A Confirmatory Factor Analysis of the School Counselor Knowledge and Skills Survey for Multi-Tiered Systems of Support

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Jacob Olsen, Sejal Parikh Foxx, Claudia Flowers

Researchers analyzed data from a national sample of American School Counselor Association (ASCA) members practicing in elementary, middle, secondary, or K–12 school settings (*N* = 4,066) to test the underlying structure of the School Counselor Knowledge and Skills Survey for Multi-Tiered Systems of Support (SCKSS). Using both exploratory and confirmatory factor analyses, results suggested that a second-order four-factor model had the best fit for the data. The SCKSS provides counselor educators, state and district leaders, and practicing school counselors with a psychometrically sound measure of school counselors' knowledge and skills related to MTSS, which is aligned with the ASCA National Model and best practices related to MTSS. The SCKSS can be used to assess pre-service and in-service school counselors' knowledge and skills for MTSS, identify strengths and areas in need of improvement, and support targeted school counselor training and professional development focused on school counseling program and MTSS alignment.

Keywords: **school counselor knowledge and skills, survey, multi-tiered systems of support, factor analysis, school counseling**

The role of the school counselor has evolved significantly since the days of "vocational guidance" in the early 1900s (Gysbers, 2010, p. 1). School counselors are now called to base their programs on the American School Counselor Association (ASCA) National Model for school counseling programs (ASCA, 2019a). The ASCA National Model consists of four components: *Define* (i.e., professional and student standards), *Manage* (i.e., program focus and planning), *Deliver* (i.e., direct and indirect services), and *Assess* (i.e., program assessment and school counselor assessment and appraisal; ASCA, 2019a). Within the ASCA National Model framework, school counselors lead and contribute to schoolwide efforts aimed at supporting the academic, career, and social/emotional development and success of all students (ASCA, 2019b). In addition, school counselors are uniquely trained to provide small-group counseling and psychoeducational groups, and to collect and analyze data to show the impact of these services (ASCA, 2014; Gruman & Hoelzen, 2011; Martens & Andreen, 2013; Olsen, 2019; Rose & Steen, 2015; Sink et al., 2012; Smith et al., 2015). School counselors also support students with the most intensive needs by providing referrals to community resources, collaborating with intervention teams, and consulting with key stakeholders involved in student support plans (Grothaus, 2013; Pearce, 2009; Ziomek-Daigle et al., 2019).

This model for meeting the needs of all students aligns with a multi-tiered systems of support (MTSS) framework, one of the most widely implemented and researched approaches to "providing high-quality instruction and interventions matched to student need across domains and monitoring progress frequently to make decisions about changes in instruction or goals" (McIntosh & Goodman, 2016, p. 6). In an MTSS framework, there are typically three progressive tiers with increasing intensity of supports based on student responses to core instruction and interventions (J. Freeman et al., 2017). Schoolwide

Jacob Olsen, PhD, is an assistant professor at California State University Long Beach. Sejal Parikh Foxx, PhD, is a professor and Chair of the Department of Counseling at the University of North Carolina at Charlotte. Claudia Flowers, PhD, is a professor at the University of North Carolina at Charlotte. Correspondence may be addressed to Jacob Olsen, College of Education, 1250 Bellflower Boulevard, Long Beach, CA 90840-2201, jacob.olsen@csulb.edu.

universal systems (i.e., Tier 1), including high-quality research-based instruction, are put in place to support all students academically, socially, and behaviorally; targeted interventions (i.e., Tier 2) are put in place for students not responding positively to schoolwide universal supports; and intensive team-based systems (i.e., Tier 3) are put in place for individual students needing function-based intensive interventions beyond what is received at Tier 1 and Tier 2 (Sugai et al., 2000).

Strategies for aligning school counseling programs and MTSS have been thoroughly documented in the literature (Belser et al., 2016; Goodman-Scott et al., 2015; Goodman-Scott & Grothaus, 2017a; Ockerman et al., 2012). There is also a growing body of research documenting the impact of this alignment on important student outcomes (Betters-Bubon & Donohue, 2016; Campbell et al., 2013; Goodman-Scott et al., 2014) and the role of school counselors (Betters-Bubon et al., 2016; Goodman-Scott, 2013). In addition, ASCA recognizes the significance of school counselors' roles in MTSS implementation, highlighting that "school counselors are stakeholders in the development and implementation of a Multi-Tiered System of Supports (MTSS)" and "align their work with MTSS through the implementation of a comprehensive school counseling program" (ASCA, 2018, p. 47).

The benefits of school counseling program and MTSS alignment are clear; however, effective alignment depends on school counselors having knowledge and skills for MTSS (Sink & Ockerman, 2016). Despite consensus in the literature about the knowledge and skills for MTSS that school counselors need to align their programs, there is a lack of psychometrically sound surveys that measure school counselors' knowledge and skills for MTSS. Therefore, the validation of such a survey is a critical component to advancing the process of school counselors developing the knowledge and skills needed to contribute to MTSS implementation and align their programs with existing MTSS frameworks.

Knowledge and Skills for MTSS

The core features of MTSS include (a) universal screening, (b) data-based decision-making, (c) a continuum of evidence-based practices, (d) a focus on fidelity of implementation, and (e) staff training on evidence-based practices (Berkeley et al., 2009; Center on Positive Behavioral Interventions and Supports, 2015; Chard et al., 2008; Hughes & Dexter, 2011; Michigan's Integrated Behavior & Learning Support Initiative, 2015; Sugai & Simonsen, 2012). For effective MTSS implementation, school staff need the knowledge and skills to plan for and assess the systems and practices embedded in each of the core features (Eagle et al., 2015; Leko et al., 2015). Despite this need, researchers have found that school staff, including school counselors, often lack knowledge and skills of key components for MTSS (Bambara et al., 2009; Patrikakou et al., 2016; Prasse et al., 2012). For example, Patrikakou et al. (2016) conducted a national survey and found that school counselors understood the MTSS framework and felt prepared to deliver Tier 1 counseling supports. However, school counselors felt least prepared to use data management systems for decision-making and assessing the impact of MTSS interventions (Patrikakou et al., 2016).

As a result of the gap in knowledge and skills for MTSS, the need to more effectively prepare pre-service educators to implement MTSS has become an increasingly urgent issue across many disciplines within education (Briere et al., 2015; Harvey et al., 2015; Kuo, 2014; Leko et al., 2015; Prasse et al., 2012; Sullivan et al., 2011). This urgency is the result of the widespread use of MTSS and the measurable impact MTSS has on student behavior (Barrett et al., 2008; Bradshaw et al., 2010), academic engagement (Benner et al., 2013; Lassen et al., 2006), attendance (J. Freeman et al., 2016; Pas & Bradshaw, 2012), school safety (Horner et al., 2009), and school climate (Bradshaw et al., 2009). This urgency has been especially emphasized in recent calls for MTSS knowledge and skills to be included in school counselor preparation programs (Goodman-Scott & Grothaus, 2017b; Olsen, Parikh-Foxx, et al., 2016; Sink, 2016).

Given that many pre-service preparation programs have only recently begun integrating MTSS into their training, the opportunity for school staff to gain the knowledge and skills for MTSS continues to be through in-service professional development opportunities at the state, district, or school level (Brendle, 2015; R. Freeman et al., 2015; Hollenbeck & Patrikakou, 2014; Swindlehurst et al., 2015). For in-service school counselors, research shows that MTSS-focused professional development is related to increased knowledge and skills for MTSS (Olsen, Parikh-Foxx, et al., 2016). Further, when school counselors participate in professional development focused on MTSS, the knowledge and skills gained contribute to increased participation in MTSS leadership roles (Betters-Bubon & Donohue, 2016), increased data-based decision-making (Harrington et al., 2016), and decreases in student problem behaviors (Cressey et al., 2014; Curtis et al., 2010).

The knowledge and skills required to implement MTSS effectively have been established in the literature (Bambara et al., 2009; Bastable et al., 2020; Handler et al., 2007; Harlacher & Siler, 2011; Prasse et al., 2012; Scheuermann et al., 2013). In addition, it is evident that school counselors and school counselor educators have begun to address the need to increase knowledge and skills for MTSS so school counselors can better align their programs with MTSS and ultimately provide multiple tiers of support for all students (Belser et al., 2016; Ockerman et al., 2015; Patrikakou et al., 2016). Despite this encouraging movement in the profession, little attention has been given to the measurement of school counselors' knowledge and skills for MTSS. Thus, the development of a survey that yields valid and reliable inferences about pre-service and in-service efforts to increase school counselors' knowledge and skills for MTSS will be critical to assessing the development of knowledge and skills over time (e.g., before, during, and after MTSS-focused professional development).

Measuring Knowledge and Skills for MTSS

A critical aspect of effective MTSS implementation is evaluation (Algozzine et al., 2010; Elfner-Childs et al., 2010). Along with student outcome data, MTSS evaluation typically includes measuring the extent to which school staff use knowledge and skills to apply core components of MTSS (i.e., fidelity of implementation), and there are multiple measurement tools that have been developed and validated to aid external evaluators and school teams in this process (Algozzine et al., 2019; Kittelman et al., 2018; McIntosh & Lane, 2019). Despite agreement that school staff need knowledge and skills for MTSS to effectively apply core components (Eagle et al., 2015; Leko et al., 2015; McIntosh et al., 2013), little attention has been given to measuring individual school staff members' knowledge and skills for MTSS, particularly those of school counselors. Therefore, efficient and reliable ways to measure inferences about school counselor knowledge and skills for MTSS are needed to provide a baseline of understanding and determine gaps that need to be addressed in pre-service and in-service training (Olsen, Parikh-Foxx, et al., 2016; Patrikakou et al., 2016). In addition, the validation of an instrument that measures school counselors' knowledge and skills for MTSS is timely given that school counselors have been identified as potential key leaders in MTSS implementation given their unique skill set (Ryan et al., 2011; Ziomek-Daigle et al., 2016).

The purpose of this study was to examine the latent structure of the School Counselor Knowledge and Skills Survey for Multi-Tiered Systems of Support (SCKSS). Using confirmatory factor analysis, the number of underlying factors of the survey and the pattern of item–factor relationships were examined to address the research question: What is the factor structure of the SCKSS? Results of this study provide information on possible uses and scoring procedures of the SCKSS for examining MTSS knowledge and skills.

Method

Participants

The potential participants in this study were a sample of the 15,106 ASCA members who were practicing in K–12 settings at the time of this study. In all, 4,598 school counselors responded to the survey (30% response rate). In addition, 532 only responded to a few survey items (i.e., one or two) and were therefore excluded from the analyses. The final sample size for the analyses was 4,066. The sample used for this study mirrors school counselor demographics nationwide (ASCA, 2020; Bruce & Bridgeland, 2012). Overall, 87% of participants identified as female, 84% as Caucasian, and 74% as being between the ages of 31 and 60. Most of the school counselors in the sample reported being certified for 1–8 years (59%), working in schools with 500–1,000 students (40%) in various regions across the nation, and having student caseloads ranging from 251–500 students (54%). In addition, 25%–50% of their students were eligible for free and reduced lunch, and 54% reported that their students were racially or ethnically diverse. Lastly, most participants worked in suburban (45%) high school (37%) settings.

Sampling Procedures

Prior to conducting the research, a pilot study was conducted to assess 1) the clarity and conciseness of the directions and items on the demographic questionnaire and SCKSS, and 2) the amount of time it takes to complete the demographic questionnaire and survey (Andrews et al., 2003; Dillman et al., 2014). Four school counselors completed the demographic questionnaire and survey. Following completion, the school counselors were asked to provide feedback on the clarity and conciseness of the directions and items on the demographic questionnaire and survey as well as how much time it took to complete both measures. All pilot study participants reported that the directions were clear and easy to follow. Based on the feedback from the pilot study, the demographic questionnaire and survey were expected to take participants approximately 10–15 minutes to complete.

After obtaining approval from the IRB, SurveyShare was used to distribute an introductory email and survey link to ASCA members practicing in K–12 settings. After following the link, potential participants were given an informed consent form on the SurveyShare website. Participants who completed the survey were given the opportunity to participate in a random drawing using disassociated email addresses to increase participation (Dillman et al., 2014). Following informed consent, participants were directed to the demographic questionnaire and SCKSS. A follow-up email was sent to potential participants who did not complete the survey 7 days after the original email was sent. After 3 weeks, the link was closed.

Survey and Data Analyses

School Counselor Knowledge and Skills Survey for Multi-Tiered Systems of Support

The SCKSS was developed based on the work of Blum and Cheney (2009; 2012). The Teacher Knowledge and Skills Survey for Positive Behavior Support (TKSS) has 33 self-report items using a 5-point Likert scale to measure teachers' knowledge and skills for Positive Behavior Supports (PBS; Blum & Cheney, 2012). Items incorporate evidence-based knowledge and skills consistent with PBS. Conceptually, items of the TKSS were developed based on five factors: (a) Specialized Behavior Supports and Practices, (b) Targeted Intervention Supports and Practices, (c) Schoolwide Positive Behavior Support Practices, (d) Individualized Curriculum Supports and Practices, and (e) Positive Classroom Supports and Practices. A confirmatory factor analysis (CFA) conducted by Blum and Cheney (2009) indicated reliability coefficients for the five factors as follows: 0.86 for Specialized Behavior Supports and Practices, 0.87 for Targeted Intervention Supports and Practices, 0.86 for Schoolwide Positive Behavior Support Practices, 0.84 for Individualized Curriculum Supports and Practices, and 0.82 for Positive Classroom Supports and Practices.

Table 1

Items, Means, and Standard Deviation for the SCKSS

Rate the following regarding your knowledge on the item:	*M*	*SD*
1. I know our school's policies and programs regarding the prevention of behavior problems.	3.66	0.95
2. I understand the role and function of our schoolwide behavior team.	3.58	1.12
3. I know our annual goals and objectives for the schoolwide behavior program.	3.33	1.19
4. I know our school's system for screening with students with behavior problems.	3.35	1.20
5. I know how to access and use our school's pre-referral teacher assistance team.	3.23	1.43
6. I know how to provide access and implement our school's counseling programs.	4.20	0.84
7. I know the influence of cultural/ethnic variables on student's school behavior.	3.83	0.87
8. I know the programs our school uses to help students with their social and emotional development (schoolwide expectations, conflict resolution, etc.).	3.92	0.95
9. I know a range of community services to assist students with emotional/behavioral problems.	3.72	0.93
10. I know our school's discipline process—the criteria for referring students to the office, the methods used to address the problem behavior, and how and when students are returned to the classroom.	3.72	1.03
11. I know what functional behavioral assessments are and how they are used to develop behavior intervention plans for students.	3.35	1.12
12. I know how our schoolwide behavior team collects and uses data to evaluate our schoolwide behavior program.	3.12	1.29
13. I know how to provide accommodations and modifications for students with emotional and behavioral disabilities (EBD) to support their successful participation in the general education setting.	3.34	1.09
14. I know our school's crisis intervention plan for emergency situations.	3.74	1.06
Rate how effectively you use the following skills/strategies:		
15. Approaches for helping students to solve social/interpersonal problems.	4.04	0.71
16. Methods for teaching the schoolwide behavioral expectations/social skills.	3.62	0.96
17. Methods for encouraging and reinforcing the use of expectations/social skills.	3.80	0.84
18. Strategies for improving family–school partnerships.	3.35	0.92
19. Collaborating with the school's student assistance team to implement student's behavior intervention plans.	3.50	1.11
20. Collaborating with the school's IEP team to implement student's individualized education programs.	3.53	1.09
21. Evaluating the effectiveness of student's intervention plans and programs.	3.38	1.01
22. Modifying curriculum to meet individual performance levels.	3.10	1.09
23. Selecting and using materials that respond to cultural, gender, or developmental differences.	3.26	1.02
24. Establishing and maintaining a positive and consistent classroom environment.	3.71	0.98
25. Identifying the function of student's behavior problems.	3.52	0.92
26. Using data in my decision-making process for student's behavioral programs.	3.39	1.01
27. Using prompts and cues to remind students of behavioral expectations.	3.67	0.95
28. Using self-monitoring approaches to help students demonstrate behavioral expectations.	3.48	0.96
29. Communicating regularly with parents/guardians about student's behavioral progress.	3.64	0.97
30. Using alternative settings or methods to resolve student's social/emotional problems (problem-solving, think time, or buddy room, etc. **not a timeout room**).	3.45	1.06
31. Methods for diffusing or deescalating student's social/emotional problems.	3.76	0.87
32. Methods for enhancing interpersonal relationships of students (e.g., circle of friends, buddy system, peer mentors).	3.62	0.92
33. Linking family members to needed services and resources in the school.	3.72	0.91

The TKSS was adapted in collaboration with the authors to develop the SCKSS (Olsen, Blum, et al., 2016) to specifically target school counselors and to reflect the updated terminology recommended in the literature (Sugai & Horner, 2009). To update terminology, *multi-tiered systems of support (MTSS)* replaced *Positive Behavior Supports (PBS)* throughout the survey. In addition, *school counselor* replaced *teacher* to reflect the role of intended participants. Finally, item 6 was updated from "I know how to access and use our school's counseling programs" to "I know how to provide access and implement our school's counseling programs" because of school counselors' roles and interactions with their own programs. Further, item 6 was adjusted to be an internally oriented question about the delivery of the school counseling program rather than the school counselor's knowledge of another school service or system in order to assess participants' perceived mastery of school counseling program implementation rather than their perception of another service not already measured in the SCKSS. A description of the 33 SCKSS items and the means and standard deviations of each item for the current study are located in Table 1.

Data Analyses

A cross-validation holdout method was used to examine the data–model fit of the SCKSS. Prior to statistical analyses, data were screened for missing data, multivariate outliers, and the assumptions for multivariate regression. Less than 5% of the data for any variable was missing and Little's MCAR test ($\chi^2 = 108.47$, $df = 101$, $p = .29$) indicated missing values could be considered as missing completely at random. Multiple imputation was used to estimate missing values. Although there were some outliers, results of a sensitivity analysis indicated that none of the outliers were overly influential. The assumptions of linearity, normality, multicollinearity, and homoscedasticity suggested that all the assumptions were tenable. The original sample ($N = 4{,}066$) was randomly divided into two sub-samples ($N = 2{,}033$). The first subset was used to conduct exploratory analyses and develop a model that fit the data. The second subset of participants was used to conduct confirmatory analyses without modifications.

Exploratory Factor Analysis (EFA). Using the first subset from the sample, an EFA was conducted, using SPSS, to explore the number of factors and the alignment of items to factors. The number of factors extracted was estimated based on eigenvalues greater than 1.0 and a visual inspection of the scree plot. Several rotation methods were used, including varimax and direct oblimin with changing the delta value (from 0 to 0.2). The goal of the EFA was to find a factor solution that was theoretically sound.

Confirmatory Factor Analysis (CFA). The estimation method employed for the CFA was maximum likelihood robust estimation, which is a more accurate estimate for non-normal data (Savalei, 2010). Although the data were ordinal (i.e., Likert-type scale), Mplus uses a different maximum likelihood fitting function for categorical variables. The Satorra-Bentler scaled chi-square difference test was used to determine the best model. The pattern coefficient for the first indicator of each latent variable was fixed to 1.00. Indices of model–data fit considered were chi-square test, root-mean-square error of approximation (RMSEA), standardized root-mean-square residual (SRMR), comparative fit index (CFI), and Akaike information criterion (AIC). Browne and Cudeck (1993) suggested that values greater than .10 might indicate a lack of fit. In this study, an upper 90% confidence interval value lower than .08 was used to suggest an acceptable fit. CFI values greater than .90, which indicate that the proposed model is greater than 90% of the baseline model, served as an indicator of adequate fit (Kline, 2016). Perfect model fit is indicated by SRMR = 0, and values greater than .10 may indicate poor fit (Kline, 2016). Reliability was assessed using Cronbach's alpha (α). CFAs were used in both the exploratory and confirmatory phases of this study. In the exploratory phase (i.e., using the first subset from the sample), the researchers used the residual estimates and modification indices to identify local misfit. Respecification of correlated error variances was expected because of the data collection method (i.e., counselors responding to a single survey) and similar wording of the items.

Results

Exploratory Phase

Exploratory Factor Analysis

An EFA was used to evaluate the structure of the 33 items on the SCKSS. Principal axis factoring was used as the extraction method. The Kaiser-Meyer-Olkin test value was .97, which suggests the sample was acceptable for conducting an EFA. The decrease in eigenvalues leveled off at five factors, with four factors having eigenvalues greater than 1.0. Parallel analysis confirmed that four factors should be retained in the solution. An oblique rotation, which was selected to allow correlation among the factors, was performed and used to determine the number of factors and item pattern.

The total variance accounted for by four factors was 64%. The item communalities were all above 0.5. Item pattern (i.e., > 0.4) and structure (i.e., > 0.5) coefficients were examined to determine the relationship of the items to the factors. Twenty-nine items clearly aligned to one factor and three items loaded in multiple factors. In a review of the item patterns, it was determined by the researchers that the three items theoretically fit in specific factors. The fourth factor only aligned with three items. In an expert review, it was determined that the three items differentiated enough from the other factors to warrant a separate factor. The alignment of items and factors are reported in Table 2.

Table 2

Alignment of Items and Factors based on EFA

Factor	Items
Individualized Supports and Practices	11, 13, 16, 17, 22, 23, 25, 26, 27, 28, 29, 30, 31, 32
Schoolwide Supports and Practices	1, 2, 3, 4, 5, 8, 10, 12, 14, 24
Targeted Supports and Practices	6, 7, 9, 15, 18, 33
Collaborative Supports and Practices	19, 20, 21

The first factor was named *Individualized Supports and Practices*. This factor contained 14 items focused on school counselors' knowledge and skills for supporting students individually based on need. Examples of items on the Individualized Supports and Practices factor included: "Selecting and using materials that respond to cultural, gender, or developmental differences" and "Methods for diffusing or deescalating student's social/emotional problems." The second factor was *Schoolwide Supports and Practices*, with 10 items focused on school counselors' knowledge and skills of schoolwide and team-based efforts aimed at supporting all students and preventing student problem behavior and academic decline. Examples of items on the Schoolwide Supports and Practices factor included: "I know our annual goals and objectives for the schoolwide behavior program" and "I know our school's crisis intervention plan for emergency situations." Factor 3 was named *Targeted Supports and Practices* and contained six items. These items focused on school counselors' knowledge and skills related to providing targeted supports for small groups of students not responding positively to schoolwide prevention efforts. Examples of items on the Targeted Supports and Practices factor included: "I know the influence of cultural/ethnic variables on student's school behavior" and "Strategies for improving family–school partnerships." The fourth and final factor was *Collaborative Supports and Practices*, which contained three items focused on school counselors' knowledge and skills related to collaborating with school personnel to implement student interventions. An example item of the Collaborative

Supports and Practices factor was: "Collaborating with the school's IEP team to implement student's individualized education programs." This four-factor model served as our preferred model, but competing models were explored using CFA on the first subset from the sample.

CFA Using First Subset Sample

The competing models were examined to determine the best data–model fit by conducting a CFA using MPlus. The following models were tested: (a) one-factor model, (b) four-factor model, and (c) second-order four-factor model. Model modifications were allowed during the exploratory phases. The results of the CFA are reported in Table 3.

Table 3

Results of the Confirmatory Factor Analyses for the Exploratory Phase

	Competing Models	Chi-square	*df*	SRMR	RMSEA	90% CI, RMSEA	TLI	CFI	AIC
	Exploratory Analyses								
1	One-Factor (initial)	8,518.75	495	.057	.084	[.083, .086]	0.79	.80	168,279.20
	One-Factor (modification) [a]	4,465.60	478	.048	.060	[.059, .062]	0.89	.90	162,654.94
2	Four-Factor (initial)	5,619.01	489	.058	.068	[.066, .069]	0.86	.87	164,253.62
	Four-Factor (modification) [b]	3,866.27	481	.048	.055	[.054, .057]	0.91	.92	161,407.48
3	Four-Factor second order	5,632.53	491	.058	.068	[.066, .069]	0.86	.87	164,270.54
	Four-Factor second order (modified) [b]	3,866.27	483	.048	.055	[.054, .057]	0.91	.91	161,432.63
	Confirmatory Analysis								
	Four-Factor second order	5,424.82	490	0.058	0.066	[.065, .068]	0.87	.88	164,999.81
	Four-Factor second order (modified) [b]	4,468.62	483	0.051	0.060	[.058, .062]	0.89	.90	163,723.53

Note. All chi-square tests were statistically significant at < .001.
[a] Seventeen correlated error variances were estimated. [b] Eight correlated error variances were estimated.

The initial one-factor model did not fit the data (chi-square = 8,518.75, $df = 495$, $p < .001$; RMSEA = .084, 90% CI [.083, .086]; CFI = .80; SRMR = .057), but after modification (i.e., 17 correlated error variances between observed variables), the one-factor model had an adequate fit (chi-square = 4,465.60, $df = 478$, $p < .001$; RMSEA = .060, 90% CI [.059, .062]; CFI = .90; SRMR = .048). Reasonable data–model fit was obtained for the modified models in both the four-factor and four-factor second-order models (see Table 3). Modifications included freeing eight correlated error variances between observed variables. A content expert reviewed the suggested modification to determine the appropriateness of allowing

the error variances to correlate. In all but one case, the suggested correlated item error variances were adjacent to each other on the survey (i.e., item 2 with 3, 6 with 7, 11 with 12, 17 with 18, 20 with 21, 22 with 23, and 27 with 28). Given the proximity of the items, it was plausible that some systematic error variance between items would correlate. The only pair of items that were not adjacent were item 5 and item 19. Both of these items referred to the school's teacher assistance team. For all the models, the path coefficients were statistically significant ($p < .001$).

Results of the Satorra-Bentler scaled chi-square difference test suggested that the four-factor model was a better model than the one-factor model ($p < .001$), and there was no statistically significant difference between the four-factor model and the second-order four-factor model. Because of the high intercorrelations among the factors (ranging from .81 to .92), the second-order four-factor model was tested using the second subset from the sample.

Confirmatory Phase

The holdout sample of 2,033 participants was used to verify the second-order four-factor model. The initial model (see bottom of Table 3) with no modifications suggested the model marginally fit the data (chi-square = 5,424.82, RMSEA = .066, CFI = .88, SRMR = .058). After modifying the model by allowing for the eight correlated error variances, which were the same eight correlated error variances identified in the exploratory stage, as expected there was an improvement in the model fit (chi-square = 4,468.62, RMSEA = .060, CFI = .90, SRMR = .051). The observed item loading coefficients and standard errors are reported in Table 4. All coefficients are statistically significant and all above 0.50, suggesting stable item alignment to the factor being measured. Coefficient alpha values were 0.95 for total score with all items, 0.88 for Factor 1 (Individualized Supports and Practices), 0.86 for Factor 2 (Schoolwide Supports and Practices), 0.78 for Factor 3 (Targeted Supports and Practices), and 0.65 for Factor 4 (Collaborative Supports and Practices). The results provide evidence that the SCKSS has potential to provide inferences about counselors' knowledge and skills for MTSS.

Discussion and Implications

The SCKSS was based on the TKSS, which measured teachers' knowledge and skills related to PBS. After adapting the survey to align to MTSS and the role of school counselors, this study aimed to examine the latent structure of the SCKSS for examining MTSS knowledge and skills. Using both exploratory and confirmatory factor analyses, results suggest that a second-order four-factor model had the best fit. The findings indicate that the SCKSS has high internal consistency with Cronbach's alpha for the total score at 0.95, and a range between 0.65 and 0.88 for each of the four factors. The first factor, Individualized Supports and Practices, contains 14 items; the second factor, Schoolwide Supports and Practices, contains 10 items; the third factor, Targeted Supports and Practices, contains six items; and the fourth factor, Collaborative Supports and Practices, is composed of three items. These findings confirm that the SCKSS yields valid and reliable inferences about school counselors' knowledge and skills for MTSS. Previous measures that were specific to school counselors focused on confidence and beliefs in implementing response to intervention (RtI; Ockerman et al., 2015; Patrikakou et al., 2016). Although these studies contribute to the literature by aligning RtI with the ASCA National Model, they did not focus on the specific knowledge and skills related to MTSS.

Table 4

Loading Coefficients and Standard Errors for Best Fitting Model

		Item	Loading	SE
Factor 1	*Individualized Supports and Practices*			
		11	.652	.014
		13	.735	.011
		16	.712	.013
		17	.762	.011
		22	.645	.014
		23	.674	.013
		25	.801	.009
		26	.736	.012
		27	.779	.010
		28	.799	.009
		29	.709	.012
		30	.753	.012
		31	.774	.010
		32	.772	.010
Factor 2	*Schoolwide Supports and Practices*			
		1	.816	.009
		2	.817	.010
		3	.813	.010
		4	.805	.010
		5	.612	.016
		8	.731	.012
		10	.755	.011
		12	.773	.011
		14	.659	.014
		24	.567	.017
Factor 3	*Targeted Supports and Practices*			
		6	.685	.015
		7	.664	.014
		9	.729	.012
		15	.766	.011
		18	.729	.012
		33	.764	.012
Factor 4	*Collaborative Supports and Practices*			
		19	.760	.013
		20	.618	.017
		21	.806	.012
	Higher order coefficients	F1	.968	.006
		F2	.872	.009
		F3	.911	.008
		F4	.944	.010

The four factors of the SCKSS can be used to support improvement practices through the use of targeted professional development. This extends previous research that found when school counselors received MTSS-focused training, there was an increase in knowledge and skills (Olsen, Parikh-Foxx, et al., 2016). Accordingly, the four factors of the SCKSS may provide a baseline of school counselors' knowledge and skills related to MTSS and help determine gaps that need to be addressed in pre-service and in-service training. Through targeted professional development and pre-service training activities, school districts and counselor educators can identify areas in which practitioners need additional training to increase knowledge and skills related to MTSS.

The four factors of the SCKSS align with MTSS tiers and school counselor roles recommended in the ASCA National Model (2019a). The first factor, Individualized Supports and Practices, aligns with the role of school counselors providing individualized indirect services (e.g., data-based decision-making, referrals) for students who need Tier 3 supports (Ziomek-Daigle et al., 2019). The second factor, Schoolwide Supports and Practices, aligns with the role of school counselors providing Tier 1 universal supports (e.g., school counseling lessons, schoolwide initiatives, family workshops) for all students (Sink, 2019). The third factor, Targeted Supports and Practices, aligns with Tier 2 supports provided by school counselors, including small group counseling and psychoeducational group instruction for students who do not successfully respond to schoolwide support services (Olsen, 2019). Finally, the fourth factor, Collaborative Supports and Practices, aligns with the school counselor's role across multiple tiers of support, providing access to community resources through appropriate referrals and collaborating and consulting with intervention teams (Cholewa & Laundy, 2019).

The SCKSS survey can also be used to improve current school counseling practices. This is an important consideration given Patrikakou et al. (2016) found that although school counselors reported feeling prepared to deliver Tier 1 counseling support services, they felt least prepared to collect and analyze data to determine the effectiveness of interventions. Given that the ASCA National Model (2019a) has a theme entitled Assess, school counselors should be trained to engage in program improvements that move toward positively impacting students. As such, using the SCKSS to improve MTSS practices has the potential to improve ASCA National Model–related activities.

Limitations

There are several limitations in the current study. First, respondents were from a national school counseling association. Their responses could have been influenced by having access to professional development and literature related to MTSS. Second, this was a self-report survey, so the respondents could have answered in a manner that was socially desirable. Third, given the 30% survey return rate, generalizing these results to the population of counselors is not recommended. Fourth, rewording item 6 to an internally oriented question about delivery of the school counseling program rather than school counselors' knowledge of another school service or system may have impacted the best fit model. Finally, because this was an online survey, only those with access to email and internet at the time of the survey had the opportunity to participate.

Future Research

Although participants in this study included a large national sample of school counselors, they were all members of a national association. Therefore, researchers could replicate this study with school counselors who are non-members and conduct further testing of the psychometric properties of the survey. Second, research could examine how professional development impacts specific aspects

of knowledge and skills in relation to student outcomes. That is, if school counselors have targeted professional development around each of the four factors, does that affect student outcomes in areas such as discipline, social/emotional well-being, school climate, or even academic performance? Finally, future studies could explore other variables that impact the development and application of school counselors' knowledge and skills for MTSS.

Conclusion

There is growing evidence supporting the impact of school counseling program and MTSS alignment (Betters-Bubon et al., 2016; Betters-Bubon & Donohue, 2016; Campbell et al., 2013; Goodman-Scott, 2013; Goodman-Scott et al., 2014). In order for school counselors to align their programs with MTSS and contribute to MTSS implementation, foundational knowledge and skills are essential. Given that research has shown that key factors such as school level (i.e., elementary, middle, high) and MTSS training impact school counselors' knowledge and skills for MTSS (Olsen, Parikh-Foxx, et al., 2016), the development and validation of an MTSS knowledge and skills survey to measure school counselors' knowledge and skills over time is an important next step to advancing school counseling program and MTSS alignment. The four factors of the SCKSS (i.e., Individualized Supports and Practices, Schoolwide Supports and Practices, Targeted Supports and Practices, Collaborative Supports and Practices) provide school counselors with an opportunity to reflect on their strengths and areas in need of improvement related to the tiers of the MTSS framework. Further application research and validation of the SCKSS is needed; however, this study indicates the SCKSS provides counselor educators, pre-service school counselors, and in-service school counselors with a tool to measure the development of MTSS knowledge and skills.

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