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Abstract

Early childhood is an important period for the development of social, emotional and behavioral (SEB) skills. Deficits in these skills often lead to negative outcomes; thus, early identification is essential for the provision of services. Unfortunately, only a fraction of students with deficits are identified and receive services. One cause of this is the methods used to identify students, such as teacher nominations which do not identify all students in need (Dowdy et al., 2013). Proactive practices, such as universal screening, are a more systematic way of identification. The purpose of this review was to examine commonly used early childhood screeners and their evidence base, effectiveness, and the feasibility and accessibility of their use in early childhood settings. This critical review analysed 18 screeners using Southam-Gerow & Prinstein's (2014) review criteria for evidence-based treatments and a technical adequacy rubric based on Glover and Albers' (2007) considerations for evaluating universal screening assessments. Of the 18 screening tools reviewed, four screeners are highly recommended based on their technical adequacy and usability within early childhood settings. These results highlight the need for further research in the evaluation of early childhood universal screeners.

Keywords: early childhood, social-emotional challenges, universal screening, early intervention

Universal Screening in Early Childhood Populations: A Systematic Review

Social, emotional, and behavioral (SEB) knowledge and skills begin developing at a young age (Shonkoff & Phillips, 2000). These skills are crucial for life-span development as they assist in the communication of needs and wants and in forming positive relationships. (Denham et al., 2014). Young children who can clearly express and regulate their emotions are increasingly likely to develop and maintain positive educator and peer relationships (Wu et al., 2018), have greater self-confidence (Zakaria et al., 2020), have more positive feelings about learning (Bulotsky-Shearer et al., 2012), and achieve greater academic success in their early school years (Ramsook et al., 2020). Conversely, young children who enter preschool with lower social-emotional competence are more likely to develop fewer and less supportive educator and peer relationships, have lower self-confidence, have more negative attitudes towards school, and be at risk for social-emotional and academic difficulties (Denham et al., 2016).

It is estimated between 8 to 10% of children under the age of 5 years demonstrate clinically significant SEB problems, including difficulties with social interactions with parents and peers, delayed school readiness, and school-related problems (Gleason et al., 2016). The majority of children who receive SEB interventions receive them in the educational setting (Rones & Hoagwood, 2000). This places great responsibility on early childhood programs to promote SEB competence in young children and to make a systematic effort to identify children who may need additional supports in the social-emotional arena (Dvorsky et al., 2014).

Relationship Between SEB Challenges in Early Childhood on Future Schooling/Outcomes

SEB development, such as recognizing emotions and communication skills, are important for children to be able to effectively recognize and communicate their needs. Without these

skills, children will lack the social skills and emotional capacity needed to advocate for themselves and receive efficient social emotional support in later school years (Bridgeland et al., 2013; Raver, 2002). Negative attention as a result of low perception of school belongingness and conflict between educators and/or peers can lead to a rise in disciplinary actions, feelings of isolation during early development, and a lack of school support (Hamre & Pianta, 2001; Pianta & Stuhlman, 2004). About 8,700 children are expelled from state-funded preschool or prekindergarten classrooms each year and are expelled at three times the rate as K-12 students (Stegelin, 2018). Expulsion also disproportionately affects males with 79% of children expelled being males yet they only represent 54% of preschool children (Graves & Howes, 2011).

Importance of Early Identification and Intervention

Limited resources have prevented many children from receiving the requisite intervention support, despite the increasing prevalence of SEB problems during early childhood (Lane et al., 2012). Previous studies have demonstrated the strong relationship between early exposure to negative environmental factors (e.g., poverty, violence, parental substance abuse, and neglect) and the eventual development of SEB difficulties (Cappella et al., 2008). Furthermore, there is a clear link between the behaviors demonstrated by children throughout early childhood and those observed by educators of school-aged children and adolescents (Conroy & Brown, 2004).

These negative outcomes are even more worrying for students of color who are suspended and expelled at rates that exceed three times the rate of their White peers in early childhood programs (Gilliam, 2016). In 2011, the U.S. Department of Education Office for Civil Rights reported that African American children comprise 18% of all students in preschool; however, these students comprise 48% of students receiving more than one out-of-school suspension (U.S. Department of Education, 2014). This trend continues beyond preschool into elementary school and middle school (Skiba et

al., 2011), further highlighting the value of early identification of SEB problems in early childhood education. Across the literature, research in three areas supports the need for early identification of SEB concerns. First, while uncommon, indicators of SEB disorders may be present in children beginning at 2 years of age (Egger & Angold, 2006). Second, behavioral and emotional concerns have been demonstrated to persist over time (Lavigne et al., 1998). Third, early identification and intervention have demonstrated promising outcomes for improving the problem behaviors demonstrated throughout early childhood (Bagner et al., 2012). One promising measure for identifying individuals from a prevention framework is universal screening (Essex et al., 2009).

Common Methods of Identifying Children in Need of Supports

Three common ways that children are identified for SEB support include: (a) educator nominations, (b) parent referrals and, (c) universal screening. Educator nomination refers to the process whereby educators notice issues and refer students for services (Green et al., 2017). Many educators do not feel confident in their ability to identify students with emotional and behavioral issues (Askell-Williams & Lawson, 2013). In addition, many enter the profession with little to no training in early childhood development which can lead educators to under-identify internalizing behaviors and over-identify externalizing behaviors (Dowdy et al., 2013). Educator nominations may also be influenced by attitudes and beliefs that can lead to over- or under-identifying certain children above others (Loades & Mastroyannopoulou, 2010; Maniadaki et al., 2006). Parents and caregivers are also important sources of information, because parents observe behaviors in the home environment (Heyman et al., 2018) and often initiate mental health services for their children, but many parents and caregivers lack the knowledge or skills to identify children at risk for SEB problems (Jeong et al., 2017).

Early childhood programs can utilize universal screening tools to identify risk in children. Universal screening systematically

assesses all students and identifies those in need of further support. This is different from educator and parent nominations, which rely on educators and parents to notice and report signs of risk based upon their subjective understanding of mental health. Universal screeners can be developed using scientific theory and examined for their accuracy. Thus, universal screening also has the potential to be a more accurate method of identifying students because it may reduce the impact of biases on student referrals (Raines et al., 2012). Multi-tiered systems of support models like the pyramid model (Fox et al., 2003) encourage the use of universal screeners. The pyramid model is a tiered model developed to promote SEB development, skills development, and effective intervention in early childhood (National Center for Pyramid Model Innovations, n.d.). Utilization of the pyramid model in early childhood education has led to increases in children's social skills and decreases in challenging behaviors (Hemmeter et al., 2016) and has been implemented in Head Start, childcare classrooms, and university-affiliated early childhood centers. The endorsement of universal screening by this and similar models highlights its usefulness in identifying and addressing mental health needs. Universal screening is a valuable tool because it allows schools to engage in prevention and early intervention, which is especially important in early childhood settings as it can prevent the development of more severe behaviors later in life (Severson et al., 2007). To encourage the use for universal screening, reviews like this one are needed to outline the evidence base of different universal screeners.

Current Study

The present study examined the characteristics of commonly used early childhood assessments and their effectiveness for identifying preschool students who needed SEB support. Therefore, early childhood assessments were evaluated based on their bibliographies, their respective research literature, and corresponding psychometric evidence. The research questions for this study were twofold. First, do commonly-used early childhood

assessments have adequate evidence-based research to support decision-making? Many early childhood screeners, such as the Preschool and Kindergarten Behavior Scales (Merrell, 2002) were created decades ago and may not have recent research to support their continued use. Second, based on a review of the recent research, are the selected early childhood assessments effective at identifying SEB risk for preschoolers, and to what extent?

Method

Universal screening measures were reviewed for a number of inclusion criteria (i.e., must be peer reviewed studies, must be articles written in English, articles must have studies on SEB screening measures for the preschool age, and there must be at least one study on the screening measure within the past 10 years). Each measure was identified through a systematic search of electronic databases, including PsycINFO, Google Scholar, and ScienceDirect. The researchers used two key phrases in the search: early childhood social-emotional screening measure and preschool social-emotional screening measure. The manual for each tool, if available, was then reviewed to obtain information about the content and use of the tool, the scores and interpretations that each tool was designed to yield, and the psychometric properties of each tool. The psychometric properties of the identified measures were then evaluated, including: (a) reliability evidence, such as internal consistency, inter-rater reliability, test–retest reliability; (b) validity information including construct, content, concurrent, and predictive validity, and (c) sample adequacy such as the size and diversity of the validation sample. In addition, data were collected included: training required for administration, who can complete the measure, social-emotional domains targeted by each tool, length of time to administer, cost of the measure, and the age range for which each tool was designed. The screening measures included in the review were chosen by the soundness of their psychometric properties and usability within early childhood settings.

Measures

Review and Evaluation Criteria of Evidence-based Treatments

A modified version of the review criteria of evidence-based treatments presented by Southam-Gerow and Prinstein (2014) was used specifically to evaluate early childhood assessments for the purposes of this study. The criteria listed in Southam-Gerow and Prinstein, 2014 was adapted Adapted from Silverman and Hinshaw (2008), Division 12 Task Force on Psychological Interventions' reports (Chambless et al., 1998; Chambless et al., 1996), Chambless and Hollon (1998), Chambless and Ollendick (2001), and Chorpita et al. (2011). Chambless and Hollon (1998) described criteria for methodology. Critical aspects of universal screeners such as appropriateness for intended use, technical adequacy, and usability, described by Glover and Albers (2007) were also considered in the creation of the assessment evaluation rubric (see Table 1). Methods criteria were considered first to determine whether an assessment could at least be classified as a "possibly efficacious assessment." Methods criteria included study design (power and sample size), an identified independent variable, a clearly defined population, the assessed outcomes, and the appropriateness of the analyses used (i.e., appropriate sample size for detection of effects, and type of analysis makes sense for purpose of the study). Evidence criteria were determined at five different levels of effectiveness, with level one being the evidence-based gold standard and level five being an assessment that requires more evidence in order to determine effectiveness. Evidence criteria levels were: Well-Established Assessments (i.e., level one), Probably Efficacious Assessments (i.e., level two), Possibly Efficacious Assessments (i.e., level three), Experimental Assessments (i.e., level four), and Assessments of Questionable Efficacy (i.e., level five). If studies met all the methods criteria, then they automatically passed level five and were considered at least as an experimental assessment. The original form of this rubric was designed for the evaluation

of psychological treatments and interventions (Southam-Gerow & Prinstein, 2014). The authors chose to adapt this rubric for the use of evaluating the early childhood screening tools to create consistency across the selection of universal screening tools and the later selection of interventions and SEB curriculum.

Assessment Evaluation Rubric

The assessment evaluation rubric was created by the research team based on the critical aspects of universal screeners (e.g., normality, reliability, and validity results; Glover & Albers, 2007) which provide a more in-depth description of an assessment's efficacy (see Table 1). It is important for evaluative studies to provide evidence to determine if an assessment is applicable, accurate, and consistent for the population that it intends to serve. Assessing for reliability and validity helps rule out measurement biases and potentially misleading results (Karras, 1997). An assessment being adequately normed (i.e., "Is the normative sample representative, recent, and sufficiently large?"; Glover & Albers, 2007, p. 120) can indicate that it is standardized based on relevant demographic information. Since assessments can have adequate norms and standardization and still not be found reliable and/or valid (Cicchetti, 1994), it is important to consider each of these evaluation criteria when considering assessment effectiveness.

Sample and Procedures

The initial search for articles on early childhood SEB screeners across databases yielded 825 articles. This was followed by a title and abstract screening which narrowed the results to 155 articles. The research team then completed a full article screening to ensure that articles met criteria (was published within the last ten years, was an early childhood screener, and the primary purpose of study was to examine psychometric properties) resulting in a final 18 screening tools included in this review. In addition to research articles, the research team also reviewed five compendium reports on early childhood screeners for supplemental information (Denham et al., 2010; Moodie et al., 2014; Halle et al., 2011; Ringwalt, 2008; Sosna

& Mastergeorge, 2005). For the final articles included, the research team extracted data regarding the assessments' methodology, effectiveness, and applicability. For each of the 18 assessments discussed, an assessment bibliography was created that comprising the assessment manual and the related empirical studies.

Table 1

Assessment Evaluation Rubric

Considerations	Inadequate	Adequate	Strong
Adequacy of norms	Normative sample is lacking in two or more of the following dimensions of representativeness, recency and sample size.	Normative sample is lacking in one of the following dimensions of representativeness, recency and sample size.	Normative sample is representative, recent, and sufficiently large
Internal consistency reliability	Items may not measure the same construct and alternate forms are not comparable. Internal consistency coefficients are weak.	Items measure the same construct and alternate forms are comparable. Internal consistency coefficients are moderate.	Items measure the same construct and alternate forms are comparable. Internal consistency coefficients are large.
Test–retest reliability	Measurement is inconsistent over time.	Measurement is somewhat inconsistent over time.	Measurement is consistent over time.
Interscorer reliability	Scoring is inconsistent across scorers.	Scoring is consistent across scorers.	Scoring is consistent across scorers.
Predictive validity: Sensitivity	Of those *at risk*, less than 75% are correctly identified.	Of those *at risk*, between 75% - 80% are correctly identified.	Of those *at risk*, more than 80% are correctly identified.
Predictive validity: Specificity	Of those *not* at risk, less than 75% are correctly identified.	Of those *not* at risk, between 75% - 80% are correctly identified.	Of those *not* at risk, more than 80% are correctly identified.
Predictive validity: Positive predictive value	Of those *identified* as at risk, less than 75% are correctly identified.	Of those *identified* as at risk, between 75% - 80% are correctly identified.	Of those *identified* as at risk, more than 80% are correctly identified.
Predictive validity: Negative predictive value	Of those *identified* as not at risk, an inadequate amount are correctly identified.	Of those *identified* as not at risk a moderate amount are correctly identified.	Of those *identified* as not at risk, most are correctly identified.
Concurrent validity	The assessment outcome is not consistent with a criterion measure.	The assessment outcome is somewhat consistent with a criterion measure	The assessment outcome is consistent with a criterion measure.
Construct validity	Inadequate support is given that the assessment measures the construct for which it is designed (i.e. the assessment has a weak correlation with another comparable instrument or a strong correlation with an instrument designed to measure different skills).	Adequate support is given that the assessment measures the construct for which it is designed (i.e. the assessment has a moderate correlation with another comparable instrument).	Strong support is given that the assessment measures the construct for which it is designed (i.e. the assessment has a strong correlation with another comparable instrument or a weak correlation with an instrument designed to measure different skills).
Content validity	Weak evidence or explanation given for the appropriateness of the assessment format and items (e.g. item-discrimination coefficients, item difficulty indices and differential item functioning).	Sufficient evidence or explanation given for the appropriateness of the assessment format and items (e.g. item-discrimination coefficients, item difficulty indices and differential item functioning).	Strong evidence or explanation given for the appropriateness of the assessment format and items (e.g. item-discrimination coefficients, item difficulty indices and differential item functioning).

Assessments that were not developed or updated within the past ten years, but had empirical support in the past ten years were still included in the final review with a note that they should be used with caution since they had not been updated considering current cultural and diversity considerations. In this study, 17 assessments had empirical support within the past ten years and one assessment lacked recent empirical support. Next, reviews of empirical studies for each measure were completed based on the evidence-based criteria adapted from Southam-Gerow and Prinstein (2014). Team members were familiarized with the assessment evaluation rubric process through a didactic training led by the lead author. The lead author completed an individual rating and reviewed the steps with all team members to model the process of evaluating an assessment. After the didactic training, team members completed one individual assessment rating and had individual meetings with the lead author on any questions to complete the rating efficiently. Each rating was then reviewed to reach group consensus for an inter-rater reliability of 100% on completing the assessment's evaluation rubric. Following the first rating, each team member was assigned five assessments and added individual ratings to an Excel spreadsheet which were also reviewed for group consensus for inter-rater reliability. Any disagreements between the research team were reviewed by the lead author and then brought to the research team for final agreement. Table 2 represents the characteristics and psychometric properties of assessments classified as Level 1 and 2.

Table 2

Elements of Reviewed Screeners (Levels 1 and 2)

	PKBS-2	BASC-3 BESS	CBCL 1.5-5	DECA-P2
Age	3–6 years	3-5 years	1.5-5 years	3-5 years
Forms	Parent & Teacher	Parent & Teacher	Parent & Teacher	Parent & Teacher
# of Items	76	25	99	38
Time	12 mins	5 mins	10-20 mins	3-10 mins
Topics Assessed	Social cooperation, social interaction, social independence, externalizing and internalizing behaviors	Used to indicate the level of behavioral and emotional functioning of individual children	Emotionally Reactive, Anxious/Depressed, Somatic Complaints, Withdrawn, Sleep Problems, Attention Problems, Aggressive Behavior	Initiative, Self-Regulation, Attachment/Relationships, Behavioral Concerns
Languages	English Spanish	English Spanish	75 Languages	English Spanish
Scoring	Hand	Hand/Software/Online	Hand/Software	Hand/Online
Cost	$151 (Manual and 50 forms)	$84 - $452 (Manual and 10 Q-global BESS screeners)	$160-$350 (Hand-scoring kit or computer-scoring kit, ADM module, 50 CBCL 1.5-5 and C-TRF forms, manual, and multicultural supplement)	$229.95 for kit (Manual and set of 40 paper record forms); $299.95 for annual online license
Scale	4-point Likert Scale	4-point Likert Scale	3-point Likert Scale	5-point Likert Scale
Reliability	Adequate	Adequate	Strong	Strong
Validity	Adequate	Adequate	Strong	Strong
Normality	Strong	Strong	Strong	Strong
Level of Efficacy	2	2	1	1

Results

Assessments of Questionable Efficacy (Level Five)

There were two assessments judged to have questionable efficacy and, therefore, are not recommended to be implemented in their current version. The Vineland SEEC (Sparrow et al., 1998) was supported only by a literature review from 2014 using data from the initial psychometric properties (Gokiert et al., 2014). Due to a lack of empirical articles, the Vineland SEEC was not shown to have psychometric properties indicating its effectiveness with current early childhood populations. While the Creative Curriculum Development Profile assessment did have some recent research (Kim & Smith, 2010), results indicate negative and inconsistent outcomes (i.e., false positive and false negative results) between educators and parents.

Experimental Assessments (Level Four)

Seven assessment tools were found to require further evaluation of psychometric properties, due to insufficient technical adequacy data. The assessments rated as experimental include the Work Sampling System (WSS; Meisels et al., 1994); Denham's Affect Knowledge Test (AKT; Denham, 1986); Sutter-Eyberg Student Behavior Inventory-Revised (SESBI-R; Eyberg & Pincus, 1999); Battelle Developmental Inventory (BDI) Screening Test (Newborg, 2005); SSIS™ Social-Emotional Learning Edition (SSIS SEL; Elliott & Gresham, 2008); Parent's Evaluation of Developmental Status: Developmental Milestones (PEDS:DM; Glascoe & Robertshaw, 2007); and the Preschool Behavioral and Emotional Rating Scale (PreBERS; Epstein & Synhorst, 2008). Assessments evaluated at Level Four included little to no consideration of content validity (WSS, AKT, SESBI-R, BDI Screening Test, SSIS SEL, PEDS:DM), construct validity (WSS, PEDS:DM), and no empirical evidence found related to comparisons with other validated measures (AKT, PreBERS).

Possibly Efficacious Assessments (Level Three)

Five assessments were rated as possibly efficacious but need additional empirical support for the validity and comparableness to other well-established assessment tools. The assessments included the Preschool Learning Behaviors Scale (PLBS; McDermott et al., 2002), the Social Competence and Behavior Evaluation Scale (SCBE; LaFreniere & Dumas, 1995), the Carey Temperament Scales (CTS; Carey & McDevitt, 1995), the Strengths and Difficulties Questionnaires(SDQ; Goodman, 1997) , and The Children's Behavior Questionnaires (CBQ; Rothbart et al., 1994). Among these assessments, no consideration of content validity for four of the measures was found (PLBS, SCBE, CTS & CBQ). Finally, the SDQ was rated as a Level Three assessment because the majority of studies examining the psychometric properties of the tool were completed with adolescent populations rather than preschool-age children.

Probably Efficacious Assessments (Level Two)

Preschool and Kindergarten Behavior Scales (PKBS-2)

The PKBS-2 is a behavior rating scale designed for use with children ages 3 to 6 and is specifically designed to assist with intervention planning for children in preschool through kindergarten (Merrell, 2002). For additional information about the PKBS-2, see Table 2. The PKBS-2 received a Level 2, (probably efficacious assessment) using Southam-Gerow & Prinstein's (2014) review criteria because it met all methods criteria and was statistically similar to a well-established assessment (Wang et al., 2011). The evidence base of the PKBS-2 utilized sample sizes with sufficient power (Fernández et al., 2010; Merrell, 2002), had evidence of content and construct validity (Merrell, 2002; Tersi & Matsouka, 2020; Wang et al., 2011), provided adequate data analyses, and completed assessment of validity and reliability (Fernández et al., 2010; Wang et al., 2011). Additionally, the PKBS-2 was evaluated using an assessment evaluation rubric (See Table 1) and was reviewed on different screening elements for educators to consider (See Table 2). Based on this rubric, the PKBS-2

was found to have strong internal consistency (Benítez-Muñoz et al., 2011; Fernández et al., 2010; Major et al., 2017; Merrell, 2002; Tersi & Matsouka, 2020; Wang et al., 2011), adequate test-retest reliability (Merrell, 2002), and adequate interscorer reliability (Merrell, 2002). In addition, the PKBS-2 was found to have strong concurrent validity (Wang et al., 2011), construct validity (Tersi & Matsouka, 2020; Wang et al., 2011), and content validity (Fernández et al., 2010).

Behavioral and Emotional Screening System (BASC-3 BESS)

The BASC-3 BESS (Reynolds & Kamphaus, 2004) preschool form is intended to assess children between 3 to 5 years old. For additional information about the BASC-3 BESS, see Table 2. The BASC-3 BESS received a Level Two rating using Southam-Gerow & Prinstein's (2014) review criteria because it met all method criteria and was statistically similar to a well-established assessment based on a single empirical study (Dowdy et al., 2013). Following a review of the screener (see Table 2) using the assessment evaluation rubric (see Table 1), the BASC-3 BESS was found to be adequate in the following areas: test-retest reliability (Greer et al., 2015; Dever et al., 2018), interscorer reliability (Greer et al., 2015), internal consistency (Greer et al., 2015), specificity (Dever et al., 2018), positive predictive value (Dever et al., 2018), negative predictive value (Dever et al., 2018), concurrent validity (Dowdy et al., 2013), construct validity (Dowdy et al., 2013; Dever et al., 2018; Greer et al., 2015 & DiStefano et al., 2016), and content validity (Greer et al., 2015). However, this screener also had inadequate sensitivity (Dever et al., 2018).

Well-Established Assessments (Level One)

Child Behavior Checklist for Ages 1.5-5 (CBCL 1.5-5)

The CBCL 1.5-5 (Achenbach et al., 2001) preschool form was developed for use with children ages 1.5 to 5 years of age. See Table 2 for additional information regarding the CBCL 1.5-5. The CBCL 1.5-5 received a Level One rating using Southam-Gerow & Prinstein's (2014) review criteria because it met all methods criteria and was statistically similar to well-established assessments, including the BASC-2 Parent Rating Scale Preschool, as indicated by at least two

independent research studies and by two independent researcher teams (Aebi et al., 2010; Myers et al., 2010). Based on the technical adequacy rubric, the CBCL 1.5-5 displayed significant adequacy of norms (Cai et al., 2004; Ha et al., 2011; Ivanova et al., 2010; Tan et al., 2006), strong internal consistency (Dias et al., 2012; Pandolfi et al., 2009; Tan et al., 2006), construct validity (Ivanova et al., 2010; Pandolfi et al., 2009), positive predictive validity (Aebi et al., 2010) and content validity (Aebi et al., 2010; Myers et al., 2010).

Devereaux Early Childhood Assessment Preschool (DECA-P2)

The DECA-P2 (LeBuffe & Naglieri, 2012) is a measure of SEB strengths and deficits developed for use with preschool children from 3 to 5 years old. For additional details related to the DECA-P2 refer to Table 2. Based on the evaluation rubric adapted from Southam-Gerow & Prinstein (2014), the DECA-P2 was identified as a Level One assessment tool after meeting all methods criteria and was found to be statistically similar to other well-established assessments including the Conners Early Childhood scale (Conners, 2009) and the Preschool Behavioral and Emotional Rating Scale (Epstein & Synhorst, 2009). In addition, the DECA-P2 demonstrates significant adequacy of norms (Bulotsky-Shearer et al., 2013; LeBuffe & Naglieri, 2012), strong internal consistency with parent raters (alpha=.92) and educator raters (alpha=.95; Crane et al., 2011), strong construct validity (Bulotsky-Shearer et al., 2013; Conners, 2009; Epstein & Synhorst, 2009; Lien & Carlson, 2009), and strong content validity (Barbu et al., 2015).

Discussion

SEB skills are needed for young children to develop future relationships with peers and educators (Denham et al., 2016). Additionally, SEB skills are also associated with grades and academic performance as well as self-confidence and feelings toward school (Denham et al., 2016). Thus, it is important for schools to support the development of these skills and to identify and intervene with students who have SEB difficulties. Universal screeners can be

used to identify children who may need additional SEB supports at school. Early childhood programs have a range of screeners to choose from, but may not be aware of the screeners that are supported by current research. The current study addressed this need by reviewing current early childhood screeners, and identifying those screening tools which are supported by current research as well as those which need further research before they can be considered evidence-based.

This study reviewed 18 early childhood screeners for SEB problems based on peer-reviewed and published studies on the assessments over the last ten years and assessed the technical adequacy, effectiveness, and accessibility of each. The authors used both the adapted Southam-Gerow and Prinstein's (2014) review criteria for evidence-based treatments and a technical adequacy rubric adapted from Glover and Alber's (2007) considerations for evaluating universal screening assessments. Based on these criteria, four of the 18 screeners are strongly recommended for use in early childhood SEB screening, specifically within educational settings: Child Behavior Checklist for Ages 1.5-5, Devereaux Early Childhood Assessment Preschool, Behavioral and Emotional Screening System, and Preschool and Kindergarten Behavior Scales.

According to the current review, there are a limited number of early childhood universal screeners with adequate research support which are, therefore, advisable for use in schools. In addition, there is a need for further research into the psychometrics of early childhood SEB screeners. The authors had difficulty finding studies on the technical adequacy of early childhood screeners conducted by independent researchers in the last 10 years, but the tools which received ratings as Level One or Level Two screeners did show high levels of validity and reliability in identifying young children who may need additional SEB supports. A lack of diversity in the normative sample was a common theme throughout the literature and tools reviewed. The Level One and Level Two screeners identified in this review were found to have nationally representative

normative samples in terms of ethnic and racial composition, or contained peer reviewed studies published within the last decade that cited their effectiveness with diverse populations. For example, the first edition of the PKBS was criticized for its non-representative normative sample, but further data were collected to create a more representative sample to validate and refine the PBKS-2. Furthermore, there is a need for the development of more cost-effective screening tools. The prices of the most highly rated screeners in this review ranged from $100 - $1,084. Many early childhood programs, including Head Start programs, may not be able to afford either the screener or the necessary training. Easily accessible or free SEB screening tools are needed to ensure that all students at SEB risk are identified early to facilitate early intervention.

Limitations

Limitations of this review included its criteria for inclusion and exclusion, limiting the number of admissible studies. Studies written in languages other than English or those that were not peer reviewed (e.g., dissertations) were not included, which limited the number of articles used to review the assessments. However, these additional sources of information could have provided additional evidence related to currently available early childhood screeners. Additionally, the authors focused on 18 early childhood universal screeners rather than an exhaustive review of all available SEB screening tools available for this age group. Lastly, the rubrics used were adapted by the researchers. Other rubrics from the universal screening literature could have been utilized to examine the screeners, and these alternative rubrics may have highlighted different strengths and weaknesses that would also be helpful for schools and researchers.

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