Characteristics of Effective School-Based, Teacher-Delivered Mental Health Services for Children

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Abstract

Purpose: The increasing need for school-based mental health services has altered teachers' involvement in mental health services. **Methods:** This study presents a meta-analysis from a previous systematic review to identify which study characteristics result in effective treatment outcomes. Specific treatment characteristics analyzed in this study include type of intervention, treatment modality, length of treatment, and type of measurement. Effect sizes were coded by internalizing and externalizing disorders, depending on the symptoms the corresponding treatments were intended to address. A final sample size included 9 independent effect sizes of internalizing behaviors and 21 effect sizes of externalizing behaviors. **Results:** Internalizing disorders, social skill interventions, classroom modalities, and medium treatment length were moderating treatment characteristics. No significant effects were found for externalizing disorders. **Conclusions:** These results further add to the research on teacher's role in school-based mental health services and provide important information for social workers who work in schools.

It is estimated that 10–25% of children and adolescents are affected by mental health challenges (Bains & Diallo, 2016; Kieling et al., 2011), and only 36% receive the necessary mental health services (Merikangas et al., 2011). Most mental health challenges that present in adolescents can be categorized as either internalizing or externalizing behaviors (Duhig, Renk, Epstein, & Phares, 2000; Eisenberg et al., 2001). According to *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (*DSM-5*; APA, 2013), internalizing behaviors are those with prominent anxiety, depressive, and somatic symptoms, while externalizing behaviors have prominent impulsive, disruptive conduct, and substance use symptoms. School-based mental health services address internalizing and externalizing behaviors of youth, and these services are designed to both prevent and intervene into mental health conditions (Marin et al., 2011; Springer, Sheridan, Kuo, & Carnes, 2007). School mental health services have expanded to address acute clinical needs such as substance use or trauma as well as school-based concerns such as challenged behavior in the classroom (M. D. Weist & Albus, 2004). Research into school services shows that school mental health services are more frequently provided to children and adolescents from backgrounds that may not receive other interventions from community providers of these services (Amaral, Geierstanger, Soleimanpour, & Brindis, 2011). This potentially makes mental health services accessible to a larger number of youths who may not receive services

(Eiraldi et al., 2016; Paternite, 2005). In school settings, social work and other health-care services are integrated into students' lives, both in terms of service delivery and service outcomes (Atkins, Hoagwood, Kutash, & Seidman, 2010; Gilman, Kawachi, Fitzmaurice, & Buka, 2002). Important to the focus of this article is the fact that school mental health services are interprofessional in practice, and different types of interventions and service providers including teachers are involved in the delivery of these services (Ball & Anderson-Butcher, 2014).

It is essential for school social workers to know how teachers can best be utilized in mental health services. Students spend most time during the school day with teachers, and teachers are often able to build strong rapport with their students because of this time spent in the classroom (Cohen & Angeles, 2006;

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Wang, Brinkworth, & Eccles, 2013). Consequently, teachers are valuable allies of school-based mental health services, as they refer students to services as well as implement mental health programs on campuses (Capp et al., 2016; Walter, Gouze, & Lim, 2006). Although previous research demonstrates the benefit of using teachers in school-based mental health services (Franklin, Kim, Ryan, Kelly, & Montgomery, 2012), these findings do not specify what makes teacher-delivered services effective or ineffective. A recent meta-analysis of school-based, teacher-delivered mental health interventions by Franklin et al. (2017) assessed the overall effectiveness of mental health interventions delivered by teachers in school-based settings. Franklin et al. found that teacher-delivered interventions were promising but not broadly effective, meaning that specific treatment characteristics may influence the effectiveness of these interventions. The present study aims to expand upon the original analysis by Franklin and colleagues by evaluating various program characteristics of teacher-delivered school-based mental health services in relation to clinical effectiveness of these services for youth through a secondary meta-analysis. This evaluation aims to move the discussion surrounding the role of teachers in mental health services from a question of involvement to a more nuanced discussion of how teachers can be effectively utilized in school-based mental health services.

Literature Review

Due to the shortage of mental health providers in U.S. schools (American Academy of Pediatrics, 2004; Walter et al., 2006), more teachers are involved in the delivery of school-based mental health interventions than in previous years. Teachers have always been vital to the success of any school-based mental health program (Franklin et al., 2012); however, the role of teachers may continue to shift from being a supportive figure to being the service provider due to the increasing demand for school-based mental health services (Han & Weiss, 2005; Weston, Anderson-Butcher, & Burke, 2008) and emerging focus on preventive mental health programs in schools (Corrieri et al., 2014; Whitley, Smith, & Vaillancourt, 2013).

A shift in service delivery by teachers has implications for school social work practice and how that school social workers may facilitate effective mental health intervention in schools. Though teachers have been critical in school mental health services, their comfort-facilitating services may vary depending on education level, relevant training, and supervision. The comfort teachers have taking the role of a facilitator could influence the effectiveness of service (Ransford, Greenberg, Domitrovich, Small, & Jacobson, 2009). The current empirical evidence remains inconclusive regarding the effectiveness of teacher-implemented mental health interventions. While studies on universal school-based mental health programs and other reviews of teacher-delivered mental health interventions show these interventions are generally effective (e.g., Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011, Franklin et al., 2012), additional studies are needed that can examine specific

interventions and moderators that contribute to outcomes (e.g., Reinke, Stormont, Herman, Puri, & Goel, 2011; M. Weist et al., 2009). Intervention effectiveness, for example, will likely vary based upon specific intervention characteristics such as modality (e.g., classroom vs. small groups), treatment length, and type of intervention (e.g., social skills training vs. cognitive-based therapies). In this regard, the specific effectiveness of teachers in the delivery of mental health interventions needs to be examined in relationship to the variations that exist in school-based mental health services to understand how social workers can work with teachers to deliver empirically supported practices that can contribute to students' mental health.

Characteristics Affecting Intervention Effectiveness

Type of intervention. It is essential to evaluate various characteristics of teacher-delivered, school-based mental health services that impact treatment outcomes. Social skills and classroom behavior deficits are often the first and most commonly identified behaviors in schools as a result of exposure to peers for extended periods of time. Therefore, to engage students in productive school participation, many schools offer social skills groups to address immediate challenges or use a social-emotional learning curriculum to prevent minor social skills deficits from intensifying. In fact, social skills training programs are the most prevalent components of school-based mental health services (Merrell & Gimpel, 2014). Additionally, cognitive behavioral modalities are frequently used in schools in the prevention and treatment of depression and anxiety and to change students' patterns of thinking or behavior in order to change how they feel (Werner-Seidler, Perry, Aalear, Newby, & Christnsen, 2017). Cognitive behavioral modalities are popular in school settings for several reasons. First, cognitive behavioral interventions can be used to address a number of mental health challenges among students (Ruffolo & Fischer, 2009; Stallard et al., 2015). Second, the majority of school-based cognitive behavioral interventions can be effectively delivered in group settings (Chiu et al., 2013), allowing more students to receive service at a time.

Intervention modality. The response to intervention (RTI) framework involves three modalities used in schools. Tier 1 modalities are school-wide approaches, which target all students in the school. These programs are commonly delivered in classroom settings as part of a manualized curriculum (Kearney, 2016). Tier 2 modalities provide student support in small groups rather than targeting an entire classroom or entire school. Examples of Tier 2 programs include homework groups, social skills groups, or grief and loss groups. Most students' mental health concerns can be effectively addressed by Tier 1 or Tier 2 programming, and it has been hypothesized that only 5% of students require treatment through a Tier 3 modality, which are intensive one-on-one therapeutic support services that often include special education services (Kelly, 2008). Theoretical and empirical literature has discussed teachers' involvements across tiers within the RTI framework

(Mesmer & Mesmer, 2008). Yet the clinical effectiveness of teachers' involvement in school-based mental health services remains inconclusive (Han & Weiss, 2005), with studies starting to report teachers being most effective in delivering Tier 1 interventions (Franklin et al., 2017, 2012).

Intervention length. In addition to treatment content (e.g., cognitive behavioral therapy vs. social skills training) and modality (e.g., Tier 1 vs. Tier 2), treatment length is another critical moderating factor for the clinical effectiveness of school-based mental health services (Durlak et al., 2011). Although some researchers and practitioners believe that relatively longer interventions are effective, the general psychotherapy literature reports that the duration and effectiveness of intervention are not directly associated with positive treatment outcomes (Freeman, James, Klein, Mayo, & Montgomery, 2016). In reality, lengthy mental health interventions can be an artifact of students' problems persisting. In schools, an intervention usually is not designed to last a whole semester, but because the student is not getting better, the intervention has to be prolonged throughout the semester. Additionally, because school-based services are embedded into a student's daily school life, sessions may be shorter, occurring between classes or during lunch periods. Therefore, brief and medium-length services (i.e., session length and number of lengths) are more suitable for school-based settings (Franklin, Moore, & Hopson, 2008).

Intervention measurement tools. No matter the content, modality, and duration of school-based mental health services, to fully understand and assess service outcomes, it is essential to consider how the programs are being evaluated. The credibility of empirical research studies mainly depends on the quality of the studies, including how and what data were collected and how outcomes were measured. Therefore, data collection and outcome measurement methods must be considered when evaluating the intervention characteristics that influence the effectiveness of school-based services. It is widely known that validated self-report standardized measurements are more reliable measurements (Stufflebeam, Madaus, & Kellaghan, 2000). In contrast, behavioral observations in school settings require training and fidelity checks of the individual(s) making the behavioral observations (Cross et al., 2015). While some behavioral observations offer high-quality assessment of schoolchildren's mental and/or behavioral outcomes, other forms of reporting (e.g., school attendance, number of referrals) have been questioned for their validity and reliability (Jordan & Franklin, 2016). Therefore, it is critical to consider how outcomes are being measured in research studies when evaluating the effectiveness of teacher-delivered school-based mental health services.

Study Aims

While there are a number of studies on school-based mental health services, there is limited information on how the characteristics of mental health services delivered by teachers

affect internalizing and externalizing mental health outcomes in children and adolescents. This study will extend the empirical literature on school-based mental health services by conducting a secondary moderator analysis to examine intervention modality, tiers of intervention, duration, and the effects of measures used. Results of the study will provide important information that can help guide school social workers, school administrators, and policy makers in the future design of mental health interventions delivered by teachers.

Method

Description of the Data set

This study provides a meta-analysis using data from a systematic review. A detailed description of how the original data set was collected and created can be found in the article by Franklin et al. (2017). Table 1 lists all of the included studies and study characteristics for this review. Briefly, the original meta-analysis study followed the Cochrane Collaboration guidelines (Higgins & Green, 2008), and a search was conducted across nine electronic databases and 19 intervention websites for studies published from 2000 to September 2016. Four primary search terms were used to conduct full-text searches across electronic databases and websites: "school*," "intervention*," "random*," and "teacher*." The data set included randomized control trial studies that examined the clinical effectiveness of teacher-delivered school-based mental health interventions for students' internalizing and/or externalizing behavior problems. In addition, a study needed to include sufficient statistical data to calculate at least one effect size for results to be included. Both published and unpublished studies were included in the extensive literature search process.

The data set was subsequently coded by four independent coders, who had both practice and research experiences in school-based mental health services, using a predeveloped coding sheet (available through contacting the first author). The coding sheet was initially developed by a group of senior school mental health researchers and practitioners specifically for this project. A pilot version of the coding sheet was tested in five studies and then modified for the final version. Data extracted included participants' and providers' characteristics (e.g., students' and teachers' demographic backgrounds, teachers' education and years of teaching), intervention characteristics (e.g., tiers of treatment, intervention, length of treatment), and study characteristics (e.g., nature of comparison, measurement used). Treatment outcomes were coded and then grouped into either internalizing or externalizing behaviors, according to *DSM-5* criteria (APA, 2013). The data set obtained satisfactory interrater agreement with a 96% before the codebook revision and a 93% agreement rate between coders after the codebook revision.

Moderators Evaluated

Internalizing and externalizing outcomes. Using the *DSM-5*'s categorization of internalizing and externalizing disorders (APA,

Table 1. Characteristics of Included Studies.

Included Studies	Treatment Modality[a]	Intervention	Measurement Type
Benner, Nelson, Sanders and Ralston (2012)	Tier 1	Cognitive behavioral only	Standardized measures
Botvin, Griffin, Diaz and Ifill-Williams (2001)	Tier 1	Combined approach	Nonstandardized measures
Botvin and Griffin (2006)	Tier 1	Combined approach	Standardized measures
Brown, Low, Smith and Haggerty (2001)	Tier 1	Combined approach	Standardized measures
Cappella et al. (2012)	Tier 1	Combined approach	Standardized measures and nonstandardized measures
Chaplin et al. (2006)	Non-Tier 1	Combined approach	Standardized measures
Crean and Johnson (2013)	Tier 1	Social skills only	Standardized measures
Eron et al. (2002)	Non-Tier 1	Social skills only	Standardized measures
Fonagy et al. (2009)	Tier 1	Cognitive behavioral only	Standardized measures
Frey et al. (2005)	Tier 1	Cognitive behavioral only	Standardized measures
Gillham et al. (2007)	Tier 1	Combined approach	Standardized measures
Gillham et al. (2012)	Tier 1	Combined approach	Standardized measures
Hecht et al. (2003)	Tier 1	Social skills only	Nonstandardized measures
Holt et al. (2008)	Non-Tier 1	Cognitive behavioral only	Standardized measures and nonstandardized measures
Iovannone et al. (2009)	Tier 2	Combined approach	Standardized measures
Leff et al. (2009)	Tier 2	Combined approach	Standardized measures
Leff et al. (2010)	Non-Tier 1	Combined approach	Standardized measures
MACSRG Study (2007)	Tier 1	Combined approach	Standardized measures
Metz, Fuemmeler and Brown(2006)	Tier 1	Combined approach	Standardized measures
Murray and Malmgren (2005)	Non-Tier 1	Social skills only	Standardized measures and nonstandardized measures
O'Neill, Clark and Jones (2011)	Tier 1	Social skills only	Standardized measures
Simonsen, Myers and Briere (2011)	Non-Tier 1	Cognitive behavioral only	Standardized measures
Spoth, Randall, Shin and Redmond (2005)	Non-Tier 1	Social skills only	Standardized measures and nonstandardized measures
Spoth et al. (2008)	Tier 1	Social skills only	Standardized measures & nonstandardized measures

Note. Tier 3 interventions were collapsed with Tier 2 interventions to form the category of non-Tier 1 due to an unbalanced sample size.

2013), studies were coded to distinguish internalizing outcomes (outcomes relating to symptoms of anxiety, depression, somatic symptoms, and other such outcomes) from externalizing outcomes (outcomes such as behaviors relating to impulse control, disruptive conduct, and substance use).

Intervention content. In the first analysis using this data set, Franklin et al. (2017) coded the intervention as follows: $0 = $ *social-skills-oriented only*, $1 = $ *cognitive behavioral only*, $2 = $ *peer mediation only*, and $3 = $ *combined approach*. For this secondary analysis, due to unbalanced sample size, this moderator was further regrouped into $0 = $ *social-skills-oriented only*, $1 = $ *cognitive behavioral only*, and $2 = $ *combined approach*. During the coding, the majority of the interventions in the sample were identified as social-skills-oriented only or contained more than one approach (e.g., cognitive behavioral treatment plus peer mediations or social skills training plus cognitive behavioral treatment). For the purpose of this analysis, "combined approach" includes all other interventions that were neither social skills training nor cognitive behavioral interventions.

Tiers of intervention. Tiers of intervention (modality) were coded using $0 = $ *classroom (Tier 1)*, $1 = $ *small group (Tier 2)*, and $2 = $

one-on-one (Tier 3). Due to unbalanced sample sizes, the variable was recoded with $0 = $ *classroom (Tier 1)*, $1 = $ *small group* or *one-on-one (non-Tier 1)*.

Duration of intervention. Duration of intervention was originally coded in "number of hours of intervention" and was then recoded coded as $0 = $ *less than 10 hr [brief]*, $1 = $ *at least 10 hr* and *up to 50 hr [medium]*, and $2 = $ *more than 50 hr [long]*.

Measurement used in primary studies. Measurement used in primary studies was coded $0 = $ *standardized measures* and $1 = $ *nonstandardized measures* (e.g., non-systematic behavioral observations, school records). Behavioral observation was coded as part of nonstandardized measures because of studies like Holt et al. (2008), where the researcher reported using behavioral observation but defined that method as examining a student's discipline referral and school attendance.

Data Analysis

The data set included 123 effect size estimates (small sample size corrected hedges' *g*, noted as *d* in this study) that were extracted from 24 primary studies. The fact that some studies reported multiple effect sizes introduced dependence into the

resulting estimates. While there are several principled approaches that handle this type of within-study dependence, like generalized least squares estimation (Gleser & Olkin, 2009) or robust variance estimation (Hedges, Tipton, & Johnson, 2010), these approaches require a large sample size to ensure reliable parameter estimation. Because this data set did not meet some of the criteria, we followed Ellis's (2010) recommendation to calculate a weighted average effect size estimate of all reported effect sizes that measured the same construct (internalizing behaviors, externalizing behaviors, or both) within the same study to ensure statistical independence of the data.

Fixed-effects and random-effects meta-analysis models were used to estimate an overall bias-corrected standardized mean difference treatment effect (d) for internalizing and externalizing behaviors (Cooper, Hedges, & Valentine, 2009). Having identified a significant degree of heterogeneity between primary studies ($p < .05$), moderator analyses were conducted using mixed-effects univariate meta-regression (van Houwelingen, Arends, & Stijnen, 2002) to investigate potential sources of heterogeneity by each of several moderators, including treatment modality, treatment format (classroom- or group-based), treatment length, and outcome measure used (standardized measure vs. behavioral observations). Effect size estimates were regressed on the above predictors in separate mixed-effects meta-regression models. All analyses were conducted in R software (R Development Core Team, 2008). Funnel plot and the Vevea and Woods (2005) weight function model analyses indicated absence of publication bias. Cochrane Collaboration's tool for assessing the risk of bias in randomized trials also indicated low risk of bias of studies in the data set.

Results

Descriptive Statistics

After combining multiple effect size estimates per the primary study, a final sample size included 9 independent effect sizes of internalizing behaviors and 21 effect sizes of externalizing behaviors. For internalizing behaviors, five primary studies (55.56%) examined interventions with multiple components, while four studies examined social-skills-oriented interventions. For externalizing behaviors, eight (40%) of the primary studies examined social skills interventions, another eight primary studies (40%) examined interventions with a combined approach to intervention, and four primary studies (20%) used a cognitive behavioral–oriented approach. Half of the primary studies of internalizing behaviors ($n = 4$) used classroom-based Tier 1 modalities for internalizing behaviors, and the other half ($n = 4$) of the studies used small-group-based Tier 2 modalities. In contrast, most primary studies of externalizing behaviors ($n = 16$) examined classroom-based Tier 1 modalities, with only 20% of the primary studies of externalizing behaviors ($n = 4$) using small-group-based Tier 2 modalities. Half of the primary studies of internalizing behaviors ($n = 2$) examined brief interventions and the other half ($n = 2$) examined medium-length interventions. For externalizing outcome

studies, two studies examined medium-length interventions, three studies examined brief interventions, and two studies examined long interventions. Most primary studies ($n = 7$, 77.78% for internalizing behaviors; $n = 15$, 71.43% for externalizing behaviors) used standardized measures, leaving two studies of internalizing behaviors and six studies of externalizing behaviors that used a combined measure of standardized and nonstandardized assessments (e.g., behavioral observation, school records). Table 2 presents results of both descriptive and meta-regression statistics.

Meta-Regression Analyses

Q-statistics for both internalizing and externalizing behaviors were statistically significant ($Q = 20.55$, $p < .05$ and $Q = 40.66$, $p < .05$, respectively). The overall intervention effect for internalizing behaviors, using a random-effects model, was statistically significant ($d = .13$, 95% confidence interval [CI] = [.03, .22], $p = .02$). In other words, on average, participants receiving school-based teacher-delivered mental health services reported .13 standard deviations (SD) higher than their counterparts in the control group, and this estimate was significantly different from zero. The overall intervention effect for externalizing behaviors, using a random-effects model, was not statistically significant ($d = .03$, $p = .23$). The difference in intervention effect between internalizing and externalizing behaviors was not statistically significant ($\beta_1 = -0.10$, $p = .08$). For intervention effects on internalizing behaviors, tiers of intervention significantly moderated intervention effect. Classroom-based interventions in primary studies reported significantly greater intervention effect for internalizing behaviors than small-group-based interventions ($\beta_1 = -0.30$, $p = .02$). Subgroup analysis indicated an overall significant intervention effect for internalizing behaviors across classroom-based interventions ($d = .22$, 95% CI [.11, .33], $p < .001$), while the overall effect of small-group-based interventions for internalizing behaviors was not significant ($d = -.08$, $p = .25$). In addition, type of measurement used in primary studies moderated treatment outcomes of internalizing behaviors. Outcomes evaluated using standardized measures were associated with significantly greater intervention effect than those measured by behavioral observations or a combined approach ($\beta_1 = -0.50$, $p < .01$). Internalizing behaviors measured by standardized measures showed an overall significant intervention effect size of $d = .19$, 95% CI [.09, .29], $p < .001$. In contrast, outcomes measured using behavioral observations or a combined approach showed an overall negative statistically significant intervention effect ($d = -.31$, 95% CI [−.58, −.04], $p = .04$), meaning the overall estimated effect size of outcomes measured by nonstandardized measures was .31 SD lower (i.e., worse performance) than the comparison group.

Intervention modality and intervention length did not significantly moderate treatment effects. For treatment effects on internalizing behaviors, only the social-skills-oriented intervention modality was found to have significant effects ($d =$

Table 2. Descriptive and Univariate Meta-Regression Analysis (With Merged Effect Size Per Study Using Weighted Average) for Internalizing and Externalizing Outcomes.

Moderators[a]	K	Estimate	[95% CI]	t	df	p Value
Overall estimates						
Internalizing	9	.13	[.03, .22]	2.63	29	.02
Externalizing	21	.03	[−.02, .08]	1.03	29	.23
Internalizing vs. externalizing	30	−.10	[−.21, .01]	−1.84	29	.08
Internalizing outcomes (df = 9, Q = 20.55)						
Treatment content						
Combination	5	.03	[−.13, .19]	0.37	8	.36
Social skills	4	.18	[.06, .30]	3.01	8	.01
Cognitive	—	—	—	—	—	—
Social skills vs. combination	9	.15	[−.04, .35]	1.52	8	.12
Cognitive vs. combination	—	—	—	—	—	—
Modality/tiers						
Tier 1	4	.22	[.11, .33]	3.80	7	.00
Non-Tier 1[b]	4	−.08	[−.26, .10]	−0.90	7	.25
Tier 1 vs. non-Tier 1	8	−.30	[−.51, −.09]	−2.81	7	.02
Duration						
Medium	2	.19	[.02, .36]	2.23	4	.05
Brief	2	.24	[−.03, .50]	1.76	4	.09
Brief vs. medium	4	.04	[−.27, .36]	0.28	4	.36
Measurement						
Survey	7	.19	[.09, .29]	3.64	8	.00
Observation	2	−.31	[−.58, −.04]	−2.26	8	.04
Survey vs. observation	9	−.50	[−.79, −.21]	−3.38	8	.01
Externalizing outcomes (df = 21, Q = 40.66)						
Treatment content						
Combination	8	.12	[.03, .21]	2.68	19	.02
Social skills	8	−.03	[−.10, .04]	−0.94	19	.25
Cognitive	4	.00	[−.15, .14]	−0.01	19	.39
Modality/tiers						
Social skills vs. combination	20	−.15	[−.26, −.04]	−2.69	19	.02
Cognitive vs. Combination	20	−.12	[−.29, .05]	−1.39	19	.15
Tier 1	16	.04	[−.01, .09]	1.48	19	.13
Non-Tier 1[b]	4	−.19	[−.42, .03]	−1.67	19	.10
Tier 1 vs. non-Tier 1	20	−.23	[−.46, .00]	−1.96	19	.06
Duration						
Medium	2	−.05	[−.18, .08]	−0.81	6	.27
Brief	3	.05	[−.09, .18]	0.67	6	.30
Long	2	−.04	[−.40, .32]	−0.20	6	.38
Brief vs. medium	7	.10	[−.09, .29]	1.04	6	.21
Long vs. medium	7	.02	[−.37, .40]	0.08	6	.38
Measurement						
Survey	15	.03	[−.02, .08]	1.07	20	.22
Combination	6	.00	[−.20, .20]	0.00	20	.39
Survey vs. combination	21	−.03	[−.23, .18]	−0.27	20	.38

Note. K = number of effect size estimates reported.
[a]For moderators, if a row contains only one category, it reports the overall treatment effect size of the subgroup. If a row contains two categories (with vs.), it reports moderator analysis that examines the difference of effect size between two categories.
[b]Tier 3 interventions were collapsed with Tier 2 interventions to form the category of non-Tier 1 due to an unbalanced sample size.

.18, 95% CI [.06, .30], $p < .01$). Interventions using a combined approach did not result in a significant treatment effect ($d = .03$, $p = .36$). For intervention length, the overall effect for "medium-" length treatment was statistically significant for internalizing behaviors ($d = .19$, 95% CI [.02, .36], $p < .05$), but the effect was not found to be statistically significant for "brief" interventions ($d = .24$, $p = .09$).

For externalizing behaviors, only intervention modality was found to significantly moderate treatment effects. Interventions with a combined approach reported an overall significant intervention effect ($d = .12$, 95% CI [.03, .21], $p < .02$). Moreover, the difference between effects for combined approach versus social-skill-oriented interventions was statistically significant ($\beta_1 = −0.15$, $p = .02$), favoring the combined approach.

Discussion

The results of this meta-analysis suggest how various program characteristics affect the treatment effects—and corresponding outcomes—of teacher-delivered school-based mental health interventions. The primary overall result indicates that the tiers of the intervention and the evaluation method significantly moderate treatment outcomes for internalizing behaviors. Although modality and length of services did not moderate the treatment outcomes, a subgroup analysis indicated that social skills training programs and medium-length services reported statistically significant overall treatment effects for internalizing outcomes. For externalizing disorders, however, the overall treatment effects were not significant.

Results of this study align with previous literature on RTI showing that tier of intervention as a moderating variable for internalizing disorders and specifically that teachers are more effective in delivering classroom-based Tier 1 interventions for internalizing disorders than other intervention tiers (Franklin et al., 2017), which could be due to teachers' professional experience instructing classrooms. For example, Tier 1 interventions are often curriculum-based and contain a lot of psychoeducation elements (e.g., 8 weeks of classroom instruction on substance use). Other studies have also found that teachers and other school staff may be as effective as outside mental health professionals in delivering interventions for anxiety but not for depression suggesting a difference based on student problems (Werner-Seidler et al., 2017). The analysis in this study yielded an overall statistically significant treatment effect size estimate for classroom-based Tier 1 interventions but not for small-group-based Tier 2 interventions. This result maintains previous findings that demonstrate Tier 2 or group interventions to be less effective when delivered by teachers (Franklin et al., 2017), and this finding has implications for how school social workers may assist teachers in making referrals when Tier 2 interventions are needed. Tier 2 interventions are small groups targeted for students with higher levels of need that cannot be addressed in a classroom-level intervention (e.g., grief and loss group). Therefore, the clinical need may be more acute and require formalized clinical training to address. It is possible that Tier 2 interventions require a set of clinical skills that are the outside of teachers' professional training and experiences (Anwar-McHenry et al., 2016; Han & Weiss, 2005) and are best left to the work of school social workers and other mental health professionals.

In addition, results indicated that the measurement instrument was a moderating variable for treatment effect sizes for internalizing disorders. This suggests that, for internalizing disorders, the way researchers collected data affected the effectiveness of the intervention. The authors were not surprised by this finding, especially after considering the sensitivity and reliability of standardized measurements for internalizing behaviors. Nonstandardized measures of internalizing behaviors are often questioned for reliability and validity because sufficient training is needed for an evaluator to observe and track behavior. This result has implications for how programs are evaluated, especially in settings such as schools where resources and time may be limited for use and training on standardized measures and for teacher-implemented programs. In sum, when evaluating intervention programs and characteristics, it is essential to consider the manner in which the data were collected and how the method of data collection affects the evaluation.

The intervention modality did not moderate outcomes for internalizing behaviors, and surprisingly, this lack of differences between school interventions have also been found in other studies (Werner-Seidler et al., 2017). A subgroup analysis within this study, however, indicated an overall significant outcome for social skills training programs but not for other programs, and this finding has implications for specific areas that teachers may be most helpful in school mental health interventions. Specifically, social skills training is an area that school social workers can support teachers in the delivery of potentially effective interventions. Interactions with peers in classrooms and other school settings could demonstrate an area of need for students, which explains why social skills programming is common in school-based mental health practice and research. The presence of social skills interventions in schools (Domitrovich, Durlak, Staley, & Weissberg, 2017) and the early identification of social skills deficits in students (Green et al., 2013) could be possible explanations for this result and provides support for social workers to follow in supporting teacher interventions. It may be necessary to have a school social worker identify other presenting mental health problems (e.g., depression), which may require a formal assessment by social workers or other mental health professionals but social skills deficits can be empirically observed by teachers and are consistent with classroom instruction, prevention, and Tier 1 interventions.

In regard to program evaluation, social skills programming in school settings is delivered in different formats. For example, characteristics of social skills programming include the service delivery format (i.e., Tier 1, Tier 2, and Tier 3) and the length of the intervention. Relating to the length of treatment, the small sample size prevents the analysis from comparing long-term interventions against medium-length and brief interventions. However, it was possible to compare medium-length interventions and brief interventions. The medium-length interventions were overall significant for internalizing disorders, while brief interventions were not. Future studies may want to examine further the length of interventions and the difference in instructional content within brief and medium-length interventions to better examine the effects of interventions.

This result could be explained by the time it takes to build rapport between the teacher and the students. However, most existing mental health literature focuses on mental health professionals delivering services, not teachers. With that said, the rapport built between teachers and students and the amount of time they spend together on a day-to-day basis is a major point of support for the involvement of teachers in school-based mental health services (Poulou, 2017). This analysis adds to the literature on the involvement of teachers in school mental

health as it evaluated which characteristics resulted in positive treatment outcomes.

For externalizing disorders, analysis of the data showed that the overall treatment was not significant. However, a combined approach (e.g., cognitive behavioral therapy and peer mediation) for interventions targeting externalizing disorders reported a statically significant treatment effect size. Furthermore, the difference between the combined and social-skill-oriented modalities was statistically significant, with interventions that used a combined approach reporting significantly greater treatment effect sizes than social-skill-oriented interventions alone. This result is somewhat surprising, given that at first, it seems to contradict the empirical literature on the effectiveness of social-skills-oriented interventions. Yet after accounting for the fact that most empirical evidence comes from school interventions that address internalizing behaviors, this particular result may offer new evidence of interventions with a combined approach being more effective for externalizing behaviors. Etiology of children's and adolescents' externalizing behaviors is highly complicated and often includes multiple causes and contributing factors (Liu, 2004). Therefore, a combined approach of school-based interventions that uses cognitive behavioral therapy techniques and social skills training is more likely to comprehensively address the various causes of and factors contributing to schoolchildren's mental health challenges, which would result in greater treatment effects and outcomes.

Limitations

This meta-analysis has three limitations. Firstly, it is important to note that this evaluation has limited applicability due to its relatively small sample size. As the studies were coded for evaluation, the sample within the categories remained small (e.g., $n = 4$ for classroom-based Tier 1 interventions), which limits the generalizability of the findings. However, conclusions drawn from this analysis can guide future research and the formation of teacher-based mental health programming in schools. Second, the research on teacher-delivered mental health interventions in schools is limited. As a result, this article was not able to extract enough data to include important variables such as teacher training in the intervention or teacher level of education in the analysis. These variables may influence the effectiveness of an intervention and should be further explored. Third, this review did not include single subject design studies, and these studies may have contributed additional externalizing effect sizes and may have provided insight into the reliability of the direct behavioral observations.

Conclusion

In practice, teachers are an essential part of school-based mental health services and work as partners with school social workers in helping students (Berzin et al., 2011). For example, teachers often make referrals to school social workers with the intention of linking students to available emotional and mental support and community services. Additionally, teachers spend a large amount of time with students in classroom settings and have the capacity to build strong rapport with students. Consequently, school social workers and other educators know that *teachers have a role in school-based mental health services but the* question is: *What role do teachers have in school-based mental health services?* To begin addressing the question, this article focused on characteristics of school-based mental health services implemented by teachers and treatment characteristics that are associated with greater treatment effects. The results build a case for the investigation of teacher's delivering Tier 1 (classroom)-level interventions and suggest that the services teachers provide are most effective in medium-length rather than brief interventions. Tier 2 and other mental health interventions may be more effective in the hands of school social workers and other trained mental health professionals. Future areas of research may include examining the influence of facilitator-specific characteristics such as teacher education level, teacher training on the intervention, and teacher supervision during implementation.

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References

Amaral, G., Geierstanger, S., Soleimanpour, S., & Brindis, C. (2011). Mental health characteristics and health-seeking behaviors of adolescent school-based health center users and nonusers. *The Journal of School Health*, *81*, 138–145. doi:10.1111/j.1746-1561.2010.00572.x

American Academy of Pediatrics. (2004). School-based mental health services. *Pediatrics*, *113*, 1839–1845. doi:10.1542/peds.113.6.1839

American Psychiatric Association, DSM-5 Task Force. (2013). *Diagnostic and statistical manual of mental disorders: DSM-5* (5th ed.). Arlington, VA: American Psychiatric Association.

Anwar-McHenry, J., Donovan, R. J., Nicholas, A., Kerrigan, S., Francas, S., & Phan, T. (2016). Implementing a mentally healthy schools framework based on the population wide act-belong-commit mental health promotion campaign: A process evaluation. *Health Education*, *116*, 561–579. doi:10.1108/HE-07-2015-0023

Atkins, M. S., Hoagwood, K. E., Kutash, K., & Seidman, E. (2010). Toward the integration of education and mental health in schools. *Administration and Policy in Mental Health and Mental Health Services Research*, *37*, 40–47. doi:10.1007/s10488-010-0299-7

Bains, R. M., & Diallo, A. F. (2016). Mental health services in school-based health centers: Systematic review. *The Journal of School Nursing*, *32*, 8–19. doi:10.1177%2F1059840515590607

Ball, A., & Anderson-Butcher, D. (2014). Understanding teachers' perceptions of student support systems in relation to teachers' stress. *Children & Schools*, 36, 221–229. doi:10.1093/cs/cdu017

Benner, G. J., Nelson, J. R., Sanders, E. A., & Ralston, N. C. (2012). Behavior intervention for students with externalizing behavior problems: Primary-level standard protocol. *Exceptional Children*, 78, 181–198. doi:10.1177/001440291207800203

Berzin, S. C., O'Brien, K. H. M., Frey, A., Kelly, M. S., Alvarez, M. E., & Shaffer, G. L. (2011). Meeting the social and behavioral health needs of students: Rethinking the relationship between teachers and school social workers. *Journal of School Health*, 81, 493–501. doi:10.1111/j.1746-1561.2011.00619.x

Botvin, G. J., Griffin, K. W., Diaz, T., & Ifill-Williams, M. (2001). Preventing binge drinking during early adolescence: One- and two-year follow-up of a school-based preventive intervention. *Psychology of Addictive Behaviors*, 15, 360–365. doi:10.1037/0893-164X.15.4.360

Botvin, G. J., & Griffin, K. W. (2006). Preventing youth violence and delinquency through a universal school-based prevention approach. *Prevention Science*, 7, 403–408. doi:10.1007/s11121-006-0057-y

Brown, E. C., Low, S., Smith, B. H., & Haggerty, K. P. (2001). Outcomes from a school-randomized controlled trial of steps to respect: A bullying prevention program. *School Psychology Review*, 40, 423–443. Retrieved from: https://pdfs.semanticscholar.org/a671/a88b398441f2ce323f4d5767aca5e9adc6fe.pdf

Capp, G., Berkowitz, R., Sullivan, K., Astor, R. A., De Pedro, K., Gilreath, T. D., . . . Rice, E. (2016). Adult relationships in multiple contexts and associations with adolescent mental health. *Research on Social Work Practice*, 26, 622–629. doi:10.1177/1049731515624967

Cappella, E., Hamre, B., Kim, H. Y., Henry, D. B., Frazier, S. L., & Atkins, M. S. (2012). Teacher consultation and coaching within mental health practice: Classroom and child effects in urban elementary schools. *Journal of Consulting and Clinical Psychology*, 80, 597–610. doi:10.1037/a0027725

Chaplin, T. M., Gillham, J. E., Reivich, K., Elkon, A. G. L., Samuels, B., Freres, D. R., et al. (2006). Depression prevention for early adolescent girls: A pilot study of all girls versus co-ed groups. *Journal of Early Adolescence*, 26, 110–126. doi:10.1177/0272431605282655

Chiu, A. W., Langer, D. A., McLeod, B. D., Har, K., Drahota, A., Galla, B. M., . . . Wood, J. J. (2013). Effectiveness of modular CBT for child anxiety in elementary schools. *School Psychology Quarterly*, 28, 141–153. doi:10.1037/spq0000017

Cohen, E., & Angeles, J. (2006). School-based prevalence assessment of the need for mental health services: Survey development and pilot study. *Research on Social Work Practice*, 16, 200–210. doi:10.1177/1049731505283379

Cooper, H., Hedges, L. V., & Valentine, J. C. (Eds.). (2009). *The handbook of research synthesis and meta-analysis*. New York, NY: Russell Sage Foundation.

Corrieri, S., Heider, D., Conrad, I., Blume, A., König, H. H., & Riedel-Heller, S. G. (2014). School-based prevention programs for depression and anxiety in adolescence: A systematic review. *Health Promotion International*, 29, 427–441. doi:10.1093/heapro/dat001

Cross, W., West, J., Wyman, P. A., Schmeelk-Cone, K., Xia, Y., Tu, X., . . . Forgatch, M. (2015). Observational measures of implementer fidelity for a school-based preventive intervention: Development, reliability, and validity. *Prevention Science*, 16, 122–132. doi:10.1007/s11121-014-0488-9

Crean, H. F., & Johnson, D. B. (2013). Promoting alternative thinking strategies (PATHS) and elementary school aged children's aggression: Results from a cluster randomized trial. *American Journal of Community Psychology*, 52, 56–72. doi:10.1007/s10464-013-9576-4

Domitrovich, C. E., Durlak, J. A., Staley, K. C., & Weissberg, R. P. (2017). Social-emotional competence: An essential factor for promoting positive adjustment and reducing risk in school children. *Child Development*, 88, 408–416. doi:10.1111/cdev.12739

Duhig, A. M., Renk, K., Epstein, M. K., & Phares, V. (2000). Interparental agreement on internalizing, externalizing, and total behavior problems: A meta-analysis. *Clinical Psychology: Science and Practice*, 7, 435–453. doi:10.1093/clipsy.7.4.435

Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development*, 82, 405–432. doi:10.1111/j.1467-8624.2010.01564.x

Eiraldi, R., Power, T. J., Schwartz, B. S., Keiffer, J. N., McCurdy, B. L., Mathen, M., & Jawad, A. F. (2016). Examining effectiveness of group cognitive-behavioral therapy for externalizing and internalizing disorders in urban schools. *Behavior Modification*, 40, 611–639. doi:10.1177/0145445516631093

Eisenberg, N., Cumberland, A., Spinrad, T. L., Fabes, R. A., Shepard, S. A., Reiser, M., . . . Guthrie, I. K. (2001). The relations of regulation and emotionality to children's externalizing and internalizing problem behavior. *Child Development*, 72, 1112–1134. doi:10.1111/1467-8624.00337

Ellis, P. D. (2010). *The essential guide to effect sizes: Statistical power, meta-analysis, and the interpretation of research results*. New York, NY: Cambridge University Press.

Eron, L., Huesmann, R., Spindler, A., Guerra, N., Henry, D., & Tolan, P. (2002). A cognitive-ecological approach to preventing aggression in urban settings: Initial outcomes for high-risk children. *Journal of Consulting and Clinical Psychology*, 70, 179–194. doi:10.1037/0022-006X.70.1.179

Fonagy, P., Twelow, S. W., Vernberg, E. M., Nelson, J. M., Dill, E. J., Little, T. D., et al. (2009). A cluster randomized controlled trial of child-focused psychiatric consultation and a school systems-focused intervention to reduce aggression. *Journal of Child Psychology and Psychiatry*, 50, 607–616. doi:10.1111/j.1469-7610.2008.02025.x

Franklin, C., Kim, J. S., Beretvas, T. S., Zhang, A., Guz, S., Park, S., . . . Maynard, B. (2017). The effectiveness of psychosocial interventions delivered by teachers in schools: A systematic review and meta-analysis. *Clinical Child and Family Psychology Review*, 20, 333–350. doi:10.1007/s10567-017-0235-4

Franklin, C., Kim, J. S., Ryan, T. N., Kelly, M. S., & Montgomery, K. L. (2012). Teacher involvement in school mental health interventions: A systematic review. *Children and Youth Services Review*, 34, 973–982. doi:10.1016/j.childyouth.2012.01.027

Franklin, C., Moore, K., & Hopson, L. (2008). Effectiveness of solution-focused brief therapy in a school setting. *Children & Schools*, 30, 15–26. doi:10.1093/cs/30.1.15

Freeman, K., James, S., Klein, K., Mayo, D., & Montgomery, S. (2016). Outpatient dialectical behavior therapy for adolescents engaged in deliberate self-harm: Conceptual and methodological considerations. *Child & Adolescent Social Work Journal*, 33, 123–135. Retrieved from https://doi-org.proxy.uchicago.edu/10.1007/s10560-015-0412-6

Frey, K. S., Hirschstein, M. K., Snell, J. L., Edstrom, L. V. S., MacKenzie, E. P., & Broderick, C. J. (2005). Reducing playground bullying and supporting beliefs: An experimental trial of the steps to respect program. *Developmental Psychology*, 41, 479–491. doi:10.1037/0012-1649.41.3.479

Gilman, S. E., Kawachi, I., Fitzmaurice, G. M., & Buka, S. L. (2002). Socioeconomic status in childhood and the lifetime risk of major depression. *International Journal of Epidemiology*, 31, 359–367. doi:10.1093/ije/31.2.359

Gillham, J. E., Reivich, K. J., Brunwasser, S. M., Freres, D. R., Chajon, N. D., Kash-MacDonald, V. M., . . . Seligman, M. E. (2012). Evaluation of a group cognitive-behavioral depression prevention program for young adolescents: A randomized effectiveness trial. *Journal of Clinical Child & Adolescent Psychology*, 41, 621–639. doi:10.1080/15374416.2012.706517

Gillham, J. E., Reivich, K. J., Freres, D. R., Chaplin, T. M., Shatté, A., Samuels, B., . . . Seligman, M. E. (2007). School-based prevention of depressive symptoms: A randomized controlled study of the effectiveness and specificity of the Penn Resiliency Program. *Journal of Consulting and Clinical Psychology*, 75, 9–19. doi:10.1037/0022-006X.75.1.9

Gleser, L., & Olkin, I. (2009). Stochastically dependent effect sizes. In H. Cooper, L. V. Hedges, & J. C. Valentine (Eds.), *The handbook of research synthesis and meta-analysis* (2nd ed., pp. 357–376). New York, NY: Russell Sage Foundation.

Green, J. G., McLaughlin, K. A., Alegría, M., Costello, E. J., Gruber, M. J., Hoagwood, K., . . . Kessler, R. C. (2013). School mental health resources and adolescent mental health service use. *Journal of the American Academy of Child and Adolescent Psychiatry*, 52, 501–510. doi:10.1016/j.jaac.2013.03.002

Han, S. S., & Weiss, B. (2005). Sustainability of teacher implementation of school-based mental health programs. *Journal of Abnormal Child Psychology*, 33, 665–679. doi:10.1007/s10802-005-7646-2

Hecht, M. L., Marsiglia, F. F., Elek, E., Wagstaff, D. A., Kulis, S., Dustman, P., . . . Miller-Day, M. (2003). Culturally grounded substance use prevention: An evaluation of the keepin' it R.E.A.L. Curriculum. *Prevention Science*, 4, 233–248. doi:10.1023/A:1026016131401

Hedges, L. V., Tipton, E., & Johnson, M. C. (2010). Robust variance estimation in meta-regression with dependent effect size estimates. *Research Synthesis Methods*, 1, 39–65. doi:10.1002/jrsm.5

Higgins, J. P. T., & Green, S. (Eds.) (2008). *Cochrane handbook for systematic reviews of interventions*. Chichester, England: Wiley-Blackwell.

Holt, L. J., Bry, B. H., & Johnson, V. L. (2008). Enhancing school engagement in at-risk, urban minority adolescents through a school-based, adult mentoring intervention. *Child & Family Behavior Therapy*, 30, 297–318. doi:10.1080/07317100802482969

Iovannone, R., Greenbaum, P. E., Wang, W., Kincaid, D., Dunlap, G., & Strain, P. (2009). Randomized controlled trial of the prevent-teach-reinforce (PTR) tertiary intervention for students with problem behaviors: Preliminary outcomes. *Journal of Emotional and Behavioral Disorders*, 17, 213–225. doi:10.1177/1063426609337389

Jordan, C., & Franklin, C. (Eds.) (2016). *Clinical assessment for social workers* (4th ed.). Chicago, IL: Lyceum Book.

Kearney, C. A. (2016). *Managing school absenteeism at multiple tiers: An evidence-based and practical guide for professionals*. New York, NY: Oxford University Press.

Kelly, M. S. (2008). *The domains and demands of school social work practice: A guide to working effectively with students, families and schools*. New York, NY: Oxford University Press.

Kieling, C., Baker-Henningham, H., Belfer, M., Conti, G., Ertem, I., Omigbodun, O., . . . Rahman, A. (2011). Child and adolescent mental health worldwide: Evidence for action. *The Lancet*, 378, 1515–1525. doi:10.1016/S0140-6736(11)60827 -1

Leff, S. S., Gullan, R. L., Paskewich, B. S., Abdul-Kabir, S., Jawad, A. F., Grossman, M., . . . Power, T. J. (2009). An initial evaluation of a culturally adapted social problem-solving and relational aggression prevention program for urban African-American relationally aggressive girls. *Journal of Prevention & Intervention in the Community*, 37, 260–274. doi:10.1080/10852350903196274

Leff, S. S., Waasdorp, T. E., Paskewich, B., Gullan, R. L., Jawad, A. F., MacEvoy, J. P., . . . Power, T. J. (2010). The preventing relational aggression in schools everyday program: A preliminary evaluation of acceptability and impact. *School Psychology Review*, 39, 569–587. Retrieved from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3113534/

Liu, J. (2004). Childhood externalizing behavior: Theory and implications. *Journal of Child and Adolescent Psychiatric Nursing*, 17, 93–103. doi:10.1111/j.1744-6171.2004.tb00003.x

MAGSRG Study. The Metropolitan Area Child Study Research Group. (2007). Changing the way children ''think'' about aggression: Social-cognitive effects of a preventive intervention. *Journal of Consulting and Clinical Psychology*, 75, 160–167.

Marin, M. F., Lord, C., Andrews, J., Juster, R. P., Sindi, S., Arsenault-Lapierre, G., . . . Lupien, S. J. (2011). Chronic stress, cognitive functioning and mental health. *Neurobiology of Learning and Memory*, 96, 583–595. doi:10.1016/j.nlm.2011.02.016

Merikangas, K. R., He, J. P., Burstein, M., Swendsen, J., Avenevoli, S., Case, B., . . . Olfson, M. (2011). Service utilization for lifetime mental disorders in US adolescents: Results of the National Comorbidity Survey–Adolescent supplement (NCS-A). *Journal of the American Academy of Child & Adolescent Psychiatry*, 50, 32–45. doi:10.1016/j.jaac.2010.10.006

Merrell, K. W., & Gimpel, G. (2014). *Social skills of children and adolescents: Conceptualization, assessment, treatment*. New York, NY: Psychology Press.

Mesmer, E. M., & Mesmer, H. A. E. (2008). Response to intervention (RTI): What teachers of reading need to know. *The Reading Teacher*, 62, 280–290. doi:10.1598/RT.62.4.1

Metz, A. E., Fuemmeler, B. F., & Brown, R. T. (2006). Implementation and assessment of an empirically validated intervention program to prevent tobacco use among African-American middle-school youth. *Journal of Clinical Psychology in Medical Settings*, *13*, 229–238. doi:10.1007/s10880-006-9031-x

Murray, C., & Malmgren, K. (2005). Implementing a teacher-student relationship program in a high-poverty urban school: Effects on social, emotional, and academic adjustment and lessons learned. *Journal of School Psychology*, *43*, 137–152. doi:10.1016/j.jsp.2005.01.003

O'Neill, J. M., Clark, J. K., & Jones, J. A. (2010). Promoting mental health and preventing substance abuse and violence in elemen- tary students: A randomized control study of the Michigan model for health. *Journal of School Health*, *81*, 320–330. doi:10.1111/j.1746-1561.2011.00597.x

Paternite, C. E. (2005). School-based mental health programs and services: Overview and introduction to the special issue. *Journal of Abnormal Child Psychology*, *33*, 657. doi:10.1007/s10802-005-7645-3

Poulou, M. S. (2017). An examination of the relationship among teachers' perceptions of social-emotional learning, teaching efficacy, teacher-student interactions, and students' behavioral difficulties. *International Journal of School & Educational Psychology*, *5*, 126–136. doi:10.1080/21683603.2016.1203851

R Development Core Team. (2008). *R: A language and environment for statistical computing*. Vienna, Austria: R Foundation for Statistical Computing. Retrieved from http://www.R-project.org

Ransford, C. R., Greenberg, M. T., Domitrovich, C. E., Small, M., & Jacobson, L. (2009). The role of teachers' psychological experiences and perceptions of curriculum supports on the implementation of a social and emotional learning curriculum. *School Psychology Review*, *38*. 510–532.

Reinke, W. M., Stormont, M., Herman, K. C., Puri, R., & Goel, N. (2011). Supporting children's mental health in schools: Teacher perceptions of needs, roles, and barriers. *School Psychology Quarterly*, *26*, 1–13. doi:10.1037/a0022714

Ruffolo, M. C, & Fischer, D. (2009). Using an evidence-based CBT group intervention model for adolescents with depressive symptoms: Lessons learned from a school-based adaptation. *Child & Family Social Work*, *14*, 189–197. doi:10.1111/j.1365-2206.2009.00623.x

Simonsen, B., Myers, D., & Briere, D. E., III. (2011). Comparing a behavioral Check-In/Check-Out (CICO) intervention to standard practice in an urban middle school setting using an experimental group design. *Journal of Positive Behavior Interventions*, *13*, 31–48. doi:10.1177/1098300709359026

Spoth, R., Randall, G. K., Shin, C., & Redmond, C. (2005). Randomized study of combined universal family and school preventive interventions: Patterns of long-term effects on initiation, regular use, and weekly drunkenness. *Psychology of Addictive Behaviors*, *19*, 372–381. doi:10.1037/0893-164X.19.4.372

Spoth, R. L., Randall, G. K., Trudeau, L., Shin, C., & Redmond, C. (2008). Substance use outcomes 5 years past baseline for partnership-based, family-school preventive interventions. *Drug and Alcohol Dependence*, *96*, 57–68. doi:10.1016/j.drugalcdep.2008.01.023

Springer, K. W., Sheridan, J., Kuo, D., & Carnes, M. (2007). Long-term physical and mental health consequences of childhood physical abuse: Results from a large population-based sample of men and women. *Child Abuse & Neglect*, *31*, 517–530. doi:10.1016/j.chiabu.2007.01.003

Stallard, P., Skryabina, E., Taylor, G., Phillips, R., Daniels, H., Anderson, R., & Simpson, N. (2015). Can school-based CBT programs reduce anxiety in children? Results from the preventing anxiety in children through education in schools (PACES) randomised controlled trial. *European Psychiatry*, *30*, 190. doi:10.1016/S0924-9338(15)30152-8

Stufflebeam, D. L., Madaus, G. F., & Kellaghan, T. (2000). *Evaluation models: Viewpoints on educational and human services evaluation* (2nd ed.). Boston, MA: Kluwer Academic.

van Houwelingen, H. C., Arends, L. R., & Stijnen, T. (2002). Advanced methods in meta-analysis: Multivariate approach and meta-regression. *Statistics in Medicine*, *21*, 589–624. doi:10.1002/sim.1040

Vevea, J. L., & Woods, C. M. (2005). Publication bias in research synthesis: Sensitivity analysis using a priori weight functions. *Psychological Methods*, *10*, 428–443. doi:10.1037/1082-989X.10.4.428

Walter, H. J., Gouze, K., & Lim, K. G. (2006). Teachers' beliefs about mental health needs in inner city elementary schools. *Journal of the American Academy of Child & Adolescent Psychiatry*, *45*, 61–68. doi:10.1097/01.chi.0000187243.17824.6c

Wang, M. T., Brinkworth, M., & Eccles, J. (2013). Moderating effects of teacher–student relationship in adolescent trajectories of emotional and behavioral adjustment. *Developmental Psychology*, *49*, 690–705. doi:10.1037/a0027916

Weist, M., Lever, N., Stephan, S., Youngstrom, E., Moore, E., Harrison, B., . . . Lewis, K. (2009). Formative evaluation of a framework for high quality, evidence-based services in school mental health. *School Mental Health*, *1*, 196–211. doi:10.1007/s12310-009-9018-5

Weist, M. D., & Albus, K. E. (2004). Expanded school mental health: Exploring program details and developing the research base. *Behavior Modification*, *28*, 463–471. doi:10.1177/0145445503259498

Werner-Seidler, A., Perry, Y., Aalear, A. L, Newby, J. M., & Christnsen, H. (2017). *Clinical Psychology Review*, *51*, 30–47. doi:10.1016/j.cpr.2016.10.005

Weston, K. J., Anderson-Butcher, D., & Burke, R. W. (2008). Developing a comprehensive curriculum framework for teacher preparation in expanded school mental health. *Advances in School Mental Health Promotion*, *1*, 25–41. doi:10.1080/1754730X.2008.9715737

Whitley, J., Smith, J. D., & Vaillancourt, T. (2013). Promoting mental health literacy among educators: Critical in school-based prevention and intervention. *Canadian Journal of School Psychology*, *28*, 56–70. doi:10.1177/0829573512468852