR = 0.72$); students presenting with clinical-level externalizing behavior severity were more likely to exhibit worse discipline problems than students with non-clinical levels ($OR = 2.97$); and students with "above average" behavioral and emotional strengths were less likely to exhibit discipline problems ($OR = 0.73$).

The effects of age and special education status were significant, but moderated by one another. Given the significant interaction, the regression coefficient for age is interpreted as the simple effect for general education students ($b = 1.30, p < .001, OR = 3.67$). For general education students, the odds of a middle school or high school student exhibiting greater discipline problems as compared with an elementary school student were more than triple ($OR = 3.67$), representing a large effect. There was also a statistically significant simple effect of age for special education students ($b = 0.96, p < .001, OR = 2.61$). The simple effect of age for special education students also represented a large effect; however, the effect of age was weaker for special education students

compared with peers as indicated by the statistically significant interaction term ($b = -0.34, p < .01$).

The effect of special education was also moderated by age. The simple effect of special education for elementary students was statistically significant, whereas students in special education were more likely to exhibit worse discipline problems compared with peers in general education ($b = 0.62, p < .01, OR = 1.86$). The simple effect of special education for secondary school students was also statistically significant ($b = 0.28, p < .01, OR = 1.32$), but the effect of special education status was weaker for secondary school students compared with elementary school students, as indicated by the statistically significant interaction term.

Attendance. The regression model for the attendance outcome fit the data acceptably as indicated by the non-significant goodness-of-fit χ^2 statistic and included a number of significant predictors and one significant interaction (Age \times Special Education). There were significant main effects for gender ($b = -0.14, p < .01, OR = 0.87$), referral source ($b = -0.17, p < .01, OR = 0.84$), internalizing problem severity ($b = 0.30, p < .01, OR = 1.35$), externalizing behavior severity ($b = 0.80, p < .01, OR = 2.23$), and behavioral strengths ($b = -0.28, p < .01, OR = 0.76$). According to parent report, male students were less likely to exhibit worse attendance problems compared with female students ($OR = 0.87$); students referred through the school system were less likely to demonstrate worse problems than peers referred through other sources ($OR = 0.84$); students presenting with clinical-level internalizing problem severity were more likely to demonstrate worse attendance problems compared with peers ($OR = 1.35$); students presenting with clinical-level externalizing behavior severity were more likely to exhibit worse attendance problems than students with non-clinical levels ($OR = 2.23$); and students with "above average" behavioral and emotional strengths were less likely to exhibit attendance problems ($OR = 0.76$).

The effects of age and special education status were also significant, but moderated by one another. Given the significant interaction, the regression coefficient for age is interpreted as the simple effect for general education students ($b = 1.35, p < .001, OR = 3.86$). That is, general education students in middle and high school students were more likely to exhibit greater attendance problems compared with general education students in elementary school ($OR = 3.86$). The effect of age was also statistically significant for students in special education, but the effect was significantly smaller for these students ($b = 0.99, p < .001, OR = 2.69$). The ORs for the simple effects of age for students in general education and students in special education can be considered relatively large within this context, with the odds of a middle school or high school student exhibiting moderate or high attendance problems being 3.86 or 2.69 times greater, respectively, than the odds of an elementary school student.

The effect of special education status was also moderated by age. The regression coefficient representing the simple effect of special education status for students in elementary school indicated that these students were more likely to experience worse attendance problems compared with general education students in elementary school ($b = 0.75, p < .001, OR = 2.12$). There was also a statistically significant effect of special education status for students in middle school or high school ($b = 0.39, p < .01, OR = 1.48$), but the effect was weaker at the secondary school level. The ORs for the simple effects of special education status for students in elementary school can be considered moderate to large within this context, with the odds of a student in special education exhibiting moderate or high attendance problems being 2.12 times greater than the odds of a student in general education.

Discussion

Students with emotional and behavioral disorders and their families are served in community-based SOC across the country; however, relatively little is known about the educational functioning of these students at enrollment in SOC. By providing insight into the school functioning of students served in SOC, researchers and practitioners may begin to learn more about how SOC involvement is related to school functioning and use findings to inform the identification of students who are at-risk for special education services due to an emotional or behavioral disorder. Although Anderson et al. (2007) described the educational and demographic characteristics of students enrolled in SOC, findings from that study had limited generalizability due to its sample size and that data were drawn from only one SOC site. The current study used a large, national data set to replicate and extend the findings of Anderson et al. (2007) by describing the educational characteristics of students at intake to SOC services and investigating whether students' demographics, referral source, and emotional and behavioral functioning predict their school functioning.

Findings revealed that, during the 6 months prior to enrollment in SOC, the majority (65%) of students were reported to have received at least average grades (A, B, or C). Results further indicated that age, gender, race/ethnicity, referral source, and emotional and behavioral functioning were associated with grades. For instance, students who were in middle and high school were more likely to have poorer grades than elementary school students. One potential explanation for this finding is that students who are older may have a longer history of emotional and behavioral problems than younger students, which might have negatively impacted their academic achievement over time. Being male or African American was also associated with poorer academic performance in this study, a finding that is frequently documented (e.g., National Center for Education

Statistics, 2009; Scheiber, Reynolds, Hajovsky, & Kaufman, 2015). The finding that students referred from school districts were more likely than students referred from other sources to have worse problems with grades may suggest that schools are more likely to refer students to SOC when the students present comorbid academic and behavioral problems. Regarding clinical functioning, students with significant externalizing problems and below average emotional and behavioral strengths were more likely to have academic problems. This finding is not unexpected, given the association between academic functioning and behavioral functioning (Masten et al., 2005; Reinke et al., 2008).

In contrast to grades, discipline was a greater concern, as 46% of students had been suspended or expelled within the 6 months prior to enrolling in SOC. With the exception of students of Hispanic/Latino background, all predictors were significantly associated with discipline, with the effect of age being moderated by special education status. For instance, males and African American students were more likely to have moderate or high discipline problems than their female or Caucasian peers. These findings are consistent with extant research suggesting that male and African American students are more likely to be disciplined than female and Caucasian students (Krezmien, Leone, & Achilles, 2006; Wallace et al., 2008). Not surprisingly, students with at-risk or clinical levels of externalizing problems exhibited nearly three times the odds of being expelled or suspended, whereas students with at-risk and clinical levels of internalizing problems were *less likely* to have discipline problems. Intuitively, students with internalizing concerns (e.g., anxiety) are more likely to be withdrawn than those with problematic externalizing behaviors (e.g., acting out, rule-breaking). Finally, students with below average emotional and behavioral strengths were more likely to be suspended or expelled.

Regarding attendance, 58% of students attended school regularly in the 6 months before enrollment in SOC, with three demographic variables predicting students' attendance. More specifically, older, female, and special education students were more likely to be rated as having greater attendance problems, whereas race/ethnicity was not predictive of attendance. Furthermore, at-risk and clinically significant externalizing problems and below average emotional and behavioral strengths were related to greater attendance problems. In contrast to its association with discipline, internalizing problems in the at-risk/clinical range were associated with *greater* absences. This is consistent with evidence that students with internalizing concerns likely have somatic complaints (Egger, Costello, & Angold, 2003; Saps et al., 2009) and, as a result, may miss more school.

The interaction between age and special education status was significant in all three regression analyses, and indicates that the effects of age and special education status on school functioning were inconsistent across students in the

study. That is, the effect of age was stronger for students in general education than for students in special education, and the effect of special education status was stronger for students in elementary school than in middle or high school. Overall, the interaction effect indicated that school functioning was more disparate between students in general education as compared with students in special education in elementary school, and that the two sets of students became *more* similar during secondary school. In other words, the school functioning “gap” between students in general education and students in special education shrunk as students got older because school functioning problems became worse at a faster rate for students in general education.

Findings from this study add to the limited research documenting the educational characteristics and functioning of students enrolled in SOC. Although the percentage of students with average or above average grades was comparable to Anderson et al. (2007), in that study, 69% of students had moderate or high discipline problems and 72% students attended school regularly. When examining the predictors of functioning, there are some similarities and differences between results of this study and that of Anderson et al. (2007). For instance, similar to Anderson et al. (2007), special education status predicted discipline and not grades. Moreover, although findings from Anderson et al. (2007) indicated that race and age significantly predicted grades, they found Caucasian students were *more likely* to be rated as having academic problems than African American students. Regarding emotional and behavioral functioning, current findings were consistent with findings of Anderson et al. (2007) which suggested that students with at-risk or clinical levels of externalizing problems were more likely to be expelled or suspended, whereas students with at-risk and clinical levels of internalizing problems were less likely to have discipline problems. Thus, when comparing this study to that of Anderson et al. (2007), only a handful of findings were replicated, but several new predictors of school functioning emerged. It is likely that differences between our findings and Anderson et al. (2007) are due to the fact that we included data from a larger and more diverse national source which provided greater statistical power and improved external validity, and allowed for a more nuanced analysis by including interaction terms in the regression models. Thus, it is possible that our findings are more indicative of the functioning of students at enrollment in community-based SOC.

Based on the school functioning of students at enrollment in SOC, it seems plausible that if not already identified by schools as needing special education services, students in this sample exhibit multiple indicators of risk for a disability. Therefore, we compared the findings from this study to findings from the most recent nationally representative studies on the educational functioning of students receiving special education services. Consistent

with our findings, caregivers of students with disabilities report that 32% of elementary-age students and 30% of secondary students with disabilities earn As and Bs in school (Blackorby et al., 2005; Wagner et al., 2003). However, only 4% of elementary and 8% of secondary students with disabilities receive grades of D or F (Blackorby et al., 2005; Wagner et al., 2003), whereas 35% of students in SOC receive Ds and Fs. Although the percentage of students receiving in-school suspensions was higher in nationally representative studies (i.e., 17% vs. 8%), 38% of students in this study received out-of-school suspensions or expulsions, whereas only 12% of secondary students with disabilities were suspended or expelled from school (Wagner et al., 2003). Regarding attendance, nationally 5% of elementary and 14% of secondary students in special education are absent six or more days each month (Blackorby et al., 2005; Wagner et al., 2003) as compared with 20% of students in this study who missed eight or more days on average each month. Taken together, it is evident that, students enrolling in SOC are functioning at lower levels in school than those who are not receiving SOC services, including those who receive special education services.

Limitations

The results of this study must be interpreted in light of several limitations. First it must be noted that all data were collected via caregiver report and corroborating evidence of student grades, discipline, and attendance were not available in the extant data set. Similarly, additional measures of school functioning (e.g., standardized tests, teacher report, school records) might have provided complementary and comprehensive evidence of students' functioning at school. However, obtaining this information for the thousands of students enrolled in SOC may not have been feasible, considering the time and expense involved. Nonetheless, findings may differ if data from multiple sources and via multiple methods were used. A second limitation is that there was a higher proportion of African American students and lower proportion of Native American students in the current analysis sample, as compared with the larger data set. Although this was necessary, given this study's inclusion criteria, it is possible a slight selection bias may have been introduced. However, any differences between the current analysis sample and the larger data set highlight the pattern of missing data that existed, which seem to be associated with specific demographic categories. Third, it is possible that the odds ratios obtained in this study are slightly biased, given that the proportional odds assumption was only tenuously met. Finally, the predictive validity of the variables in this study were somewhat weak, as McFadden R^2 values less than .10 are generally considered to be small (Garson, 2014).

Implications and Future Directions

Findings from this study have important implications for policy makers, practitioners, and researchers. First, the findings of this study underscore the original need for SOC, as it is evident that students with significant mental health difficulties also have educational problems and may likely benefit from the integrated, strength-based, and culturally competent services available in SOC. Thus, policy makers should support the development of programs providing services that address the complex needs of students with emotional, behavioral, and mental health disorders and their families. Further, results can inform practitioners about the educational functioning of students who may be eligible for SOC services and characteristics of students who may be at risk for a school-identified emotional and behavioral disorder. Indeed, our findings indicate that students who enroll in SOC services are likely to have significant academic and discipline problems, and may have attendance issues. School-based practitioners may use this information to inform their use of procedures to identify those students in need of mental health supports earlier so that appropriate services and supports may be provided. Finally, it is important to note the interaction between age and special education status across all outcomes; the differences in functioning were always smaller for secondary students than for elementary-aged students. This highlights the importance of identifying at-risk students early, before problems become worse over time, and implementing methods to screen and identify middle and high school students who may be at risk for a disability, but not receiving additional services.

This study also emphasizes the need for more national studies examining the association between SOC services and students' school functioning over time. For example, future studies might investigate the patterns of school functioning over time as students participate in SOC services. Researchers may also examine factors that are associated with improvements in school functioning, as a result of engagement in SOC services. This information may then be used to help identify those students who are most likely to benefit from SOC services. Future research could investigate the co-occurrence of educational difficulties with mental health problems by employing other analytic techniques, such as person-centered analyses (e.g., latent profile analysis). Finally, future research should examine whether the mental health functioning and outcomes of students without a disability enrolled in SOC are different from those with a disability, and whether the functioning or outcomes differ across the different special education eligibilities.

Authors' Note

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