Preschool Teacher Training on Trauma and Resilience

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Author Note

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Abstract

Childhood traumatic experiences are a prevalent public health issue. Children exposed to trauma often exhibit behaviors that make educating them challenging. Preschool teachers at a southwestern United States preschool receive no training related to childhood trauma and resilience. The purpose of this project was to educate preschool teachers on trauma and resilience to improve attitude related to educating children with trauma. Following Arizona State University Internal Review Board approval, preschool teachers were recruited from a non-profit metropolitan preschool. Project included two pre-training questionnaires (Adult Resilience Measure-Revised [ARM-R] and Attitudes Related to Trauma Informed Care scale [ARTIC]), one two-hour training via Zoom on childhood trauma and resilience, and post-training ARTIC questionnaire at two and six weeks. Seven teachers (n=7) participated in pre-training questionnaires, and three of these teachers (n=3) participated in both post-training questionnaires. All participating teachers were female and Caucasian. Average age of participants was 49.43 years (SD=8.40, range 36-60), and experience average was 17.17 years (SD=10.15, range 3-30). AMR-R average score was 72.29 (SD=8.28, range 61-83). Pre-training ARTIC score average was 3.87 (SD=0.16). Post-training ARTIC scores at two weeks and six weeks post-training were 3.65 (SD=0.22) and 3.86 (SD=0.25). Clinical significance included improved teacher awareness of childhood trauma and improved ability to interact with children exposed to trauma. Teachers exhibited high resilience scores. Additional research needed related to further address educating preschool teachers related to trauma informed care, related to building resilience in children, and related to the impact of teacher resilience on trauma informed care.

Keywords: teacher training, adverse childhood experiences, ACEs, childhood trauma, resilience

Preschool Teacher Training on Trauma and Resilience

Traumatic experiences during childhood, also known as adverse childhood experiences, are a prevalent public health issue. Abuse, neglect, and dysfunctional household experiences, such as substance abuse in the home or domestic violence in the home, are examples of traumatic events a child might encounter (Boullier & Blair, 2018). Exposure to adverse childhood experiences is associated with chronic mental health issues, chronic physical health issues, or substance abuse issues that impact the quality of life for these children (Felitti et al., 1998). Children exposed to trauma often exhibit behaviors at school that make educating these children challenging.

Problem Statement

Childhood traumatic experiences are measured with the adverse childhood experiences score. This score is calculated on a scale of 0 to 10 points with a higher score indicating increased childhood trauma (Felitti et al., 1998). Experiences included are abuse, neglect, and dysfunctional household experiences, such as substance abuse in the home or domestic violence in the home (Boullier & Blair, 2018). The original ACE study conducted at Kaiser Permanente San Diego Department of Preventive Medicine found that adverse childhood experiences are very common (Felitti et al., 1998). This makes trauma a prevalent issue for many children in the United States. In Arizona, approximately 44% of children between the ages of 12 and 17 have experienced two or more adverse childhood experiences, which is significantly higher than the national average of 30.5% for this same group (Injury Prevention Center, n.d.). Chronic physical health problems, chronic mental health problems, and substance abuse issues are associated with higher ACE scores (Felitti et al., 1998). Resilience theory supports that adverse experiences and mediating factors interact to impact whether outcomes will be positive or negative (Van Breda,

2018). Individual elements of resilience such as optimism, self-efficacy, and adaptability are associated with decreased trauma symptoms (Day & Kearney, 2016). Supportive adults, such as teachers, play a significant role in building resilience in children and reducing the impact of childhood trauma (Bellis et al., 2017). Teachers with higher resilience have better attitudes about educating children with trauma and are better role models for resilience. This makes it imperative to educate preschool teachers about trauma and resilience to improve their attitude toward educating children with trauma.

Purpose and Rationale

Adverse childhood experiences are an important health concern leading to chronic physical illness, chronic mental illness, and substance abuse in the United States (Felitti et al., 1998). The purpose of this project was to educate preschool teachers on trauma and resilience to improve attitude related to educating children with trauma. Improved attitude toward educating children with trauma will allow teachers to help build resilience in children and to improve quality of life for these children. The literary evidence and national initiatives show support for childhood trauma as a public health issue.

Background and Significance

Trauma is a common occurrence that affects the lives of many children in the United States. Prior to turning four years old, approximately 26% of children in the United States will be exposed to a traumatic situation (National Center for Mental Health Promotion and Youth Violence Prevention, 2012).

Childhood Trauma

Children have little control over the environment and the circumstances of life. Children's brains and neurological systems are still developing and growing. These aspects of

childhood make children even more vulnerable to traumatic experiences than adults. The adverse childhood experiences scale tallies traumatic experiences in a child's life. Trauma measured in the scale includes violence, abuse, neglect, and substance abuse in the home (Felitti et al., 1998). Scores of 3 or higher are associated with increased rates of chronic physical illness, chronic mental illness, and substance abuse (Felitti et al., 1998). Symptoms of exposure to trauma in a preschool age child include frequent crying, frequent tantrums, reduced appetite, separation anxiety, and nightmares (Substance Abuse and Mental Health Services Administration [SAMHSA], 2020). Traumatic stress has a broad impact that affects every area of the child's life from individual wellbeing to family relationships to social relationships (Coulter & Mooney, 2018). Prior exposure to adversity, individual distress, family distress, and resilience influence the impact that traumatic stress will have on a child (Coulter & Mooney, 2018). Children exposed to trauma often exhibit behaviors at school that make educating these children challenging.

There are both state and national initiatives related to adverse childhood experiences. Thirty-one states plus the District of Columbia gather data related to adverse childhood experiences to contribute to the CDC's Behavioral Health Risk Factor Surveillance System (Strompolis et al., 2017). Arizona Adverse Childhood Experiences Consortium (2020) advocates to reduce adverse childhood experiences among Arizona children. Childhood trauma or adverse childhood experiences is a public health issue that needs to be addressed starting in early childhood to achieve improved outcomes and better quality of life for these children.

Building Resilience in Children

Resilience theory supports that adverse experiences and mediating factors interact to impact whether outcomes will be positive or negative (Van Breda, 2018). Individual elements of

resilience such as optimism, self-efficacy, and adaptability are associated with decreased trauma symptoms (Day & Kearney, 2016). Resilience is a skill that can be taught and developed. Supportive adults, such as teachers, play a significant role in building resilience in children and reducing the impact of childhood trauma (Bellis et al., 2017). Teachers with higher resilience have better attitudes about educating children with trauma and are better role models for resilience. This makes it imperative to educate preschool teachers about trauma and resilience to improve their attitude toward educating children with trauma.

Preschool Teacher Education

Education related to childhood trauma and building resilience in children is not included in early childhood teacher education. Preschool teachers often do not correlate how a child acts or displays emotion with exposure to traumatic stress (Cummings, et al., 2017). Preschool teachers are an important adult in a young child's life, and have a unique opportunity to help build resilience in a child. Five positive interactions for every negative interaction helps with establishing a supportive adult child relationship (Acuna & Kataoka, 2017). Supportive adults in a child's life are linked to improved resilience and improved quality of life for children exposed to traumatic stress (Center on the Developing Child Harvard University, 2020). Teachers resilience is also important because teachers with higher resilience have better attitudes about educating children with trauma and are better role models for resilience. Preschool teacher education on childhood trauma and resilience will improve teacher attitude toward educating children with trauma, and will improve teachers ability to build resilience in children.

Discussion

Trauma is a common occurrence among children in the United States. Young children are particularly vulnerable to the effects of trauma. Traumatic stress has an impact on every area

of a child's life from family interactions to school performance to social interactions. Building resilience in children exposed to trauma improves outcomes and improves quality of life for these children (Van Breda, 2018). Supportive adults are an important component in developing childhood resilience (Center on the Developing Child Harvard University, 2020)). Preschool teachers play a valuable role in the lives of young children. Therefore, preschool teacher attitudes toward educating children with trauma is impactful toward helping children build resilience.

Internal Evidence

The site experiencing the gap of preschool teacher education on trauma and resilience was a non-profit, metropolitan preschool in the southwestern United States. The preschool administration and teachers value each child as a unique individual, and support early childhood learning that meets a child's interests and experiences (J. Black, personal communication, October 9, 2020). Preschool teachers regard evidenced-based early childhood education, and remain at the preschool for many years (J. Black, personal communication, October 9, 2020). The preschool teachers had not received previous education on childhood trauma and resilience. Trauma is a common occurrence among children in this metropolitan area of the southwestern United States. Therefore, it was imperative to educate the preschool teachers on childhood trauma and building resilience in children. This information helped teachers better understand trauma and resilience, and hopefully, led to better teacher attitudes towards educating children with trauma.

This inquiry has led to the clinically relevant PICOT question, "In preschool teachers, does training related to trauma and resilience improve attitude toward educating children with trauma?".

Search Strategy

An exhaustive literature search was implemented in October 2020 to identify all pertinent articles that provide evidence related to the PICOT question. Databases searched were PubMed, CINAHL, PsychINFO, and Cochrane Library. The keywords searched were *"adverse childhood experiences", ACEs, "teacher training", "teacher education",* and *"professional development"*. Adding the keywords *"resilience", "resilient",* and *'resiliency"* resulted in no search results. The Boolean connector "AND" was used to combine the population of interest with the intervention. The Boolean connector "OR" was used to combine similar keywords. Multiple combinations of keywords were used to ensure retrieval of all relevant articles. Article inclusion criteria were peer reviewed journal, written in English, published between 2016 and 2020, except for one landmark article. Exclusion criteria were articles written in a language other than English, articles written prior to 2016, articles that only looked at adults, and articles that only looked at healthcare professional education.

Initial search yields were PubMed 303 articles, CINAHL 347 articles, PsychINFO 100 articles, and Cochrane Library 11 articles. After considering exclusion criteria, abstracts for a total of 209 articles were reviewed, and nine articles were chosen for inclusion. A search of grey literature did not yield additional pertinent articles. Hand ancestry search of current references yielded mostly older articles, and one landmark article that was chosen for inclusion. The final 10 included articles were five cross-sectional studies, two cohort studies, one cluster randomized clinical trial, one case study, and one landmark study.

Critical Appraisal and Synthesis

The final 10 studies are included in this literature review. All studies were evaluated using rapid critical appraisal, and analysis of data is presented in the evaluation table (see

Appendix A, Table 1). Most studies that best answered the PICOT question were cross-sectional in design, yielding a lower level of evidence. The final 10 studies consist of six cross-sectional studies, including the landmark study, two cohort studies, one case study, and one cluster randomized clinical trial (see Appendix A, table 2). The quality and validity of studies is supported by inclusion of specific confidence intervals, standard deviations, and effect sizes (see Appendix A, table 1). No conflicts or biases were noted across eight of the studies. In one study, two of the authors were involved with the training center being utilized for the study training, and in one other study, the lead author had received honorarium for being part of an advisory board related to trauma-informed care (Parker et al., 2020; Whitaker et al., 2019). Only three of the 10 studies identified the conceptual framework guiding the work (see Appendix A, table 1). Sample sizes were adequate and showed moderate heterogeneity across studies (see Appendix A, table 2). Heterogeneity of methodology was present between the studies. There was, however, statistical and clinical homogeneity across the final 10 studies. The ten studies are representative of the role adverse childhood experiences play in the lives of young children and on the role of preschool teacher education related to trauma-informed care has on teacher attitude toward educating children with trauma.

Homogeneity of teacher/adult age range existed across eight of the studies (see Appendix A, table 1). Homogeneity of children's age range existed across five studies. Five of the studies were conducted in a preschool setting, and three of the other studies were conducted in public school settings. Nine of the studies were conducted in the United States, and one was conducted in Turkey (see Appendix A, table 2). Diverse measurement tools were utilized (see Appendix A, table 1). This is probably related to variety of study locations. Three studies utilized the Adverse Childhood Experiences questionnaire, and three studies utilized the Attitudes Related to

Trauma Informed Care scale (see Appendix A, table 2). Similar variables were utilized across the studies, such as adverse childhood experiences, trauma knowledge growth, and trauma-informed care acceptability. Five studies showed an association between trauma knowledge growth and increased acceptability of trauma-informed care (see Appendix A, table 2). Three studies showed an association between adverse childhood experiences and either adverse health conditions or decreased social/emotional classroom climate (see Appendix A, table 2). Two studies showed an association between increased trauma knowledge and increased social/emotional classroom climate (see Appendix A, table 2). Two studies showed an association between protective factors/resilience and improved health status or improved prosocial behavior (see Appendix A, table 2). Strong reliability and validity were supported by the use of quality measurement tools and statistically significant results.

Conclusions

The most substantial conclusion ascertained from the evidence is that trauma knowledge increases teacher acceptability of trauma-informed care in the classroom. Evidence suggested adverse childhood experiences are associated with adverse health conditions and decreased classroom social/emotional climate. Evidence also suggested that increased trauma knowledge is associated with increased classroom social/emotional climate. The research directed the provider to implement preschool teacher training on trauma and resilience. The research also directed the provider to utilize the Attitudes Related to Trauma Informed Care scale to measure change in teacher's attitude towards educating children with trauma. As a result, the preschool teachers were exposed to increased knowledge related to trauma and resilience, which will improve the preschool teachers' attitude toward educating children with trauma, and long-term improve the quality of life for children with trauma.

Conceptual Model and Quality Improvement Model

The conceptual model used to explain the evidence and develop the project is the Challenge Model of Resilience (see Appendix B, figure 1). This model focuses on troubles in a child's life as being both dangerous and an opportunity for growth (Fergus & Zimmerman, 2005). Emphasis of the model is that challenges provide the opportunity to utilize skills and develop resources needed for resilience (Fergus & Zimmerman, 2005). The Challenge Model of Resilience was chosen for the project as it spotlights that exposure to adversity may provide the opportunity for development of resilience and that long-term negative outcomes do not have to occur following adverse or traumatic experiences. This model supports the implementation of preschool teacher training on trauma and resilience. Implementing preschool teacher training on trauma and resilience will increase teacher knowledge and improve teachers' attitudes towards educating children with trauma. Improvement in teachers' attitudes will allow the teachers to help develop a child's resilience skills which will long term improve quality of life for children with trauma.

The quality improvement model used to guide the implementation of this project is the Plan-Do-Study-Act (PDSA) cycle (see Appendix B, figure 2). This model was chosen related to its focus on continuous assessment and adjustment to yield quality improvement (Institute of Healthcare Improvement, 2020). The PDSA cycle guides that user to start with identifying what the user is trying to achieve (Institute of Health Care Improvement, 2020). Improved preschool teacher attitude toward educating children with trauma was identified by the preschool directors of a non-profit metropolitan preschool in the southwestern United States as an area for improvement. The PDSA cycle next guided the user to determine what change will be implemented and how change will be measured (Institute for Health Care Improvement, 2020).

The exhaustive literature review showed support for implementing preschool teacher training on trauma and resilience, and for utilizing the Attitudes Related to Trauma Informed Care (ARTIC) scale to measure change in teacher attitude toward educating children with trauma. The exhaustive literature review also showed support for teacher resilience impacting ability to improve classroom social/behavioral climate, and thus, the Adult Resilience Measure-Revised (ARM-R) was also identify as a useful measurement tool The next steps in the PDSA cycle were implementation of change, study of measurement tool results, and action based on these results (Institute of Health Care Improvement, 2020). Preschool teachers have completed the pre-training ARTIC and ARM-R in early November 2020. The preschool teachers then completed training via Zoom in mid-November 2020. The two-week follow-up ARTIC was completed the last week of November 2020, and the six-week follow up was completed in mid-December 2020.

Methods

This project was implemented with preschool teachers at a non-profit metropolitan preschool in the southwestern United States. Participant inclusion criteria included employment at the preschool, at least 21 years of age, and ability to speak, write, and understand the English language. Children at the preschool are two to six years old. The preschool directors identified preschool teacher attitude toward educating children with trauma as an area of needed improvement. This project was identified as exempt by the Arizona State University Internal Review Board.

Following approval by Arizona State University Internal Review Board, preschool teachers completed the Adult Resilience Measure-Revised (ARM-R) and the Attitudes Related to Trauma Informed Care (ARTIC) scale. Completion of these questionnaires by the preschool

teachers was considered participation consent. The preschool teachers then participated in a two-hour training on trauma and resilience via Zoom. This training included information related to definition of trauma, trauma statistics, what constitutes trauma, definition of resilience, child/adult attachment, and building resilience in children. Teacher self-care and resilience was also touched on briefly during the training. The goal of this training was to increase preschool teacher knowledge related to childhood trauma and resilience, and through this knowledge improve preschool teacher attitude toward educating children with trauma. Two weeks and six weeks post-training, the preschool teachers completed follow-up ARTIC scales to measure change in teacher attitude related to educating children with trauma. This project was conducted in November and December 2020.

Adult Resilience Measure – Revised

Teacher resilience was measured with the Adult Resilience Measure-Revised (ARM-R) scale (see Appendix D, figure 1). The ARM-R consists of two subscales that measure personal resilience and relational resilience. Cronbach's alpha for the personal resilience subscale is 0.82, and for the relational resilience subscale is 0.82 (Resilience Research Centre, 2018; Jeffries et al., 2018). Cronbach's alpha for overall resilience is 0.87 (Resilience Research Centre, 2018). The ARM-R is a self-report measures consisting of 17 statements rated with a 5-point Likert scale, in which one equals not at all and five equals a lot (Resilience Research Centre, 2018). The ARM-R has statements related to feeling supported by family, co-workers, and community (Resilience Research Center, 2018). It also contains statements related to being able to meet personal needs and enjoyment of activities with family and friends (Resilience Research Center, 2018). The ARM-R was completed prior to teacher training to measure teacher resilience.

Attitudes Related to Trauma Informed Care Scale

Preschool teacher attitude toward educating children with trauma was measured with the Attitudes Related to Trauma Informed Care (ARCTIC) scale (see Appendix D, figure 2). The ARCTIC measured teacher attitude using the five subscales of fundamental cause of child behaviors, reaction to child behaviors, teacher's job behavior, teacher self-efficacy, and work reactions (Baker et al., 2016). Cronbach's alpha for the ARCTIC with 35 questions is 0.91 (Baker et al., 2016). Cronbach's alpha for the subscales ranges from 0.71 to 0.81 (Baker et al., 2016). The ARTIC is a self-report measure consisting of 35 questions rated with a 7-point Likert scale, in which level is chosen along a continuum between two different statements (Baker et al., 2016). The ARTIC contains statements related to a teacher's ability to impact children's behavior, to causes of children's behaviors, and to teacher's feelings about their job (Baker et al., 2016). The ARTIC was completed pre-training, and at two-weeks and six-weeks post-training to measure change in attitude toward teaching children with trauma.

Data Collection and Data Analysis

Data collection included demographic information, Adult Resilience Measure – Revised (ARM-R) results, and Attitudes Related to Trauma Informed Care (ARTIC) results. ARMR-R scores were collected pre-training. ARTIC scores were collected pre-training, two weeks post-training, and six weeks post-training. Data analysis was conducted using Intellectus Statistics. Descriptive statistics were conducted on the demographic information and the ARM-R scores. Descriptive statistics were also conducted on the pre-training ARTIC, and two follow-up ARTICs related to only three participants completing the two follow-up questionnaires.

Budget and Funding

The overall budget for this project was approximately $1050 (see Appendix C). The Adult Resilience Measure – Revised is free access. The Attitudes Related to Trauma Informed

Care (ARCTIC) scale is free for student's conducting studies with less than 250 participants (Baker et al., 2015). Zoom and Intellectus Statistics are free to Arizona State University students. All funding for initial implementation of the project was provided by the student. This was related to most costs being associated with student time, preschool teacher time, and services that are already established or free to student. Out of pocket costs to student were calculated at $0 as teachers agreed to volunteer their time.

Project Results

Seven preschool teachers participated in the Zoom training (n=7). All seven teachers completed both pre-training questionnaires. Three of the seven (n=3) completed both Attitudes Related to Trauma Informed Care (ARTIC) post-training questionnaires. All teachers reported being female and Caucasian. The average teacher age was 49.43 years (SD=8.40), and the age range was 36 to 60. The average years of experience among the teachers was 17.17 years (SD=10.15) with a range of 3 to 30 years. One teacher did not report years of experience. The most frequently reported education level was associates degree at 57% (n=4). One teacher reported having a high school diploma, one reported having a Bachelor's degree, and one reported having a Masters degree.

The average total score for the Adult Resilience Measure-Revised (ARM-R) was 72.29 (SD=8.28). The range of ARM-R scores was 61 to 83. The ARM-R personal resilience subscale average was 42.43 (SD=5.41). The ARM-R relational resilience subscale average was 30.00 (SD=3.96). The average total score for the pre-training ARTIC was 3.87 (SD=0.16). The average total score for the two-week follow-up ARTIC and the six-week follow-up ARTIC were 3.65 (SD=0.22) and 3.86 (SD=0.25) respectively. The average scores for the ARTIC fundamental cause of child behaviors subscale were 4.76 (SD=0.40) for pre-training, 4.62

(SD=0.44) at 2-weeks post-training, and 4.95 (SD=0.50) at 6-weeks post-training. The average scores for the ARTIC reaction to child behaviors subscale were 3.10 (SD=0.30) for pre-training, 2.94 (SD=0.10) at two-weeks post-training, and 2.79 (SD=0.30) at six-weeks post-training. The average scores for the ARTIC teacher's job behavior subscale were 3.89 (SD=0.30) for pre-training, 3.59 (SD=0.51) at two-weeks post-training, and 3.69 (SD=0.39) at six-weeks post-training. The average scores for the ARTIC teacher self-efficacy subscale were 3.89 (SD=0.30) for pre-training, 3.05 (SD=0.33) at two-weeks post-training, and 3.77 (SD=0.35) at six-weeks post-training. The average scores for the ARTIC work reactions subscale were 3.73 (SD=0.24) for pre-training, 4.00 (SD=0.14) at two-weeks post-training, and 4.03 (SD=0.47) at six-weeks post-training. With only three teachers completing the follow-up ARTIC questionnaires, it was not possible to compare results of the pre-training ARTIC with the two-week and six-week post-training ARTIC questionnaires. Statistical significance was not achieved, and it was not possible to determine whether the preschool teacher training related to childhood trauma and building resilience in children improved teacher attitude toward educating children with trauma.

Discussion

The clinical significance of this project was that the preschool teachers stated improved knowledge related to childhood trauma and building resilience in children after completing the Zoom training. This knowledge improved the teachers' awareness of the number of young children that have experienced trauma, and improved their knowledge about how to better interact with these children. This knowledge also improved the teachers' ability to help families find resources to help these children when needed. While statistical significance was not achieved, this clinical significance was an important outcome from this project.

One strength of this project was that the preschool teachers exhibited high levels of resilience on average. Adult Resilience Measure-Revised scores of 70 to 75 are associated with high levels of resilience, and the preschool teachers average score was 72.29 (Resilience Research Center, 2018). Teachers with low resilience are less able to adjust to changes that occur throughout the school day, and are less effective in educating children (Chesak et al., 2019). Teachers that are highly engaged with students are an important aspect of trauma informed care, and having high resilience allows the teachers to adjust quickly to change and remain engaged with students.

Limitations of this study were small sample size and homogeneity of the sample group. The sample size was only seven teachers. The preschool utilized for the study was small and only employed 12 teachers at the time. Thus, only slightly more than half the teachers participated. All teachers were female and Caucasian. The majority of teachers also reported having an associate degree. These limitations make it difficult to generalize results of the project to other populations.

One obvious barrier to implementation of the project was the current public health concern related to the pandemic. All communication for the project had to be completed via email due to these circumstances. The training had to be completed via Zoom. This made it difficult to initiate involvement in the project, and to get responses back following the training. The ability to have in-person contact would have eliminated these barriers during the project.

The Center on the Developing Child at Harvard University (2020) found supportive adults in a child's life are linked to improved resilience and improved quality of life for children exposed to traumatic stress. Preschool teachers are influential and important adults in a young child's life. Additional research is needed in the area of educating preschool teachers related to

trauma informed care for children that have experienced trauma, in the area of educating preschool teachers related to building resilience in children, and in the area related to the impact of teacher resilience on trauma informed care. Future research should include a larger more diverse participant sample. Future research should also be conducted in-person to improve participation.

Conclusion

Trauma is a common occurrence for children living in the United States. Preschool teachers provide the first educational experience in a child's life. Preschool teachers need to have education related to providing trauma informed care for children exposed to trauma and education related to building resilience in children. While this project did not achieve statistical significance, there was clinical significance in that teachers were more aware of the number of young children that have been exposed to trauma, were better informed about how to interact with these children, and were better able to help families find needed resources. Additional research is needed to further address educating preschool teachers related to trauma informed care, related to building resilience in children, and related to the impact of teacher resilience on trauma informed care. Children are particularly vulnerable to trauma because their brain and neurological system are still developing. It is imperative to intervene early and provide trauma informed care throughout a child's educational journey. The impact will be reduced long-term consequences of chronic physical illness, chronic mental illness, and substance abuse that are associated with adverse childhood experiences (Felitti et al., 1998). Ultimately, leading to improved quality of life for children that have been exposed to trauma.

This project integrated each of the eight Doctor of Nursing Practice (DNP) Essentials. DNP Essential I, Scientific Underpinnings of Practice, was integrated through creating an

educational component related to childhood trauma and building resilience in children. DNP Essential II, Organizational and Systems Leadership, was integrated through planning and implementing this project. DNP Essential III, Clinical Scholarship and Methods for Evidenced-based Practice, was integrated through conducting a thorough literature review related to the topic and through writing the DNP project paper. DNP Essential IV, Information Systems and Technology, was integrated through using email communication with site champions and preschool teachers, and through utilizing Zoom as the modality for conducting the preschool teacher training. DNP Essential V, Healthcare Policy for Advocacy, was integrated by addressing a pertinent healthcare topic to the current situation in the United States, and by advocating for improved trauma informed care in school for children exposed to trauma. DNP Essential VI, Interprofessional Collaboration, was integrated by conducting this project with preschool teachers. DNP Essential VII, Clinical Prevention and Population Health, was integrated by addressing providing trauma informed care in the school setting for children exposed to trauma, which will improve quality of life for these children and help prevent future long-term health consequences. DNP Essential VIII, Advanced Nursing Practice, was integrated through working directly with preschool teachers to provide education related to childhood trauma and building resilience in children. This project provided the opportunity for the student to grow, develop, and learn through integration each of the eight DNP Essentials.

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Appendix A

Evaluation and Synthesis Tables

Table A1

Evaluation Table Quantitative Studies

Citation	Theory/ Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Results	Level/Quality of Evidence; Decision for practice/ application to practice
Felitti et al. (1998) Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The adverse childhood experiences study Country: United States Funding: US Department of	Social cognitive theory - inferred	Cross-sectional study; Landmark study P: To examine the long-term relationship of childhood experiences to important medical and public health problems	N= 13,494 M: 47.9% Fe: 52.1% Mean age: 56.1 years (age range 19-92) Pt type: adults receiving standardized examinations Setting: Kaiser Permanente's San Diego Health Appraisal Clinic	IV: Childhood experiences DV: Risk factors that contribute to leading health problems Definitions: childhood experiences – childhood abuse (psychological, physical, sexual) and household dysfunction during childhood	ACE study questionnaire -good reliability and validity	Logistic regression analysis	DV: ACE score =0 Risk factors of 0 = 56% ACE score = 2 Risk factor of 0 = 31% ACE score of 4 or greater Risk factor of 0 = 14% $p<0.001$ effect size not provided	LOE: IV Strengths: large sample size, study completed in the United States, low costs associated with survey, good reliability and validity of ACE study questionnaire, strong relationship between exposure to ACEs and multiple risk factors for health problems Weaknesses: data was self-reported by patients, under and over reporting limits inferences about causality, additional mediators between ACEs

Key: α: alpha; β: beta; CI: confidence interval; DV: dependent variable; DV1: dependent variable 1: DV2: dependent variable 2: DV3: dependent variable 3; E: exclusions; F: ANOVA result; Fe: female; IV: independent variable; IV1: independent variable 1: IV2: independent variable 2; LOE: level of evidence; M: male; N: sample size; N1: sample size for purpose one; N2: sample size for purpose two; OR: odds ration; P: purpose; p: p-value; Pt: patient; PTSD: posttraumatic stress disorder; $R^{2:}$: variance explained by linear regression model; r: Pearson r; SD: standard deviation; SE: standard error; t: t-value; Χ: chi

Citation	Theory/ Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Results	Level/Quality of Evidence; Decision for practice/ application to practice
Health and Human Services, the CDC foundation, Kaiser Permanente Garfield Memorial Fund Conflict/bias: none			E: did not respond to survey (3986); no race stated (51); educational attainment not reported (34); persons who did not respond to certain questions about adverse childhood experiences (1367)	(exposure to substance abuse, mental illness, violent treatment of mother, criminal behavior) Risk factors – smoking, obesity, physical inactivity, depressed mood, suicide attempts, alcoholism, drug abuse, multiple sexual partners				and risk factors may be present Harm: no harm noted Feasibility: Time required is small. ACE questionnaire is simple and easy to complete. There is good feasibility for using the ACE questionnaire with preschool teachers. Utility to PICOT: Study supports a relationship between adverse childhood experiences and risk factors that lead to health problems later in life. The study shows need for addressing adverse childhood experiences with primary and secondary prevention. This is directly applicable to the PICOT question.

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Citation	Theory/ Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Results	Level/Quality of Evidence; Decision for practice/ application to practice
Hubel et al. (2020) Adverse childhood experiences among early care and education teachers: Prevalence and association with observed quality of classroom social and emotional climate Country: United States Funding: None noted. Conflict/bias: none	Resilience theory - inferred	Cross-sectional study P: 1) To examine the number of ACEs among early child educators. 2) In a subset of early education teachers, to explore the correlation between cumulative ACEs and the quality of the social and emotional climate in the classroom.	N1: 349 N2: 58 M: 0 Fe1: 349 Fe2: 58 Mean age 1: 40.16 SD = 14.22 Range 18 to 81 years Mean age 2: 41.56 SD = 11.73 Participants: Early childhood education teachers involved in Be Well Care Well program. Setting: Childcare centers throughout southeastern	IV: ACEs DV: Social and emotional climate in classroom Definitions: ACEs – adverse childhood experiences, including abuse, neglect, parental divorce, incarceration of parent, etc.	Adverse Childhood Experiences (ACEs) questionnaire Cronbach's α= 0.70 Climate of Healthy Interactions for Learning and Development (CHILD) tool Cronbach's α= 0.92	Descriptive statistics Multilevel modeling	IV: Mean number of ACEs purpose 1: 2.04 SD = 1.98 Mean number of ACEs purpose 2: 1.95 SD = 1.99 DV: Class size: 0.7% variance β = -0.05 SE= 0.02 p = 0.02	LOE: IV Strengths: broad age range of participants in study, study results consist with previous study conducted on ACEs and teachers, number of ACEs similar to distribution in general population, study conducted in the United States. Weaknesses: small sample size for purpose 2, possible observer impact on the classroom climate, other considerations beside class size and ACEs score of teachers might have an impact on classroom climate Harm: no harm noted Feasibility: support for early childhood education teachers is supported as a way of

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Citation	Theory/ Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Results	Level/Quality of Evidence; Decision for practice/ application to practice
			state in United States E: none noted					improving classroom social and emotional climate, which is important for building childhood resilience. Utility to PICOT: Study shows support for supporting teachers with higher ACEs scores to help improve classroom social and emotional climate. This is directly applicable to the PICOT question.
Liu et al, (2020) Co-occurring youth profiles of adverse childhood experiences and protective factors: Associations with health, resilience, and racial disparity Country: United States	Integrative conceptual model for healthy development of adolescents	Cross-sectional study P: To explore how various patterns of both adversity and protective factors co-occur and interact in a large, national sample of youth	N = 30,668 M: 52.5% F:47.5% Mean age: 14.57 SD: 1.74 Range: 12 - 17 Participants: National Survey of Children's Health respondents	IV1: race/ethnicity DV1: adversity DV2: protective factors DV3: health status DV4: chronic health conditions	National Survey of Children's Health	Descriptive statistics Latent transition analysis One-way multivariate analysis of variance	Black youth DV1 Mean: 1.43 SD: 1.51 DV2 Mean: 7.67 SD: 1.76 DV3 Mean: 1.75 SD: 1.74 DV4: Mean: 0.71 SD: 1.43 Latinx youth DV1	LOE: IV Strengths: large sample size, study included the three most common racial/ethnic groups in the United States, study compared different level of adversity with different levels of protective factors to look at impact on overall health and on chronic health conditions

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Citation	Theory/ Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Results	Level/Quality of Evidence; Decision for practice/ application to practice
Funding: none noted Conflict/bias: none			Setting: community E: none noted.	Definitions: Adversity – adverse childhood experiences (abuse, neglect, parental incarceration, etc.) Protective factors – family connection, low parental stress, positive family communication, etc.			Mean: 1.34 SD: 1.64 DV2 Mean: 7.74 SD: 1.8 DV3 Mean: 1.88 SD: 0.98 DV4 Mean: 0.56 SD: 1.30 White youth DV1 Mean: 0.97 SD: 1.42 DV2 Mean: 8.71 SD: 1.37 DV3 Mean: 1.47 SD: 0.74 DV4 Mean: 0.62 SD: 1.29	Weaknesses: Limited ability to determine causality related to cross-sectional study design, contrasting ACEs and protective factors may have led to missing nuances in findings, parents/guardians of adolescent reported the information and may impact data Harm: No harm noted. Feasibility: This survey is conducted via phone making it accessible to more families and making it more cost effective. This survey provides essential information, but would not be feasible for use in my DNP project. Utility to PICOT: Study show support for the interaction between adverse childhood experiences and

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Citation	Theory/ Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Results	Level/Quality of Evidence; Decision for practice/ application to practice
								protective factors as both influencing health outcomes for children. These findings are directly applicable to the PICOT question.
McIntyre et al. (2019). Evaluating foundational professional development training for trauma-informed approaches in schools Country: United States Funding: None noted.	Theory of interpersonal relations - inferred	Cross-sectional study P: To evaluate impact of foundational professional training on knowledge of trauma-informed approaches, acceptability of trauma-informed approaches, and also the impact of	N= 183 F: 129 M: 54 Age Range 18 to 64 years Participants: public school teachers Setting: Public charter schools in New Orleans E: teachers who did not	IV: Pretraining knowledge DV1: knowledge growth DV2: acceptability Definitions: Acceptability – teachers acceptance of trauma-informed approaches in the school	Knowledge of trauma informed approaches scale Cronbach's α= 0.82 pretraining; 0.55 post-training Usage rating profile intervention - revised Cronbach's α=0.70 (acceptability subscale 0.85; systems climate subscale 0.73)	Descriptive statistics One-way analysis of variance Fisher's least significant difference post-hoc test	DV1: Mean: 7.10 SD: 3.49 $p<0.01$ $d = 1.52$ DV2: $F(7, 182) = 29.16$ $p<0.01$ gender/pretraining knowledge $\beta = 0.26$ $p<0.01$ $\beta = 0.27$ $p<0.01$	LOE: IV Strengths: adequate ample size, teachers from both elementary and secondary schools, significant results Weaknesses: results may not be generalizable to other populations as all teachers were new to district, high correlation between acceptability and systems fit, limited variance in post-training knowledge scores

Key: α: alpha; β: beta; CI: confidence interval; DV: dependent variable; DV1: dependent variable 1: DV2: dependent variable 2: DV3: dependent variable 3; E: exclusions; F: ANOVA result; Fe: female; IV: independent variable; IV1: independent variable 1: IV2: independent variable 2; LOE: level of evidence; M: male; N: sample size; N1: sample size for purpose one; N2: sample size for purpose two; OR: odds ration; P: purpose; p: p-value; Pt: patient; PTSD: posttraumatic stress disorder; $R^{2:}$: variance explained by linear regression model; r: Pearson r; SD: standard deviation; SE: standard error; t: t-value; Χ: chi

Citation	Theory/ Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Results	Level/Quality of Evidence; Decision for practice/ application to practice
Conflict/bias: none		systems fit on acceptability of trauma-informed approaches.	complete both pre and post training surveys				perception of systems fit β = 0.62 p<0.01 knowledge growth x system fit interaction β = 0.20 p<0.01	Harm: No harm noted. Feasibility: The scales are simple to complete. Feasibility of implementing one of these measurement tools is good. Utility to PICOT: Study show support for teacher training improving teacher knowledge and acceptability related to trauma informed approaches. This is directly applicable to the PICOT question.
Ogelman et al. (2016) Teacher ratings of resilience and peer relationships of preschoolers whose fathers died unexpectedly	Resilience theory - inferred	Cohort study with control group P: To compare the impact of parental death on resilience and peer relationships with a control group	N = 106 (53 in fathers killed group and 53 in control group) Mean age: 5 years 3 months Age range 5 to 6 Participants: Kindergarten	IV: Parental death DV1: resilience DV2: exclusion by peers DV3: peer victimization	Children's ego resilience scale Cronbach's α = 0.84 Child behavior scale Cronbach's α = 0.96 Peer victimization scale	Demographic statistics Means Standard deviations t-test Mann Whitney U test	DV1 Fathers killed group Mean: 64.97 SD = 7.52 Control group Mean: 69.17 SD = 11.05 *t*(102) = -2.58 p<0.011	LOE: IV Strengths: study used a comparison control group of similar demographics, study was conducted only a few months after fathers deaths, results comparing the two groups showed statistical significance

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Citation	Theory/ Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Results	Level/Quality of Evidence; Decision for practice/ application to practice
Country: Turkey Funding: none noted Conflict/bias: none			children whose father's died in mining accident; control group of children with similar demographics Setting: community setting, kindergarten classes E: none noted	Definitions: not applicable	Cronbach's α = 0.83		DV2 Fathers killed group Mean: 1.75 SD = 2.57 Control group Mean 0.75 SD = 1.73 U = 976.00 p – 0.006 r - -0.27 DV3 Father killed group Mean: 0.15 SD = 0.57 Control group Mean: 0.98 SD = 1.39 U = 913.00 p = 0.000 r = -0.37	Weaknesses: teachers rated the children results might have been different with parent ratings, study was conducted outside of the United states and may not have generalizability to children here Harm: no harm noted. Feasibility: Scales utilized required little time to administer. Cost was minimal to implement scales. These scales are feasible options for use in the project. Utility to PICOT: Evidence supports that resilience and peer relationships are important considerations following a traumatic event in a young child's life. This is directly applicable to the PICOT question.

Key: α: alpha; β: beta; CI: confidence interval; DV: dependent variable; DV1: dependent variable 1: DV2: dependent variable 2: DV3: dependent variable 3; E: exclusions; F: ANOVA result; Fe: female; IV: independent variable; IV1: independent variable 1: IV2: independent variable 2; LOE: level of evidence; M: male; N: sample size; N1: sample size for purpose one; N2: sample size for purpose two; OR: odds ration; P: purpose; p: p-value; Pt: patient; PTSD: posttraumatic stress disorder; $R^{2:}$: variance explained by linear regression model; r: Pearson r; SD: standard deviation; SE: standard error; t: t-value; Χ: chi

Citation	Theory/ Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Results	Level/Quality of Evidence; Decision for practice/ application to practice
Parker et al. (2020) The impact of trauma-based training on educators Country: United States Funding: none noted Conflict/bias: two authors involved with training center	Theory of change - inferred	Cross-sectional study P: To examine the use of a valid and reliable instrument to demonstrate attitudinal change following school-based trauma-informed care training	N=219 M: 50 Fe: 169 Participants: public school district employees Setting: university training center E: 28 participants failed to complete both pre/post training scales	IV: trauma-informed care training DV1: overall attitude related to trauma-informed care DV2: job behavior DV3: self-efficacy Definitions: Self-efficacy – the employee belief that he/she can successfully implement trauma-informed care	Attitude related to trauma-informed care scale (ARTIC) Cronbach's α= 0.92 (pretraining); 0.94 (post-training)	Demographic statistics Mean Standard deviations Paired sample t-test Cohen's d	DV1 pretraining Mean = 5.37 SD = 0.63 Post-training Mean = 6.04 SD = 0.67 t = -18.53 d = -1.34 DV2 pretraining Mean = 5.37 SD = 0.74 Post-training Mean = 6.07 SD = 0.73 t = -15.47 d = -1.12 DV3 pretraining Mean = 5.67 SD = 0.79 Post-training Mean = 6.16 SD = 0.73 t = -10.97 d = -0.79	LOE: IV Strengths: size of study, use of a validated and reliable measurement tool, community-based setting may improve generalizability Weaknesses: response to scale was self-report, participants knew the focus of training facility, items on measurement scale are easy to determine what correct answer should be Harm: no harm was caused Feasibility: trauma-informed care training is feasible as a means of improving educator attitude toward trauma-informed care for children with trauma

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Citation	Theory/ Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Results	Level/Quality of Evidence; Decision for practice/ application to practice
								Utility to PICOT: This study shows support for trauma-informed care training to improve educator attitude and for the use of the ARTIC scale to measure change in attitude. This is directly applicable to the PICOT.
Post et al. (2020) Impact of child-teacher relationship training on teacher attitudes and classroom behavior Country: United States Funding: none noted Conflict bias: none noted	Resilience theory – inferred	Cohort study with control group P: To compare an intervention group to a control group on the impact of child-teacher relationship training on teacher's quality of life, beliefs about social justice, and attitudes related to	N = 46 (study group N = 21; control group N = 25) M: 3 Fe: 43 Mean age: 38 Participants: general education teachers Setting: Title I elementary schools in the rural southeast	IV: child teacher relationship training DV1: teacher's quality of life DV2: beliefs about social justice DV3: attitudes about trauma-informed care Definitions: not applicable	Professional quality of life scale Cronbach's α= 0.88 (compassion satisfaction), 0.75 (burnout), 0.81 (secondary traumatic stress) Belief in a just world Cronbach's α= 0.81 Teacher attitude, knowledge, and skills scale Cronbach's α= 0.73 (attitude),	Demographic statistics Chi square t-treat Analysis of variance	DV1 pretraining Mean = 54.15 SD = 0.48 post-training Mean = 53.61 SD = 0.60 F value = 35.69 p<0.01 DV2 pretraining Mean = 3.18 SD = 1.01 post-training Mean = 2.94 SD = 0.99 F value = 0.36 DV3	LOE: IV Strengths: study used a control group of similar demographics for comparison, study was conducted in the United States, use of several measurement tools with good reliability Weaknesses: study was conducted in rural setting and may not be generalizable to other settings, training consisted of many sessions, response to most scales were self-report

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		trauma-informed care	E: none noted		0.94 (knowledge), 0.99 (skill) Attitudes related to trauma-informed care scale Cronbach's α= 0.91 Classroom observation scale		pretraining Mean = 5.16 SD = 063 post-training Mean = 4.99 SD = 0.92 F value = 13.01 p<0.01	Harm: no harm was caused Feasibility: The training conducted in this study was long, and many teachers were unable to participate all training sessions. This training would not be feasible to use at this time for this project. The measurement tools utilized were of good reliability and would be feasible for use in this project. Utility to PICOT: Study shows support for training improving teacher attitudes related to trauma-informed care compared to control group that did not receive training. This is directly applicable to the PICOT.

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Citation	Theory/ Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Results	Level/Quality of Evidence; Decision for practice/ application to practice
Shamblin et al. (2016) Creating trauma-informed schools for rural Appalachia: The partnerships program for enhancing resiliency, confidence, and workforce development in early childhood education Country: United States Funding: none noted Conflict bias: none noted	Early childhood mental health consultation	Case study P: To assess the impact of consultation services and workforce development services toward improving confidence, self-efficacy, and capacity to support social-emotional development for participating teachers and increase resilience for participating children	N=11 teachers N= 146 children M: not included Fe: not included Mean age: not included Participants: Preschool teachers and the children they teach Setting: schools in rural Appalachia E: none noted	IV: early childhood mental health consultation program DV1: teacher opinions related to training DV2: positive teacher attributes DV3: negative teacher attributes Definitions: note applicable	Teacher opinion scale Cronbach's α= 0.64 (fall); 0.73 (spring) Preschool mental health climate scale Cronbach's α= 0.83 (fall); 0.91 (spring) Devereux early childhood assessment Cronbach's α >0.80 for all subscales	Descriptive statistics Paired sample t-test Multilevel linear regression analyses	DV1 Fall Mean = 39.6 SD = 2.94 Spring Mean = 42.00 SD = 3.16 t(11)=2.5 p<0.05 DV2 Fall Mean = 4.29 SD = 0.38 Spring Mean = 4.28 SD = 0.59 t(10)=0.12 DV3 Fall Mean = 1.15 SD = 1.96 Spring Mean = 1.38 SD = 0.29 t(10)=3.70 p<0.01	LOE: IV Strengths: use of real-world application of trauma-informed care program, use of reliable measurement tools, study shows sustainability of program Weakness: program utilized in study is highly specialized to the region of implementation, small number of participating schools' limits generalizability, lack of randomization Harm: no harm was caused Feasibility: trauma-informed care services are integrated into the school setting. There is good feasibility for implementing integrated services into the preschool environment.

Key: α: alpha; β: beta; CI: confidence interval; DV: dependent variable; DV1: dependent variable 1: DV2: dependent variable 2: DV3: dependent variable 3; E: exclusions; F: ANOVA result; Fe: female; IV: independent variable; IV1: independent variable 1: IV2: independent variable 2; LOE: level of evidence; M: male; N: sample size; N1: sample size for purpose one; N2: sample size for purpose two; OR: odds ration; P: purpose; p: p-value; Pt: patient; PTSD: posttraumatic stress disorder; $R^{2:}$: variance explained by linear regression model; r: Pearson r; SD: standard deviation; SE: standard error; t: t-value; Χ: chi

Citation	Theory/ Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Results	Level/Quality of Evidence; Decision for practice/ application to practice
								Utility to PICOT: This study shows support for increased teacher confidence and a decrease in negative behavior management strategies with the use of integrated trauma-informed care in the preschool setting. This is directly applicable to the PICOT.
Whitaker et al (2019) Effect of a trauma-awareness course on teachers' perceptions of conflict with preschool-aged children from low-income urban households: A cluster randomized clinical trial	Theory of trauma and recovery	Cluster randomized clinical trial P: To examine whether a six session on trauma informed care improves the quality of the relationship between early childhood teachers and children in their classrooms	N=96 M: 3 Fe: 93 Participants: preschool teachers and teacher's assistants Setting: preschools funded in the school district of Philadelphia that are funded	IV: trauma-informed care training DV: conflict Definitions: not applicable	Student-teacher relationship scale, short form Cronbach's α= 0.86 (closeness), 0.92 (conflict) Adverse childhood experiences scale -good reliability and validity Attitude related to trauma-informed care scale Cronbach's α= 0.91	Descriptive statistics Liner and logistics mixed-effects models	Intervention group Mean = 15.8 SD = 0.6 Control group Mean = 0.6 Effect size = 0.16 95% CI -0.19 to 0.52	LOE: II Strengths: study is a randomized control trial, sample size is adequate, preschool teachers are the focus of this study, valid and reliable measurement tools were utilized Weaknesses: the control group was not an active group, participants were not blinded to being part of intervention group, all surveys were self-report

Key: α: alpha; β: beta; CI: confidence interval; DV: dependent variable; DV1: dependent variable 1: DV2: dependent variable 2: DV3: dependent variable 3; E: exclusions; F: ANOVA result; Fe: female; IV: independent variable; IV1: independent variable 1: IV2: independent variable 2; LOE: level of evidence; M: male; N: sample size; N1: sample size for purpose one; N2: sample size for purpose two; OR: odds ration; P: purpose; p: p-value; Pt: patient; PTSD: posttraumatic stress disorder; $R^{2:}$: variance explained by linear regression model; r: Pearson r; SD: standard deviation; SE: standard error; t: t-value; Χ: chi

Citation	Theory/ Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Results	Level/Quality of Evidence; Decision for practice/ application to practice
Country: United States Funding: United Way of Greater Philadelphia and Southern New Jersey Conflict bias: lead author received an honorarium from Robert Wood Johnson Foundation for service on an advisory group			by Head Start program E: none noted		Measurement tools were combined into one on-line survey. Other tools utilized were not specified.			Harm: no harm was caused Feasibility: This study used valid and reliable measurement tools that would be feasible to utilize in this project. Utility to PICOT: Study shows support for improved compassion for students with trauma after trauma-informed care education for preschool teachers. This is directly applicable to PICOT.

Key: α: alpha; β: beta; CI: confidence interval; DV: dependent variable; DV1: dependent variable 1: DV2: dependent variable 2: DV3: dependent variable 3; E: exclusions; F: ANOVA result; Fe: female; IV: independent variable; IV1: independent variable 1: IV2: independent variable 2; LOE: level of evidence; M: male; N: sample size; N1: sample size for purpose one; N2: sample size for purpose two; OR: odds ration; P: purpose; p: p-value; Pt: patient; PTSD: posttraumatic stress disorder; $R^{2:}$: variance explained by linear regression model; r: Pearson r; SD: standard deviation; SE: standard error; t: t-value; Χ: chi

Citation	Theory/ Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Results	Level/Quality of Evidence; Decision for practice/ application to practice
Yule et al. (2020) Adaptive functioning in high-risk preschoolers: Caregiver practices beyond parental warmth Country: United States Funding: none noted Conflict bias: none noted	Resilience theory - inferred	Cross-sectional study P: to examine whether specific emotion socialization behaviors relate to adaptive functioning in at-risk preschoolers, and whether parental warmth moderates the interaction between emotion socialization and adaptive functioning in preschool children	N=124 (child/caregiver dyads) Mean age of children: 3.96 Range 3 to 6 Mean age of caregiver: 32 Range 19 to 69 Participants: caregivers (mother, father, grandparents, etc.) of preschool age children Setting: Head Start preschool program E: none noted	IV: parental warmth DV1: emotion coaching DV2: adaptive functioning composite DV3: Emotion regulation Definitions: Emotion coaching – helping children understand emotions experienced Adaptive functioning – child's ability to adapt to stress Emotion regulation – child's ability	Emotion related parenting styles Cronbach's α= 0.76 Parental acceptance-rejection questionnaire Cronbach's α= 0.90 Emotion regulation checklist Cronbach's α= 0.85 Preschool behavioral and emotional rating scale Cronbach's α= 0.89 (caregiver), 0.94 (teacher) Juvenile victimization questionnaire Cronbach's α= 0.83	Descriptive statistics Correlational analyses Hierarchical multiple regression analysis	Mean = 5.84 SD = 0.89 Range 1 to 7 Cronbach's α= 0.90 DV1 correlation: 0.47 β = 0.27 p = 0.01 DV2 correlation: 0.43 β = 32 p= 0.001 DV3 correlation: 0.41 p<0.001	LOE: IV Strengths: adequate sample size, use of multiple valid and reliable measurement tools, age range of children covers all preschool age children which helps with generalizability, study conducted in metropolitan area Weaknesses: causal relationship cannot be determined due to cross-sectional design of study, observational part of study was brief, study only looked at one caregiver per child, most caregivers were female and African American which impacts generalizability Harm: no harm was caused

Key: α: alpha; β: beta; CI: confidence interval; DV: dependent variable; DV1: dependent variable 1: DV2: dependent variable 2: DV3: dependent variable 3; E: exclusions; F: ANOVA result; Fe: female; IV: independent variable; IV1: independent variable 1: IV2: independent variable 2; LOE: level of evidence; M: male; N: sample size; N1: sample size for purpose one; N2: sample size for purpose two; OR: odds ration; P: purpose; p: p-value; Pt: patient; PTSD: posttraumatic stress disorder; $R^{2:}$: variance explained by linear regression model; r: Pearson r; SD: standard deviation; SE: standard error; t: t-value; Χ: chi

Citation	Theory/ Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Results	Level/Quality of Evidence; Decision for practice/ application to practice
				to control emotions	Childhood trust events survey Conflict tactic scale, short form Cronbach's α= 0.82			Feasibility: Multiple short surveys were utilized that are valid and reliable. The feasibility of using one or more of these surveys is good. Utility to PICOT: This study supports caregiver's behaviors like emotional coaching, warmth, and validating a child's emotions helps the preschool age child develop emotional regulation, social skills, and school readiness. This is directly applicable to the PICOT.

Key: α: alpha; β: beta; CI: confidence interval; DV: dependent variable; DV1: dependent variable 1: DV2: dependent variable 2: DV3: dependent variable 3; E: exclusions; F: ANOVA result; Fe: female; IV: independent variable; IV1: independent variable 1: IV2: independent variable 2; LOE: level of evidence; M: male; N: sample size; N1: sample size for purpose one; N2: sample size for purpose two; OR: odds ration; P: purpose; p: p-value; Pt: patient; PTSD: posttraumatic stress disorder; $R^{2:}$: variance explained by linear regression model; r: Pearson r; SD: standard deviation; SE: standard error; t: t-value; Χ: chi

Table A2

Synthesis Table

Authors	Felitti et al.	Hubel et al.	Liu et al.	McIntyre et al.	Ogelman et al.	Parker et al.	Post et al.	Shamblin et al.	Whitaker et al.	Yule et al.
Year	1998	2020	2020	2019	2016	2020	2020	2016	2019	2020
LOE	IV	IV	IV	IV	IV	IV	IV	IV	II	IV
Design	CS	CS	CS	CS	C	CS	C	cs	RCT	CS
Study Length	3 y.	n/s	n/s	2 d.	n/s	3 d.	n/s	1 y.	12 w.	n/s
Study Characteristics										
Country	US	US	US	US	Turkey	US	US	US	US	US
Sample Size/ # of Studies	13,494	349	30,668	183	106	219	46	11 t/ 146 c	96	124
Mean Age	56.1 y.	40.16 y.	14.57 y.	n/s	5 y. 3 m.	n/s	38 y.	n/s	n/s	c: 3.96
Age Range	18-92 y.	18-81 y.	12-17 y.	18-64 y.	5-6 y.	n/s	n/s	n/s	c: 3-4 y.	c: 3-6
Preschool Setting	No	Yes	No	No	Yes	No	No	Yes	Yes	Yes
Measurement Tools	ACE	ACE, CHILD	NSCH	KTIA, URPI	CER, CBS, PVS	ARTIC	PQL, BJW, TAK, ARTIC	TOS, PMH, DECA	ACE, ARTIC, STR,	ERP, PAR, ERC, PBE, JVQ
Independent Variables										
Adverse Childhood Experiences	X	X	X		X					
Trauma-Informed Care Training				X		X	X	X	X	
Adult Support of Child										X
Findings/Outcomes										
Adversity	↑	↑	↑[1]		↑					
Adverse Health Risk	↑		↑[1]/↓[2]							
Health Status			↓[1]/↑[2]							
Classroom Social/Emotional Climate		↓						↑	↑	
Protective Factors/ Resilience			↑[2]		↓					↑
Trauma Knowledge Growth				↑		↑	↑	↑	↑	
Trauma-Informed Acceptability				↑		↑	↑	↑	↑	
Prosocial Behavior					↑					↑

Key: ACE: Adverse Childhood Experiences Questionnaire; ARTIC: Attitude Related to Trauma Informed Care Scale; BWJ: Belief in a Just World; c: children; C: cohort study; CBS; Child Behavior Scale; CER: Children's Ego Resilience Scale; CHILD: Climate of Healthy Interactions for Learning and Development tool; cs: case study; CS: cross-sectional study; d; days; DECA: Deveraux Early Childhood Assessment; ERC: Emotion Regulation Checklist; ERP: Emotion Related Parenting Styles; JVQ: Juvenile Victimization Questionnaire; KTIA: Knowledge of Trauma Informed Approaches Scale; LOE: level of evidence; m: months; n/s: not stated; NSCH: National Survey of Children's Health; PAR: Parental Acceptance-Rejection Questionnaire; PBE: Preschool Behavioral and Emotion Rating Scale; PMH: Preschool Mental Health Climate Scale; PQL: Professional Quality of Life Scale; PVS: Peer Victimization Scale; RCT: randomized clinical trial; STR: Student-Teacher Relationship Scale short form; t: teachers; TOS: Teacher Opinion Scale; URPI: Usage Rating Profile Intervention-Revised; US: United States; w: weeks; y: years; ↑: increase; ↓: decrease; ↑[1] or ↓[1]: shows relationship in column; ↑[2] or ↓[2]: shows relationship in column

Appendix B

Models Used as Frameworks

Figure B1

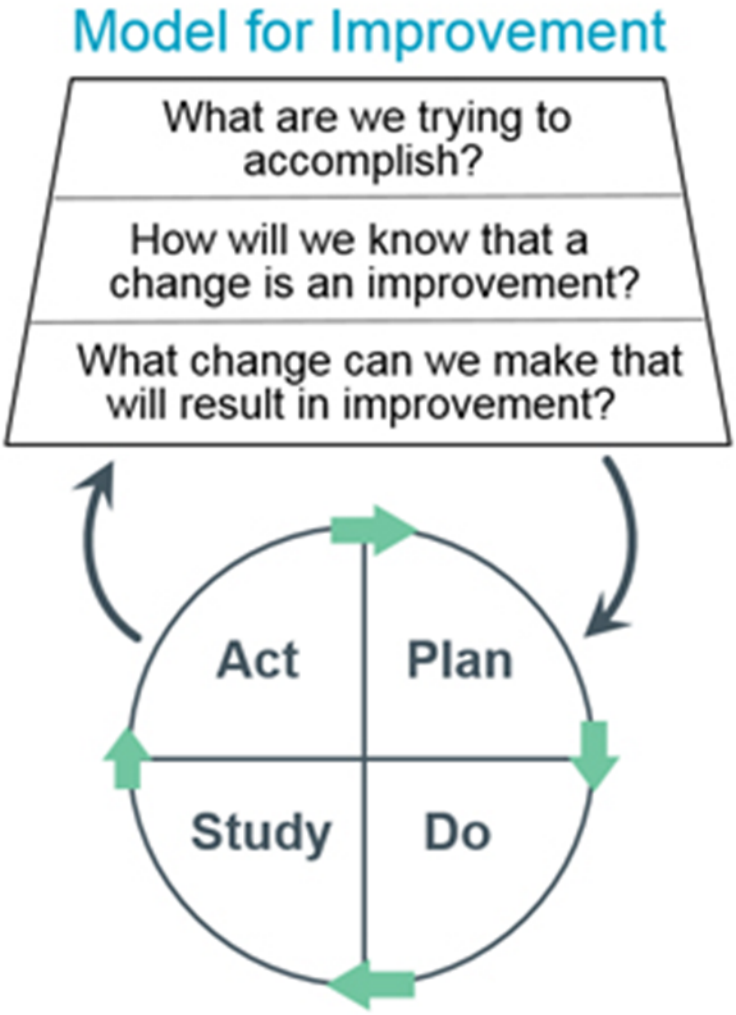
Challenge Model of Resilience

Note. From Project Resilience. (1999). Project resilience challenge model.

https://projectresilience.com/challenge.htm. Copyright 1999 by Project Resilience

Figure B2

Plan-Do-Study-Act Cycle



Note. From Institute of Health Care Improvement. (2020). Science of improvement: Testing changes. http://www.ihi.org/resources/Pages/HowtoImprove/ScienceofImprovementTestingChanges.aspx

Appendix C

Project Budget

Phase		Activity	Cost	Subtotal/ Total
Preparation:	**Direct costs**	Obtain Adult Resilience Measure-Revised (ARM-R)	$0	
		Obtain Attitudes Related to Trauma Informed Care Scale (ARTIC) (Baker et al., 2015)	$0	
	Indirect costs	Create Powerpoint presentation related to trauma and resilience for use during training (3 hours @ $36.93/hour) (U.S. Bureau of Labor Statistics, 2020)	$110.79	
	Funding	Student will be funding preparation portion of the project	$0	$110.79
Delivery:	**Direct costs**	Conduct teacher training related to trauma and resilience via Zoom (2 hours @ $36.93/hour) (U.S. Bureau of Labor Statistics, 2020)	$73.86	
	Indirect Costs	Preschool teacher time to complete ARM-R and ARTIC pre/post training (1-hour @ $13.87/hour for 12 teachers) (U.S. Bureau of Labor Statistics, 2020)	$166.44	
		Preschool teacher time to complete training related to trauma and resilience (2 hours @ $13.87/hour for 12 teachers) (U.S. Bureau of Labor Statistics, 2020)	$332.88	
		Zoom access (free for students at ASU)	$0	
		Teacher ability to access Zoom via smartphone or computer internet access (utilizing services already in place)	$0	
	Funding	Student will be funding delivery portion of the project	$0	$573.18
Evaluation:	**Direct costs**	Review and analysis of results (10 hours @ $36.93/hours) (U.S. Bureau of Labor Statistics, 2020)	$369.30	
	Indirect costs	Use of Intellectus Statistics for analysis of data (free as a student at ASU)	$0	
	Funding	Student will be funding evaluation portion of the project as costs are related to student time	$0	$369.30
Potential revenue/ Cost savings		Value is related to additional knowledge gained by the preschool teachers and to increased support of children with trauma	$0	**$1053.27**

Budget Justification:

Preparation direct costs: The Adult Resilience Measure – Revised is free access. The Attitudes Related to Trauma Informed Care (ARCTIC) scale is free for student's conducting studies with less than 250 participants (Baker et al., 2015).

Preparation indirect costs: A Powerpoint presentation related to trauma and resilience will add a visual modality to the training. Cost is related to three hours at the median salary for a registered nurse in Arizona according to the U.S. Bureau of Labor Statistics (2020).

Delivery direct costs: All costs are related to student time. Hourly rate is based on the median hourly salary for a registered nurse in Arizona according to the U.S. Bureau of Labor Statistics (2020).

Delivery indirect costs: Costs of preschool teacher time are based on the time required at the median hourly salary for preschool teachers in Arizona according to the U.S. Bureau of Labor Statistics (2020). Zoom is associated with no cost related to it being free for Arizona State University (ASU) students. Cost of teacher access to Zoom via smartphone or computer internet access is calculated at zero with the plan of using services that are already in place.

Evaluation direct costs: Review and analysis of measurement tool results will require approximately 10 hours of time. Cost is based on median hourly salary for a registered nurse in Arizona according to U.S. Bureau of Labor Statistics (2020).

Evaluation indirect costs: Intellectus Statistics software required for analysis of results is free to ASU students, and is therefore associated with no cost.

Funding of preparation, delivery, and evaluation: All funding for initial implementation of the project will be provided by the student. This is related to most costs being associated with student time, preschool teacher time, and services that are already established or free to student. Out of pocket costs to student are calculated at $0 as teachers have agreed to volunteer their time.

Potential cost savings: Value of this project is related to increased preschool teacher knowledge related to trauma and resilience, and to increased support for children with trauma.

Appendix D

Questionnaires

Figure D1

Adult Resilience Measure-Revised (ARM-R)

Resilience Research Centre DALHOUSIE UNIVERSITY

Date_____

ID Code_____
(favorite color, day of birth, first letter of city of birth)

Adult Resilience Measure-Revised (ARM-R)

Age_____

Gender_____

Race/ Ethnicity_____

Highest Level of Education_____

Years of Experience_____

ARM-R						
To what extent do the following statements apply to you? **There are no right or wrong answers.**		Not at all [1]	A little [2]	Somewhat [3]	Quite a bit [4]	A lot [5]
1	I cooperate with people around me	1	2	3	4	5
2	Getting and improving qualifications or skills is important to me	1	2	3	4	5

3	I know how to behave in different social situations	1	2	3	4	5
4	My family have usually supported me through life	1	2	3	4	5
5	My family knows a lot about me	1	2	3	4	5
6	If I am hungry, I can get food to eat	1	2	3	4	5
7	People like to spend time with me	1	2	3	4	5
8	I talk to my family/partner about how I feel	1	2	3	4	5
9	I feel supported by my friends	1	2	3	4	5
10	I feel that I belong in my community	1	2	3	4	5
11	My family/partner stands by me during difficult times	1	2	3	4	5
12	My friends stand by me during difficult times	1	2	3	4	5
13	I am treated fairly in my community	1	2	3	4	5
14	I have opportunities to show others that I can act responsibly	1	2	3	4	5
15	I feel secure when I am with my family/partner	1	2	3	4	5
16	I have opportunities to apply my abilities in life (like skills, a job, caring for others)	1	2	3	4	5
17	I enjoy my family's/partner's cultural and family traditions	1	2	3	4	5

For administration instructions and scoring, please refer to the accompanying manual.

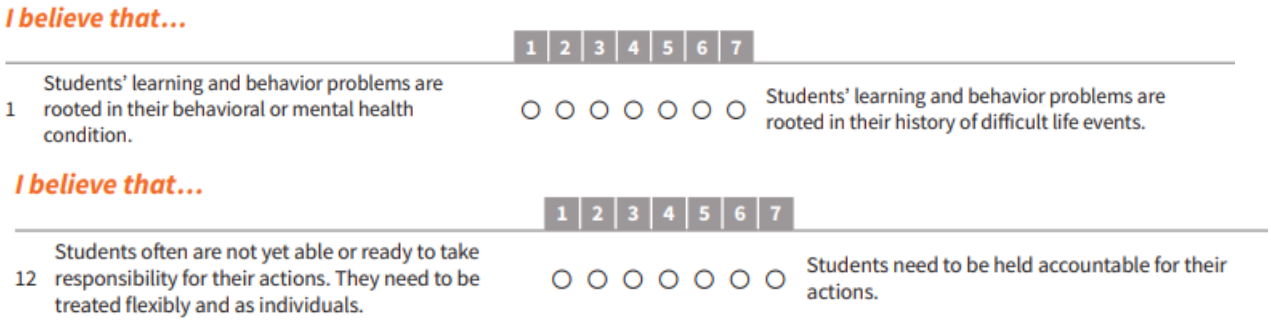
When using the measure, please cite the following:

Resilience Research Centre. (2018). CYRM and ARM user manual. Halifax, NS: Resilience Research Centre, Dalhousie University. Retrieved from http://www.resilienceresearch.org/

Jefferies, P., McGarrigle, L., & Ungar, M. (2018). The CYRM-R: a Rasch-validated revision of the Child and Youth Resilience Measure. *Journal of Evidence-Informed Social Work,* 1-24. https://doi.org/10.1080/23761407.2018.1548403

Figure D2

Attitudes Related to Trauma Informed Care (ARTIC) Scale Example Questions



Note: From Traumatic Stress Institute of Klingberg Family Centers. (2021). Attitudes related to trauma informed care scale: Version ARTIC-35 education. www.traumaticstressinstitute.org