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Educating Nurse Practitioners on ACEs and the HOPE Model to Improve Awareness and Acceptability of Trauma-Informed Care

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**Educating Nurse Practitioners on ACEs and the HOPE Model to Improve Awareness and
Acceptability of Trauma-Informed Care**

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Abstract

Background: Adverse childhood experiences (ACEs) continue to demonstrate negative effects on children and adults' health. A dose-response relationship exists between the number of adverse experiences a person faces during childhood, and the extent and severity of chronic illnesses developed in adulthood, including early death. Identifying patients who have ACEs is key to managing their health care. Trauma-informed care provides a clinical framework in which patients with a history of ACEs receive optimal health care to prevent and manage the health influences of ACEs.

Purpose: The purpose of this Quality Improvement (QI) project was to increase nurse practitioner (NP) knowledge about the chronic health effects of ACEs, and assess the awareness and acceptability of trauma-informed care in a variety of clinical settings.

Methods: A pre and post intervention approach was used to assess the effectiveness of an educational intervention focused on trauma informed care among NPs.

Results: 35 NPs participated in the online surveys completed the educational content. When compared with the pre-intervention results, there was a reported increase in familiarity and awareness of ACEs and TIC. Participants also reported fewer anticipated barriers to inquiring about ACEs during routine visits in their area of practice.

Conclusion: An educational intervention to raise awareness of the health effects of ACEs and the practice of Trauma Informed Primary Care was successful in increasing NP knowledge. This intervention has the potential to influence the effect of ACEs on health by increasing provider knowledge.

Keywords: adverse childhood experiences, trauma-informed care, toxic stress, resilience, positive childhood experiences, healthy development, education, awareness

Educating Nurse Practitioners on ACEs and the HOPE Model to Improve Awareness and Acceptability of Trauma-Informed Care

The original Adverse Childhood Experiences (ACE's) Study by Felitti et al. (1998) initiated three decades of ongoing research exemplifying a dose-response relationship between exposure to childhood abuse and several leading causes of death in the United States (U.S.). As a result of the study, there is a strong and cumulative impact that ACEs have on the health status of adults as well as an evidence-based need for prevention strategies (Felitti et al., 1998; Pardee, Kuzma, Dahlem, Boucher, & Darling-Fisher, 2017). More recently, a connection between protective factors during childhood and healthy development was found to mitigate the harm of ACEs and prevent toxic stress (Sege & Browne, 2017).

Trauma-informed care is a perspective in health care that involves awareness of patients' trauma history, assessment of their level of resilience and self-efficacy, and prevention of negative health effects of long-term toxic stress (Pardee et al, 2017; Roberts, Chandler, & Kalmakis, 2019). Considering the holistic backbone of the nursing profession, primary care nurse practitioners are at the forefront of change towards implementing and regulating trauma-informed care. Therefore, the purpose of this proposed QI project is to positively impact the knowledge and acceptability of trauma-informed care for nurse practitioners in Massachusetts.

Background

Adverse Childhood Experiences

The Centers for Disease Control and Prevention (CDC) (2019) have recently compiled evidence regarding ACE's and their prevalence in the U.S. Of 23 states that were surveyed, greater than half reported experiencing one adverse childhood event in their lifetime, and 25% of those participants experienced three or more (Merrick, Ford, Ports, & Guinn, 2018). Considering

the direct impact that ACE's can have on health and chronic illness, behavioral choices, and lifetime potential in adulthood, preventing ACE's has become a priority (CDC, 2019). In the 2011/2012 National Survey of Children's Health (NSCH), 46% of children in the U.S. had experienced at least one ACE, and 33% had experienced one to two ACE's in Massachusetts alone (Sacks, Murphey, & Moore, 2014).

As the prevalence of ACE's remains a significant public health concern, so do the associated long-term health effects. A dose-response relationship was established in the original Kaiser ACE Study (Felliti et al., 1998) and has continued to be studied over the past decade. The dose-response relationship demonstrates a strong correlation between the number of ACE's a person has experienced with the risk developing not only physical health challenges such as chronic pain, diabetes, and heart disease, but also unhealthy lifestyle behaviors, mental health challenges, social underachievement, and even early death (CDC, 2019; Ross et al., 2020). Greater than 2000 studies have examined this relationship and identified physiological and biomolecular patterns connecting childhood chronic stress to "changes in development of nervous, endocrine, and immune systems, resulting in impaired cognitive, social, and emotional functioning and increased allostatic load" leading to chronic physical damage (Hughes et al., 2017, p. e256).

On a global level, an estimated billion children between the ages of two to 17 have been victims of violence, which represents only a portion of experiences connected to adverse health effects. As evidence grows, childhood events including low socioeconomic status, peer victimization, peer isolation/rejection, and exposure to community violence display the same relationship as those from original ACE study, suggesting that the adolescents being affected by

this epidemic go far beyond physical, sexual, and emotional abuse (Finkelhor, Shattuck, Turner, & Hamby, 2015).

The HOPE Model

An evidence-based dose-response relationship has also been established between positive childhood experiences (PCEs) and positive relationships and mental health in adulthood (Bethell, Jones, Gombojav, Linkenbach, & Sege, 2019). The relationship provides a holistic and promotional health outlook that creates a buffer from co-existing ACEs (Sege & Browne, 2017). The Health Outcomes from Positive Experiences (HOPE) framework emphasizes the opportunity that young children have to set the course for healthy development despite vulnerability to harm from adverse experiences. A child's exposure to both ACEs and PCEs provide the foundation to long-term health and stress management, and a joint inventory of the two may improve the ability to fight adversity with resiliency (Sege & Brown, 2017; Pardee et al., 2017).

Prior to the 2019 focus on ACEs, the CDC (2014) presented a framework encouraging the promotion of safe, stable, and nurturing relationships and environments to prevent childhood abuse and neglect. This initiated a shift in public health perspective with emphasis on the promotion of family health rather than the prevention of maltreatment (Sege & Linkenbach, 2014). The statement suggested that the responsibility of primary care providers goes beyond screening and treating a problem, but promoting a positive and cultivating environment for their patients. The anticipatory guidance surrounding PCEs is potentially as important as others well supported, such as encouragement to breastfeed, or utilize car seats. Research supports an association between resiliency and adaptive skills with improved childhood development, which in turn may reduce the burden of ACEs or associated illnesses (Bethell et al., 2019).

Trauma-Informed Care

Despite the massive accrual of ongoing research regarding the long-term damaging effects of ACE's on the youth population, political agendas are resistant to prioritize prevention and support for victims (Hughes et al., 2017). While there may not be a single, evidence-based cure for the exposure to ACEs, detecting these issues and assisting children in resilience and/or coping strategies to prevent toxic stress can help minimize their negative effects (Marsicek et al., 2019). The American Academy of Pediatrics (AAP) has been recommending screening in the pediatric primary care setting dating back to 2012 (Garner & Shonkoff, 2012), and the American Heart Association (AHA) (2020) currently advises policymakers to seek evidence-based interventions that may help mitigate risk factors that may lead to ACEs. Not only do less than 5% of providers currently screen for ACE's, but less than 30% report having any knowledge of the ACEs or the ACE study itself (Marsicek et al., 2019).

While several studies have attempted to implement ACE screening, ongoing barriers including a lack of a validated screening tool, effective treatment models, time, appropriate resources, and provider education remain significant (Selvaraj, Stillerman, & Sonu, 2018). Unfortunately, there remains a need for the detection and implementation of ACE's support, and additional education for providers is essential to ensure sufficient trauma-informed care for patients (Kerker et al., 2016).

Problem Statement

The epidemic of health discrepancies resulting from toxic stress secondary to childhood trauma is indicated by a lack of trauma-informed care in the primary care setting, and results from inadequate knowledge and awareness of the role nurse practitioners in Massachusetts play in addressing these issues. Educational interventions may improve nurse practitioners'

awareness and willingness to implement trauma-informed care in their practice. This DNP Quality Improvement (QI) will assess the knowledge and acceptability of trauma-informed care in the primary care setting using a virtual education session for nurse practitioners in Massachusetts.

Organizational “Gap” Analysis

The Childhood Trauma Task Force (CTTF) of Massachusetts was established in 2018 and aims to determine methods for identifying and providing resources to children who have experienced trauma (Commonwealth of Massachusetts, 2020). A particular goal of theirs is “to study trauma-informed approaches to treatment services and make recommendations for improvement” (Commonwealth of Massachusetts, 2020). In addition, there is a trauma-informed care initiative in place in Massachusetts aiming to better the safety and well-being of maltreated children (Bartlett et al., 2016). However, despite 89% of institutions considering themselves trauma-informed, “there is no statewide agreement or understanding of what it means to be ‘trauma-informed’ in practice” (Childhood Trauma Task Force, 2019, p. 21). Additionally, there is also no consistent statewide method to identifying or responding to those who have experienced trauma. The absence of best-practice guidelines stems from a lack of research on trauma inquiry and wide variability of trauma management (Lewis-O’Connor et al., 2019). Proactive education for nurse practitioners from all experience levels may improve knowledge and consistency of trauma-informed care in Massachusetts.

Review of Literature

A review of the literature was conducted using the PubMed and CINAHL databases. Inclusion criteria included studies published within the last five years, with one exception. Only studies written originally in English were included. The keyword “trauma-informed care” was

searched first yielding 7,083 results. These results were narrowed down by including the Boolean operator AND with the keyword “provider awareness”. Results were then narrowed down to 178 results. The keywords “education”, “training”, “primary care”, “communication” and “nursing” were also interchanged during the search, narrowing down total results to 78 articles. 13 peer-reviewed articles were selected based on relevance to this QI project and corresponding references within each article. Exclusion criteria included results in languages other than English, did not have full-text access, or were published greater than ten years ago, with the exception of the original ACE’s study. Current evidence of educational interventions to support improvement of trauma-informed care is limited, however there are common themes within the literature regarding provider perceptions, favorable curriculum strategies, and implications on clinical practice.

Provider Perceptions

The trauma-informed care curriculum in the literature is aimed at a variety of populations including medical students, nurses, residents, NPs, and primary care providers (PCPs). This wide array of relevant audiences reinforces the importance of interprofessional education when it comes to trauma informed care (Strait & Bolman, 2017). Prior to any form of educational intervention, the majority of participants across all disciplines reported a lack of confidence and overall discomfort when discussing ACEs or trauma histories with their patients (Goldstein, Murray-Garcia, Sciolla, Topitzes, 2018; Green et al., 2015; Schmitz, Light, Barry, & Hodges, 2019). At best, most healthcare workers rate themselves “somewhat competent” when it comes to communicating with their patients about trauma history (Kassam-Adams et al., 2015). In fact, when asked to compare their comfort level with a list of other behaviors health specialties,

participants were the least comfortable with traumatic stress (Dueweke, Hanson, Wallis, Fanguy, & Newman, 2019).

The most common barriers reported by providers contributing to their overall lack of confidence in discussing trauma histories or screening for trauma with their patients include a lack of time, a lack of resources, and the need for further education and practice (Dueweke et al., 2019; Roberts et al., 2019; Strait & Bolman, 2017). Despite the well-known importance of effective communication across a wide range of cultural and socioeconomic backgrounds, this curriculum is incorporated into provider training very minimally (Schmitz et al., 2019). PCPs admit to being unaware of available screening tools for ACEs, and some of those who are aware find the screening process to be impractical in their work environment due to the complexity and time requirements of the surveys (Dueweke et al., 2019). The attitudes and beliefs of providers are strongly associated with their inclination to ask about ACEs, suggesting that increased awareness and education could positively affect the implementation of trauma informed care (Kerker et al., 2016).

Evidence has shown that screening for ACEs and incorporating a trauma-informed discussion into primary care visits is in fact feasible (Glowa, Olson, & Johnson, 2016; Kia-Keating, Barnett, Liu, Sims, & Ruth, 2019). After successfully implementing trauma-informed care, providers felt a deeper connection between their patient's physical and emotional health, as well as facilitating a closer relationship with patients and families (Kia-Keating et al., 2019). Addressing provider concerns and gaps in education prior to initiating trauma informed care in the outpatient setting may assist in reducing ambivalence towards the shift in practice. Identifying these gaps is implicated in the efforts to optimize training for trauma informed care and incorporate them into curricular components (Hamberger, Barry, & Franco, 2019).

Educational Curriculum

Considering there is no standard curriculum used to properly inform medical professionals of ACE's and their effects (Schmitz et al., 2019), several methods of intervention have been used in the literature. Multimodal, interactive forms of curriculum have found to be the most successful when providing trauma-informed care education (Helitzer, LaNoue, Wilson, de Hernandez Stafanski & Mason, 2010; Schmitz, et al., 2019). Current studies have included didactic lectures, online modules, small group case discussions, and role playing using both standardized patient cases and real patient cases (Goldstein et al., 2018; Green et al., 2016, 2015; Helitzer et al., 2010; Hoystead, Jobson, & Alisie, 2019; Pletcher, O'Connor, Swift-Taylor, & DallaPiazza, 2019; Schmitz et al., 2019; Stefanski & Mason, 2017). The use of a TEDTalk by Nadine Burke-Harris (2017), the first ever surgeon general of California whose career focus is ACE awareness and prevention, was used as an education component in multiple studies (Goldstein et al., 2018; Pletcher et al., 2019; Stafanski & Mason, 2017; Strait & Bolman, 2016). PowerPoint presentations have been used in both face-to-face and virtual learning settings using visual aids and voiceover components to assist in all learning styles (Hoystead et al., 2018; Pletcher et al., 2019).

Some studies also allowed providers to practice effective communication on both simulated and real trauma-exposed patients (Green et al., 2016, 2015). The opportunity to view and complete ACEs screening on the participants themselves has also shown to positively effect a professional's ability to deliver trauma-informed care, as it can reinforce the clinical significance that ACEs have on lifelong health at a personal level (Strait & Bolman, 2016).

While the field of trauma-informed care remains relatively underdeveloped and inconsistent across organizations, feedback from participants of existing literature can help

develop the structure of future interventions (Hamberger et al., 2019). A common theme from recent studies suggests that sequential trainings that are longer in length are necessary to support impactful skill and confidence gains in trauma-informed care (Goldstein et al., 2018). However, initial training has consistently been found to pique the interest of participants and emphasize the clinical relevance to the subject matter. Studies have shown that brief training sessions can assist in overcoming initial discomfort with providing trauma informed care (Goldstein et al., 2018). In fact, participants often appreciated brief online format and found that improvement in knowledge of traumatic stress can be achieved with minimal training (Hoystead et al., 2018). It was concluded by Dueweke et al. (2019) that when brief training was paired with screening options and referral resources, participants reported greater attitudes, perceived confidence, and a reduction to perceived barriers to implementing trauma informed care.

Clinical Impact

Despite the format or duration of training and educational sessions that were provided in the literature, participants report positive benefits to their clinical practice. Facilitating open discussions with patients regarding ACEs became more frequent in some cases, which lead to a proactive effort to provide resources and services to patients and families (Stefanski & Mason, 2017). The increased confidence from the training helped bridge the gap between mental and physical health (Green et al., 2015; Goldstein et al., 2018). A patient's ability to truly engage with their provider and disclose their mental health needs may be adversely affected if providers remain uncomfortable discussing ACE's (Green et al., 2015). Effective training programs will not only create higher standards of professional behavior, but maximize the positive impact that a trusting patient-provider relationship can have on both health and patient satisfaction.

The patient perspective also supports increased education in trauma-informed care. Adequate communication with providers positively correlates with patient satisfaction and compliance (Green et al., 2016). If trauma-informed methods are used when asking about traumatic histories, events, or symptoms, honesty and trust can remain at the forefront of the provider-relationship. As relationships improve and communication of sensitive topics become less threatening to providers, it is hypothesized that health outcomes will overall improve (Helitzer et al., 2010). A trauma-informed model of care has the potential to not only reduce negative health outcomes, but promote resilience to enhance quality of life (Hamberger et al., 2019).

Evidence Based Practice

The current literature supports the need and benefits of increased education of trauma-informed care for both pediatric and adult primary care providers. By becoming more competent in delivering trauma-informed care, providers can not only improve their supportive relationships with their patients, but support social and emotional development to promote resilience against ACEs (Sege & Browne, 2017). Even if education is preliminary and requires ongoing follow up and practice, there are positive, evidence-based benefits from breaking the barrier of fear surrounding trauma-informed care. The battle against ACEs is undoubtedly comprehensive, and simply understanding ACE prevalence and the associated risk factors is a critical starting point (Oral et al., 2016). Developing awareness of trauma-informed care and the delicate balance between trauma and resilience has the potential to improve both provider satisfaction and patient outcomes (Lewis-O'Connor et al., 2019).

Evidence Based Practice Models

SAMSHA

The Substance Abuse and Mental Health Services Administration (SAMHSA) developed a Trauma-Informed approach to healthcare with an objective to generate a shared understanding of the concept of trauma that is acceptable and appropriate across multiple settings and populations (2014). The key assumptions outlined in their model include the four “R’s”: realize, *recognize, respond, and resist re-traumatization*. These assumptions are meant to apply to people at all levels of an organization in order to effectively and sensitively approach trauma. A basic *realization* that any person in an organization, whether they are a staff member, a patient, or a leader, may be coping with trauma from their past or present. One should also *realize* that trauma acts as a barrier to systems other than healthcare, including welfare, criminal justice, and community organizations. The next step is to *recognize* the signs of trauma which may be related to the patient’s age, gender, or specific setting to which they present. This can be achieved through trauma screening, workforce development, employee assistance, and supervision practices. The hope is that after recognizing those affected by trauma, the institution then *responds* by applying six trauma-informed principles to all areas of functioning. This can be accomplished through ongoing staff training and incorporation of policies and mission statements supporting a culture of trauma-informed care. Lastly, *resisting re-traumatization* of patients and staff should be achieved by creating trauma-informed environments that will avoid triggering painful memories for those with traumatic backgrounds.

The previously mentioned six key principles to trauma-informed care were developed to allow for generalization and flexibility when applying them to specific settings (SAMHSA, 2014). The six principles include safety, trustworthiness and transparency, peer support,

collaboration and mutuality, empowerment, voice, and choice, and cultural, historical, and gender issues (see Appendix A). These principles are intentionally broad so organizations can adapt them to their specific needs at multiple levels. The SAMHSA also provides guidance for the implementation of the six principles through ten different domains: governance and leadership, policy, physical environment, engagement and involvement, cross sector collaboration, screening, assessment, and treatment services, training and workforce development, progress monitoring and quality assurance, financing, and evaluation.

Trauma Informed Primary Care

Roberts, Chandler, and Kalmakis (2019) developed a model which can assist in implementing trauma informed care initiatives specific to the primary care setting. The authors' key elements of trauma informed care overlap with those of SAMSHA, while adding *respect* and *resilience* to their model. Using these key elements, primary care practitioners are encouraged to screen for childhood trauma, understand the health effects of trauma, implement patient-centered communication, emphasize emotional safety by avoiding triggers, and be knowledgeable of successful treatment options for trauma patients. This model further emphasizes the ideal position that primary care providers are in to empower and enrich the lives of patients presenting with trauma history (Roberts, Chandler, & Kalmakis, 2019).

This DNP project used both models to implement the six principles of trauma-informed care through the seventh implementation domain of training and workforce development. By educating nurse practitioners on the health effects of trauma as well as methods of effective communication and treatment options for this population, primary care providers may feel more confident in their ability to provide trauma informed care (Roberts, Chandler, & Kalmakis, 2019). Ongoing training and peer-support are essential to the success of trauma informed care,

and furthering the education of nurse practitioners in Massachusetts has the potential to initiate a movement towards trauma-informed care and improve existing practices across several organizations (SAMHSA, 2014).

Goals, Objectives, and Expected Outcomes

The goal of the project was to develop and implement an educational intervention to meet the project purpose of increasing knowledge of ACEs and trauma informed care among NPs. The specific objectives were as follows:

1. The DNP Student will create an audio-visual presentation focusing the prevalence and impact of ACEs, ACE scoring and screening, the six principles of trauma-informed care, and suggestions for implementing this information in practice.
2. The DNP Student will submit the presentation along with pre- and post-intervention surveys to the Massachusetts Coalition of Nurse Practitioners (MCNP) in December 2020.
3. The MCNP will approve the DNP Student's proposal and distribute the surveys to all members of the Coalition by January, 2021.
4. A goal of approximately 30% of members of the MCNP will participate in the activity and associated surveys. The participating NPs will watch the educational presentation at a time of their choosing and fill out the pre- and post- surveys accordingly. NP's will be given one month to electively participate. Data collection will be completed by February, 2021.
5. The pre- and post- survey analysis will reveal an improvement in a goal of 75% of participating nurse practitioner's knowledge, acceptability, and willingness to bring trauma-informed care to their practice.

6. The results will yield an effective learning method and constructive feedback for future educational interventions in future research.

Methods

To achieve the purpose of this research translation QI project, which was to increase awareness of ACEs and the current gap in practice surrounding trauma-informed care, a pre and post educational intervention approach was used. Assessments of provider awareness, acceptability, and comfort level were performed before and after the intervention using two surveys (See Appendix C). Subjective feedback regarding barriers to trauma-informed care were also gathered. The educational content was interactive and multi-modal to ensure a positive and impactful experience for the participants as exemplified in the literature (Helitzer, LaNoue, Wilson, de Hernandez Stafanski & Mason, 2010; Schmitz, et al., 2019). The presentation began with a TedTalk by Nadine Burke Harris (2017), which intended to capture the participants' attention and quickly summarize the state of evidence on ACEs. The video acted as both a refresher to those already familiar with ACEs and TIC as well as an introduction for those new to the subject. The content of the video explained the connection between ACE's and chronic health disparities, and the practice gap surrounding the evidence-based relationship. This was the DNP student's way of defining the problem and explaining the need for the intervention through SAMSHA's model (2014), helping participants *realize* the connection between ACEs and TIC in their practice.

Roberts, Chandler, & Kalmakis' model for trauma informed primary care (2019) was then used to shape the content for the audio-visual PowerPoint presentation developed by the DNP student. The presentation was pre-recorded using Zoom and contained six slides briefly summarizing the barriers to TIC in practice, Dr. Sege's model HOPE Model (2019), SAMSHA's

six principles of TIC, and resources to bring back to the workplace and hopefully share with colleagues and peers. The content was brief in order to maintain captivity of the participants' attention, while also demonstrating the feasibility of using TIC in practice by sharing basic, easily accessible resources. The PowerPoint was designed to help NP's knowledge of TIC to be consistent with Roberts et al's (2019) model, empowering those in a primary care setting to understand the health effects of trauma and implement patient-centered communication. The program RedCap was used for electronic survey creation, distribution, and data analysis.

Project Site and Population

This QI project was implemented in an online, virtual setting via the Massachusetts Coalition of Nurse Practitioners (MCNP). The MCNP aims to “advance NP practice by means of leadership, education, advocacy, and delivery of exceptional care” (MCNP, 2020). The Coalition consists of nine regional groups across the state of Massachusetts, ranging from 30 to over 200 NP's in each group. Members come from a variety of clinical backgrounds and experience, all of which have the potential to utilize and implement trauma-informed care. All participants were the key stakeholders in the project, as the implementation of trauma-informed care is meant to be generalizable and applicable in all clinical settings (SAMHSA, 2014). Participation in the project was voluntary, and any NP that chose participate was selected. Email was the primary form of communication as well as delivery method for the surveys and educational content.

Measurement Instruments

In order to measure the outcomes of the QI project, surveys developed by the DNP student were used. The pre-survey included five Likert-type items each with three possible selections, and the post-survey included six. Both surveys included open-ended questions to

further describe participants' current understanding of TIC as well as their anticipated barriers to implementation (See Appendix C). The surveys were designed to measure providers' awareness of the ACE's, current knowledge and confidence in providing trauma-informed care, anticipated barriers to implementing trauma-informed care, and the acceptability and willingness to incorporate trauma-informed care into their everyday practice both before and after the educational intervention. Room for generalized comments and feedback regarding the presentation was added at the conclusion of the post-survey.

Data Collection Procedures

Upon approval from IRB and MCNP, an invitation to participate, including an introduction to the project, expectations for participation in the educational program, and a consent form with a link to the pre-survey, was distributed via the MCNP listserv. NPs willing to participate in the project clicked the agreement link on the consent form, leading them to the pre-survey (See Appendix B and C). Once completed, participants clicked a link leading them to the education components of the project, followed by the post-survey on the last page. Participants were given the option to provide their email to RedCap in order to leave the project at any point to return and complete later. The emails remained confidential, were never disclosed to the DNP student, or any associates of the project. Emails were not stored within the RedCap program after completion. The participants were given a full month to watch the presentation and complete the surveys on their own time schedule. This allowed plenty of time and flexibility for completion for participants. A reminder email was sent by the MCNP five days before the project's close to encourage participation and maximize results.

The intervention consisted of four components, two surveys and a two-part educational session:

1. A pre-presentation survey measuring current knowledge, awareness, and willingness to implement the educational subject matter
2. A 16-minute TED Talk YouTube video from Nadine Burke Harris
3. A brief, pre-recorded Zoom video with associated PowerPoint Presentation by the DNP Student discussing the evidence behind ACEs and their negative effects on overall health, the benefits of trauma informed care, and examples of trauma informed communication.
4. A post-presentation survey measuring knowledge, awareness, and willingness to implement the educational subject matter following the educational information.

Email communication between the participants and the DNP Student remained open for questions, concerns, and/or feedback. Results from the post-intervention surveys yielded the value of the education received, and changes in opinion regarding awareness, acceptability, and willingness/preparedness for trauma-informed care implementation.

Data Analysis

The data collected for this project was a combination of pre-select options and open-ended questions. Descriptive statistical methods were used to analyze pre-select option questions, and content analysis to analyze open-ended questions. Subjective responses were also included in data analysis to gather information regarding feedback on the educational presentation and any anticipated barriers to trauma-informed care.

Ethical Considerations/Protection of Human Subjects

Approval from the University of Massachusetts, Amherst (UMass) Internal Review Board (IRB) was obtained for the implementation of this DNP project (See Appendix D). There was be no direct contact with patients for this project. The MCNP list serve did not provide the DNP student with any individual NP contact information. Surveys will not include any personal

identifying information. Participant Emails were kept confidential within the RedCap system and deleted after project completion.

Timeline

This QI project was estimated to take eight months starting from the development of measurement tools to completion of results interpretation. The intervention itself took no more than one hour to complete. Measurement tool development occurred in August of 2020. Approval of the project from both UMass and MCNP was completed in October of 2020, and the educational content was finalized and reviewed in November. The content distribution and collection period were held over a one-month period from January 11, 2021 to February 7, 2021. Review and analysis of the collected results occurred in February and March, when the project was completed. See Appendix E.

Cost-Benefit Analysis/Budget

The cost of this QI project was relatively low. There was no cost of travel or paper materials as the content was distributed virtually. The student membership fee required to host educational research through the MCNP cost \$100.00. A membership for the RedCap data analysis program was of no cost to the DNP student. The educational intervention was of no cost to the participants. The participants donated one hour of their time to allot for completion of both surveys and presentation viewing.

Results

This QI project yielded the present awareness and acceptance of trauma-informed care across nurse practitioners of Massachusetts, but also the impact of an educational intervention on these subjects. The contents of the project were delivered virtually to 3,202 NPs across Massachusetts via the MCNP listserv. All participants attested to being over the age of 18, and

any practice specialty was included. The distribution excluded NP students. Of the 3,202 NP's with access to the project, only 74 entered and began participation. At the conclusion of the data collection period, there were 35 participants who completed the pre- and post-survey in full, yielding a 0.01% participation rate. The 43 partial participants completed the pre-survey in full, but likely left the project during the educational content and never returned before the closure deadline. There was no trend in regard to these partial participants' familiarity with ACE's, TIC, or practice population. The partial participants were not included in data analysis as no conclusions could be drawn regarding the effects of the presentation.

In the pre-intervention survey, participants were asked to identify their specialty of practice. The vast majority, 63% identified adults as their target population. The second largest group, 11%, identified as family nurse practitioners. The remainder of the participants fell into the categories of pediatrics, college students, women's health, and adolescents. There were only one to two respondents in each of these categories. Three participants chose "other" and were able to identify their own description of their practice area, and these were either "all" or "COVID support".

The pre-survey demonstrated that very few NPs despite specialty area were extremely familiar with trauma informed care or ACEs. Only six of the 35 participants reported being extremely familiar with ACEs and/or trauma informed care, and these participants identified with the adult, family, women's health, or adolescent population. When asked about comfort level regarding the discussion of trauma history in their day to day practice, all participants reported feeling somewhat or extremely comfortable having this discussion. 94% of participants reported somewhat or extreme confidence in responding to a patient when a history of trauma is

disclosed, and the same number of participants felt that a trauma history was somewhat or extremely important in their specialty.

The post-education survey yielded similar stats to the pre-survey. Only one participant reported being unfamiliar with the ACE's Study after watching the educational content. The rest of the participants reported being either somewhat or extremely familiar with the ACE's Study as well as TIC. Two participants continued to state that including a trauma history in the medical record was not important. These were the same two participants that reported this answer in the pre-survey. The rest of the participants reported feeling somewhat confident in discussing and responding to inquiries regarding trauma history.

The first portion of the surveys was focused on familiarity and awareness of ACE's and TIC. There was a 38% increase in participants becoming "somewhat familiar" with ACE's, and a 20% increase in being "extremely familiar" after viewing the educational content. There was also an increase in TIC familiarity, with 14% becoming somewhat or extremely familiar after the intervention. See figures 1-4 below.

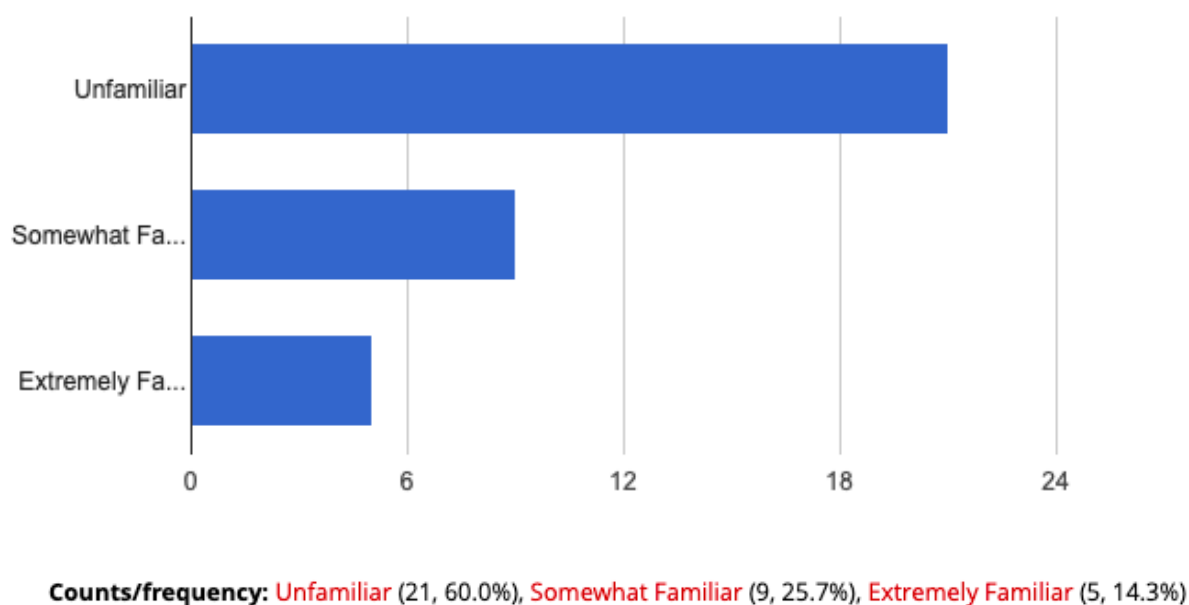
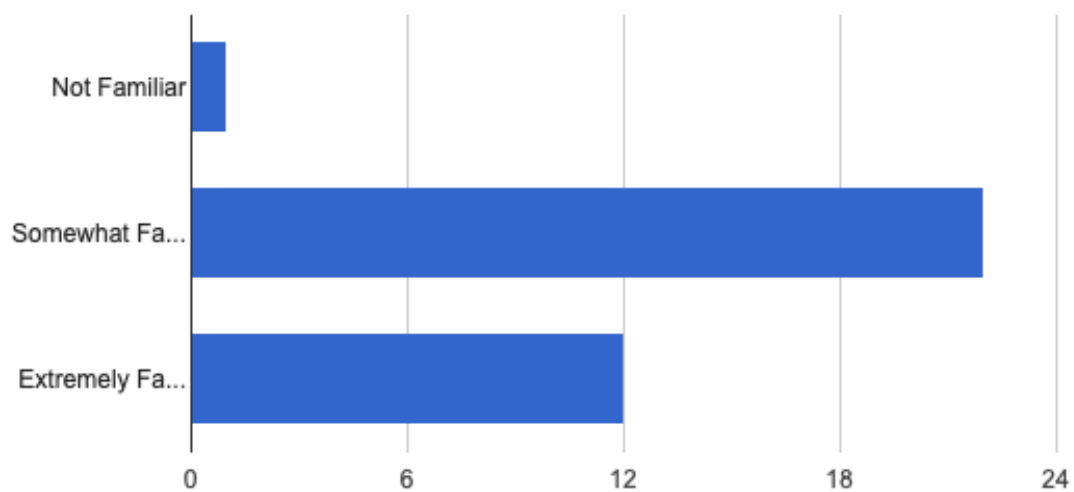
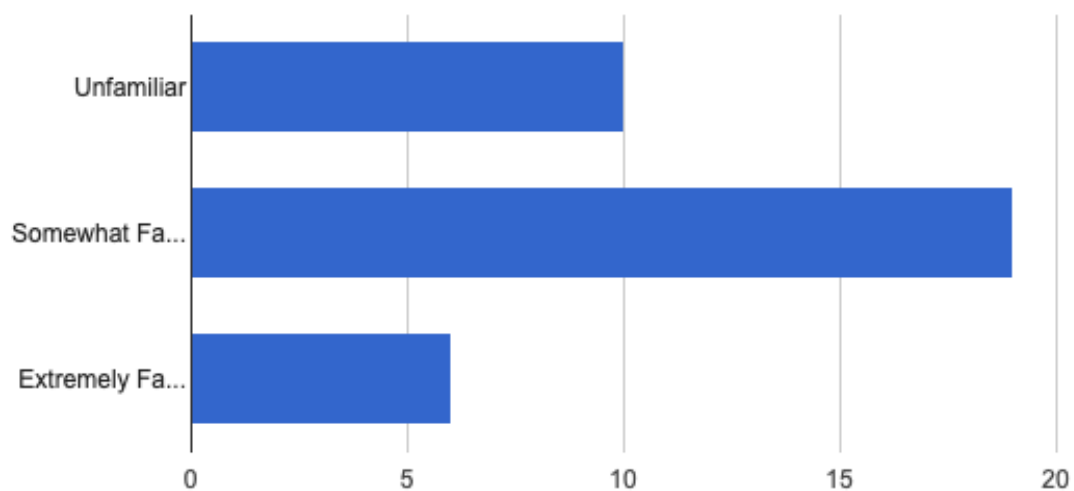


Figure 1. Pre-Education Familiarity with the ACE's Study (N = 35).



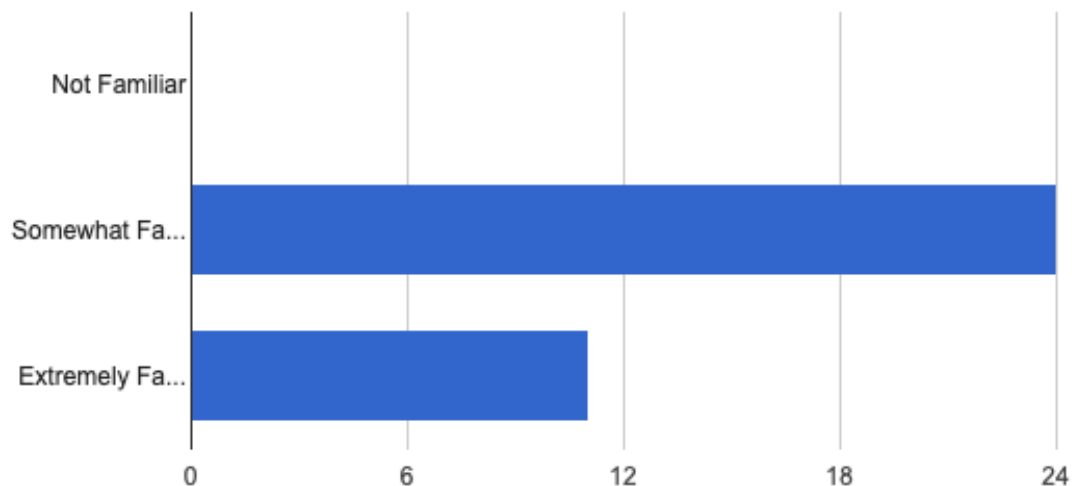
Counts/frequency: Not Familiar (1, 2.9%), Somewhat Familiar (22, 62.9%), Extremely Familiar (12, 34.3%)

Figure 2. Post-Education Familiarity with the ACE's Study (N = 35).



Counts/frequency: Unfamiliar (10, 28.6%), Somewhat Familiar (19, 54.3%), Extremely Familiar (6, 17.1%)

Figure 3. Pre-Education familiarity with Trauma Informed Care (N = 35).



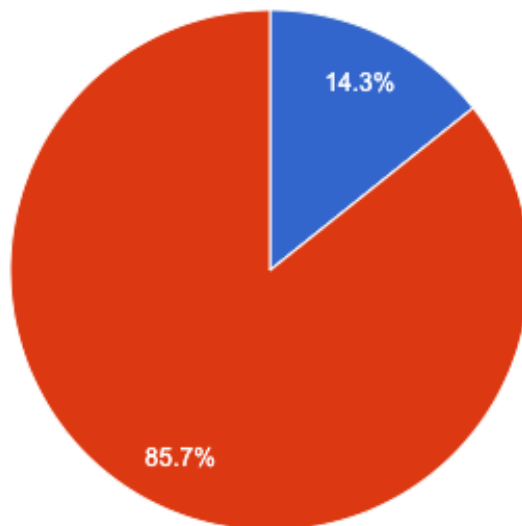
Counts/frequency: Not Familiar (0, 0.0%), Somewhat Familiar (24, 68.6%), Extremely Familiar (11, 31.4%)

Figure 4. Post-Education Familiarity with Trauma Informed Care (N = 35).

Of the 25 participants who reported becoming somewhat or extremely familiar with trauma informed care before the intervention, only 10 were able to name two of the six principles of trauma informed care. On the post-education survey however, all 25 of these participants were able to name between two and six of the six principles. When asked about their general understanding of trauma-informed care, participants who reported being somewhat or extremely familiar with the subject described themes of patient-centered care, avoiding judgement to adverse childhood histories, avoiding triggers and re-traumatization, and recognizing the effects that past events can have on current health. When asked to answer the same question after the educational content, many replied with the same or very similar answers. However, those who reported improved awareness of trauma informed care emphasized assessment of patient's environment, coping mechanisms, risk for adverse health outcomes, and resiliency.

There was no improvement after the educational intervention in regards to participant's comfort with discussing trauma informed care with their patients, perceived importance of abuse history to be included in health records, or confidence in responding to a patient who discloses a

history of trauma. However, while 37% of participants anticipated barriers to inquiring about trauma informed care at routine visits, 85.7% anticipated less barriers after viewing the educational content (See Figure 5). Additionally, in the post-education survey 89% of participants felt that ACE's screening was somewhat, or extremely, applicable to their current practice.



Counts/frequency: More Barriers (5, 14.3%), Less Barriers (30, 85.7%)

Figure 5. Anticipated Barriers to Routine Inquiry of TIC (N = 35).

The barriers to trauma informed care described by the participants in the post-education survey were similar to those described in the current literature. Nine of the 35 participants reported time being the greatest barrier to assessing for ACE's and implementing trauma informed care. The other most commonly reported barrier was communication and trust. Participants reported a need for consistency with the provider to develop a trusting relationship before diving deep into a trauma history. Resources were also reported as a barrier by eight participants. Many found that there are plenty of resources available online, but not readily

available in their workplace. When given the opportunity to provide overall feedback, participants were grateful for the information and felt it was helpful and informative. Some participants described the longevity of the issues surrounding ACE's and TIC since the start of their careers as nurses. One participant provided a comment that reflected a successful impact from the education, stating "Knowing more about social history provides important data which clinicians should use as a jumping off point. It can provide many differentials to rule in or out so we make the accurate diagnosis. Client engagement is important to help with their recovery".

Discussion

The aims of this project, which were to increase education and awareness of ACE's and trauma-informed care to NP's in Massachusetts, were met. Overall, the majority of participants reported an increase in awareness and knowledge of both ACE's and TIC. Open ended responses revealed overall satisfaction with the education, but also ongoing barriers to implementation of TIC. 13 participants identified barriers to routinely screening for ACE's in their practice setting before receiving the education. However, after the educational intervention, 30 participants anticipated less barriers to obtaining a trauma history in their practice. Lack of time and workplace resources, as well as the need to develop trusting relationships, were the three most reported ongoing barriers to implementing trauma informed care. The variables of 'comfort levels discussing trauma history with patients', the 'importance of having a trauma history in health records', and 'confidence in responding to a patient who discloses trauma' were unchanged after the educational intervention. Given the brevity of the presentation, this is not an unexpected outcome. The literature supports ongoing education and multiple educational sessions to be more impactful (Goldstein et al., 2018), so future efforts to educate providers on this subject matter could consider further education over longer periods of time. However, the

positive feedback received from the presentation as a whole supports Dueweke et al.'s (2019) findings that brief training periods, paired with referral resources, yield a reduction in perceived barriers to trauma informed care.

This project successfully addressed SAMSHA's first key assumption, which is to help healthcare workers *realize* that any patient may be suffering from a history of trauma, or experiencing trauma in their life currently (SAMSHA, 2014). By simply starting the conversation and educating providers on the impact that a trauma history can have on long-term health, the door to change can be opened. The QI project supplements current research-evidence that has shown that education, even if only preliminary, can minimize the fear surrounding trauma informed care (Sege & Browne, 2017). Battling ACE's and making trauma-informed care a regular practice across all specialties is an ongoing and comprehensive process, but awareness and greater understanding from health care providers is a critical starting point (Oral et al., 2016).

Setting Facilitators and Barriers

The goals of this QI project were met and the anticipated timeline was followed successfully. There was a one-month delay in distribution of the surveys and content due to the COVID-19 pandemic in order to optimize participation. The contents of this QI project were facilitated by the leadership and research staff of the MCNP. The MCNP provides NP students with research implementation opportunities using email delivery of materials to its members. Barriers to implementation included time restrictions of providers and recruitment of participants. In order to minimize the time constraints of the busy working professionals, the duration of participation was limited to one hour. This time period included pre and post surveys as well as the intervention itself. Research has shown that brief, online formatted education is

appreciated by participants (Dueweke et al., 2019), so a one-hour time restriction was be prioritized to ensure the intervention is enjoyable and feasible. This also assisted in the recruitment of participants, as there was likely less of an inclination to participate in an optional study if it is perceived as time consuming.

The goals of a 30% response rate from the MCNP members was unfortunately not met. The small sample size of 35 made the collected data nonapplicable to a larger population of NP's. This was the greatest limitation to this project, however making the educational content easily accessible as well as brief remained a priority. A second reminder email was sent out via the MCNP to encourage participation, but many participants did not complete the surveys in full. The COVID-19 pandemic also contributed to fewer face-to-face presentation opportunities, which limited the overall impact of the project. The low sample size also made the goal of a 75% increase in reported knowledge and awareness of ACEs and TIC difficult to achieve. However, any degree of improvement suggests that the project content still had a positive impact on the sample.

Conclusion

Adverse childhood experiences have been the ongoing focus of research for several years, yet the movement to identify them and intervene at an early stage has been slow to progress (Hughes et al., 2017). Despite strong efforts across the US, many providers are unaware of the ACE study and what it means for their patients. Large corporations such as the CDC, (2020) and the American Academy of Pediatrics (AAP) (2012) have been making ongoing efforts to publicize information about ACEs and make suggests for best practice, which includes trauma informed care and the promotion of positive experiences. To assist in this evidence-based gap in practice, this QI project aimed to bring information on ACEs to the forefront of care

and assist providers in gaining knowledge, confidence, and preparedness for trauma-informed care. By providing education and awareness to those in the ideal position to make a difference, the public health dilemma being caused by ACEs can improve.

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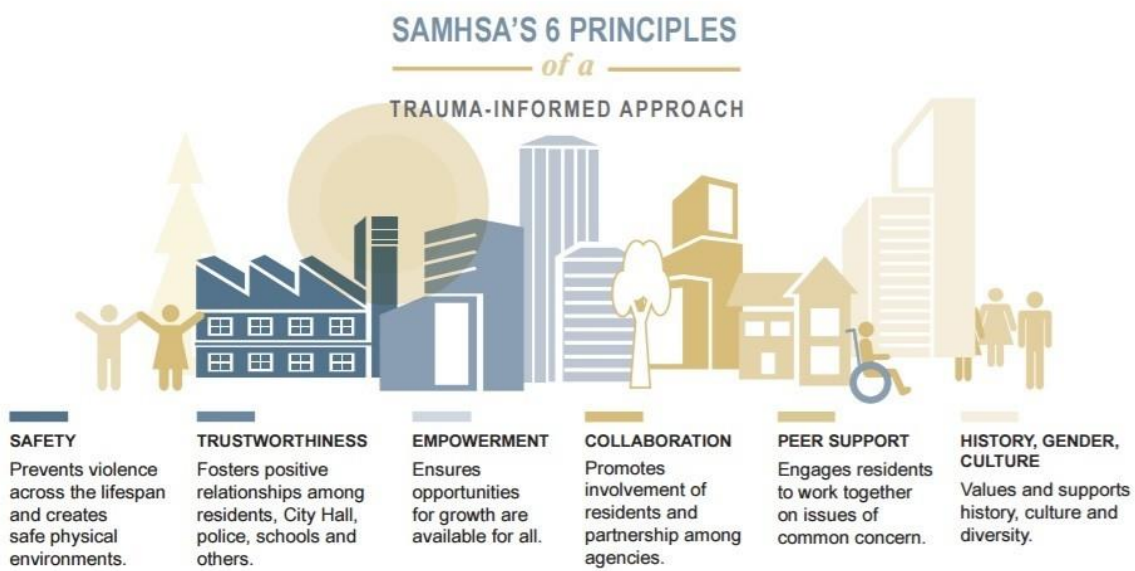
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Appendix A



(SAMSHA, 2014)

Appendix B

Online Survey Consent Form

You are being invited to participate in a project titled *Educating Nurse Practitioners about ACEs: The HOPE Model to Improve Awareness and Acceptability of Trauma-Informed Care*. This study is being done by *Emily Gardner* from the University of Massachusetts Amherst. You were selected to participate in this study because you are a nurse practitioner in Massachusetts.

Why are we doing this project?

The purpose of this project is to increase nurse practitioner education about the effects of childhood adversity on health, and to assess the awareness and acceptability of trauma-informed care by Nurse Practitioners in a variety of clinical settings.

Who can participate in this project?

All NPs currently practicing in Massachusetts.

What will I be asked to do and how much time will it take?

If you agree to take part in this project, you will be asked to complete an online survey/questionnaire before and after viewing a 20-minute online educational program. Each survey/questionnaire will ask about your knowledge of trauma informed care and it will take you approximately 10-15 minutes to complete.

Will being in this research study help me in any way?

You will receive an educational program.

What are my risks of being in this study?

We believe there are minimal risks associated with this research study; however, a risk of breach of confidentiality always exists. We have taken the steps to minimize this risk as outlined in a section below.

How will my personal information be protected?

To the best of our ability your answers in this project will remain confidential. We will minimize any risks by using password protected software (RedCap) to collect survey responses. All study information will be stored on a password protected computer. Email addresses will be used to send the link to the educational online program and the post surveys. We will not ask you for any other personal identifying information. Emails will be deleted once the you complete the post survey, or after one month.

Will I be given any money, or other compensation, for being in this research study?

There is no compensation for your participation.

What happens if I say yes, but I change my mind later?

You do not have to take part in this educational project. If you agree to be in the study, but later change your mind, you may drop out at any time. There are no penalties or consequences of any kind if you decide that you do not want to participate.

Who can I talk to if I have questions?

If you have questions about this project or if you have a project-related problem, you may contact the us using the following contact information: Emily Gardner, etgardne@umass.edu or Karen Kalmakis, kalmakis@umass.edu. If you have any questions concerning your rights as a participant you may contact the University of Massachusetts Amherst Human Research Protection Office (HRPO) at (413) 545-3428 or humansubjects@ora.umass.edu.

By clicking on the survey link below you are indicating that you are at least 18 years old, have read this consent form and agree to participate in this project. You are free to skip any question that you choose. Please print a copy of this page for your records.

[Link to pre-education survey](#)

Appendix C

Pre-curriculum Survey

1. Which best describes your practice population?
Families/ Adults / Pediatrics / Women's Health / Adolescents / College students/ Other:
2. How familiar are you with the Adverse Childhood Experiences (ACEs) Study?
Unfamiliar / Somewhat Familiar / Extremely Familiar
3. How familiar are you with trauma informed care?
Unfamiliar / Somewhat Familiar / Extremely Familiar
4. In your own words, please describe, in one or two sentences, your personal understanding of trauma informed care.
5. There are 6 principles of trauma informed care. If you know them, could you please list two?
6. How comfortable are you discussing personal history of physical, emotional, and sexual trauma with your patients?
Uncomfortable / Somewhat Comfortable / Extremely Comfortable
7. In your specialty, how important do you think it is for a health record to include history of physical, emotional, or sexual abuse?
Not important / Somewhat Important / Extremely Important
8. How confident are you in knowing how to respond when your patient discloses a history of trauma?
Not confident / Somewhat confident / Extremely confident
9. Do you anticipate any barriers to routinely inquiring about a patient's trauma history in your current clinical setting? Yes/ No
If yes please list the barriers you anticipate:

Post Curriculum Survey:

1. How familiar are you with the Adverse Childhood Experiences (ACEs) Study?
Unfamiliar / Somewhat Familiar / Extremely Familiar
2. How familiar are you with trauma informed care?
Unfamiliar / Somewhat Familiar / Extremely Familiar
3. In your own words, please describe, in one or two sentences, your personal understanding of trauma informed care.
4. There are 6 principles of trauma informed care. If you know them, could you please list two?
5. How comfortable are you discussing personal history of physical, emotional, and sexual trauma with your patients?
Uncomfortable / Somewhat Comfortable / Extremely Comfortable
6. In your specialty, how important do you think it is for health records to include history of physical, emotional, or sexual trauma?
Not important / Somewhat Important / Extremely Important
7. How confident are you in knowing how to respond when your patient discloses a history of trauma?
Not confident / Somewhat confident / Extremely confident
8. How applicable do you think ACEs screening is, or could be, in your current practice?
Not applicable / Somewhat applicable / Extremely applicable
9. After learning more about trauma informed care, do you anticipate more or less barriers to routinely inquiring about a patient's trauma history?
More/Less
Please expand upon this answer below.
10. Please list any additional comments or feedback here.

Note: Some questions adapted from the survey examples used in Strait and Bolman's (2016) research implementing trauma-informed care curriculum in graduate health programs.

Appendix D

UMassAmherst

Human Research Protection Office

Mass Venture Center
100 Venture Way, Suite 116
Hadley, MA 01035
Telephone: 413-545-3428

Date: November 3, 2020

To: Professor Karen Kalmakis and Emily Gardner, College of Nursing

From: Professor Lynnette Leidy Sievert, Chair, University of Massachusetts Amherst IRB

Protocol Title: *Educating Nurse Practitioners about ACEs: The HOPE Model to Improve Awareness and Acceptability of Trauma-Informed Care*

Protocol ID: 2412

Review Type: Expedited – NEW

Category: 7

Approval Date: 11/03/2020

No Continuing Review Required

This study has been reviewed and approved by the University of Massachusetts Amherst IRB, Federal Wide Assurance # 00003909. Approval is granted with the understanding that investigator(s) are responsible for:

Consent forms - A copy of the approved consent form (with the IRB stamp) must be used for each participant (Please note: Online consent forms will not be stamped). Investigators must retain copies of signed consent forms for six (6) years after close of the grant, or three (3) years if unfunded.

Use only IRB-approved study materials (e.g., questionnaires, letters, advertisements, flyers, scripts, etc.) in your research.

Revisions - All changes to the study (e.g. protocol, recruitment materials, consent form, additional key personnel), must be submitted for approval in e-protocol before implementing the changes. New personnel must have completed CITI training.

Final Reports - Notify the IRB when your study is complete by submitting a Close Request Form in the electronic protocol system.

Serious Adverse Events and Unanticipated problems involving risks to participants or others - All such events must be reported in the electronic protocol system as soon as possible, but no later than five (5) working days.

Annual Check In - HRPO will conduct an annual check in to determine the study status.

Please contact the Human Research Protection Office if you have any further questions. Best wishes for a successful project.

