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The Effects of Positive Behavioral Interventions and Supports on Emotional Regulation in Preschool Children

Alyssa Richardson
South Dakota State University, alyssajustine07@gmail.com

The Effects of Positive Behavioral Interventions and Supports on Emotional Regulation in Preschool Children: Literature Review

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Alyssa Richardson

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This Doctor of Nursing Practice (DNP) Project is approved as a credible and independent investigation by a candidate for the DNP degree and is acceptable for meeting the project requirements for this degree. Acceptance of this DNP Project does not imply that the conclusions reached by the candidate are necessarily the conclusions of the major department.

Dannica Callies, DNP, CNP, FNP-C, CNE Date
DNP Project Co-Advisor

Robin Brown, PhD, RN, CNE Date
DNP Project Co-Advisor

Heidi Mennenga, PhD, RN, CNE Date
Associate Dean for Academic Programs

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Abstract

Introduction: Emotional behavioral problems (EBP) seen at an early age have a major connection to children's preschool setting. EBPs have a significant effect on future long-term mental and physical health outcomes such as anxiety, disruptive behavior disorders (DBD), and depression. Positive Behavioral Interventions and Support (PBIS) is an evidence-based tiered framework that supports children and their behavioral needs.

Methods: The databases used for researching articles specific to PBIS effect on child emotional regulation were Sage, Ovid, PubMed, EBSCO, ERIC, Wiley, CINAHL, MEDLINE, Cochrane, and PsycINFO, which resulted in 43 articles; 18 met inclusion criteria. The level of articles includes 12 level I, four level IV, and two-level V.

Gaps: Gaps found in the literature include parental involvement in child's behavior, consistency of intervention and support, and child's home routine.

Recommendations for Practice: PBIS practice recommendations include establishing effective communication, consistent staff training, fair treatment of children creating a supportive environment for learning, and reassurance to school districts that the PBIS framework has shown to improve emotional behavioral outcomes post implementation as well as overall mental health. Identifying existing child individualized educational plans to support the appropriate progression of tiers and building strong implementation strategies of PBIS through communication and public support is critical in PBIS support.

Keywords: emotional behavioral problems, Positive Behavioral Interventions and Support, positive behavior, preschool behavior, mental health, self-regulation, disruptive

behavior disorders, challenging behavior, school behavior interventions, teacher observation of classroom adaption

The Effects of Positive Behavioral Interventions and Supports on Emotional Regulation in Preschool Children: Literature Review

Emotional behavioral problems (EBP) seen at an early age have a major connection to children's preschool setting (Shoshani & Slone, 2017). EBPs include prolonged, unpredictable, or destructive temper tantrums, aggression, or severe outbursts of loss of temper (Ogundele, 2018). EBPs have a significant effect on future long-term mental and physical health outcomes such as anxiety, disruptive behavior disorders (DBD), and depression. In addition, Kingsley et al. (2020) found that experiences during infancy and childhood had a significant effect on attachment and difficulties with self-regulation, forming relationships, and managing behaviors in adulthood. Furthermore, chronically irritable children are found to be more at risk for self-harm, posttraumatic stress disorder, and engaging in risky behavior (Ogundele, 2018).

Anger outbursts and aggression are the most frequent childhood DBDs that necessitate outpatient mental health referrals (Sukhodolsky et al., 2016). According to Ogundele (2018), in the most recent study on childhood behaviors between 2005 and 2011, 4.6% of children and young people had a history of DBD. Children and young people who were males, aged 3-17 were twice as likely than females aged 3-17 to have a DBD such as depression, anxiety, autism spectrum disorder, or disruptive mood dysregulation disorders (DMDD). Characteristics of DMDD are frequent episodes of anger, aggression, or severe temper tantrums, in addition to a persistent negative mood. In young children aged 3-17, DMDD had a prevalence rate of 0.8% to 3.3% with preschool children having the highest rate. According to the Centers for Disease Control and Prevention (2021), the most diagnosed mental disorders in children, aged 3-17, in

2016 to 2019 were ADHD, anxiety, behavior problems, and depression. Of the children diagnosed with a mental disorder, 8.9% were diagnosed with a behavior problem, 9.4% were diagnosed with anxiety, 4.4% were diagnosed with depression, and 9.8% were diagnosed with ADHD. Statistics reveal that 53.5% of the children diagnosed with a behavior problem received treatment, 59.3% of children diagnosed with anxiety received treatment, and 78.1% of children diagnosed with depression received treatment (Centers for Disease Control and Prevention, 2021). Shoshani and Slone (2017) state due to the emergence and increasing numbers of behavioral problems in preschool children, emotional and social support are essential. In addition, research has shown effective school-based interventions that are implemented for students early on have a positive correlation in emotional, social, and behavioral needs (McDaniel et al., 2021).

Positive Behavioral Interventions and Support (PBIS) is a three-tiered evidence-based framework that is aimed to support children socially, academically, and emotionally (Center on PBIS, 2022). The PBIS framework focuses on improving behavioral and academic outcomes by delivering effective behavioral interventions which improve the school's environment by promoting positive social skills and preventing problematic behaviors that increases time spent on learning (Center on PBIS, 2015). First, the schools implementing PBIS establish school-wide expectations for student behavior. The students and staff are taught the expectations, while staff learn how to approach disruptive behaviors demonstrated by any student (Bradshaw et al., 2012).

According to Keller-Bell and Short (2019), tier one is considered primary prevention of undesired behaviors. This tier is where 80% of students are assigned. They display few behaviors that need redirection, and the focus of this tier is to prevent

development of problem behaviors. Interventions in this tier include teaching and reinforcing the positive, expected behavior.

Tier two is secondary prevention where 15% of students are assigned. The goal is to reduce the number of problem behaviors while correcting the behaviors that were not improved with tier one interventions. Tier two includes more focused and intensive guidance such as continuing to reinforce the positive expected behavior, counting to 10, independently taking a break from an activity and rejoining once the child is "ready," and verbalizing the instructions given by the classroom staff.

Tier three is tertiary prevention of undesired behaviors. Five percent of students are assigned into this behavioral tier and most often have an individualized plan to support their growth in behavior. The goal is to reduce the intensity and prevalence of problem behaviors that have not improved with primary or secondary interventions (Keller-Bell & Short, 2019). Interventions in this tier include tier one and tier two strategies, individualized plan recommendations, and taking a break outside of the classroom and returning when the child is "ready." According to Lane et al. (2017), early detection and intervention of aggressive behavior is a key component of a prevention framework. Detecting aggressive behaviors at a preschool age as well as early in its onset will alleviate noncompliance issues, intervention time, and resources.

PICOT Question

In preschool children (P), how does implementing PBIS (I) compared to current practice of no PBIS (C) affect emotional regulation (O) over three months (T)?

Evidence Summary

The databases searched for articles included Sage, Ovid, PubMed, EBSCO, Education Resources Information Center (ERIC), Wiley, Cumulative Index to Nursing and Allied Health Literature (CINAHL), MEDLINE, Cochrane, and PsycINFO. Key words and phrases used to find articles were "positive behavior," "preschool behavior," "emotional behavioral problems," "positive behavior implementation and support," "mental health," "self-regulation," "disruptive behavior disorders," "challenging behavior," "school behavior interventions," and "teacher observation of classroom adaption." Inclusion criteria included peer-reviewed articles published between 2012 to 2021, written in the English language, and conducted in the United States. Articles that were published before 2012, written in a language other than English, and conducted outside of the United States were not considered. There were 43 articles retrieved, but only 18 articles met inclusion criteria, were graded, and utilized for this project. The evidence table can be found in Appendix A. The articles were graded using the Johns Hopkins Evidence Level and Quality Guide (Appendix B). Out of the articles that were reviewed and graded, 12 articles were level I, four articles were level IV, and two articles were level V (see Appendix C). Of the 18 articles, 11 were graded A, three were graded B, and four were graded C (see Appendix C).

Literature Review

Throughout the articles, it is evident there is a positive effect on behavioral practices or programs such as PBIS on a child's social, academic, and behavioral outcome. PBIS interventions at an early age promote a supportive environment where each child can thrive. The Teacher Observation of Classroom Adoption-Checklist can be

used as a guide to understand the effect of the PBIS interventions. Before implementation, it is imperative to recognize any underlying mental health needs of the child or any personal bias to best serve the child and provide the greatest outcome. PBIS is an ongoing practice that takes consistency and motivation to yield desired results.

Positive Behavioral Intervention and Support

According to Kittelman et al. (2019), PBIS has been adopted in over 25,000 schools. McDaniel et al. (2021) explained the consequences of impaired student behavior and academic outcomes including complex mental health issues, deviant behavior, exclusionary discipline, impaired peer relationships, and school dropouts. McDaniel et al. (2021) conducted a 3-year study of 23,042 students from one large urban school district that focused on Tier two intervention and supports. They found by reducing challenging behaviors, the rates of school discipline decreased, and a reduction in office discipline referrals (ODR) and school suspension was noted.

McDaniel et al. (2021) determined poverty level and racial diversity did not affect disciplinary outcomes. However, a study conducted by Bradshaw et al. (2012) revealed significant correlations between ODRs and characteristics such as race, special education status, cohort, and those who qualified for free and reduced meals. McDaniel et al. (2021) found in the 3 years of PBIS implementation there were significant positive effects between PBIS and decreased student suspension. However, Bradshaw et al. (2012) did not find any significance of PBIS implementation and student suspension in his 4-year study. In the articles referenced, it appears there is conflicting information regarding whether poverty or race effects ODRs. However, a reduction in challenging behaviors using PBIS does reflect positively on the rates of school discipline and ODRs.

Importance of Early Behavioral Intervention

According to the Center on PBIS (2022), the three-tiered framework addresses challenging behavior and prevention as well as promotes social-emotional competence in ages as young as birth to 5-year-olds, as well as school-aged. The tiers promote a nurturing relationship in a high-quality environment. These positive practices prevent challenging behavior by engaging children in developing social-emotional skills early on.

Lane et al. (2017) discussed the need and identified early behavioral interventions by offering additional intervention frameworks aimed to detect unwanted behaviors before they emerge into aggressive behaviors where evidence-based practices are needed. Children with emotional and behavioral disorders have a range of internalizing and externalizing behaviors that are detected in the school setting. Some of the internalizing behaviors include being withdrawn or anxious whereas externalizing behaviors include noncompliance and aggression. These behaviors impede on both instruction and the learning environment. If these behaviors are left unchecked, they will result in negative outcomes for the child and society. The negative outcomes may include mental health supports, impaired interpersonal relationships, peer rejection, limited school engagement and achievement, and unemployment. Early detection of these behaviors is crucial to provide the child the support they need (Lane et al., 2017).

According to Lane et al. (2017), early detection means early in their educational career but also in the onset of their behaviors. The screening and framework Lane et al. (2017) recommends focuses on identifying the need for support using a teacher-completed screening procedure in the fall, winter, and spring. Teachers complete these screenings and use this data in addition to students' academic scores, ODRs, and

attendance to decide which level of risk the child is and what support they require. Next, Lane et al, (2017) provides an evidence-based three-tiered model called Comprehensive, Integrated, Three-Tiered models (Ci3T). This model focuses on academic, behavioral, and social components. The behavioral portion of this model is the PBIS framework. The teacher's level of support is based on the Ci3T the child is most aligned. For example, all students have access to the support tier one provides and is considered a primary intervention. Tier two and three requires more guidance and redirection. Along with the tiers, this model recommends providing a mental health facilitator to ensure high-fidelity implementation. In their practice, they have found success in using both the screening and tiered framework to detect and support students' mental and behavioral health.

Lane et al. (2017) recommended designing, testing, and installing district-level data structures to inform efficient decision making, as well as designing, testing, and installing socially valid interventions to support students who are experiencing any behavior challenges. Screening children in the fall, winter, and spring supports early detection of behavioral and academic challenges. Lane et al. (2017) recommends providing high-quality professional learning to ensure the understanding and consistent use of the PBIS model. Along with high-quality professional learning, it is important to inform the parent/guardian to increase likelihood of their continued support.

In a study conducted by Shoshani and Slone (2017), the authors examined the effect of positive interventions on a child's mental health, well-being, and learning behaviors versus no intervention. The children completed pretests and post-tests of different measures while the parents and teachers of the children completed questionnaires. Shoshani and Slone (2017) found a significant effect on the children's

positive emotions, empathy, and life satisfaction while discovering that underlying mental health conditions may affect the ability to progress in the PBIS tiers.

In addition to early screening and intervention, Shoshani and Slone (2017) recommend adequate PBIS training and discussions focused on consistent training and fair treatment. Teachers' personal connection to the model or child could affect the intervention and outcome. They also recommend encouraging teachers to present practices in the classroom setting that promote wellbeing.

Shoshani and Slone (2017) found that a child's character after promoting and engaging in their wellbeing demonstrated a positive connection to the child's strengths such as perseverance, kindness, and positive social relationships from an early age. Armstrong (2019) also discussed wellbeing and mindfulness in his research on children. He found that being mindful is a self-regulation strategy that teaches children, other teachers, and administrators how to train their minds to control their behaviors, regulate their emotions, and cultivate healthy relationships with people around them.

Significance of TOCA-C

Bradshaw and Kush (2020) discuss how social workers and researchers have struggled to find an efficient method to assess social-emotional and behavioral aspects at baseline and its development over time. Teacher Observation of Classroom Adaption (TOCA) was created in the 1970's by a research center as a method to measure social adaption in the classroom and school setting. Trained evaluators would interview teachers about the children to understand their level of social adaption. TOCA was revised to be a more efficient written document that teachers could self-administer. It was called TOCA-R (revised). TOCA-R was a 10-item aggressive/disruptive behavior scale.

Currently, there is a new version of the TOCA-R called TOCA-C (checklist). According to Bradshaw and Kush (2020), this version includes items that assess social-emotional skills and family factors. There are 33 items rated on a six-point Likert scale. The instructions read "in the last three weeks, would you say the following statements were never, rarely, sometimes, often, very often, or almost always true of this child?" The responses range from 1 (never) to 6 (almost always). The seven subscales of questions include concentration problems, internalizing problems, aggressive/disruptive behaviors, prosocial behavior, emotional regulation problems, family problems, and family involvement. The study's results indicated strong, positive results from almost all the TOCA-C items, however revealed gender and race were insignificant. As indicators of reliability, the seven subscales were computed using Cronbach's alpha which revealed high reliability, with alphas ranging from 0.819 to 0.931. Bradshaw and Kush (2020) report TOCA-C as valid, efficient, and reliable in the elementary school setting with a range of purposes including its overall goal of improving child behavioral outcomes. There are other measuring tools that can be utilized in comparing pre and post PBIS implementation, however this tool's subscales align with the behavior changes most often seen after PBIS implementation.

Underlying Mental Health Needs

In a study conducted by Ghandour et al. (2019), data from the 2016 National Survey of Children's Health showed prevalence rates of anxiety, depression, and behavioral or conduct problems among children aged 3-17 in the United States. Of the children and adolescents, 4.4% had current depression, 9.4% had an anxiety issue, and 8.9% had a current behavioral or conduct problem. The prevalence of the disorders

fluctuated by health-related factors and sociodemographic factors. In addition, they found that those with limited access to healthcare are more prone to undiagnosed mental health conditions. This study revealed that the behavioral and conduct problems peak in middle school, boys are twice as likely to have behavioral or conduct problems than girls, and depression and behavioral conduct problems are higher in children who reside in poor households (Ghandour et al., 2019).

A study by Ogundele (2018) revealed that aggression often accompanies an underlying mental health need and commonly begins in childhood. Environmental factors play a large role in challenging childhood behavior that can lead to aggression. Some of the environmental factors that have a negative effect on young children putting them at risk for aggression include excessive noise, limited sensory input, and a predisposition to neglect or abuse (Ogundele, 2018). Ghandour et al. (2019) reported behavioral and conduct problems peak in middle school while Ogundele (2018) reported aggression correlated with underlying mental health needs. Ogundele (2018) recommends fostering an environment that encourages learning and growth to decrease the likelihood of aggressive behaviors in childhood, adolescence, and adulthood.

Ghandour et al. (2019) reports several limitations in their study resulting in recommendations for future studies. The diagnoses and treatment were based on parent/guardian report which could be bias reporting. When researchers asked the parent/guardian about anxiety and behavior/conduct problems, they may have interpreted the question differently than what was intended or may have differing perceptions of these “problems.” Lastly, the response rate was less than 50%, which could have resulted in nonresponse bias (Ghandour et al., 2019). To combat some of these limitations, there

should be more accurate, nonbiased data collection to ensure consistent diagnosing and treatment reports.

Sukholsky et al. (2016) briefly mentions childhood disruptive behaviors and the need for different trainings and therapies that are used in outpatient psychotherapy settings. Although, the focus of this review of literature is focused more on an education setting, it is important to understand uncorrected anger and irritability may lead to aggressive behaviors, which can result in harm to others or oneself. If warranted, a mental health referral and outpatient setting will have more appropriate interventions or resources to help the child with their aggression (Sukholsky et al., 2016).

Improving Preschool Discipline in Educational Settings

Hirsch et al. (2021) shared that for decades, special education and childhood mental health researchers have examined the effectiveness of programs and practices on a child's emotional, social, and behavioral need in those with emotional or behavioral disorders (EBD). In many cases of children with EBD, the child has an individualized education program or plan (IEP) with interventions that support their specific needs. These interventions are used with the intent of helping the child replace negative behaviors, improve social and self-determination skills, and prevent undesired classroom behavior which improves the classroom environment. With an IEP in place, the child has an ongoing assessment that determines if the individualized interventions are helping the child be successful in their environment. As Hirsch et al. (2021) mentions, it is important to recognize and address EBD behaviors to avoid detention, suspension, or expulsion, which later leads to a higher rate of being arrested or engaging in other risky behavior.

In an article written by Albritton et al. (2019), the research focused on minorities, specifically Black/African American students in preschool settings who were being suspended and expelled at alarming rates. With direct links between suspension and lower academic success, it is imperative to find interventions that can break the behavioral cycle, thus reducing the academic gap between races. Albritton et al. (2019) reports overwhelming evidence supporting short-term and long-term benefits of receiving early childhood interventions. The children were most impacted by social, cognitive, and academic development for preschool children entering kindergarten.

Adhering to PBIS Practice

According to Kittelman et al. (2019), evidence-based practices are oftentimes adopted but abandoned shortly after due to the amount of time it takes to fully adopt and be consistent in its use. Implementing evidence-based practices with high quality use requires strong leadership support, effective professional development, building capacity, and addressing any system barriers (Kittelman et al., 2019). Lack of fully committing to these practices trickle into the absence of research studies that demonstrate the overall effectiveness of methods such as PBIS, thus making it difficult to truly understand PBIS's effect on emotional regulation in preschool children.

In current research, school districts who can maintain the consistent use of PBIS have shown a significant, positive correlation to social-emotional behavior in preschool children. Keller-Bell and Short (2019) believe PBIS should be taught by the same source with similar training to ensure behavioral expectations are consistent. Implementation must be constant and utilized by any staff who work with children in the school setting.

To support PBIS, Kittelman et al. (2019) recommends scaling up PBIS by highlighting the significant decrease of behaviors in districts who implemented PBIS in the first 4 years of adoption and maintained its use. Districts and schools who understand the pattern of adoption will be more likely to sustain and succeed in full adoption of PBIS. Encouraging districts to develop policies that publicly support PBIS implementation can increase the number of schools who adopt PBIS and how to overcome barriers that prevent full adoption. In addition, Keller-Bell and Short (2019) discuss the importance of leadership and open communication during PBIS adoption.

In addition to the time it takes for program adoption and implementation, the costs of implementation may be an issue for some educational settings. The costs Bradshaw et al. (2020) considered for PBIS implementation included PBIS meeting costs, training/coaching costs, management and implementation costs, as well as mental health referral costs. Preparing the educational systems upfront with information on PBIS and data tracking costs is imperative in the decision to invest in PBIS.

Gaps in the Literature

PBIS implementation strives to incorporate positive and effective interventions to prevent mental health behaviors, while improving student outcomes. There are minimal research articles demonstrating school implementation of PBIS and its outcomes due to the amount of time it takes to fully adopt the intervention and be consistent in the interventions and support. Recognizing underlying mental health needs has been difficult due to other health-related factors hindering diagnosis, sociodemographic factors, and lack of access to healthcare. These factors affect the child's behavior, ability to engage in positive experiences, and progress in the intervention and support tiers.

Recommendations for Practice

To build a strong adoption and implementation of PBIS, it is crucial to educate the districts and schools on PBIS, its importance and how to maintain its adoption. Publicly supporting PBIS shows unity in the community and promotes conversations among leaders, staff, and students leading to effective communication and practice. Additionally, consistent training and fair treatment provides a safe and supportive environment necessary for adequate learning and framework implementation.

In recent studies, underlying mental health issues posed a setback in placing children in the correct tier of the PBIS framework and progressing forward. Early behavioral interventions on identified mental health issues are critical in screening for undesired behaviors before they escalate in severity, leading to more individualized interventions (Lane et al, 2017). Recognizing and developing positive emotional regulation techniques at preschool ages is crucial in combating aggressive behaviors, managing undesired emotions, and improving the child's future outcome.

Conclusion

PBIS is an evidence-based framework that will benefit many preschool children in decreasing EBPs to positively reflect on their future long-term mental and physical health outcomes (Shoshani & Slone, 2017). Staff using the PBIS guidelines will be able to recognize behavioral problems, identify ways to eliminate unhealthy coping mechanisms, improve self-regulation, and develop lasting relationships (Bradshaw et al., 2012). Continued exposure to the PBIS guidelines, class-wide interventions, and TOCA-C to track progression will support preschool children and promote increased emotional regulation.

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Appendix A

Evidence Table

Author(s) & Date	**Study Design**	**Participants, Sample Size & Setting**	**Intervention**	**Results**	**Findings/Recommendations for practice**	**Strengths/Weaknesses**	**Evidence Level, Quality**
Albritton, K., Mathews, R. E., & Anhalt, K. (2019).	Systematic review	13 studies used, 2,927 student participants, ages 10 months to 5 years Studies were conducted in several settings throughout the United States, primarily urban areas Inclusion criteria: examination	Identifying potential ways to improve the disciplinary disparities in early childhood settings to avoid negative consequence as child ages	Likelihood of preschool expulsion and suspension decreases when early childhood teachers are provided access to classroom based behavioral consultation services which is much like mental health consultations, 16.8% of teachers stated they do not have access to these services	Behavioral consultations are crucial for decreasing disciplinary disparities. It resolves a certain problem while increasing the person who is correcting the behaviors knowledge so they can continue to address similar situations School administrators are encouraged to work with school psychologists to explore biases that may be hindering	Two master's level behavior specialists provided on-site individual consultations-these students demonstrated significant social skills improvement and a decrease in challenging behaviors The search excluded studies that didn't report student outcomes which could have impacted the	Level: I Quality: A

		of an early childhood population (3-5 ages), use of early childhood mental health and/or behavioral consultation services and supports, and child level outcome data as measured by parent report, teacher report, and/or school office/administrator report Exclusion criteria: Studies that provided only teacher-level outcome data, studies		All studies reported positive results for students, 3 out of the 13 studies reported student and teacher outcomes, four reported student, teacher, and parent outcomes, six did not report on either outcome.	school environment and referrals.	number of studies used in the review.	

		that were conducted outside of the United States, studies involving children in grades K-12, and studies involving direct student intervention or nonempirical articles Of the 1,576 studies that were screened, 13 studies met all inclusion criteria and were included in the systematic review					

Armstrong, T. (2019).	Position statement	No specific sample size or setting.	Incorporate mindfulness in the student's routine to smooth feelings and promote self-regulation	Mindfulness draws many people in for ample support and implementation. Mindfulness is key in any school to help address potential violent activity or traumatic experiences.	Choose a day for the classroom to participate without making it an added task. Student and teachers should sit in a comfortable position, close their eyes, and pay attention to their breathing. Mindfulness should not involve any religious or spiritual methods.	Students learn how to self-regulate and reflect positively on their current situation It will help student to feel more aware of themselves which will translate to them being able to handle conflict, impulsivity, and anger. Research tailored to students who are older in order to understand verbiage. Information must be translated for all age groups including preschool.	Level: IV Quality: B
Bradshaw, C. P., Debham, K.	Mixed Method	77 schools who implemented	To address and utilize effective	Total cost ranged from $6, 236 to $183,300	Account for student time as different activities	PBIS requires coaching supports, depending on the	Level: I Quality: A

J., Player, D., Bowden, B., & Johnson, S. L. (2020).	Data collected from multiple sources, including multi-informant interviews, document reviews, and observations.	positive behavioral interventions and supports (PBIS) in five districts within this mid-Atlantic state collected in 2017-2018 school year K-12 schools, average student enrollment was 782.21 with an average free and reduced meals status of 48.56%	tools to track the range of costs that are associated with PBIS implementation and adoption, or the infrastructure needed to implement the program, this study used a mixed-methods study to approach the understanding, analyzing, and tracking of the PBIS implementation costs.	averaging a total cost for all elements at $46, 185. Per pupil was $90.00.	implemented due to PBIS may have taken learning time. For the future, researchers should take into consideration supports for student behaviors and academic outcomes.	support there may be additional hidden costs. Estimation of costs were based on what was reported to the school, an accurate number reflecting the resources used may be incorrect.	
Bradshaw, C. P., & Kush, J. M. (2020).	Item response theory analyses.	45 elementary schools in six public	Homeroom teachers gather baseline data	Retention of 33 of the original 39 items comprising seven subscales	Additional research is needed to examine the current TOCA-C	TOCA-C is reliable and social workers' and other clinicians may use	Level: 1 Quality A

		school systems within a mid-Atlantic state; 907 teachers (majority of teachers were female, white, and had 5 or more years of experience), 17,456 students in kindergarten through grade 5 were assessed (47.5% female, 52.8% African American, 7.1% Latinx)	by obtaining TOCA-C scores for all students who are in kindergarten through 5th grade. This baseline data collection will be used for evaluation of a school-based prevention program.	which include (1) concentration problems, (2) aggressive/disruptive behavior, (3) prosocial behaviors, (4) emotion regulation problems, (5) internalizing problems, (6) family problems, (7) family involvement Cronbach's alpha 0.819 to 0.931	in regard to predictive validity	this to either identify individual students in need of services or evaluate and track progress of administered TOCA-Cs. Various forms of TOCA have been used to monitor the impact of programs and services.	
Bradshaw, C. P., Waasdorp, T. E., &	Two randomized controlled trials and	12,344 elementary school children	Implementation of positive behavioral	Multilevel analyses showed a significant intervention effect	Reduction in office discipline referrals (ODR) should be explored to	Participation rate was consistently high, missing data	Level: I Quality: A

Leaf, P. J. (2012).	multilevel analyses	37 elementary schools	interventions and supports in efforts to reduce student behavioral problems by adjusting staff behaviors and develop systems and supports to meet the children's needs. Teacher observation of classroom adaption checklist (TOCA-C) was completed for each child by the primary classroom teacher.	on disruptive behaviors and concentration, resulting in less aggression and disruptive behaviors in PBIS schools. Significant intervention effect on prosocial behavior, children had higher levels of positive behaviors and a positive effect on emotion regulation. PBIS children showed better emotional regulation.	understand the possible correlation of teacher-rated behavioral problems lead to the reduction of ODRs. Pattern of findings may differ by reason of ODR. Examine whether the intervention effects are more significant in children with a baseline risk.	was not found to be problematic. Strongest effects were on ODR's although the heightened attention to this data may have reduced the odds of ODR in PBIS schools. Training was led by the state/local school districts and not by the researchers. Reports were made by primary teachers and not clinicians or diagnostic assessments.	

			Positive intervention effect on disruptive behaviors in children in PBIS schools who had lower levels of aggressive and disruptive behaviors, P< 0.05. Concentration problems had a similar positive intervention effect, P< 0.05. Significant intervention effect on prosocial behavior in which children in the intervention had higher				

			levels of positive behaviors, P< 0.05. Emotional regulation had a significant effect on children in the intervention, P < 0.05. Children in PBIS schools were 33% less likely to receive an office disciplinary referral than those in other schools without PBIS implementation, P < 0.001.				

Centers for Disease Control and Prevention. (2021).	Position Statement	No specific sample size or setting; statistics on mental health in children	The CDC uses surveys to assess mental health and mental disorders in children	In 2016-19, in children aged 3-17 years, ADHD, anxiety problems, behavior problems, and depression are the most commonly diagnosed mental disorders; depression and anxiety have increased over time in children aged 6-17 years	Studies may benefit from incorporating strategies to eliminate parental bias	The CDC also collected information regarding positive indicators of children's mental health and whether they received treatment Limited information measuring children's mental health	Level: IV Quality: A
Center on PBIS. (2022).	Clinical Practice Guidelines	No specific sample size or setting; discusses what PBIS is and who it affects	PBIS is an evidence-based three-tiered framework. It is used to improve and support student outcomes from birth to school aged. The tiers include universal	After school implementation of PBIS, they rely on teams for guidance, implement universal screening practice, and use data to monitor student progress.	Regularly check effectiveness of practice. Pull from a continuum of evidence-based interventions to support student needs. Implement universal screening practices.	School-wide positive expectations and behaviors are taught, continuum of procedures for encouraging expected behavior and discouraging problem behavior, procedures that encourage school-family relationships	Level: IV Quality: A

			prevention, targeted prevention, and intensive, individualized prevention.				
Center on PBIS. (2015).	Clinical Practice Guidelines	No specific sample size or setting; discusses PBIS regarding students and staff in detail	PBIS three-tiered-prevention guide using evidence-based practices to provide screening, structure, and positive feedback to improve behaviors. Guide leadership teams in the assessment, development, and execution of PBIS along with how to	There are not results, more of a guide on how to implement PBIS, sustain, and assess its effectiveness.	Readiness and commitment, implementation through phases, strong leadership team, and an action plan are crucial for successful implementation. Important to ensure high fidelity implementation	Improve behavioral and academic outcomes by improving school environment, increasing learning time, reducing problem behavior, and encouraging positive social skill.	Level: IV Quality: A

			sustain such practices.				
Ghandour, R. M., Sherman, L. J., Vladutiu, C. J., Ali, M. M., Lynch, S. E., Bitsko, R. H., & Blumberg, S. J. (2019).	Analyzed data from 2016 National Survey of Children's Health	43,283 children aged 3-17 years old	Use recent data to report prevalence of current depression, anxiety problems, and behavioral or conduct problems in children ages 3-17 in the United States.	Out of ages 3-17 years old, 7.1% had current anxiety problems, 7.4% had a current behavioral/conduct problem, and 3.2% had current depression.	Future studies could have programmatic opportunities to support diagnostic and treatment services.	Reports by parents may have been bias Parents perception on services received differ. Differences in data collection mode and questionnaire wording may explain some of the differences. Limitations in the access to care.	Level: V Quality: A
Hirsch, S. E., Bruhn, A. H., McDaniel, S., & Mathews, H. M. (2021).	Snowball sampling methods	130 emails containing a link to a survey known to educational contacts as well as a survey on	The intervention was to gather information from the special education teachers and the related	Results showed the most common resource used to communicate with EBD students was virtual meetings, then telephone, virtual classroom,	Policy makers and educational leaders should develop guidelines for mandating and supporting the continued efforts to instructional services, especially those with	Did not provide any financial incentive for completing the survey. Respondents checked in on the social, emotional,	Level: I Quality: B

		social media platforms; 596 responses from educators working with students with emotional behavioral disorders (EBD); 4 removed because they lived outside of the United States, 16 who did not complete a consent form, 78 who only answered the first question, and 28 who only answered the first 7 questions	service providers who delivered various supports and interventions in students individualized educational plan during school site closures.	email, social media. School site closures largely impacted students specifically with EBD. As a result, students with a disability likely experienced significant regression.	disabilities during a site closure. Caregivers' knowledge and access to resources should be assessed in case they are not able to support their child during site closures. Convenience sampling could increase the influence of sampling bias.	and behavioral wellbeing of their students with EBD. Demographic variables and student locations were not considered due to urgency of study. Due to the urgent and critical need to understand and share support/interventions with limited time and funding, convenience sampling was used which has the potential of bias results.	

		470 respondents; 296 special education teachers (SET) and 174 related service providers (RSP)					
Keller-Bell, Y., & Short, M. (2019).	Randomized control trials Counting behaviors, frequency and rate of occurrences	No specific sample size, setting is in the schools.	Implement positive behavioral interventions and supports (PBIS) in schools while including speech-language pathologists (SLP's).	PBIS is most effective if it is implemented on the school and classroom level.	Find a strong foundation where PBIS can flourish, meet the needs of the student, teaching predictable routines, and define behavioral expectations. SLPs should be included to support the children and create behavioral management strategies that align with PBIS. All school personnel and training in PBIS	Strength of SLPs to have a responsibility to work in partnership with other professionals to implement services. A weakness is those students with an individualized behavior plan need to be followed closely to measure progress. Accurate counting of behaviors to determine rate and	Level: I Quality: C

					to have successful outcomes.	frequency of occurrence. If school personnel are not trained, they may not be consistent with behavior tracking.	
Kingsley, K., Sagester, G., & Weaver, L. L. (2020).	Systematic review Database searched were PsycINFO, Cochrane, ERIC, MEDLINE, and OTseeker.	No specific sample size or setting Inclusion criteria: articles to be published in English between January 2010 and March 2017, include participants ages 0-5 years, to examine interventions within the scope of	Improving mental health and positive behavior for children who are aged 0-5 and their family by implementing interventions within some occupational therapy practices	Strong correlation of touch-based interventions and an improved infant self-regulation finding. Moderate correlation of touch-based interventions having a positive impact on parent-child interaction. Strong correlation between parent training and patient behavior.	Individualized training for parents and teachers Well-controlled trials are needed that include systemic randomization, objective measures, and blinding of participants and personnel to reduce the risk of bias	Analysis and discussion of only studies that examined interventions within the scope of occupational therapy for children ages 0-5 years old that included mental health or positive behavior outcome Only studies including level I, II, III evidence were included which may have excluded studies of other valuable interventions that	Level: I Quality: C

		occupational therapy (OT), include a mental health or positive behavior outcome, and provide level I, II or III evidence. Exclusion criteria: articles that were dissertations, theses, presentations, or proceedings, published before 2010, provided level IV and V evidence, focused on adults, examined interventions that OT				were conducted in less controlled settings or more variable populations. Self-reporting measures.	

		practitioners can't deliver, participants whose average age was >5 years old, interventions in a kindergarten or primary school setting, and where patient age range is unclear.					
Kittelman, A., McIntosh, K., & Hoselton, R. (2019).	Multi-level model; included 3 levels of random variation	552 public school districts located in 25 U. S. states (8 states from Midwest region, 6 states in the South region, 5 states in the Northeast region, and	Examine the rates of PBIS adoption within the first 5 years of implementation and identify significant variables affecting the percent of	There was an increase in the percent of schools adopting over time from year 1 to year 5; significant from years 1-4 and year 5 seemed to have a decrease in the percent of schools adopting PBIS.	Districts need to have at least two schools with one school reporting PBIS fidelity for each of the five years of the study. Future research can examine variables that predict with percentage of schools adopting PBIS with fidelity.	Portion of schools adopting PBIS at any level of fidelity, as opposed to adequate PBIS fidelity. Able to identify factors that could have an effect on PBIS adoption and fidelity	Level: I Quality: A

		65 were from the 6 states in the West region; 196 of the districts were located in rural areas, 134 in suburban areas, 132 were in towns, and 90 were in cities; total number of schools within these districts ranged from 2 to 235; 4.4% identified as Limited English Proficient/English-Language Learners, 14.7% had Individualize	district adoption. Fidelity data was obtained from a database to investigate results		May not have enough capacity at the district level to support PBIS adoption efforts within these larger districts, due to number of schools, competing initiatives, and fewer resources		

		d Educational Plans, and 40% of students received free and/or reduced-price lunch Inclusion criteria: contained at least two schools, included at least one school that collected and reported on any PBIS fidelity data to the OSEP National Technical Assistance Center on PBIS between 2004-5 and 2009-10					

		school years, included at least one school reporting PBIS fidelity data for the following 4 years to ensure 5 continuous years of measurement of the percent of schools within each district adopting PBIS, and did not have any schools reporting PBIS fidelity data in the previous year					
Lane, K. L., Oakes, W. P., Crocker,	Systematic review	No specific sample size, setting and participants	Two screening procedures are used for	Using these screening tools allows for the school system to	Design, test, and install district level data structures that enable efficient	Staff connected with all of the students who identified with	Level: I Quality: B

J., & Weist M. D. (2017).		are children in the school system	all students in their assigned class three times a year, conducted as part of regularly scheduled faculty meetings. Data from these screening tools can be used to further support students' academic, behavioral, and social-emotional health	identify at risk students who have anxiety or depression-because school systems understand at risk students, staff can intervene appropriately to improve behaviors and reducing the risk of emotional and behavioral disorders from occurring	access by teachers, principals, and district leaders to multiple sources of data in an integrated manner to inform decision making Create systems for transparency in practices and a fully informed parent/guardian community Provide high quality, ongoing professional learning to support the installation of systematic screening tools	anxiety and/or depression concerns Districts can document and report on the impacts of interventions that are offered	
McDaniel, S. C., Cohen, D., & Bruhn, A. L. (2021).	Single-case design studies and case example applications	One large urban school district of 23,042 students	Elementary schools received training and coaching on the Tier 2	Tier 2 identification and intervention framework was associated with reductions in	Future research should include individual-level outcomes for students who are receiving Tier 2 interventions.	74% of schools were able to implement the Tier 2 framework accurately.	Level: I Quality: A

			framework in which they were then evaluated on school-level disciplines.	exclusionary discipline.		Tier 2 framework provides clear guidelines on how to match students to an appropriate intervention. Tier 2 was associated with an overall reduction of the rate of school discipline. Researchers used one school district. No random assignment to treatment or control.	
Ogundele, M. O. (2018).	Systematic review of a randomized control trials with meta-analyses Searched for indexes by Ovid,	No specific sample size or setting.	Providing mental health services based on specific mental health characteristics	Strong relationship was confirmed between early childhood emotional and behavioral problems (EBP) and poor future long-term mental and physical health outcomes.	Pharmacological treatment is significant in caring for children with EBP, CD. Environmental factors can greatly affect the increased risk of challenging behavior.	A strength of several strategies used that are designed to help children acquire important social skills. Lack of accuracy in the estimation of various	Level: I Quality: C

	PubMed, PubMed Medical Central, CINAHL, and the Cochrane Database of Systematic reviews			Chronic irritability in preschool children, conduct disorder (CD), and oppositional defiant disorder in older children may be predictive to lifelong anxiety, depression, mania, and other mental health disorders. Confirmed effectiveness of various psychological and pharmacologic therapies in the management of childhood emotional and behavioral disorders		childhood EBPs is difficult due to the problems of research methodologies relying on subjective assessments and variety of definitions.	
Shoshani, Anat., & Slone, M. (2017).	Shortened positive and negative affect scale for children	315 preschool children (153 girls, 162 boys) in a	Review of effects of a positive psychology-based	Baseline comparisons revealed no significant pre-intervention	It is important to integrate positive psychology contents into children's daily	Teachers' personal connection could have affected the intervention.	Level: V Quality: A

	(PANAS-C), Brief multidimensional students life satisfaction scale, Affective situations test for empathy, Head-to-Toes task,PANAS-C-parental, Approaches to learning scale	central city in northern Israel	intervention on child's subjective well-being, mental health, and learning behaviors. Significant interaction effects between intervention and time on children's positive emotions (P= 0.001), life satisfaction (P= 0.002), empathy (P= 0.004), but not on negative emotions (P= 0.18)	differences between the intervention and control group, children's age was positively related to positive affect, life satisfaction, empathy, self-regulation, positive approach to learning, and lower mental health problems; boys reported more behavioral problems and less empathy, and positive and negative emotions than girls; children's positive emotions were positively related to life satisfaction, prosocial behavior, and less emotional problems; significant interaction effects between pre and post intervention.	activities in the preschool. Significant increases in children's self-report of life satisfaction. Positive and negative emotions are not always interdependent. Significant increases in children's empathy, prosocial behavior, and positive approaches to learning in the intervention group compared to no change in the control group.	Participants in the intervention group showed positive changes from being treated differently or receiving more attention. Did not include an evaluative of the effects of the program effects for teachers who had participate in the psychology training.	

Sukhodolsky, D. G., Smith, S. D., McCauley, S. A., Ibrahim, K., & Piasecka, J. B. (2016).	Randomized Controlled Trial	No specific sample size or setting	Review of effects of cognitive behavioral therapy (CBT) in emotion regulation and social problem-solving skills that associated with aggressive behavior	Anger and aggression are the most frequent reasons for mental health referrals in children and adolescents. CBT is a psychosocial treatment for aggression and anger in children and adolescents. Children have learned how to regulate their frustration, improve social skills, problem solving, role-play, and other behaviors.	Studies should include relational aggression correlation to behaviors. Relational aggression should be studied outside of a school setting.	Efficacy of problem-solving skills training may need changes in socially problem solving. Enhance social behaviors. Information regarding the sequencing of interventions for primary or secondary symptoms and risk factors that contribute to the problem.	Level: I Quality: C

Appendix B

Evidence Level and Quality Guide

Evidence Levels	Quality Ratings
Level I Experimental study, randomized controlled trial (RCT) Explanatory mixed method design that includes only a level I quaNtitative study Systematic review of RCTs, with or without meta-analysis	**QuaNtitative Studies** **A High quality:** Consistent, generalizable results; sufficient sample size for the study design; adequate control; definitive conclusions; consistent recommendations based on comprehensive literature review that includes thorough reference to scientific evidence. **B Good quality**: Reasonably consistent results; sufficient sample size for the study design; some control, fairly definitive conclusions; reasonably consistent recommendations based on fairly comprehensive literature review that includes some reference to scientific evidence. **C Low quality or major flaws:** Little evidence with inconsistent results; insufficient sample size for the study design; conclusions cannot be drawn.
Level II Quasi-experimental study Explanatory mixed method design that includes only a level II quaNtitative study Systematic review of a combination of RCTs and quasi-experimental studies, or quasi-experimental studies only, with or without meta-analysis	**QuaLitative Studies** No commonly agreed-on principles exist for judging the quality of quaLitative studies. It is a subjective process based on the extent to which study data contributes to synthesis and how much information is known about the researchers' efforts to meet the appraisal criteria. *For meta-synthesis, there is preliminary agreement that quality assessments of individual studies should be made before synthesis to screen out poor-quality studies[1].* **A/B High/Good quality** is used for single studies and meta-syntheses[2]. The report discusses efforts to enhance or evaluate the quality of the data and the overall inquiry in sufficient detail; and it describes the specific techniques used to enhance the quality of the inquiry. Evidence of some or all of the following is found in the report: • Transparency: Describes how information was documented to justify decisions, how data were reviewed by others, and how themes and categories were formulated. • Diligence: Reads and rereads data to check interpretations; seeks opportunity to find multiple sources to corroborate evidence. • Verification: The process of checking, confirming, and ensuring methodologic coherence. • Self-reflection and scrutiny: Being continuously aware of how a researcher's experiences, background, or prejudices might shape and bias analysis and interpretations. • Participant-driven inquiry: Participants shape the scope and breadth of questions; analysis and interpretation give voice to those who participated. • Insightful interpretation: Data and knowledge are linked in meaningful ways to relevant literature. **C Low quality** studies contribute little to the overall review of findings and have few, if any, of the features listed for high/good quality.
Level III Nonexperimental study Systematic review of a combination of RCTs, quasi-experimental and nonexperimental studies, or nonexperimental studies only, with or without meta-analysis Exploratory, convergent, or multiphasic mixed methods studies Explanatory mixed method design that includes only a level III quaNtitative study QuaLitative study Meta-synthesis	

Evidence Level and Quality Guide

Evidence Levels	Quality Ratings
Level IV Opinion of respected authorities and/or nationally recognized expert committees or consensus panels based on scientific evidence Includes: • Clinical practice guidelines • Consensus panels/position statements	**A High quality:** Material officially sponsored by a professional, public, or private organization or a government agency; documentation of a systematic literature search strategy; consistent results with sufficient numbers of well-designed studies; criteria-based evaluation of overall scientific strength and quality of included studies and definitive conclusions; national expertise clearly evident; developed or revised within the past five years **B Good quality:** Material officially sponsored by a professional, public, or private organization or a government agency; reasonably thorough and appropriate systematic literature search strategy; reasonably consistent results, sufficient numbers of well-designed studies; evaluation of strengths and limitations of included studies with fairly definitive conclusions; national expertise clearly evident; developed or revised within the past five years **C Low quality or major flaws:** Material not sponsored by an official organization or agency; undefined, poorly defined, or limited literature search strategy; no evaluation of strengths and limitations of included studies, insufficient evidence with inconsistent results, conclusions cannot be drawn; not revised within the past five years
Level V Based on experiential and nonresearch evidence Includes: • Integrative reviews • Literature reviews • Quality improvement, program, or financial evaluation • Case reports • Opinion of nationally recognized expert(s) based on experiential evidence	**Organizational Experience (quality improvement, program or financial evaluation)** **A High quality:** Clear aims and objectives; consistent results across multiple settings; formal quality improvement, financial, or program evaluation methods used; definitive conclusions; consistent recommendations with thorough reference to scientific evidence **B Good quality:** Clear aims and objectives; consistent results in a single setting; formal quality improvement, financial, or program evaluation methods used; reasonably consistent recommendations with some reference to scientific evidence **C Low quality or major flaws:** Unclear or missing aims and objectives; inconsistent results; poorly defined quality improvement, financial, or program evaluation methods; recommendations cannot be made **Integrative Review, Literature Review, Expert Opinion, Case Report, Community Standard, Clinician Experience, Consumer Preference** **A High quality:** Expertise is clearly evident; draws definitive conclusions; provides scientific rationale; thought leader(s) in the field **B Good quality:** Expertise appears to be credible; draws fairly definitive conclusions; provides logical argument for opinions **C Low quality or major flaws:** Expertise is not discernable or is dubious; conclusions cannot be drawn

1 https://www.york.ac.uk/crd/SysRev/!SSL!/WebHelp/6_4_ASSESSMENT_OF_QUALITATIVE_RESEARCH.htm
2 Adapted from Polit & Beck (2017).

Appendix C

Level of Evidence

Evidence Level	Quality	Number of sources
Level I	A	6
	B	2
	C	4
Level II	A	0
	B	0
	C	0
Level III	A	0
	B	0
	C	0
Level IV	A	3
	B	1
	C	0
Level V	A	2
	B	0
	C	0

Appendix D

Permission for Use

JHNEBP MODEL AND TOOLS-PERMISSION

Johns Hopkins Nursing Center for Evidence-Based Practice

Thank you for your submission. We are happy to give you permission to use the JHNEBP model and tools in adherence of our legal terms noted below:

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The Effects of Positive Behavioral Interventions and Supports on Emotional Regulation in Preschool Children: Methodology

BY

Alyssa Richardson

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Abstract

Purpose: Positive Behavioral Interventions and Support (PBIS) is an evidence-based three-tiered framework that supports children and their behavioral needs including emotional behaviors. Emotional behavioral problems (EBP) seen at an early age have a major connection to their preschool setting and a significant effect on future long-term mental and physical health outcomes.

Methods: Preintervention, teachers completed PBIS and Teacher Observations of Classroom Adaptation-Checklist (TOCA-C) training. The teachers evaluated and assigned each student to a PBIS tier group using TOCA-C. Tier appropriate interventions were then implemented. TOCA-C was used 3 months post intervention to reevaluate each months post intervention to reevaluate each student and reassign a tier group. Pre and post intervention behaviors were compared using the Wilcoxon Signed Rank test.

Results: PBIS greatly improved concentration, while having some positive results in prosocial behavior, emotion regulation problems, internalizing problems, and family involvement.

Discussion: Continued PBIS adoption and implementation may lead to more positive child emotional regulation, enhancing the children's long-term mental and physical health.

Implications for Practice: Identifying mental health needs at an early age, consistent staff training, and early adoption of PBIS can correct emotional behavioral problems, which can lead to negative academic and social consequences.

Keywords: emotional behavioral problems, Positive Behavioral Interventions and Support, self-regulation, preschool behavior, teacher observation of classroom adaption

The Effects of Positive Behavioral Interventions and Supports on Emotional Regulation in Preschool Children: Methodology

Background/Purpose

Preschool settings have a major connection to early age emotional behavioral problems (EBP; Shoshani & Slone, 2017). EBPs include unpredictable, prolonged, or destructive temper tantrums, severe outbursts of loss of temper, or aggression (Ogundele, 2018). The behaviors may also be internalized and present as anxiousness or withdrawal (Lane et al., 2017). According to Lane et al. (2017), externalizing behaviors such as aggression, noncompliance, or destruction are often detected sooner than anxiety or withdrawal. Due to these behaviors going undetected at an early age, learning and instruction are disrupted causing the behaviors to become severe. Children with unnoticed EBPs are at a greater risk for negative outcomes such as impaired interpersonal relationships, peer rejection, limited school engagement, academic underachievement, underemployment, unemployment, and needing mental health services (Lane et al., 2017).

The negative effects of undetected EBPs can be prevented by early screening and intervention. There are multiple screening and intervention methods available, however this Doctor of Nursing Practice (DNP) Project's focus is on Positive Behavioral Interventions and Support (PBIS) and its impact on emotional regulation. PBIS was the selected intervention framework due to its focus on recognizing undesired behaviors and encouraging the use of positive behaviors rather than punishing students for negative behaviors (Classcraft, n.d.). PBIS fosters an approachable learning environment.

PBIS is a three-tiered evidence-based framework that focuses on improving behavioral and academic outcomes by delivering effective behavioral interventions and supports while promoting positive social skills, preventing problem behavior, improving the school's environment, and increasing the student's learning time (Center on Positive Behavioral Interventions and Supports [PBIS], 2015). School-wide behavior expectations are established by staff and taught to all children. Staff learn how to approach disruptive behaviors demonstrated by any student (Bradshaw et al., 2012).

According to Keller-Bell and Short (2019), tier one is considered primary prevention of undesired behaviors. Children display few behaviors that need redirection, and the focus of this tier is to prevent development of problem behaviors. Tier two is secondary prevention that is more focused with intensive guidance. The goal of tier two is to reduce the number of problem behaviors while correcting the behaviors that were not improved with tier one interventions. Lastly, tier three is tertiary prevention of undesired behaviors that most often have an individualized plan to support their growth in behavior. The goal is to reduce the intensity and prevalence of problem behavior that has not improved with primary or secondary interventions (Keller-Bell & Short, 2019).

Teacher Observations of Classroom Adaptation-Checklist (TOCA-C) is used to observe preschool children and measure their adaption to the classroom setting and impact of PBIS on the child's behavior (Bradshaw & Kush, 2020). There are several items on the checklist that are measured and compared pre and post intervention. This DNP Project's focus is primarily on the effect of emotional regulation problems, however other subscales were measured and analyzed including concentration problems,

aggressive/disruptive behavior, prosocial behavior, internalizing problems, family problems, and family involvement.

PICOT Question

In preschool children (P), how does implementing PBIS (I) compared to current practice of no PBIS (C) affect emotional regulation (O) over three months (T)?

Recommendations for Practice

According to Kittelman et al. (2019), strong adoption and implementation of PBIS is crucial to educate school districts on the significance of PBIS and how to maintain its adoption. Public PBIS support, fidelity, effective communication, fairness, and consistent training provides a supportive environment and promotes student and staff learning. Using these implementation tools will guide PBIS to be successful.

PBIS and other early behavioral interventions are critical in early screening for undesired behaviors before they progress to negative outcomes (Lane et al., 2017). Internalizing and externalizing behaviors identified at preschool ages impede instruction and interrupt the child's learning environment which can lead to severe challenges. Recognizing and developing positive emotional regulation techniques at preschool is crucial in combating aggressive behaviors, managing undesired emotions, and improving the child's future outcome.

Gaps in the Evidence

There are minimal research articles revealing PBIS implementation in schools, its data, and results. With the lack of research, it is difficult to know how much implementation time is necessary to generate significant results. Underlying mental health needs are not easily recognized creating a delay in diagnosis. This delay affects the

child's behavior, ability to engage in positive experiences, and progress in the intervention and support tiers. It is important to recognize mental health needs to better serve the children during implementation and post implementation.

Methods

Change Theory, Evidence Based Practice Model, and Theoretical Framework

The framework, model, and theories to guide this project include the Johns Hopkins Nursing Evidence-Based Practice (JHNEBP) model, Roy's Adaption Model of Nursing, and Ronald Havelock's Six Phases of Change. The JHNEBP model focuses on problem-solving approaches to clinical decision-making. It uses simple tools to translate evidence into learning, the use of best practices for practice improvements, and reflection of practice methods (Johns Hopkins Medicine, n.d.). In addition, Roy's Adaption Model focuses on key concepts which include person, environment, health, and nursing. Roy believes when adaption occurs, people positively respond to environmental changes creating self-reflection and human/environmental integration (Nursing Theory, 2020).

The change theory and model used to guide this project is Ronald Havelock's Six Phases of Change. According to Wagner (2018), Havelock believed this model would more effectively relate to real-life situations. Wagner (2018) states phase one consists of building a relationship and discussing a need for change. With alarming behavioral emotional disorder statistics in young children leading to adult life, it is apparent a change is needed. Phase two diagnoses the problem. In this preschool setting, there is not a current behavioral intervention program to assist children in positive behavioral responses. Phase three acquires resources for change, data is collected and evaluated, targeted behaviors are selected, children are assessed, and there are discussions of

intervention techniques that can be used in the classroom. Phase four selects a direction to the solution. Phase five establishes intervention guidelines, staff's response to the proposed change and interventions, project education, data collection, and project support. At this point, staff support is significant in maintaining project consistency. The final phase is phase six, which is maintenance and separation. In this phase, the change techniques should feel natural to staff and the children's behavioral response should be improved (Wagner, 2018). Once the change is the new normal, the change agent is no longer needed and can separate from the change process (Wagner, 2018).

Setting

The project was conducted in a preschool classroom in a rural upper Midwest daycare center in a town with a census of about 500 people. This daycare setting was chosen for early PBIS implementation to teach the preschool children foundational expected behaviors that directly associate with the expected behaviors in the adjacent elementary, middle, and high school. The daycare employs approximately nine teacher qualified staff members and six teacher's aide staff members. In total, the daycare center serves approximately 46 children ranging from 3 months to 5-years-old with part-time to full-time childcare. Hours of operation are Monday through Friday, 7:00 AM CT to 5:30 PM CT, excluding major holidays.

Sample

Preschool students were included in the sample if they met the following criteria: (a) attend the Midwest daycare center, (b) are part of the preschool classroom with ages ranging from 2.6 to 5-years-old, and (c) receive full-time care (30+ hours of care each week). The population for the DNP Project began with 17 children who met inclusion

criteria. During implementation, two students transferred to another preschool, leaving 15 students who completed the DNP Project.

Intervention Tools

The intervention tools used for this DNP Project include the PBIS three-tiered framework and the TOCA-C pre-implementation and post-implementation.

PBIS

PBIS uses a system approach to implement behavioral support practices. The PBIS framework encourages prevention first. This is demonstrated by emphasizing high-quality teaching and learning environments that focus on direct teaching of social skills, continuous behavioral monitoring in several settings, positive recognition during desired behaviors, and appropriate interventions if undesired behaviors occur. If undesired behaviors occur, constructive reteaching will take place (Center on PBIS, 2015).

Primary prevention focuses on preventing problem behaviors from occurring in all students across various settings (Center on PBIS, 2015). In tier one, the first step teachers and teacher's aides take is to teach the desired behaviors to the students. To successfully teach the desired behaviors, students practice these behaviors while the classroom staff deliver positive reinforcement. To build on this, practicing and discussing these desired behaviors multiple times a day throughout the primary prevention stage is crucial to long term success of PBIS.

Secondary prevention is more intensive by targeting problem behaviors. The effort is placed on reducing the number of problem behaviors that are not responsive to primary interventions or behaviors that may be considered high risk resulting in tertiary interventions (Center on PBIS, 2015). Behaviors requiring secondary interventions

include constant redirection when asked to follow directions or complete a task. Strategies used to reduce behaviors requiring secondary interventions include independently taking a break from an activity and rejoining the activity once the student is "ready," counting to 10, and verbalizing the instructions given by the classroom staff.

Tertiary prevention focuses on reducing the intensity or complexity of the problem behaviors that are resistant to primary or secondary prevention and intervention (Center on PBIS, 2015). Behaviors requiring tertiary inventions include physical contact with students, staff, or self, or destruction of property. Strategies used to redirect the student and eventually reduce undesired behavior include taking a break outside of the classroom as well as tier one or tier two strategies.

TOCA-C

TOCA-C is a 33-item tool that measures students' adaptation to classroom interventions and its impact on behaviors (Bradshaw & Kush, 2020). The responses were recorded by the classroom staff to compare pre-implementation and post-implementation results. The question that precedes each item is as follows, "In the last three weeks would you say the following statements were never, rarely, sometimes, often, very often, or almost always true of this child?" The responses are valued on a six-point Likert scale 1 (never) to 6 (almost always; Bradshaw & Kush, 2020). The TOCA-C includes seven subscales: concentration problems, internalizing problems, aggressive/disruptive behaviors, prosocial behavior, emotional regulation problems, family problems, and family involvement (Appendix C). The seven subscales reliability was computed using Cronbach's alpha, resulting in high reliability of 0.819 to 0.931 (Bradshaw & Kush, 2020). TOCA-C was measured by each item within the subscale pre-implementation and

post-implementation. TOCA-C is analyzed by the child's improvement in individual subscale items. The TOCA-C checklist was purchased for use.

Project Procedure

Education and Training

PBIS and TOCA-C education and training was led by the DNP Project Manager. Training was completed during the workday to avoid additional costs for the center. It was free and online materials were used as resources for training and implementation.

Classroom staff and the childcare director had two 2-hour in-person training sessions and two 2-hour virtual training sessions within a 2-week time frame. The first session focused on PBIS and TOCA-C tools, classroom expectations, and the three preselected focus behaviors that were specifically being targeted in the classroom: (a) stops and calms down when angry or upset, (b) changes mood quickly, and (c) impulsiveness. The second session focused on how staff can support students who do not display expected behaviors. The DNP Project Manager taught staff how to successfully reteach the focus behavior to the classroom and what interventions would be helpful in certain scenarios. These support strategies helped students foster the use of emotional regulation techniques that were utilized to change their undesired behaviors into expected behaviors. Session two also focused on the PBIS reward system and the importance of consistency and fairness. The third session primarily focused on TOCA-C and data collection. The final 2-hour session provided the classroom staff and director the opportunity to ask questions and discuss scenarios introduced by the DNP Project Manager. After training was complete, the preschool children were assigned a tier and assessed using the TOCA-C tool.

During the 3 months of implementation, the DNP Project Manager was in close contact with the classroom staff and childcare director to answer any questions that arose. Every 3-4 weeks, the DNP Project Manager held a virtual meeting for the classroom staff. These meetings were used to discuss specific behavioral scenarios and points to consider when communicating with the preschool children, support and motivation of classroom staff, and verbal recognition of preschool students' behavior.

Implementation

After adequate training, identification of participants and child PBIS tier placement, implementation began. Based off an observational assessment of the three focus behaviors (stops and calms down when angry or upset, changes mood quickly, and impulsiveness), the children were placed into one of the three PBIS tiers.

Prior to PBIS implementation, the daycare facility assigned each child in the classroom a picture of a correlating animal to protect the privacy of each student during task completion responsibilities and recognition. Each time a child was recognized for demonstrating one of the expected behaviors during PBIS implementation, they were given a sticker to place in a box on their chart next to their animal. This type of recognition reinforced the positive behavior for the student. When students are recognized verbally from their teacher for a positive behavior, it fosters the students to be intrinsically motivated to continue to display positive behaviors (Classcraft, n.d.). Students also received an extrinsic reward for these behaviors as well, to continue to reinforce the behavior. Once the child was awarded 10 stickers, he or she received a bracelet, after 25 stickers he or she was awarded with a student requested activity and after 40 stickers, he or she was awarded an ice cream party certificate.

Evaluation

At the end of 3 months, the director, classroom staff, and DNP Project Manager met to discuss child tier placement based on their behaviors over the past 3 months and effectiveness of PBIS interventions. Each child was also re-evaluated using the TOCA-C measuring tool. The statistical analysis used for this project was the Wilcoxon Signed Rank test. TOCA-C subscale items were compared pre PBIS implementation and post PBIS implementation with $p < 0.05$ significance level.

Ethical Considerations

The daycare center does not have a Nursing Research Council nor an Institutional Review Board. This project was deemed non-human subject research from the South Dakota State University Institutional Review Board (Appendix A). The daycare center provided a letter of support to implement this project at their facility (Appendix B). In addition, there were parental consent forms informing the children's parents of the project, its intent, the right to exclude their child from the project, and who to contact for any questions (Appendix D). The consent was in paper form and collected within 7 days. The consents, tier placement, and TOCA-C results are stored in the DNP Project Manager's office in a locked drawer for 7 years and then will be destroyed.

Results

Every parent signed the consent to include their child in the project. A total of 15 children were included in the DNP Project, eight girls and seven boys. Pre-implementation, nine children were placed in Tier one, three in Tier two, and five in Tier three. Post-implementation, the children were reassigned with 10 children in Tier one, four children in Tier two, and one child in Tier three.

TOCA-C subscale one focuses on concentration problems and had the largest number of significant items pre and post intervention. The significant items within this subscale are concentrates (p=0.006008), stays on task (p=0.01073), child completes assignments (p=0.001586), and child learns up to his or her ability (p=0.02316). Subscale two describes aggressive and disruptive behavior, which had no significant value in this subscale. Subscale three focuses on prosocial behavior with two items of significance, the child is friendly (p=0.01471), and the child has many friends (p=0.03201). The fourth subscale is emotion regulation problems. There were no significant values in this subscale. Even though the item, calms down when angry or upset (p=0.5447) does not have a significant p value, it does show improvement on the Likert scale with a sample estimate of -1.499953. The fifth subscale is internalizing problems with one significant item: child being nervous (p=0.02627). The sixth subscale is family problems which had no items of significant value. The seventh subscale focuses on family involvement. Significant items included in this subscale are the child's guardian/parent(s) attend parent-teacher conferences (p=0.01966) and the teacher has a good relationship with the child's parent (p=0.04108). All insignificant subscale items were analyzed and documented (See Appendix E).

Based on the final results, using the PBIS framework versus no PBIS, showed significance in a variety of items within the subscales, which supports the use of positive emotional regulation techniques utilized in the classroom. The pre-implementation focus behaviors selected were stops and calms down when angry or upset, changes mood quickly, and impulsiveness. Out of the three, stops and calms down when angry or upset was the most influenced behavior showing nearly a level of significance.

Discussion

The tier placements from pre to post implementation showed an increase in children in Tier one and Tier two and a decrease in Tier three. It is reassuring to see an increase in tiers over the implementation phase as literature found a significant effect on the child's positive emotions and the ability to progress in tiers (Shoshani & Slone, 2017). An increase in positive emotions is assumed based on the progressive change in tier placements.

PBIS has historically shown an improvement in disruptive behaviors in children by developing positive emotional regulation techniques; this DNP Project did not show statistical significance in a reduction of disruptive behaviors. However, the classroom teachers reported less disruptive behaviors on the reading rug and lunch table.

This project did show significance on improved concentration, prosocial behavior, internalizing problems, and better parent-teacher relationships. The items demonstrating a significant impact such as concentration problems, are underlying factors that contribute to the overall focus on emotional regulation. With an improvement in concentration problems, it may be that the child was not presented an opportunity to regulate their emotions. In a preschool setting, it's possible it is more difficult to identify emotional regulation than it is to identify positive concentration behaviors. The classroom teachers noticed a difference in independent clean up before engaging in other activities as well as more engagement between children playing together.

There was statistical significance in the family involvement subscale. The consistent positive reinforcement at school may have increased the frequency of positive dialogue between parents and teachers. Post implementation, the classroom teachers

stated their relationships with some of the children's parents had flourished. The teachers conversed with the parents about the project. The parents shared with the teachers that they recognized positive at home behaviors. The classroom teachers created new connections with the children from focusing on their improved behaviors.

Implications for Practice

Finances

There was no cost for DNP Project training as this was completed during the workday. However, project rewards for demonstrating expected behaviors included a facility cost of $45. These rewards included student requested activities, bracelets, and ice cream party certificates. Project costs were approved by the daycare center director.

Sustainability

The PBIS framework and TOCA-C measuring tool was sustained throughout the entirety of implementation. The classroom staff remained unchanged, which was significant for training and consistency. Early in implementation, the staff members collectively chose one person to document the number of stickers given out each week to ensure accuracy. In addition to virtual check-in meetings, the DNP Project Manager connected with the classroom staff via email every other week to answer questions or discuss scenarios that arose in the meantime. The classroom staff verbalized the routine meetings and clear communication motivated staff to continue the DNP Project.

Upon meeting with the classroom staff 4 months post implementation, they were no longer implementing PBIS. Staff felt once the project was completed, they no longer had a resource to confide in. Due to lack of support in PBIS, the sustainability was unsuccessful.

Limitations

The project's sample size was small and impacted by two children leaving the center mid implementation. The DNP Project Manager overcame anticipated limitations by adequately training classroom staff in PBIS interventions to remain consistent in interventions and avoid feeling uncomfortable during implementation. The DNP Project Manager met with classroom staff throughout implementation to ensure staff motivation and reviewed the sticker chart weekly to confirm data tracking was completed.

Future Recommendations

The leader should be fully prepared to thoroughly discuss PBIS implementation and interventions to ensure staff buy in and support. Open communication with the classroom staff and director throughout implementation is imperative to ensure classroom staff motivation and consistency. Conducting this project for a longer time frame may be of value for other project managers as results may have increased significance if the time frame was extended.

Conclusion

Implementing the PBIS framework for 3 months in a preschool classroom did show improvement in concentration problems, prosocial behavior, internalizing problems, and family involvement. The results did not reflect statistical significance in emotional regulation, however, the classroom teachers identified more positive relationships amongst the children, independent clean up, less disruptions, and individual accomplishments (sharing, improved social skills, and comfortable seeking other staff members for help). Correcting at-risk behaviors at a young age allows children to focus on positive coping mechanisms, relationships, and learning.

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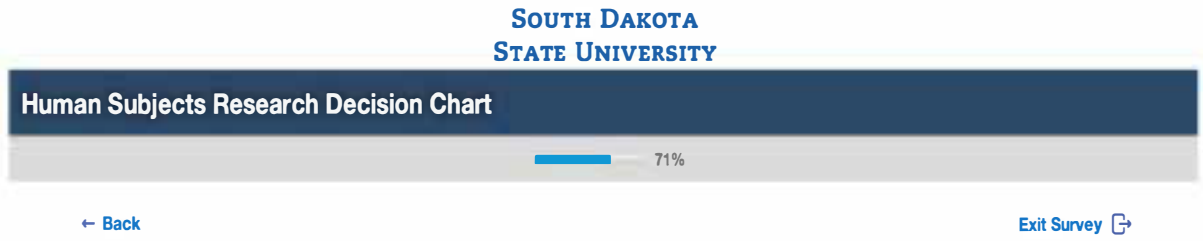
Appendix A

University IRB Approval



It appears that your study/research/project IS NOT Human Subjects Research and no application to the IRB is required.

If you would like further review because (a) you were uncertain about some of your responses or (b) you need a formal determination that IRB review is not required, click *Next*. Otherwise, you may exit the survey now.

Questions?
Contact us at:
sdsu.irb@sdstate.edu
https://www.sdstate.edu/research-and-economic-development/research-compliance-human-subjects

Appendix B

Facility Approval

DNP Project Site Agreement

Date: June 10th, 2022

This letter is in support of Alyssa Richardson's DNP Project, Positive Behavioral Interventions and Supports at Cedar Mountain Cougar Cub Childcare. This project will support the behavioral needs of the children by working to improve emotional behaviors through positive interventions.

We look forward to the results of the project.

Jody Rose - Director

Jody Rose, Director

Approved by Graduate Faculty 5.10.19; Updated 5.18.20

Appendix C

Teacher Observation of Classroom Adaptation—Checklist

TOCA-C Subscale	1=Never	2=Rarely	3=Sometimes	4=Often	5=Very often	6=Almost always
Concentration Problems						
Concentrates	1	2	3	4	5	6
Stays on task	1	2	3	4	5	6
Is easily distracted	1	2	3	4	5	6
Completes assignments	1	2	3	4	5	6
Learns up to ability	1	2	3	4	5	6
Aggressive/Disruptive Behavior						
Breaks rules	1	2	3	4	5	6
Doesn't get along with others	1	2	3	4	5	6
Harms others	1	2	3	4	5	6
Gets angry when provoked by other children	1	2	3	4	5	6
Fights	1	2	3	4	5	6
Teases classmates	1	2	3	4	5	6
Prosocial Behavior						
Is friendly	1	2	3	4	5	6
Shows empathy and compassion for other feelings	1	2	3	4	5	6
Is rejected by classmates	1	2	3	4	5	6
Has many friends	1	2	3	4	5	6
Emotion Regulation Problems						
Stops and calms down when angry or upset	1	2	3	4	5	6
Changes moods quickly	1	2	3	4	5	6
Impulsive	1	2	3	4	5	6
Easily frustrated	1	2	3	4	5	6
Easily upset	1	2	3	4	5	6
Internalizing Problems						
Nervous	1	2	3	4	5	6
Withdrawn	1	2	3	4	5	6
Fearful	1	2	3	4	5	6
Sad	1	2	3	4	5	6
Worries	1	2	3	4	5	6
Family Problems						
Has a stable family life	1	2	3	4	5	6
Family problems negatively affect child's behavior in school	1	2	3	4	5	6
Family send child to school ready to learn	1	2	3	4	5	6
Family Involvement						
This child's guardian/parent(s) attend parent-teacher conference	1	2	3	4	5	6
I have a good relationship with the child's parent	1	2	3	4	5	6
I am able to contact the parent of this child if I need to talk about his/her progress or problems	1	2	3	4	5	6
Parent is involved in and supportive of child's education	1	2	3	4	5	6
Parent attends school functions such as open houses, book fair, and PTA meetings	1	2	3	4	5	6

Circle:
Pre implementation OR Post implementation

Child's animal _____

Child's tier placement _____

Note. The responses are measured on a six-point Likert scale from responses 1 to 6. The measures read as "In the last three weeks, would you say the following statements were never, rarely, sometimes, often, very often, or almost always true of this child?" Bradshaw, C. P., & Kush, J. M. (2020). Teacher observation of classroom adaption-checklist: Measuring children's social, emotional, and behavioral functioning. *Children & Schools, 42*(1), 29-40. https://doi.org/10.1093/cs/cdz022. Reprinted with permission.

Appendix D

Parental Consent Form

Project Title: Using Positive Behavioral Interventions and Supports to Improve Emotional Behavior

Dear Parents and Guardians,

I am a Doctor of Nursing Practice student from South Dakota State University. I am conducting a quality improvement project focused on emotional behavioral skills among children. Cedar Mountain Cougar Cub Childcare is aware and has given me permission to conduct this quality improvement project at the school. As a parent or guardian, you can choose to have your child participate or opt out of the project data collection. Positive Behavioral Interventions and Supports (PBIS) is an evidence-based framework that focuses on teaching expected behaviors and tracking positive outcomes. There are three tiers in the PBIS framework with different focuses. If your child participates in the project, he or she will be placed into one of the three tiers. Tier placement is decided by the number of times a staff member is redirecting the child throughout the day. Based on the tier, there are positive, purposeful interventions staff will be able to use to redirect the child. Each school day the child's actions are recorded by the classroom teachers to monitor for behavioral improvement. The recorded actions will be used at the end of the project to evaluate for appropriate tier placement for each child. If at any time the parent or guardian does not want their child to be a part of the study, they are welcome to opt out.

If your child does not participate in this project, this will not affect their class standing or care. There are no known risks to your child if they participate in this project. However, the child may benefit from the positive interventions used and their emotional behaviors may improve which may benefit the child in the present and future. The project participants are anonymous. If this project is published or presented, individual responses will not be shared, information will be shared as a group. However, at the end of the project, parents are allowed to request their child's engagement and results. If there are any questions, please reach out to Alyssa Richardson or daycare director, Jody Rose.

To participate in this project, check the I DO consent box. If you do not want your child to participate, check the I DO NOT consent box. Please return by September 12th.

I confirm that I_____ am the parent/legal guardian of

_____(child's name)

(See back)

Parent/guardian signature Date

☐ **I DO consent for my child to participate in this project.**

☐ **I DO NOT consent for my child to participate in this project.**

Appendix E

PBIS Post-implementation Significance

TOCA-C Subscales and Items	P-value	Sample estimate
Concentration Problems		
Concentrates	**0.006008**	-1.000057
Stays on task	**0.01073**	-1
Is easily distracted	0.1198	0.9999547
Completes assignments	**0.001586**	-1
Learns up to ability	**0.02316**	-1.00004
Aggressive/Disruptive Behavior		
Breaks rules	0.1048	1.000009
Doesn't get along with others	0.4237	0.9999351
Harms others	0.233	0.9999047
Gets angry when provoked by other children	0.1236	0.9999658
Fights	0.0726	1
Teases classmates	0.3741	0.500001
Prosocial Behavior		
Is friendly	**0.01471**	-1
Shows empathy and compassion for others feelings	0.07186	-1
Is rejected by classmates	0.07186	1
Has many friends	**0.03201**	-1.5
Emotion Regulation Problems		
Stops and calms down when angry or upset	0.05447	-1.499953
Changes mood quickly	0.07076	1
Impulsive	0.3711	1.5
Easily frustrated	0.09182	0.9999473
Easily upset	1	0
Internalizing Problems		
Nervous	**0.02627**	1.000075
Withdrawn	0.3458	1
Fearful	0.1736	1.414214
Sad	0.08897	1.000065
Worries	0.1489	1
Family Problems		
Has a stable family life	0.4142	0.7573593
Family problems negatively affect child's behavior in school	1	0.5
Family send child to school ready to learn	1	1.71E-05
Family involvement		
This child's guardian/parent (s) attend parent-teacher conferences	**0.01966**	-1
I have a good relationship with the child's parent	**0.04108**	-1
I am able to contact the parents of this child if I need to talk about his/her progress or problems	0.9026	0.4999412
Parent is involved in and supportive of child's education	0.2402	-1
Parent attends school functions such as open houses, book fair, and PTA meetings	0.07076	-0.9999959

Note. A p-value <0.05 shows statistical significance. The sample estimate is measured by units. If the p-value is <0.05, the correlating sample estimate will give a number of how many units the child improved on the Likert scale from pre implementation to post implementation.