



Exploring the Relationships Among Student Outcomes and Case Management Services Delivered by School Social Workers

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Abstract

Purpose School social workers (SSWs) deliver case management (CM) services to connect students to an array of supports that meet their academic and non-academic needs. However, gaps exist in understanding the profiles of students receiving CM services delivered by SSWs, and the relationships between dosage and receipt of CM services and student outcomes.

Method Researchers utilized secondary data from three large middle schools to explore the demographics of students (N=3,012) receiving CM services and students not receiving CM services. Among students receiving CM services (n=238), binary and multinomial regression analyses explored relationships among students' demographic characteristics, dosage of CM services, and non-academic and academic outcomes. Student outcomes were also compared among a demographically matched subsample of 181 students receiving CM services and 181 students not receiving CM services.

Results Students receiving CM services were more likely to be at-risk, Hispanic/Latino, and limited English proficiency status than students not receiving CM services. Regression analyses indicated a higher dosage of CM services was associated with higher odds of receiving two or more behavioral referrals and failing 60% or more courses. Moreover, among a demographically matched subsample, students receiving CM services were significantly more likely to have two or more behavioral referrals and fail 60% or more courses than students not receiving CM services.

Discussion Our findings suggest SSWs provide CM services to students with significant academic and behavioral risks. We discuss the implications of our results concerning SSW practice, education, research, and policy.

Keywords Case management services · School social work · Absences · Behavioral referrals · Academic performance

School social workers (SSWs) work to ensure all students have access to the resources and services they need to succeed in school and life (Ball & Skrzypek, 2020; Kelly et al., 2016). In alignment with the *National School Social Work Practice Model* (Frey et al., 2013), SSWs are trained to utilize an ecological orientation to improve school climate and deliver evidence-based practices within tiered prevention models (Frey et al., 2013; Kelly et al., 2016). One such tiered prevention model is the Response to Intervention (RtI) framework. The RtI framework addresses different thresholds of students' academic and behavioral needs by

providing three tiers of services (Kelly et al., 2016). Tier I services and supports are indirect and school-wide interventions or resources designed to foster a positive school climate. Tier II services are those delivered in targeted group settings to students with similar risk factors or needs and include academic tutoring, support groups, and attendance improvement programs (Bates et al., 2021). SSWs also deliver direct, intensive, and individualized Tier III services – hereafter referred to as case management (CM) services. CM services often entail assessing individualized needs, providing direct and intensive support, brokering resources, intervening during crises, and monitoring progress over time (Bates et al., 2021; Frankel et al., 2018; Parise et al., 2017).

National survey data has confirmed SSWs spend most of their time providing CM services and helped shed light on the ever-evolving needs of students and families in schools (Allen-Meares, 1994; Costin, 1983; Kelly et al., 2010; Kelly et al., 2015). In 2014, a national sample of SSWs reported

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the students and families they serve have profound, immediate, and urgent needs related to food insufficiency (62.4%), housing instability (42.8%), health issues (61.6%), individualized student tutoring (62.3%), and mental health services (75.7%; Kelly et al., 2016). Such high levels of needs warrant individualized and intensive support from SSW practitioners and the delivery of evidence-based practices to address disparities in students' schools and communities. However, despite advancing what is known about student needs from the lens of SSW practitioners, opportunities exist to use other sources of data to contextualize the practice behaviors of SSWs and understand the profiles of the students they serve (Thompson et al., 2019).

Several large-scale evaluations of non-profit organizations that hire practitioners to deliver tiered prevention services in schools have helped scholars learn more about the characteristics of students receiving CM services Corrin et al., 2015; Figlio, 2015; Parise et al., 2017; Somers & Haider, 2017; Spruill, 2018; Turner, 2017). For example, Parise et al., (2017) found students receiving CM services are often students of color and those from low-income families—with more than 90% identifying as Black or Hispanic and nearly 50% reporting eligibility for free or reduced-price lunches. Corrin and colleagues (2015) also reported that students receiving CM services often attend Title I schools, have less access to resources, and experience environmental risks that impede their progress toward high school graduation. Based on these findings, CM services are often delivered to students experiencing complex structural and intersectional risks in their schools and communities. However, these large-scale evaluations did not examine the credentials of practitioners in the schools, making it unclear whether these demographic characteristics reflect students working directly with SSW practitioners.

Researchers have also consistently argued that distilling the relationships among dosage and receipt of CM services and student outcomes is relatively complex (Parise et al., 2017; Figlio, 2015; Spruill 2018; Somers & Haider, 2017; Turner, 2018). Although scholars hypothesize CM services are short-term interventions that can support positive long-term outcomes (Corrin et al., 2015; Parise et al., 2017), testing these hypotheses has proven challenging in educational settings. The most prominent gap exists in exploring the relationships between CM services and students' behavioral outcomes. Somers & Haider (2017) were unable to examine the relationship between CM services and middle school students' behavioral outcomes because data on disciplinary infractions were not publicly available. This gap is important to address given behavior referrals in middle school are predictive of high school dropout independent of school performance (Hawkins et al., 2013).

Comparably, relationships between CM services and students' academic outcomes are not well understood due to variability in measuring academic performance. In prior evaluative studies, academic performance was measured using student-level course marks (%), student-level test scores, school-level rates of dropout, and school-level rates of on-time graduation Parise et al., 2017; Porowski & Passa, 2011; Somers & Hadier, 2017; Turner 2018). Variations in measurement and limitations in access to quality data continue to fuel an ongoing debate about the relationship between CM services and students' non-academic and academic outcomes.

Current study

The current study sought to utilize secondary data from three large middle schools to explore the following research questions: Research Question 1: What demographic characteristics differentiate students receiving CM services delivered by SSWs from their peers? Research Question 2: Among students receiving CM services, what are the relationships among dosage of CM services delivered by SSWs, students' demographic characteristics, and students' academic and non-academic outcomes (i.e., attendance, behavioral referrals, and academic performance)? Research Question 3: Among a demographically matched subsample, do students receiving CM services have greater academic and non-academic risks compared to students not receiving CM services? Based on prior research, we hypothesized that students receiving CM services would be more likely to experience environmental and intersectional risks associated with receiving free and reduced lunch (a proxy indicator of poverty) and identifying as an ethnic minority. In addition, we hypothesized additional hours of CM services (i.e., higher dosage) would serve as positive short-term outcomes associated with lower odds of absences and behavioral referrals, resulting in higher odds of passing 60% or more courses at the end of the academic year. Our third research question was exploratory and meant to simulate a quasi-experimental design to compare students' end-of-year outcomes among a subsample receiving CM services and a subsample with comparable demographic characteristics not receiving CM services.

Method

Context and sample

We obtained data-sharing agreements in 2019 with three large, urban middle schools in North Texas to conduct this

study. Because the dataset was de-identified and approved for secondary analysis, the lead author’s Institutional Review Board (IRB) waived the need for parent and guardian consent. The IRB approved all other procedures for this study. Data represented student outcomes from the end of the 2019–2020 academic year before the onset of the COVID-19 pandemic. Each middle school employed one SSW that held a Master’s degree and a board-approved social work license. SSWs in Texas are not required to obtain school-specific certifications or take school social work coursework before practicing in educational settings. Notably, all three SSWs were employed by a non-profit agency at the time of the study.

Across the three middle schools, students were referred to their SSWs either via teacher, staff, or administrator referrals or identified based on an at-risk classification set forth by the state’s educational oversight body (see TEA, 2010). The school-level dataset consisted of 3,012 middle school students. In total, 8% (n=238) received individualized CM services from their SSW during the 2019–2020 academic year, and 92% (n=2,774) did not receive CM services. Table 1 summarizes the sample’s overall demographic characteristics, including profiles of students receiving and those not receiving CM services.

Measures

Demographic characteristics

Demographic variables included school indicators (*School 1*, *School 2*, and *School 3*), grade (*6th*, *7th*, and *8th*), gender (*male* and *female*), ethnicity (*Non-Hispanic/Latinx* and *Hispanic/Latinx*), limited English proficiency (LEP) status (*No* and *Yes*), and an indicator of poverty defined by “at-risk” status (*Did not meet state criteria and no receipt of free and reduced lunch indicating not at-risk*, and *Met state criteria and receipt of free and reduced lunch indicating at-risk*).

Receipt and hours of CM services

Leaders of the non-profit agency provided the research team with de-identified ID numbers to identify students in each school who received CM services and those who did not. This ID number was used to create a dichotomous indicator of receipt of CM services and no receipt of CM services. In addition, leaders shared the total number of tired service hours (i.e., hours of Tier I, Tier II, and CM services) that CM students received during the academic year. Service hours aligned with the following definitions based on criteria set by the school and non-profit organization: Tier I services were defined as school-wide or large group services given

Table 1 Demographic Differences Among Students Receiving and Not Receiving CM Services. (N=3,012)

Demographic Characteristics	Full Sample (N=3,012)	Comparison of Case Managed and Non-Case-Managed (N=3,012)		χ^2	p value
		Students Not Receiving CM Services (n=2,774)	Students Receiving CM Services (n=238)		
School	n (%)	n (%)	n (%)	5.95	0.05
School 1	1,064 (35%)	977 (35%)	87 (37%)		
School 2	1,174 (39%)	1,097 (40%)	77 (32%)		
School 3	774 (26%)	700 (25%)	74 (31%)		
Grade				1.45	0.48
6th	984 (33%)	902 (33%)	82 (35%)		
7th	1,005 (33%)	934 (34%)	71 (30%)		
8th	1,023 (34%)	938 (34%)	85 (36%)		
Gender				0.11	0.75
Male	1,473 (49%)	1,359 (49%)	114 (48%)		
Female	1,539 (51%)	1,415 (51%)	124 (52%)		
Ethnicity				5.05	0.03*
Not Hispanic/Latino	2,128 (71%)	1,975 (71%)	153 (64%)		
Hispanic/Latino	884 (29%)	799 (29%)	85 (36%)		
Limited English Proficiency Status				30.44	0.01*
No	2,696 (90%)	2,508 (90%)	188 (79%)		
Yes	316 (10%)	266 (10%)	50 (21%)		
At-Risk Status				92.14	0.01*
No	1,563 (52%)	1,550 (56%)	56 (24%)		
Yes	1,406 (47%)	1,224 (44%)	182 (77%)		
Hours of Tiered Services			Mean (Std. Dev.)	Range	
Tier I Service Hours			12.82 (11.39)	0–46.75	
Tier II Service Hours			7.13 (4.29)	0.75–30.25	
CM Service Hours			3.93 (2.55)	0–15.75	

Note.* Indicates significance at $p < 0.05$. Std. Dev. = Standard Deviation

to a group of students to address a school-wide goal or need; Tier II services were defined as targeted services delivered

in a group setting to students and or families/guardians with a common goal or need; Tier III (i.e., CM services) were defined as intensive, individualized services provided in a one-on-one setting to a student, family, or guardian to address a specific need. Hours of services across the three tiers were treated as continuous variables.

Non-academic outcomes

Attendance and behavior referrals were our non-academic outcomes of interest. Attendance was measured based on the number of days the student missed during the 2019–2020 academic year before the COVID-19 pandemic. In the analysis, attendance was coded into four categories: *No absences*; *One absence*; *Two or Three absences*; *Four or more absences*. Behavior referrals were coded into three categories: *No referrals*, *One referral*, and *Two or more referrals*. Behavior referrals included the following three disciplinary actions: (a) in-school suspension, (b) out-of-school suspension, or (c) referral to discipline-related alternative education programs.

Academic performance

Academic performance was measured as an indicator of courses passed based on a threshold set by the school district in 2019–2020 that determined whether students persisted to the next grade level. Academic performance was coded into two categories based on the percentage of courses passed: *Did not pass 60% of courses* or *Passed 60% or more courses*.

Analytic Strategy

De-identified data were screened, cleaned, and analyzed in SPSS (IBM SPSS Statistics for Windows, Version 26.0. Armonk, NY: IBM Corp). To answer the first research questions, we utilized school-wide data from all 3,012 students to examine the frequencies of students' demographic characteristics and receipt or no receipt of CM services. We then conducted Chi-squared tests to explore whether demographic characteristics (i.e., school, at-risk status, grade, gender, ethnicity, LEP status) differed among students receiving CM services and students not receiving CM services. To answer the second research question, we focused on the students that received CM services ($n=238$). We first examined the means, standard deviations, and ranges of Tier I, Tier II, and CM service hours delivered during the academic year. We then conducted multinomial logistic regression analyses to explore associations between hours of CM services and students' non-academic outcomes (i.e.,

attendance and behavioral referrals) while controlling for their demographic characteristics, school environment, and Tier I and II service hours. No absences and no behavioral referrals were chosen as reference categories for the dependent variable. A binary logistic regression analysis was then used to examine whether CM service hours were significantly associated with the dichotomous academic performance variable (i.e., did not pass 60% or more courses as the reference). All predictors were entered using forced entry. The last category of demographic characteristics (e.g., School 3, 8th grade, female, etc.) served as the reference group of the predictors in each analysis.

We also utilized an innovative propensity score matching technique to simulate a quasi-experimental post-test-only design to explore our third research question. Students receiving CM services were matched with comparison cases not receiving CM based on a predetermined set of demographic covariates. Appendix A describes our propensity score matching procedure in more detail. Propensity score matching yielded two comparison groups comprised of 181 students receiving CM services and 181 students not receiving CM services with comparable demographic characteristics. We used chi-square analyses to determine whether students' academic and non-academic outcomes differed among students receiving CM services and students not receiving CM services. For all analyses, statistical significance was set at $p < 0.05$, and p values were not adjusted based on the number of tests run.

Results

Demographic characteristics of students receiving CM services

Across the three middle schools, chi-squared analysis indicated that a significantly higher proportion of students receiving CM services identified as Hispanic/Latinx (36% vs. 29%, $p=0.03$), limited English proficiency status (21% vs. 10%, $p=0.01$), and at-risk status (77% vs. 44%, $p=0.01$) compared to students not receiving CM services (see Table 1). Other demographic characteristics, including school, grade, and gender, were not significantly different between those receiving CM services and those not receiving CM services ($p > 0.05$).

Dosage of CM services and students' non-academic and academic outcomes

Descriptive statistics indicated students receiving CM services received an average of approximately 13 h of Tier I

services, 7 h of Tier II services, and 4 h of CM services by the end of the academic year (see Table 1). Results of the multinomial regression showed hours of CM services were not associated with the odds of having fewer absences from school. In terms of demographic and school variables, results indicated that the odds of missing school (one day and two or three days) were smaller for those in School 1 than those in School 3. The odds of missing two or three days of school also decreased by 0.45 (95% CI: 0.24–0.86)

if the student was male relative to female while holding all other variables constant in the model. Grade, ethnicity, and LEP status were also not associated with changes in the odds of missing school.

Tier I and Tier II hours were not associated with the odds of receiving one behavioral referral. In contrast, receipt of every hour of CM services was associated with a 1.52 (95% CI: 1.27–1.83) increase in the odds of receiving two or more referrals while holding all other variables in the

Table 2 Multinomial and Binary Logistic Regression Exploring Dosage of CM Services (n=238)

Variable	Attendance			Behavioral Referrals			Academic Performance		
	B (SE)	Odds Ratio	95% CI	B (SE)	Odds Ratio	95% CI	B (SE)	Odds Ratio	95% CI
	One absence			One referral			Passed 60% or more courses		
Intercept	-0.09 (0.62)			-2.28 (0.59)			0.94 (0.34)	2.55	
School (1)	-1.44 (0.59)	0.24*	0.07–0.75	-0.14 (0.46)	0.87	0.35–2.17	0.99 (0.35)	2.69*	1.35–5.34
School (2)	0.67 (0.52)	0.95	0.70–5.42	-0.59 (0.48)	0.55	0.22–1.41	2.27 (0.56)	9.70*	3.24–29.00
Grade (6th)	-0.02 (0.42)	0.98	0.42–2.25	-0.78 (0.38)	0.46*	0.22–0.97	-0.24 (0.37)	0.79	0.38–1.63
Grade (7th)	-0.27 (0.46)	0.76	0.31–1.88	-0.64 (0.41)	0.53	0.23–1.18	-0.49 (0.35)	0.61	0.31–1.22
Gender (Male)	-0.39 (0.36)	0.68	0.33–1.38	1.02 (0.34)	2.78*	1.44–5.36	0.69 (0.30)	1.99*	1.11–3.55
Ethnicity (Non-Latinx)	-0.26 (0.46)	0.77	0.31–1.92	0.34 (0.44)	1.41	0.60–3.30	0.35 (0.40)	1.41	0.65–3.08
LEP Status (No)	0.09 (0.51)	1.09	0.40–2.28	0.44 (0.52)	1.56	0.56–4.30	-0.88 (0.44)	0.41*	0.17–0.99
Tier I Service Hours	0.00 (0.03)	1.00	0.94–1.06	0.02 (0.02)	1.02	0.98–1.07	0.03 (0.03)	1.03	0.98–1.09
Tier II Service Hours	0.00 (0.08)	1.00	0.85–1.17	-0.06 (0.06)	0.94	0.84–1.06	-0.06 (0.06)	0.94	0.84–1.06
CM Service Hours	-0.07 (0.11)	0.93	0.75–1.16	0.18 (0.10)	1.20	0.99–1.46	-0.20 (0.08)	0.82*	0.69–0.96
	Two or three absences			Two or more referrals					
Intercept	1.11 (0.52)			-2.33 (0.57)					
School (1)	-1.77 (0.46)	0.17*	0.07–0.42	-1.66 (0.58)	0.19	0.06–0.59			
School (2)	-0.35 (0.45)	0.70	0.29–1.72	-0.61(0.46)	0.54	0.22–1.33			
Grade (6th)	-0.07 (0.38)	0.93	0.44–1.97	-0.92 (0.44)	0.40	0.17–0.95			
Grade (7th)	-0.27 (0.42)	0.77	0.34–1.74	-0.02 (0.39)	0.98	0.45–2.11			
Gender (Male)	-0.79 (0.33)	0.45*	0.24–0.86	0.87 (0.35)	2.40	1.21–4.76			
Ethnicity (Non-Latinx)	0.31 (0.45)	1.36	0.56–3.29	1.65 (0.56)	5.22	1.75–15.52			
LEP Status (No)	-0.46 (0.48)	0.63	0.24–1.62	-0.69 (0.58)	0.50	0.16–1.55			
Tier I Service Hours	-0.01 (0.52)	0.99	0.95–1.04	0.00 (0.02)	1.00	0.95–1.04			
Tier II Service Hours	0.05 (0.06)	1.05	0.94–1.18	-0.06 (0.06)	0.94	0.84–1.05			
CM Service Hours	-0.14 (0.10)	0.87	0.72–1.06	0.42 (0.09)	1.52*	1.27–1.83			
	Four or more absences								
Intercept	0.19 (0.51)								
School (1)	-1.02 (0.41)	0.36*	0.16–0.80						
School (2)	-0.15 (0.42)	0.86	0.38–1.96						
Grade (6th)	-0.11 (0.34)	0.90	0.46–1.74						
Grade (7th)	0.42 (0.35)	1.52	0.77–2.00						
Gender (Male)	-0.33 (0.28)	0.72	0.42–1.24						
Ethnicity (Non-Latinx)	0.10 (0.36)	1.11	0.54–2.25						
LEP Status (No)	0.48 (0.42)	1.62	0.71–3.72						
Tier I Service Hours	0.01 (0.02)	1.01	0.97–1.04						
Tier II Service Hours	0.00 (0.05)	1.00	0.91–1.10						
CM Service Hours	0.00 (0.07)	0.00	0.87–1.16						
R ² (Cox & Snell)	0.16			0.21			0.18		
R ² (Nagelkerke)	0.17			0.26			0.27		
Model χ^2 (df)	63.92 (30)*			84.70 (20)*			71.18 (10)*		

Note. * Indicates significance at $p < 0.05$. CI = Confidence interval. No absences, no behavioral referrals, and the last category of all demographic characteristics (i.e., 8th grade, School 3) are reference categories for the dependent variable

model constant. When examining school and demographic covariates, the odds of one referral decreased by 0.46 (95% CI: 0.22–0.97) if students were in 6th grade relative to 8th grade. In addition, the odds of receiving one referral increased by 2.78 (95% CI: 1.44–5.36) for male students relative to female students while holding constant the other variables in the model. School, ethnicity, and LEP status were not associated with any changes in students' odds of receiving behavioral referrals.

In terms of academic performance, results from our logistic regression indicated receipt of every hour of CM services was associated with a 0.82 (95% CI: 0.69–0.96) decrease in the odds of passing 60% or more courses while holding all variables constant in the model. No relationship existed for Tier I or Tier II hours of services. When examining covariates in the model, the odds of passing 60% or more courses increased by 2.69 (95% CI: 1.35–5.34) if students attended School 1 and 9.70 (95% CI: 3.24–29.00) if students attended School 2 relative to School 3 while holding all other variables constant in the model. Further, the odds of passing 60% or more courses increased by 1.99 (95% CI: 1.11–3.55) if students were male relative to female students and decreased by 0.41 (95% CI: 0.17–0.99) if students were LEP status relative to non-LEP status students (see Table 2).

Comparisons of student outcomes among demographically matched subsample

When comparing non-academic and academic outcomes among students with comparable demographic characteristics, our results indicated that students receiving CM services were significantly more likely to have two or more behavioral referrals (25% vs. 7%, $p < 0.001$) and to have failed 60% or more of their classes (30% vs. 14%, $p < 0.001$) compared to students with comparable demographic and environmental that did not receive CM services. Our findings indicated no significant differences in attendance rates among subsamples in this analysis of students receiving and not receiving CM services ($p = 0.14$). Findings are presented in Table 3.

Discussion

The current study explored the relationships among students' demographic characteristics, receipt and dosage of CM services delivered by SSWs, and students' non-academic and academic outcomes. Our overall sample and utilization of secondary data were comparable to previous evaluation studies exploring the relationships between CM services and student outcomes (Corrin et al., 2015; Parise

Table 3 Demographically Matched Subsample Chi-Squared for Student Outcomes (n = 362)

	Not Receiving CM Services (n = 181)	Receiving CM Services (n = 181)	χ^2	<i>p</i>
Non-Academic Outcomes				
Attendance			5.44	0.14
No absences	61 (34%)	49 (27%)		
1 absence	30 (17%)	22 (12%)		
2 or 3 absences	37 (20%)	38 (21%)		
4 or more absences	53 (29%)	72 (40%)		
Behavior Referrals			25.28	0.00*
No referrals	146 (80%)	108 (60%)		
1 referral	23 (13%)	28 (15%)		
2 or more referrals	12 (7%)	45 (25%)		
Academic Outcomes				
Course Pass Rate			13.38	0.00*
Did not pass 60% or more courses	26 (14%)	55 (30%)		
Passed 60% or more courses	155 (86%)	126 (70%)		

Note. * Indicates significance at $p < 0.05$.

et al., 2018). However, our study examined services delivered specifically by SSW practitioners. In alignment with our initial hypotheses, middle school students in our sample receiving CM services were disproportionately identified as ethnic minorities (Hispanic/Latino) and at-risk status (i.e., a proxy indicator of poverty) compared to their peers. Results align with past research that suggests SSWs often deliver individualized and intensive services to students facing the greatest systemic, community, and intersectional risks associated with school pushout and intergenerational poverty (Kelly et al., 2010; Parise et al., 2017). Nevertheless, our findings advance prior research as students receiving CM services were also disproportionately identified as LEP status (21%) compared to students not receiving CM services (10%).

Our findings for the second research question did not align with our initial hypotheses. We anticipated that among students receiving CM services, additional hours (i.e., higher dosage) would be associated with fewer absences from school and fewer behavioral referrals at the end of the academic year. Our results indicated that the dosage of CM services was not significantly associated with school absences at the end of the academic year. In contrast, a higher dosage of CM services was associated with higher odds of receiving two or more behavior referrals at the end of the academic year. Although the cross-sectional nature of our data limits our ability to establish any cause-effect relationship, the significant relationships between CM service hours and increased behavioral referrals suggest SSWs are spending the most amount of their time working with

students with heightened risks for school pushout (i.e., suspensions, expulsions, and referrals to alternative settings). Our findings address gaps illuminated by Somers & Haider (2017), who were unable to explore associations between the delivery of CM services and middle school students' behavioral outcomes and calls to examine the severity of needs among students working with SSW practitioners (Thompson et al., 2019). Additionally, findings align with prior research denoting age and gender are often associated with higher discipline rates (Theriot & Dupper, 2010). Our results indicated that students identified as male and in 8th grade were associated with increased risks for behavioral referrals compared to students with other demographic indicators.

When examining academic performance, we found a higher dosage of CM services was also associated with higher odds of failing 60% or more courses at the end of the academic year. Said another way, SSWs spent more time working with students struggling academically. Our findings align with Turner's (2018) study that examined relationships between CM services and elementary school students' test scores. Turner (2018) found that students receiving CM services demonstrated risks for low test scores at the end of the year than their non-case managed peers. However, our study builds upon past research by examining outcomes among a sample of middle school students and uses course pass rates to assess academic performance. Relationships among dosage of CM services and low academic achievement are significant for SSWs working with middle school students. Balfanz, Herzog, and MacIver (2007) found that 50% of school dropouts in high-poverty schools show signs of falling off track when examining course failures as an indicator of future risk. As such, SSWs in middle schools and their use of evidence-based practices are likely critical to intervening around risks of school dropout before students enter high school.

Importantly, behavioral referrals and academic performance indicators are likely related to school-level factors. Lacoë & Steinberg (2019) argued a growing body of literature addresses how school disorder, misbehavior, and discipline influence the well-being and achievement of school peers. Our results suggest that students' school environments and demographic characteristics were associated with their attendance rates and academic performance outcomes. For example, where students went to school (see School 3) significantly predicted negative outcomes, including higher absences and lower academic performance when controlling for other factors. Based on past research, our findings may suggest broader community- and school-level factors include high rates of poverty, unsafe or unwelcoming school climates, issues with transportation, unfair or zero-tolerance pushout policies (suspensions or expulsions), teachers'

biases, or neglect of diverse students' needs may impact students attending this urban schools (Mallett, 2016; Teasley, 2004). Furthermore, identifying with LEP status was significantly associated with failing 60% or more courses, whereas not speaking English as a first language was a risk factor for lower academic performance (Sanders et al., 2018). Together, our study advances what is known about student demographic characteristics, the practice behaviors of SSWs, and student outcomes.

Lastly, to address our third exploratory question, we created a demographically matched subsample using available covariates to explore the complexity of associations among CM services delivered by SSWs, students' demographic characteristics, and student outcomes. We found students with similar demographic characteristics and school environments did not have significantly different attendance outcomes, irrespective of receiving or not receiving CM services. Our findings align with Spruill (2018), who found that case-managed students' attendance outcomes were not significantly better or worse than peers with similar demographic characteristics. In contrast, students receiving CM services were significantly more likely to have two or more behavior referrals and to fail 60% or more of their courses compared to non-case-managed students. Our study's results of this exploratory element helped validate findings associated with the second research question. Namely, beyond demographic characteristics, students receiving CM services demonstrate additional behavioral and academic risks making their need for CM services more deliberate and critical within their school environments.

Implications

SSWs deliver CM services to provide individualized support to meet students' non-academic and academic needs. SSWs in our study provided the highest dosage of individualized and intensive services to students experiencing highly complex risks. Risks included experiencing suspensions, expulsions, referrals to alternative education settings, and challenges passing courses to persist to the next grade level. In regard to practice, we also found SSWs' caseloads were relatively large and averaged about 80 students. Students received an average of four hours of CM services bringing practitioners' total investments to 8 weeks (i.e., 320 h) working with students on their caseloads. However, given the risks identified in our study, we remain curious as to whether SSWs felt four hours was enough to address student needs, including indicators of underlying trauma, the effects of poverty and its correlates, and relational challenges, including speaking a different language than most adults in the school.

SSW education and training regarding CM services primarily focus on engagement in referral, linkage, and follow-up practices. Yet, evidence-based interventions and school-based supports enacted within and beyond CM services are likely needed to address students' complex behavioral needs. Supports such as partnerships with community mental health providers, translators, wraparound services, interdisciplinary teams, and clinical services co-located in schools are critical to build and invest in now, especially in response to COVID-19 for school-aged youth. We also found students received more Tier I and Tier II services than CM services, suggesting these three middle schools may be serving students more proactively instead of reactively. Greater receipt of Tier I and II services rather than CM services reflects fidelity with the RtI framework not previously identified in studies assessing the practice behaviors of SSWs (Kelly et al., 2016; Thompson et al., 2019). In regard to SSW education and practice, the partnerships between the schools and the non-profit agency may have contributed to greater fidelity of service delivery within the RtI framework. Because the SSWs in our study had clear roles in delivering CM services to high-risk students, SSW practitioners may have been less likely to engage in catch-all activities (i.e., administrative, etc.). Furthermore, the non-profit agency provided supervision and oversight to the SSWs, which might have helped them engage with this tiered prevention model more consistently (Phillippo et al., 2017). Implementing these practices and supports regarding SSW jobs may be critical to enhancing fidelity and utilization of evidence-based practices in schools. Understanding more about how the school and non-profit partnership influences the practice behaviors of SSWs is an important area for future study.

Areas of future exploration for SSW research are evident such as reviewing whether students with the most significant risks for behavioral issues benefit from clinical supports or family-level interventions that address underlying symptoms of trauma, family discord, or mental health concerns. In addition, there are opportunities for mixed methods studies to explore the implementation fidelity of interventions across Tiers I, II, and III using secondary data shared by both non-profit organizations and public schools. Finally, we utilized propensity score matching (PSM) to examine whether relationships among student attendance, behavioral referrals, and course pass rates differed among students receiving CM services compared to a demographically matched comparison group not receiving CM services. PSM allows the researchers to match students based on their demographic characteristics and other psychosocial indicators, creating subsamples with comparable distributions of observed covariates. Given the pandemic inhibited in-person data and utilization of random assignment methods,

SSW scholars can leverage this technique to enhance our understanding of SSW services when analyzing secondary data from schools.

Furthermore, school discipline policies and practices may further exacerbate students' pre-existing risks and mitigate the effects of CM services altogether. Despite ongoing utilization in schools, suspensions often have little impact on student behaviors (Christie et al., 2004). After experiencing a suspension or expulsion, students re-engaging in school may struggle to re-build relationships with adults, peers, and even their SSWs. While removing students is often viewed as necessary in many schools, these practices may compound issues for highly vulnerable students. In this case, SSWs can deliver tiered prevention services; however, in alignment with the *National School Social Work Practice Model* (Frey et al., 2013) and the perspectives of other leaders in the field, SSW practitioners also need to move beyond micro-level practice activities to address disparities and challenge historically racist and inequitable school discipline practices (Ball, 2020; Ball & Skrzypek, 2020). In doing so, SSWs can mitigate the pervasive reliance on suspensions and expulsions and help schools reframe behavioral issues as symptoms of school-wide needs such as investing in diversity, equity, inclusion, and belonging; implementing restorative practices, delivering culturally responsive teaching, and providing linguistically diverse resources and supports.

Limitations

The cross-sectional and secondary nature of these data are limitations in the current study. We were unable to explore additional mediators that may influence student outcomes (i.e., students' social-emotional skills, the quality of relationships with SSWs, family- and school-level risk factors, or the fidelity of the RtI framework during implementation). In addition, we were unable to utilize linear analysis using continuous outcomes and explore demographics such as race due to variations in how the three middle schools measured specific variables. Our study only examined CM service hours delivered by three SSWs in Texas using data gathered before the COVID-19 pandemic, influencing the generalizability of our findings. In the future, scholars can advance our current understanding of the relationships between CM services and student outcomes by capturing data from more SSWs and using more advanced methodologies, including structural equation modeling or hierarchical linear modeling. Future studies could also focus on disentangling temporal mechanisms to determine whether CM services hours increase after a student receives a behavioral referral or fail a course. Without an indicator of when the student began receiving CM services or a longitudinal dataset, large-scale

evaluations of CM services, including this study, will be limited when exploring relationships between CM services and student outcomes.

Conclusions

SSWs deliver CM services to ensure that at-risk students have equitable opportunities to develop into healthy and economically secure adults. In alignment with the national school social work practice model, SSWs delivering CM services are uniquely positioned to move school improvement efforts forward, address chronic school failure, and implement interventions that meet the complex and ever-evolving needs of students in schools. Based on our findings, CM services are often delivered to middle school students identified as at-risk, Hispanic/Latino, and with limited English proficiency status. Further, SSWs provide more CM services to students with the most significant behavioral and academic risks that expand beyond their demographic characteristics. This study helps fill gaps in our understanding of the relationships between CM services and students' behavioral outcomes and sheds light on the practice behaviors of SSWs working for non-profit organizations that partner with schools. Future research studies can continue to build upon this work and explore the efficacy of CM services to determine whether they facilitate positive outcomes for students experiencing such heightened degrees of risk.

Appendix A.

Propensity scores are used to match cases using logistic regression analyses. In this procedure, the treatment assignment is used as the outcome variable within the logistic regression equation, and the selected covariates are entered as predictors (Thoemmes, 2012). Our treatment assignment was receipt of CM services versus no receipt of CM services. Using the Statistical Package for Social Sciences (IBM SPSS Statistics for Windows, Version 26.0. Armonk, NY: IBM Corp) and the add-on R package (i.e., "MatchIt" by Ho et al., 2007), cases in our dataset were matched first on "at-risk status" defined by TEA (2010) and five additional demographic covariates available in the dataset: (a) school, (b) grade, (c) gender, (d) ethnicity, and (e) limited English proficiency (LEP) status. Per recommendations by Thoemmes and Kim (2011), we utilized the nearest neighbor matching, with a caliper of 0.20, and one-to-one matching techniques to create the demographic-matched subsample of students. Chi-squared analyses confirmed no significant differences among the demographic characteristics were found between those who received CM compared to those who did not receive services ($p > 0.05$); indicating both students receiving CM services ($n = 181$) and students not receiving

CM services ($n = 181$) presented with similar demographic factors as desired for a quasi-experimental study.

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