Educational Interventions for Primary Care Providers to Promote a Trauma-Informed Care

Approach in a Student Health Setting

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Abstract

Background: Adverse childhood experiences (ACEs) and trauma are associated with health-risk

behaviors, leading to chronic illnesses and disease in adulthood. ACEs and trauma are

widespread in the general population, with around 60% reporting at least one ACE. College

students with increased exposure to ACEs exhibit higher levels of mental health symptoms and

illnesses and engage in increased health-risk behaviors. As such, primary care clinicians treating

college students to be educated in trauma-informed care (TIC) practices and approaches to

combat this health crisis.

Purpose: The purpose of this project was to provide coordinated education to promote primary

care clinicians' understanding of trauma-informed care approaches in a student health setting.

Additional aims included measuring clinician satisfaction with educational, determining

educational preferences, and measuring confidence in providing TIC post-intervention.

Methods: This project utilized a quasi-experimental one-group pre-test/post-test design to

examine the effectiveness of educational interventions on TIC on a convenience sample of

primary care clinicians in the student health setting affiliated with a large, mid-Atlantic public

university. Participants were also asked to complete questionnaires on demographic data and

prior exposure to TIC education before accessing the educational content. A post-intervention

questionnaire was completed to assess participation, satisfaction with the education, and

confidence level in the ability to provide TIC.

Results: In the pre-intervention baseline survey (N = 39), 76.9% had no prior TIC education,

while 23.1% received prior TIC education through college, employer mandated education, and/or

self-selected continuing education. When comparing the pre- and post-intervention knowledge

assessment tests (n = 20), primary care clinicians' knowledge of TIC approaches increased (p =

.001) following participation in the coordinated education. No differences were noted in post-test scores between those without prior TIC education and those with prior TIC education (p = .672). Post-test scores revealed Licensed Independent Practitioners (LIPs) scored higher than nursing staff members (p = .046). There was no difference noted in post-intervention scores between those who completed only one or two interventions and those who completed all three interventions (p = .903). In the post-intervention evaluation survey (N = 31), 54.8% reported the in-person presentation as the most helpful in learning TIC approaches. 90.3% of participants reported feeling "very satisfied" with the mode and content of education provided. The majority felt "very confident" (48.4%) or "moderately confident" (41.9%) in their ability to provide TIC post-intervention. However, high confidence did not correlate with high knowledge assessment scores, with an analysis showing no relationship between test scores and confidence levels (p = .138).

Conclusions: Providing education may improve clinicians' knowledge of trauma-informed approaches which are critical in patient interactions due to the high percentage of trauma within the greater community. Continuing education (CE) may also increase clinicians' confidence in their ability to provide TIC. Trauma-informed education is needed not only in formal healthcare education (college, graduate school) but also as part of ongoing CE throughout a career. One exposure to trauma training is not sufficient. Because individuals' learning preferences vary, utilizing different modes to educate may be helpful to accommodate different learning styles, however in-person training should be encouraged when available.

Keywords: trauma, adverse childhood experiences, ACE, trauma-informed care, trauma-informed approach, trauma-informed education, primary care, student health, college health

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Approach in a Student Health Setting

According to the Substance Abuse and Mental Health Services Administration

(SAMHSA, 2014):

> Individual trauma results from an event, series of events, or set of circumstances that is
>
> experienced by an individual as physically or emotionally harmful or life threatening and
>
> that has lasting effects on the individual's functioning and mental, physical, social,
>
> emotional, or spiritual well-being (p. 7)

Trauma that occurs prior to the age of 18 is known as an adverse childhood experience, or ACE,

and ACEs have proved fairly common in the general population. In random telephone surveys

answered by 248,934 noninstitutionalized adults from 23 states in the U.S., during the years

2011-2014, only 38% of participants stated they had not experienced an ACE (Merrick, Ford,

Ports, & Guinn, 2018). Twenty-four percent had experienced at least one ACE, and 16% had

suffered from four or more (Merrick et al., 2018).

It is important to note that other types of trauma aside from what is defined as an ACE

do occur in childhood and adulthood. Several examples include living in poverty, surviving gun

violence and school shootings, suffering from online bullying, experiencing racism or sexism,

and surviving a life-threatening illness/natural disaster/war. Trauma can affect anyone and

everyone, as it is not blinded to age, sex, race, ethnicity, socioeconomic status, religious

affiliation, geographic location, or sexual orientation (SAMHSA, 2014). Thus, there are many

people in the general population that continue to suffer mentally, physically, socially, or

spiritually from the effects of their past or current trauma.

Revolutionizing how behavioral health services clients, SAMHSA (2014) created the

framework for a trauma-informed approach to address the widespread trauma in communities.

This approach takes into consideration the lived experience of trauma and its ill effects in every

aspect of care. Although this framework was initially meant for application in the behavioral

health realm, SAMHSA also intended for application to expand to other fields, including

medical healthcare (2014). As such, this project aimed to provide coordinated education to

promote primary care clinicians' understanding of trauma-informed care (TIC) approaches in a

student health setting.

Background

In the landmark ACE Study, researchers identified strong associations between abuse or

household dysfunction during childhood and health risk behaviors, chronic health conditions,

and early death (Felitti et al., 1998). As the number of ACEs increased, the prevalence and risk

for health-risk behaviors also increased (Felitti et al., 1998). Health-risk behaviors included

smoking, overeating, physical inactivity, depressed mood, suicide attempt, alcoholism, illicit

drug use, $\geq$ 50 lifetime sexual partners, and a history of a sexually transmitted infection (Felitti

et al., 1998; Centers for Disease Control and Prevention [CDC], 2019).   In addition, as the

exposures to ACEs increased, the odds ratio of the presence of certain diseases also increased

(Felitti et al., 1998). Health conditions included depression, anxiety, HIV, cancer, ischemic

heart disease, diabetes, lung disease, liver disease, skeletal fractures, and obesity (Felitti et al.,

1998; CDC, 2019). Several of these health conditions were the leading causes of death in the

U.S., including ischemic heart disease, cancer, stroke, lung disease (bronchitis, emphysema,

COPD), diabetes, hepatitis, and skeletal fractures from unintentional injuries (Felitti et al.,

1998). The researchers found that ACEs specific to abuse and household dysfunction were

associated with disease risk factors and incidence, health related quality of life, healthcare

utilization, and mortality (Felitti et al., 1998).

Since the ACE Study, the path has been identified on how ACEs lead to disease and, in some cases, early death (CDC, 2019). Events that lead to stress usually cause a positive stress response, a normal and healthy part of development, resulting in brief periods of elevated heart rate and mild elevations in hormone levels (Harvard University Center on the Developing Child, 2019). However, when children are exposed to stressors, such as ACEs, frequently or for extended periods of time without supportive factors, there is a prolonged activation of the stress response, generating toxic stress (Harvard University Center on the Developing Child, 2019). Toxic stress responses disrupt neurodevelopment in children, leading to social, emotional, and cognitive impairment (CDC, 2019). In the absence of support and appropriate coping mechanisms, these impairments can lead to the adoption of health-risk behaviors in adolescents and teenagers, which can then carry into adulthood (CDC, 2019). These maladaptive behaviors subsequently give rise to disease, disability, and social problems in adulthood, as many affected are unable to fully function to their highest potential as productive members of society (CDC, 2019). Disease and related social problems add additional stress to the mind and body, resulting in an earlier death than expected from a healthy individual (CDC, 2019).

In order to first examine the relationship between health-risk behaviors and disease in adulthood to the exposure of trauma in childhood, Felitti et al. (1998) created the original ACE Study questionnaire which was comprised of 17 questions divided into two themes, childhood abuse and exposure to household dysfunction. These themes were further separated into seven categories (Felitti et al., 1998). Childhood abuse was broken down into categories of psychological abuse, physical abuse, and sexual abuse (Felitti et al., 1998). Exposure to household dysfunction in childhood was separated into exposure to substance abuse, mental

illness, violent treatment of mother or stepmother, and criminal behavior in the household (Felitti et al., 1998). Felitti et al. (1998) found that more than half of their respondents reported experiencing at least one ACE, and 6.2% reported ≥ 4 exposures, displaying the prevalence of ACEs in their studied population, which was comprised of patients with insurance who were 80% Caucasian and 43% college graduates. Thus, they hypothesized that ACEs in the greater population was underestimated and underreported, signaling a greater need for a public health response. In addition, they found a strong dose response relationship between ACEs, as their analysis showed that for those who have been exposed to at least one ACE, the probability of exposure to an additional ACE ranged from 65-93% (median 80%) (Felitti et al., 1998). These researchers laid the groundwork for further exploration into the science behind the exposures and how toxic stress from these exposures can alter the physical body and mind as it develops from childhood to adulthood. Knowing that these childhood exposures can lead to serious mental and physical health conditions, researchers in various fields have taken information from this study to investigate ACE screening and create a dialogue behind supportive measures to mitigate the effects of trauma on the mind and body (Kalmakis, 2017; Kalmakis, 2018; Karatekin, 2018a; Karatekin, 2018b; Merrick et al., 2018; Pletcher et al., 2019; Strait & Bolman, 2017).

In conjunction with research, SAMHSA (2014), acknowledging trauma as a widespread public health concern, created the concepts and framework of the trauma-informed care (TIC) approach, providing guidance to reduce the burden of trauma on the individual, family, and community. This approach was defined as a comprehensive, multilevel method utilized to shift the way individuals, groups, organizations, and communities view and address trauma. Forging the way in innovative approaches to mental health, SAMHSA (2014) published this information on the concept of trauma and guidance on implementing a trauma-informed approach.

SAMHSA (2014) provided key assumptions and principles on TIC in addition to guidance for

organizations seeking to fully embrace a trauma-informed approach as well as next steps for

addressing trauma in the greater community. Although founded in behavioral health, SAMHSA

envisioned application to other fields, including medical healthcare (2014).

Rationale for a Trauma-Informed Approach in Primary Care

Changes in policies and perspectives are needed in order to transform healthcare facilities

into organizations that recognize and effectively treat the health effects of trauma. The

principles of TIC have been championed and utilized by social services and mental health

organizations, but there is a lack of translation into primary healthcare settings, where many

ACEs and trauma can be identified and related conditions treated in an earlier phase. In their

published guidance, SAMHSA (2014) suggested the beginning phase to creating a trauma-

informed organization encompassed the adoption of the Four R's: Key Assumptions in a

Trauma-Informed Approach: realization, recognition, responding, and resisting re-

traumatization. All people within an organization should realize the widespread effect of trauma

and understand how trauma can affect individuals, families, groups, organizations, and

communities (SAMHSA, 2014). Trauma should be recognized through signs and symptoms in

order to be treated and addressed (SAMHSA, 2014). By integrating TIC approaches in policies

and behaviors, organizations could actively respond to trauma affecting their staff, patients, and

communities (SAMHSA, 2014). By seeking to resist re-traumatization, healthcare leadership

could implement policies that create a non-toxic, safe environment for staff and patients

(SAMHSA, 2014).

As disciplines such as social services and public policy are more suited to address the

primary prevention of ACEs, the realm of healthcare is well suited to address certain aspects of

secondary and tertiary prevention of trauma (Oral et al., 2016). Secondary prevention entails actions such as identifying and immediately intervening on ACEs in order to reduce the severity and acute consequences of these traumatic experiences, while tertiary prevention focuses on treating and reducing the long-term effects of ACEs such as the management of chronic illnesses (Oral et al., 2016). Thus, integrating a trauma-informed approach into a primary care setting where providers can screen and identify past and present trauma as well as manage chronic diseases stemming from its effects is an ideal intervention to improve individual, family, and community health. This project aimed to set the groundwork for a trauma-informed approach in a primary care setting by providing coordinated education to primary care clinicians to promote their understanding of trauma-informed patient care.

Review of Literature

A literature search was performed to identify themes and gaps in knowledge in trauma-informed education in healthcare settings, with the goal to answer the PICO question: For healthcare providers caring for adults in primary care, does an educational intervention on trauma-informed care (TIC) and adverse childhood experiences (ACEs) increase 1) providers' knowledge of TIC and ACEs and 2) confidence in delivering TIC? Additional aims for this review included: 1) to determine what methods are utilized in TIC education, 2) to determine what methods are preferred by learners, and 3) to explore learners' perceptions of the trauma-informed education provided.

Review of Literature Methodology

Search strategy. Articles that described or investigated TIC and ACEs were included. Inclusion criteria and search terms were initially kept as broad as possible to ensure a comprehensive review of the literature. All levels of evidence were included in the searches.

A healthcare research librarian assisted in crafting a search strategy to ensure a wide and comprehensive search which included the electronic databases PubMed, CINAHL, Ovid MEDLINE, Web of Science, and APA PsycNet. Year of publication, language, and age were not restricted in the initial searches. Search terms included "trauma informed care," "adverse childhood experiences," and "ACEs." A Boolean search covered "trauma informed care" AND ("adverse childhood experiences" OR "ACEs") to find literature related to both topics. In addition to searching electronic databases, a grey literature search was conducted using Google Scholar and forward citation or ancestry searching.

Selection of articles. Following completion of the search, all returned results were added to the Zotero citation manager to organize and review the literature. The search strategy resulted in 161 articles. Duplicates were removed, which reduced the number of articles to 81. Titles were then screened, leading to further reductions of the results to 54 articles. Abstracts were then read to ensure relevance. These actions led to a result of 14 articles. These articles were obtained in full-text format to be fully assessed and reviewed. Exclusion criteria included not related to TIC and/or ACEs, not primary care, not adult patients, no discussion on provider education of TIC or ACEs as an intervention, and not available in full-text format online without a subscription or payment. Inclusion criteria included relevance to TIC and ACEs, focus on adult patients, discussion on provider education, and a primary care or educational setting. Educational settings were included as educational interventions for providers within a healthcare program are applicable to the PICO question and can be translated into educational interventions in a primary care setting. After a full reading of the remaining eight articles to determine relevance and applying inclusion and exclusion criteria, all articles were deemed relevant and were included in this review. In accordance with the scoping method, all levels of evidence were

considered for inclusion. The number of articles identified and selected at each stage is

summarized in Figure 1, Article flow diagram.

Results

Eight relevant articles were included for analysis. Four of these articles addressed

educational interventions, while one was a general survey of the presence or absence of trauma-

informed education in educational settings. Two additional articles were commentary or expert

opinion on how to implement a trauma-informed approach in a primary care health setting. The

grey literature search yielded one relevant article that surveyed clinicians' knowledge on

childhood trauma as well as presence or absence of TIC training in their past education. Of these

eight articles, five were studies (3 prospective studies with a post-educational intervention

survey/one group post-test design, 1 mixed method study -cross-sectional, correlational designed

questionnaire with focus groups, and 1 prospective study with a pre- and post-educational

intervention survey/one group pre-test post-test design), and one was a general survey (see Table

1). The last two articles consisted of one journal commentary and one expert opinion (see Table

2).

Four studies addressed some form of trauma-informed education taught in educational

institutions. Three of these were prospective studies with a post-educational intervention survey

(Goldstein, Murray-García, Sciolla, & Topitzes, 2018; Kalamakis et al., 2018; Pletcher,

O'Connor, Swift-Taylor, & DallaPiazza, 2019). Goldstein et al. (2018) examined medical

students' perspectives on a TIC educational course that addressed the healthcare needs of

patients exposed to ACEs utilizing a prospective study design with a post-educational

intervention survey. They studied a convenience sample of 20 University of California, Davis

medical students attending the Summer Institute on Race and Health. Information was gathered

during the months of June in 2014 and 2015. The TIC education consisted of two-hour modules

over the course of three days, for a total of six hours of TIC training that included lectures,

discussions, and practice. Additionally, there were one to two hours of suggested out-of-class

time. A post-intervention questionnaire assessed students' perspectives on training benefits,

current practice challenges, and necessary resources to provide TIC (Goldstein et al., 2018).

Medical students expressed several strengths post-TIC education, believing that their knowledge,

recognition, and understanding of the impact of trauma increased as well as their ability to

establish patient safety. They also exhibited increased confidence and comfort in discussing

trauma with patients after training. They believed trauma education would be helpful for

practitioners in recognizing trauma-related medical conditions and mental health conditions, and

they identified needed resources for clinicians to provide TIC, including screening tools,

instruction, mentorship, and collaborative care. Barriers to providing TIC included the lack of

adequate resources and links to appropriate treatments. Many students did not think one-time

training was adequate to master TIC, reflecting on the need for TIC to be integrated throughout

medical education.

Kalmakis, Shafer, Chandler, Aponte, and Roberts (2018) also utilized a prospective

design with a follow-up questionnaire. Nursing practitioner (NP) students attended two 2-hour

educational sessions on TIC and ACEs and were then asked to complete ACE screenings with

adult patients (n = 71) in a NP-owned primary care setting in rural Massachusetts over four

weeks in 2017 (Kalmakis et al., 2018). It was not specified how many NP students participated

in the training as well as if this training was part of the NP students' formal education, a

requirement of the clinical site, or an optional study they agreed to participate in. Training

included an introduction to the long-term effects of ACEs on health, a TIC orientation to

healthcare, and mock interviewing to learn how to talk to patients about ACEs. A follow-up

questionnaire asked about comfort level with conducting ACE screening, NP confidence in the

ability to screen, time spent on screening, and plans for follow-up care. Descriptive statistics

were used to analyze patient demographics, ACE scores, use of current counseling/psychological

services, and referrals to follow-up care. A Pearson's correlation was used to examine

relationships between ACE scores and the number of clinic visits as well as ACE scores and

screening time. Participating NP students reported feeling comfortable conducting ACE

screening interviews and very confident in their knowledge and ability to screen for ACEs after

completing only two patient interviews (Kalamakis et al., 2018). Most interviews (80%) lasted

ten minutes or less with the average interview lasting 8.5 minutes. ACE score and time to screen

were positively correlated ($p < .001$) as patients who had higher ACE scores were involved with

longer interviews. After the interviews, 28% of patients were referred for follow-up care with

the clinic NP, and 32% did not need follow-up care. Thirty-nine percent of screened patients

declined follow-up care during the interview. Kalamakis et al. (2018) found significantly higher

ACE scores ($p = .001$) in the patients referred to follow-up care than those who were not

referred.

Another study utilizing a prospective study design with a post-interventional education

survey included the responses of 535 first-year medical students participating in a TIC workshop

to evaluate the workshop during the academic years (AY) of 2016-2017, 2017-2018, and 2018-

2019 at Rutgers New Jersey Medical School (Pletcher et al., 2019). The workshop was

mandatory and integrated into a new, required health equity and social justice course. The

education provided included a didactic session on the science and health consequences of ACEs

and recommended TIC practices, along with facilitated small group discussions exploring ACE

and resilience questionnaires. During the last two years of the study, a post-workshop online

quiz was required, with the average grade of 95% (range 60-100%) in AY18 and 96% (range 58-

100%) in AY19. During the last year, AY19, 85% (153 students) completed a detailed

evaluation, with the majority of students indicating they believed their knowledge and skills

improved to a great or considerable degree on the following objectives: describing the physical

and mental health consequences of ACEs (86%), discussing the use of the ACE survey in the

medical home (88%), discussing the impact of resilience on mitigating ACEs (88%), and

describing how TIC benefits patients (81%). The top three components to changing attitudes or

perspectives related to ACEs from the education to a great or considerable degree included the

effectiveness of the facilitator (86%), small group discussions (83%), and lecture (82%). Lastly,

82% believed additional training on TIC would be beneficial in their medical education (Pletcher

et al., 2019).

A study completed by Strait and Bolman (2017) differed in that the researchers utilized

both a pre- and post-educational intervention survey to assess trauma-informed curriculum for

multiple graduate health programs, across nine different disciplines (doctor of osteopathy, doctor

of podiatric medicine, doctor of optometry, doctor of dental medicine, doctor of physical

therapy, doctor of veterinary medicine, doctor of pharmacy, master of science in nursing, master

of science in physician assistant studies) and across two different educational institutions, one in

Pomona, California and the other in Lebanon, Oregon. However, the researchers did not specify

as to whether this training was required or optional for students (Strait & Bolman, 2017). The

interprofessional educational course focused on ACEs and TIC within small groups of at least

nine students, comprised of at least one student from each health professional program. Students

worked through healthcare cases with small group discussion facilitated by a proctor and were

encouraged to complete the ACE screening on themselves. There were three educational

sessions lasting two hours each. These sessions took place one night a week for three weeks.

Although a total of 967 students participated, there was inconsistency in responses, leading to

only 169 students who responded to both pre- and post- educational surveys. The surveys were

the same requesting information on familiarity with ACEs and TIC, comfort and confidence with

discussing and providing care, and aspects on self-administered ACE screening. When asked,

"How likely will you be to administer and assess an ACE questionnaire for your patients?"

results revealed a large increase in students who were "extremely likely" to administer and assess

an ACE questionnaire for their patients, post-education (42%) versus pre-education (13.6%).

For the same question, there were less responses of "uncertain what this is" post-education

(0.6%) versus pre-education (33.1%), indicating they had a greater understanding of ACEs and

TIC given their curriculum. Confidence also increased post-education with those responding

"somewhat confident" in knowing how to address the trauma-related needs of patients increasing

from 37.3% to 67.5% post-education and those responding "extremely confident" increasing

from 7.1% to 16% post-education. Utilizing a X^2 test of independence, Strait and Bolman (2017)

found that students who voluntarily self-completed an ACE questionnaire, compared with

students who did not, were more familiar with the clinical and scientific findings of the ACE

study (degrees of freedom = 2, n = 422, X^2 = 24.417, p < .001) and TIC (degrees of freedom = 2,

n = 422, X^2 = 8.264, p < .02).

Utilizing a mixed-methods approach, Kalmakis, Chandler, Roberts, and Leung (2017)

examined NP practices, skills, attitudes, and perceived barriers associated with screening adult

patients for ACEs to determine the extent to which TIC and ACE screening has been translated

to NP practice among a convenience sample of 188 NP members of the Massachusetts State NP

Organization. A web-based questionnaire was utilized along with information gleaned from 12

NPs participating in on-line focus groups. Thirty-four percent of the 188 NPs who completed the

online questionnaire reported usually or always screening for a history of ACEs, while 66%

reported rarely or never/sometimes completing screening. Over half, or 52%, reported feeling

not at all or only somewhat confident in their ability to screen adult patients for ACEs.

Experience played a role as the odds of usually/always screening increased by 17% for every 5-

year increase in the years an NP was licensed. NPs surveyed also reported formal TIC education

lacking with only 25% receiving formal education in undergraduate nursing programs and 36%

receiving education in their NP graduate programs. Twenty-seven percent reported receiving

TIC education through continuing education programs. It was not determined whether or not

these continuing educational programs were required by employers or sought out by the

individual practitioner out of interest. Additionally, the focus groups found the lack of formal

education concerning, discussing the lack of knowledge of the language used to screen patients

and respond to patient experiences (Kalmakis et al., 2017).

Another article included in the review of literature, a survey, was conducted to evaluate

how many U.S. family medicine residency programs were actually teaching TIC in their

curriculum (Dichter et al., 2018). Surveys were sent to the program directors of U.S. family

medicine residency programs accredited by the Accreditation Council for Graduate Medical

Education, and data was collected during September through October 2017. For program

directors that responded (n = 263), less than a third (27%) indicated that TIC training was

included in their curriculum. However, directors that did indicate their programs included TIC

education exhibited greater confidence in meeting trauma-related patient needs versus program

directors that reported having no TIC training. For programs lacking TIC education, the biggest

barrier indicated was a lack of a TIC champion to ensure students were prepared to meet trauma-related patient needs. For programs with TIC education, the biggest barrier to meeting care needs related to time. Didactics (97.2%) were utilized as the main teaching method with about 8.5% of programs also reporting additional methods such as standardized patients, cases, and/or clinical supervision.

In reference to the above articles, it is important to note that in those addressing formal TIC training, the researchers did not report if there was any actual increased knowledge after education besides self-reporting. If tests or other forms of measurement were taken to prove increased knowledge during and after the trauma courses, the results were either not obtained or not reported by the researchers or these specific results were not outcomes the authors chose on which to focus. However, findings from studies that focused on formal trauma-informed education indicated that students who received this education did in fact exhibit greater confidence in delivering TIC post-educational intervention (Dichter et al., 2018; Goldstein et al., 2018; Pletcher et al., 2019).

Within the articles, there were a variety of educational methods utilized in providing trauma-informed education. Didactics was often utilized as well as in-person continuing education programs, online modules, small group workshops, mock interviewing, role-playing, case studies with facilitated discussion, clinical supervision, and questionnaires. Not all articles reported student preference in educational methods, but Kalmakis et al. (2017) and Pletcher et al. (2019) were able to extract this data. According to Kalmakis et al. (2017), NPs preferred in-person training (78%), online educational modules (53%), and small group workshops (46%). First year medical students, on the other hand, preferred small group activities with a strong facilitator (Pletcher et al., 2019).

Some trauma education discussed in the reviewed studies were mandatory and included in graduate curricula while other educational programs were optional. In addition, the length of time spent in trauma-informed education differed amongst the studies. Some education was as brief as three hours, while other educational programs lasted over three weeks. The researchers did not report a standard minimum or maximum amount of time that is recommended to satisfactorily educate individuals and groups on a trauma-informed approach.

Overall, learners were pleased with the trauma-informed education provided, with many reporting the importance of trauma-informed training and ongoing education on TIC and ACEs (Goldstein et al., 2018; Kalamakis et al., 2017; Pletcher et al., 2019). Medical students in Goldstein et al.'s study (2018) reported that their education has helped them with the ability to recognize trauma-related mental health conditions. NP focus groups in Kalmakis et al.'s study (2017) believed education was critical, finding the lack of formal education on TIC concerning with repeated requests for TIC to be taught in undergraduate and graduate nursing programs. Learners in Pletcher et al.'s study (2019) believed additional training on ACEs is needed in medical school curriculum. Thus, the importance of trauma-informed education was a common theme shared by several studies.

Additional elements analyzed for this literature review included a journal commentary and expert opinion. Both of these articles gave an overview of what the author(s) would recommend as models for implementing a trauma-informed approach in a primary care setting. In a journal commentary, M. Earls (2018), the director of Pediatric Programs, Community Care of North Carolina; chair of the Mental Health Leadership Work Group and Learning Collaborative Advising Committee, Screening in Practices Project of the American Academy of Pediatrics; and clinical professor of Pediatrics at the University of North Carolina-Chapel Hill

School of Medicine, (2018) spoke to the importance of integrating the knowledge of trauma into

an organization's policies and procedures and the importance of the involvement of all staff and

leadership in creating organizational change. Earls also believed education was critical in

creating a trauma-informed primary care practice. Education and training should be an ongoing

activity so that all staff members understand the impact of trauma, the importance of recognizing

it in primary care, and the importance of working with patients and families while being

culturally sensitive (Earls, 2018). In an expert opinion piece, Roberts, Chandler, and Kalmakis

(2019), all professors of nursing, suggested a model for trauma-informed primary care that

integrated the key elements of TIC: recognition, realization, response, respect, and resilience into

its practice. Roberts et al. (2019) also believed education played a critical role in the trauma-

informed approach. In order for screening and trauma recognition to occur and be effective,

primary care providers must be educated in TIC and ACEs in order to approach patient care with

a trauma-informed perspective. Without sufficient education, providers would be unable to

screen patients, identify needs, and provide the appropriate management and resources (Roberts

et al., 2019).

Discussion

An emerging theme from reviewing all selected articles was the importance of education.

Trauma-informed education is not a standard element of the formal curriculum for many

healthcare students, including medical and nursing students (Dichter et al., 2018; Goldstein et al.,

2018; Kalamakis et al., 2017). Although the path from childhood traumas to mental health

conditions and chronic illnesses resulting in premature death has been studied and explored

(CDC, 2019), an understanding of trauma and its ill effects are still not a mandatory component

of formal (educational institution) or informal (healthcare organization, clinic, work setting)

healthcare education. Information gleaned suggest that learners across disciplines acknowledge

the value of TIC education to not only help to increase knowledge, recognition, and

understanding of trauma but to also increase their confidence in delivering appropriate care

(Dichter et al., 2018; Goldstein et al., 2018; Pletcher et al., 2019; Strait & Bolman, 2017). Thus,

these studies help to call attention to the importance of dedicated trauma-informed education in

formal academic settings.

Another theme regarding education transpired from the studies. Clinicians and students

realized they needed ongoing education and resources to successfully implement a trauma-

informed approach. Identified needs included TIC practice champions, screening tools,

additional instruction, mentorship, practice, and coordinated collaborative care (Dichter et al.,

2018; Goldstein, et al., 2018; Kalmakis et al., 2017). All of these tools are means of creating a

continuing dialogue around trauma-informed approaches that clinicians and students can utilize

in their healthcare settings. Additionally, guidance provided by Earls (2018) and Roberts et al.

(2019) speak to the importance of a strong educational foundation in trauma and ACEs needed to

create a trauma-informed primary care practice.

Limitations

Limitations included the variability in study designs and the quality of publications

included in this scoping review. No relevant systematic reviews or randomized control trials

were uncovered during electronic database searching. Thus, none of the articles analyzed had a

control or comparison. As the majority of studies were prospective studies with a post-

educational intervention test, there was limited data on knowledge and attitudes pre-intervention.

In addition, many of the surveys and questionnaires were voluntary and, as such, are biased by

those who chose to respond and who chose not to respond. In addition, many of the groups in

the studies were from convenience sampling which is inherently biased. Most of the studies

were based on small samples who were often demographically homogenous and not

generalizable to the greater population. In one study, the institutional review board (IRB)

restrictions prevented researchers from collecting data during an activity where students could

voluntarily tally their own ACE scores to help them gain a better understanding of the effects of

childhood trauma (Strait & Bolman, 2017). This data would have been interesting to compare to

students' self-evaluation of understanding and applying TIC in clinical practice. Due to study

design and biases such as small samples and homogeneity, all studies included in this review

ranked as a Level III, C according to the John Hopkins Nursing Evidence-Based Practice:

Research Evidence Appraisal Tool.

Identified Gaps in Research

Upon analyzing the articles included in this review of literature, several gaps in evidence

became apparent. Regarding TIC education, there did not appear to be a consensus as to what

are the most preferred and effective means for disseminating the information. Are certain

methods more effective than others in teaching TIC approaches to providers? Should role-

playing and small group discussions be mandatory parts of the training to help clinicians model

the correct language and behaviors needed to make their patients feel safe? A variety of methods

was used in the educational interventions described within the articles, however more research is

needed to uncover the most effective ways to teach TIC such that clinicians are able to

competently assess for and treat patient trauma needs.

Additionally, more research is needed to determine the ideal time frame for trauma

education. The studies reported on trainings that were as short as a couple of hours as well as

academic courses that covered several weeks. Once an educational foundation of TIC is

achieved, how much and how often is continuing education necessary? Another need discovered

in the literature is appropriate screening tools. The original ACE questionnaire has been slightly

adapted in different situations, however the categories have remained the same. The ACE

screening tool needs to be updated to reflect the current sociopolitical environment and the

stresses that today's youth face. Additional questions or categories might include exposures to

bullying, online predatory behavior, trauma associated with

race/sex/gender/orientation/identity/disability, and exposure to gun violence or school shootings.

Hence, more research is needed to devise a current and comprehensive screening that reflects

additional traumas that are more prevalent at this time.

With regard to the original PICO question and aims, most of literature touched on these

aspects. However, there was only one study that addressed validated increased knowledge post-

educational intervention.   Pletcher et at. (2019) discussed the outcomes of required, graded

online quizzes to validate competency, while in other studies, increased knowledge in applying

TIC were largely self-reported. Perhaps studies could be conducted to measure actual

knowledge gained post-training via tests or quizzes which could then be matched up to a

learner's self-reported perception of knowledge.

Conclusions from the Review of Literature

A scoping literature review of trauma-informed educational interventions for healthcare

providers in primary care revealed several key points:

- Students and clinicians recognized the importance of a trauma-informed approach in

    healthcare. In order for practices to become trauma informed, all staff need trauma

    training, especially providers who will be identifying ACEs and managing patient care.

As such, students and clinicians recognize the need for trauma-informed education in

healthcare curriculum and on a continual basis.

- Students and clinicians who receive trauma-informed education exhibit greater

   confidence in their abilities to conduct ACE screenings and address the trauma-related

   needs of patients.

- Additional research is needed to explore trauma-informed educational programs. Higher

   level studies may reveal the efficacy of programs as well as the best methods to teach this

   information.

ACEs, Trauma in College Students

The knowledge gained through this process was used as the foundation of a scholarly

project completed at a mid-Atlantic public university's student health center. College students,

as a young adult population, suffer from trauma and ACEs, and several studies have examined

the consequences of trauma in college students. With increased exposure to ACEs, there was an

increase in the likelihood of seeking help for psychological or psychiatric issues (Karatekin,

2018a; Windle et al., 2018). Despite seeking help, one study covering undergraduate students at

a large public university (n =321) found college students with higher ACEs (three or more), were

also more likely to find interventions less helpful and more likely to stop care prematurely

(Karatekin, 2018a). Additionally, those students with increased exposure to ACEs also

experienced higher levels of mental health symptoms and illness, including depression, anxiety,

stress, ADHD symptoms, and suicidal ideation (Windle et al., 2018, Karatekin, 2018a;

Karatekin, 2018b). Windle et al. (2018), studying students from seven universities in Georgia (n

= 2,969), also found a relationship between increased ACEs and increased health-risk behaviors

such as substance use (cigarette, alcohol, marijuana), decreased levels of fruit and vegetable

intake, and decreased hours of sleep.

In addition to ACEs and past trauma, college students may also be experiencing increased stressors with adjusting to school, new social situations, new living arrangements, some financial independence, and living away from home and their usual support systems. Due to these increased stressors, college students with ACEs may engage in risky health behaviors to cope due to prior, and possibly unaddressed, ACEs and lack of resilience. This critical time in young adulthood may be an ideal time to redirect unhealthy behaviors and address trauma before chronic illnesses manifest. Thus, it is important for providers in a student health setting to be trauma-informed and trained.

Scholarly Project Methods

Project Purpose

The purpose of this project was to provide coordinated education to promote primary care clinicians' understanding of trauma-informed care approaches in a student health setting. Primary care clinicians included certified nurse assistants, licensed practical nurses, registered nurses, nurse practitioners, and physicians. The setting was the primary care department of a student health center of a mid-Atlantic public university. Additional aims of the project included: measuring clinician satisfaction with the education, determining preferences for specific educational modes, and measuring clinician confidence in providing TIC post-intervention.

Project Question

Does participating in coordinated educational interventions about trauma-informed care in a student health primary care setting improve clinicians' knowledge about trauma-informed care practices?

Project Design and Frameworks

As there is a lack of required formal education regarding TIC in healthcare and healthcare education, the extent of exposure of primary care clinicians to TIC in this student health primary care setting was unknown at the time of project proposal. As such, this project utilized a quasi-experimental, one-group design with surveys and knowledge assessment tests completed pre-and post-intervention.

Theoretical framework. Bandura's Social Cognitive Theory (SCT) (2004) provided the theoretical framework for this project. This theory posits that learning occurs in a social context, and there exists dynamic, reciprocal interactions between an individual, environment, and behavior. This theory also acknowledges past experiences which factor into behavior and the environment in which individuals perform behavior. Key concepts in SCT include reciprocal determinism, behavior capability, observational learning, reinforcement, expectations, and self-efficacy (Bandura, 2004). This project focused on three of these main concepts: reciprocal determinism, behavioral capability, and self-efficacy. Reciprocal determinism, the main concept of SCT, refers to the dynamic, reciprocal, social interaction between an individual, environment, and behavior which considers past experiences. Clinicians who participated in the project received educational interventions on a TIC approach. Their ability to utilize the knowledge and skills achieved into TIC behaviors and practices were based on their past experiences (perhaps, inclusive of some trauma), internal perceptions, and the clinical environment. Behavioral capability is the ability to perform behavior based on knowledge and skills, with the consideration of past experiences. In this project, clinicians' abilities to meet the trauma-

informed needs of patients were based on their gained knowledge and skills which hopefully

stemmed from the education provided. Lastly, self-efficacy refers to the individual's confidence

in the ability to perform the behavior. This project builds on self-efficacy as it aimed to increase

clinicians' confidence in ability to deliver TIC as their knowledge increased.

   Conceptual framework. Based on the recommendation of SAMHSA (2014) in their

published guidance for a trauma-informed approach, the education provided in this project was

based on the four key assumptions which lay the groundwork for establishing a TIC approach.

These are known as the Four R's, which are realization, recognition, response, and resistance of

re-traumatization. At all levels of an organization, people must realize the widespread effects of

trauma and understand how it affects individuals, families, groups, and communities.

Recognizing the signs and symptoms of trauma is critical in screening and assessment. The

response to trauma must entail the integration of knowledge about trauma into all policies,

procedures, and practices. Finally, a practice must resist the re-traumatization of staff and

patients by reflecting on policies, procedures, and practices to ensure an environment where all

individuals feel safe and cared for.

Definition of Terms

   Adverse childhood experiences. ACEs are used to describe different types of abuse,

neglect, and other potentially traumatic experiences that occur prior to the age of 18 (CDC,

2019). The original ACE Study questionnaire was comprised of 17 questions divided into two

themes, childhood abuse and exposure to household dysfunction, and seven categories (Felitti et

al., 1998). Childhood abuse was broken down into three categories: psychological abuse,

physical abuse, and sexual abuse (Felitti et al., 1998). Exposure to household dysfunction in

childhood was separated into four categories: exposure to substance abuse, mental illness, violent

treatment of mother or stepmother, and criminal behavior in the household (Felitti et al., 1998).

Other examples of experiences not included in the original ACE Study but might also be

considered an ACE are living in poverty, growing up in a war zone, navigating a new country as

a refugee, surviving gun violence/school shootings, experiencing racism, surviving a natural

disaster, and experiencing a life-threatening illness or injury.

Toxic stress. Usually, the stress response is normal and healthy, consisting of increases

in heart rate and mild elevations of the body's production of stress hormones. With strong,

frequent, and/or prolonged exposure to childhood trauma, the stress response remains activated,

disrupting brain development and other organ systems in children, which can increase the risk

for cognitive impairments and stress-related disease as the child grows into an adult (Harvard

University Center on the Developing Child, 2019).

Trauma. According to SAMHSA (2014):

Individual trauma results from an event, series of events, or set of circumstances that is

experienced by an individual as physically or emotionally harmful or life threatening and

that has lasting adverse effects on the individual's functioning and mental, physical,

social, emotional, or spiritual well-being. (p. 7)

Trauma-informed care. According to SAMHSA (2015):

Trauma-informed care takes a trauma-informed care approach to the delivery of

behavioral health services that includes an understanding of trauma and an awareness of

the impact it can have across settings, services, and populations. TIC views trauma

through an ecological and cultural lens and recognizes that context plays a significant

role in how individuals perceive and process traumatic events, whether acute or chronic.

TIC involves vigilance in anticipating and avoiding institutional processes and individual

practices that are likely to retraumatize individuals who already have histories of trauma. TIC upholds the importance of consumer participation in the development, delivery, and evaluation of services. (p. 1)

Trauma-informed organization. According to SAMHSA (2014):

A program, organization, or system that is trauma-informed realizes the widespread impact of trauma and understands potential paths for recovery; recognizes the signs and symptoms of trauma in clients, families, staff, and others involved with the system; and responds by fully integrating knowledge about trauma into policies, procedures, and practices, and seeks to actively resist re-traumatization. (p. 9)

Student health center. This refers to a health center affiliated with a local college or university and aimed at providing healthcare services to this student community. A student health center may encompass primary care services as well as a variety of specialty care services, such as mental health, student disability services, pharmacy, and laboratory services.

Setting

The setting of this project was the primary care division of the student health center of a mid-Atlantic public university. This student health center aims to serve the healthcare needs of the students at the university. As of the fall semester of 2018, there were 16,777 undergraduate students and 7,862 graduate students, for a total of 24,639 students enrolled at the university. According to the associate executive director of the student health center, around 50% of students have sought services at least once during the 2018-2019 school year. Services provided at the center include medical services, counseling and psychological services, health promotion and wellbeing, and student disability access. Medical services encompass general medicine, gynecology, nutrition, laboratory services, pharmacy services, an allergy clinic, and an

international travel clinic. This project focused on primary care which encompasses general medicine and gynecology in this student health center.

The primary care center specifically addresses physicals, acute illnesses, chronic disease management, simple office procedures, transgender care, and disease prevention and health promotion. When necessary, primary care providers will refer patients for specialty care to another department within the student health center, the academic medical center affiliated with the university, or to other services within the greater community.

Approval of Setting. Support for the project was provided by the executive leadership of the student health center including the executive director and the associate executive director of the student health center. Both the associate executive director and the clinical research manager of the student health center provided guidance and logistical support throughout the process.   As such, they, as well as the executive director, were excluded from participating. Formal written approval is documented in the appendices (see Appendix A).

Description of the Sample

The sample aimed to include all clinical staff such as certified nurse assistants, licensed practical nurses, registered nurses, nurse practitioners, and physicians working in the primary care division of the university's student health center, which included medical services as well as gynecology services. At the start of the project there were 26 primary care licensed independent practitioners (LIPs) between the medical care clinic and gynecology clinic, consisting of nurse practitioners and physicians. These clinics were supported by 23 individuals in nursing staff, consisting of certified nurse assistants, licensed practical nurses, and registered nurses, for a total of 49 primary care clinicians. One provider was excluded from participating as they had played a significant role during the project planning process and was not included in the total of 49.

During the course of the project, two nursing clinicians left and one was hired, leading to a total of 48 clinical staff members eligible to participate at the end of the project. This reflected a convenience sample taken between October and December 2019. Inclusion criteria for participation included primary care clinicians who consented to participate, and exclusion criteria were those who did not consent to participate, those in executive leadership, or those involved in the project planning process.

As this author could find no prior studies on pre/post-knowledge assessment tests based on TIC for comparison, an online sample size calculator was used to determine the needed sample size based on the initial population of 49 eligible primary care clinicians. An ideal sample size of 44 participants would be needed based on the population size, with a 95% confidence level and a significance level of .05.

Primary outcome. The primary outcome of this project was to compare the knowledge assessment scores of those completing both the pre- and post-intervention tests.

Secondary outcomes. Secondary outcomes of this project included exploring clinician satisfaction with the provided education, determining preferences for specific educational modes, and measuring clinician confidence in providing TIC post-intervention.

Measures

Demographics. Prior to beginning the coordinated educational intervention, a questionnaire was used to collect demographic data. Due to the homogeneity in the clinic, detailed demographics were not included to protect the identity of the participants. The only demographic question asked whether a participant was a LIP or part of the nursing staff.

Baseline trauma-informed care questionnaire. Prior to receiving education, clinicians completed a questionnaire addressing prior exposure to TIC and clinicians' satisfaction with that

education (Appendix B). If the provider had previous experience with TIC, the survey inquired about the setting of training (undergraduate education, graduate education, continuing education clinician sought, or employer-mandated education) and the mode of education provided. Finally, utilizing a Likert scale, participants also indicated their satisfaction with the mode of their past TIC education and content of the past TIC education as well as their current confidence in providing TIC to their patients. The satisfaction Likert scale was a 5-point scale in which 1 = very dissatisfied and 5 = very satisfied. The confidence Likert scale used was also a 5-point scale in which 1 = not at all confident and 5 = very confident.

Trauma-informed care knowledge assessment. A pre- and post-test was completed to measure knowledge assessment of TIC approaches (Appendix C). As this author was unable to find a standardized test for TIC knowledge assessment, the test was created with the guidance and input of an expert in the field of TIC with extensive knowledge of stress injury and trauma. The test covered broad concepts in TIC with a particular focus on the four "R's": realization, recognition, response, and resistance of re-traumatization (SAMHSA, 2014). Before education, this served as a measurement of baseline knowledge of TIC approaches in a medical setting. Post-education, this test served as a measure of increased knowledge gained from the intervention. As this was a created tool for this project, it was not a verified measure of TIC knowledge. This test consisted of 12 questions and was graded with 1 point for each correct answer.

Post-intervention questionnaire. After receiving the coordinated educational interventions, this questionnaire was completed by participants. Likert scales were utilized to measure participants' satisfaction with the educational interventions provided; satisfaction with the delivery of education with a sub question inquiring about preference, if any, for specific type

of educational mode; satisfaction with content; and confidence level in providing a TIC approach

to patients (Appendix D). The same 5-point Likert scales for satisfaction and confidence utilized

in the pre-intervention survey were used in the post-intervention survey. Open-ended questions

were also included to collect information on any barriers and supportive measures to providing a

TIC approach in a student health setting.

Procedures

       Recruitment. After receiving site approval, the author spent time weekly at the primary

care center starting in August 2019 to meet the clinicians. The project was introduced to the

possible participants by the author through emails sent out by the associate executive director

(Appendix E). A follow-up email was then sent to all eligible clinicians in the student health

primary care center inviting them to participate (Appendix F). The information included in all

communication addressed the purpose of the project, details of the educational interventions,

planned time frame, as well as what will be required to participate. Communication also

included notice that those completing the pre- and post-intervention surveys will receive a five-

dollar gift card from a local coffee shop as an incentive in addition to being included in a raffle

for a $100 gift card.

       The follow-up recruitment email included a link to the pre-intervention questionnaires

utilizing Qualtrics. The introductory page displayed a short description of the project and the

consent form to participate. Those who chose to participate needed to click to acknowledge

consent in order to proceed to the pre-intervention questionnaires.

       After consent was obtained online, participants were then led to the pre-intervention

surveys which consisted of a baseline questionnaire regarding prior TIC education and the

knowledge assessment test. After the coordinated educational interventions were completed, the

post-intervention surveys were available via Qualtrics. Participants had to verify consent, again,

and then proceed to the post-intervention questionnaires which consisted of an intervention

evaluation survey and the same knowledge assessment test. Once respondents started the

surveys, they were unable to move forward or backward through the survey. They were unable

to skip pages and could not proceed forward until all questions on the current page were

completed.

Pre-intervention surveys. Prior to participating in the educational interventions,

clinicians completed a questionnaire inclusive of questions pertaining to clinical role (LIP or

nursing staff), prior exposure to TIC education (Appendix B), and a baseline knowledge

assessment of TIC (Appendix C).

Education. The TIC education was presented in a coordinated approach, encompassing

different modes of education to appease different learning styles, participant preferences, and

participant time constraints. Additionally, in studies assessing educational programs, utilizing

various modes to teach was a highly effective strategy in sustaining changes over time (Duff,

Massey, Gooch, & Wallis, 2018; Dumyati et al., 2014; Yousef, Salem, & Mahmoud, 2020).

Over the course of a two-month period of time, from October to November 2019, three

education interventions were presented to staff. The interventions consisted of a video, slide

presentation, and in-person presentation with case studies and discussion. Specific learner

objectives included:

- Define trauma-informed care.

- Define adverse childhood experiences.

- Describe how ACEs affect brain development.

- Correlate ACEs with health-risk behaviors and chronic conditions.

- Identify signs and symptoms of past traumatic experiences.

- Describe trauma-informed care actions for clinicians in patient encounters.

- Examine how healthcare team members might experience trauma and stress injury as part of their job.

The video was a TED talk focused on ACEs by Nadine Burke Harris, MD, MPH, FAAP, a pediatrician and current Surgeon General for the state of California. The video is titled "How Childhood Trauma Affects Health Across a Lifetime." Participants were encouraged to watch the video at their own pace and at a convenient time. The video was 15 minutes and 59 seconds long. An email was sent to eligible participants with a link to the initial survey and a link to the TED talk (Appendix G). Participants were reminded to take the initial survey prior to watching the TED talk video.

The second intervention was a slide presentation, which was representative of more traditional didactic learning. This presentation was titled "Promoting a Trauma-Informed Care Approach for Primary Care Clinicians: Background and Basics." This presentation focused on the realization and recognition of trauma, as suggested by SAMHSA (2014). It would take an estimated 15-20 minutes to review the slides. As this slide presentation was emailed (Appendix H), participants could also review it at their own pace and at a convenient time.

The third and final intervention was an in-person presentation with case studies that incorporated discussion and the application of concepts with time for questions and comments. This presentation was the most time-consuming, lasting about 45-50 minutes. This mode was also reflective of a more traditional setting for learning and encouraged participants to consider how to utilize TIC approaches with patients. This presentation was titled "Trauma-Informed Care Actions for Primary Care Clinicians: Responding to Trauma and Resisting Re-

traumatization." As the title suggests, this presentation was focused on responding to trauma and resisting re-traumatization, as recommended by SAMHSA (2014).

      Post-intervention surveys. Post-intervention, participants were asked to complete a follow-up knowledge assessment test and general evaluation survey about the education provided (Appendix D).

Timeframe of Project

      This project covered a timeframe of five months, starting in August and ending in December of 2019. The project timeline is presented here:

- August – September – Weekly presence in the student health primary care center with introductions to the staff and informal information given regarding the project

- October – After IRB approval, initial introductory email sent out to eligible staff (Appendix E) followed by the recruitment email including a link to the consent and pre-intervention surveys (Appendix F)

- October – November – Educational interventions spaced roughly one week apart with an additional week provided between the second and third interventions for additional time to participate prior to the in-person presentation:
    - 1st – Video link to TED talk – emailed (Appendix G)
    - 2nd – Slide presentation – emailed (Appendix H)
        - Reminder email to complete first two interventions sent
        - by associate executive director of student health (Appendix I)
    - 3rd – In-person presentation with case studies and discussion, application of concepts – emailed notice of presentation (Appendix J)

- December – Link to post-intervention surveys emailed out to be completed (Appendix K) followed by two reminder emails prior to close of the surveys (Appendices L & M)

Protection of Human Subjects

The Scholarly Project proposal was presented formally to colleagues and faculty at the School of Nursing for approval on July 11, 2019. Approval was received along with feedback used to ensure the protection of participants prior to project submission to the Institutional Review Board – Social and Behavioral Sciences (IRB-SBS) at the university for approval. Formal approval from the IRB-SBS was received on September 16, 2019, with the Protocol Number 2879 (Appendix N). Additionally, the author had already completed the required Collaborative Institutional Training Initiative (CITI) course, IRB-Human Subjects Research Researcher Basic Course. When clicking the link to the initial survey, consent was obtained from project participants prior to initiating educational interventions (Appendix O). Participants were unable to complete any surveys until they clicked, "I consent," on the initial splash page of the link. To maintain confidentiality while tracking responses, all participants were asked to create a three-part unique identifier (favorite animal + color + number). The only demographic information obtained was whether the participant was part of nursing staff or a LIP. This was decided in conjunction with the student health center's associate executive director and the clinical research manager, due to the homogeneity of the staff. Any additional demographic questions could potentially reveal a participant's identity. All data collected remained confidential apart from the demographic data reported and remained stored on the university's firewall-protected databases.

Data Analysis Plan

Data obtained using the above measures (demographics, baseline trauma-informed care questionnaire, pre- and post-intervention knowledge assessment tests, and post-intervention questionnaire) were collected and stored from participants utilizing Qualtrics, an online survey tool.

Coding. Before analyses were conducted, data was placed in SPSS by the author and coded appropriately. Role was coded as LIP = 1 and nursing staff = 2. Prior TIC training was coded as yes = 1 and no = 2. All satisfaction questions were coded as very satisfied = 5, somewhat satisfied = 4, neutral = 3, somewhat dissatisfied = 2, and very dissatisfied = 1. Confidence questions were coded as very confident = 5, moderately confident = 4, somewhat confident = 3, only slightly confident = 2, and not at all confident = 1. Pre-test and post-test scores were left unchanged. The test was 12 questions, each worth one point, so the highest possible maximum achieved was a score of 12. The point change as well as the corresponding percentage change from pre-test to post-test was calculated.

Analyses. For descriptive statistics, Qualtrics or Microsoft Excel were used. In the pre-intervention surveys, descriptive information was obtained on clinical role (e.g. nursing staff or LIP), exposure to prior TIC education (yes/no), satisfaction with mode of education, satisfaction with content of education, and confidence in providing a TIC approach in patient interactions. In the post-intervention surveys, descriptive information was also used to ascertain clinical role, satisfaction with mode of education, satisfaction with content of education, and confidence in providing a TIC approach in patient interactions post-educational interventions.

For all statistical tests, IBM Statistical Package for the Social Sciences (SPSS) for Mac version 26.0 (International Business Machines Corporation, Armonk, NY, 2019) was used. The

knowledge assessment test scores were not normally distributed so non-parametric tests were used for all analyses. Pre- and post-test scores for the TIC knowledge assessment were obtained and analyzed utilizing Wilcoxon Signed Rank tests. Post-intervention knowledge assessment scores were also analyzed with respect to prior TIC training (yes/no) and clinical role (nursing staff or LIP) using Mann-Whitney U tests. For these two groups, the point changes in scores from pre- to post-test were also analyzed using Mann-Whitney U tests. To assess if there was a relationship between post-test scores and confidence levels, a Kruskal-Wallis test was used. Finally, to assess whether or not the number of interventions a clinician participated in had an impact on post-intervention test scores, a Mann-Whitney U test was also completed. For all statistical tests, significance was set at the α level of 0.05.

Due to the low number of participants that had received prior TIC education, the setting for education (e.g. undergraduate education, graduate education, employer-mandated education, etc.) and mode of the education (e.g. lecture with slide presentation, webinar/online modules, video, etc.) were hand-counted by the author. Additional information that was synthesized by the author included answers for the open-ended questions in the post-intervention surveys:

- Please describe any supportive measures/resources you have to provide a trauma-informed care approach.

- Please describe any barriers you have experienced in providing a trauma-informed care approach.

Results

Initial Surveys

There was a total of 43 respondents to the initial surveys. There were two participants that did not consent and did not continue with the survey. There were also two more participants

that consented but did not complete the surveys. Those surveys were removed, leaving 39

complete surveys for analysis. Table 3 represents the demographic characteristics of those who

completed the initial surveys. Participants consisted of 21 LIPs (53.8%) and 18 nursing staff

members (46.2%). Participants were also asked about their prior exposure to trauma-informed

education. Thirty participants (76.9%) had no prior exposures to trauma-informed education,

while nine (23.1%) had received prior trauma training. No other demographic data was collected

to keep participants' identities confidential.

Post Surveys

There was a total of 37 respondents to the post surveys. There was one participant that

did not consent and did not continue with the survey. There were three more participants that

consented but did not complete the surveys. Another two surveys were identified as duplicates

via the participants' unique identifiers. Of the duplicates, the partially filled surveys were not

considered, while the completed surveys of the participants remained. With those surveys

removed, there were 31 completed surveys left for analysis. Table 4 represents the demographic

characteristics of those who completed the post surveys. Participants consisted of 18 LIPs

(58.1%) and 13 nursing staff members (41.9%). No other demographic data was collected.

Survey Matched Pairs

After reviewing the participants of the pre-interventional surveys (N = 39) and post-

interventional surveys (N = 31), only 20 matched pairs were found using participants' unique

identifiers (see Figure 2). These participants completed both the pre- and post-intervention

surveys. Table 5 represents the demographic characteristics of these participants. Eleven of

these participants were LIPs (55%), while nine were nursing staff members (45%). Within this

group of 20, only five (three LIPs, two nursing, 5%) had previous TIC education. The remaining

15 participants (75%) had no prior trauma training.

For most data analyses, only the participants who completed both the pre- and post-

intervention surveys as indicated by their unique identifiers ($n = 20$) were considered so

comparisons could be made with pre- and post-intervention scores. However, in order to gain as

much knowledge as possible, certain analyses included the use of either all respondents to the

pre-surveys (N = 39) or all respondents to the post-surveys (N = 31). To glean information on

prior trauma-informed education, anyone who received prior education as indicated in the pre-

surveys was considered. To gather as much information regarding the evaluation of the project,

all respondents' answers were considered in the post-surveys, not just responses from those who

completed both pre- and post-surveys.

Data Analysis

Pre-educational intervention questionnaire. This survey sought to uncover and assess

any prior trauma-informed care education that participants had received.

All respondents. As depicted in Table 3, 30 or 76.9% of the participants (N = 39) had no

prior trauma-informed education. This consisted of 14 nursing staff members and 16 LIPs. Nine

or 23.1% of participants, consisting of four nursing staff and five LIPs, had received prior TIC

education. Five (one nursing, four LIPs) reported self-selected continuing education in TIC.

Three (two nursing, one LIP) reported receiving employer mandated or required education. One

nursing staff member reported receiving a variety of TIC education. This staff member was

exposed to education in college, through employer mandated or required education, and via self-

selected continuing education. With regards to the mode of education, two nursing staff

members and three LIPs, for a total of five participants only received education through lectures

or speakers with slide presentations. One LIP reported education through a handout. Three

other participants reported receiving education through a variety of modes. One nursing staff

member reported education through lecture or a speaker with a slide presentation, handout,

webinar/online module(s), video, and case studies with small group discussion. Another nursing

staff member reported education through lecture or a speaker with a slide presentation, handout,

poster presentation, and case studies with small group discussion. Only one LIP reported

receiving education through a variety of means including a lecture or speaker with a slide

presentation, handout, and video.

Utilizing a five-point Likert scale, ranging from 1 = very dissatisfied to 5 = very satisfied,

participants were questioned about their satisfaction with the mode of their prior TIC education.

Four participants (two nursing, two LIP) stated they were very satisfied. Four (one nursing, three

LIP) reported being somewhat satisfied, and one nursing staff member reported feeling neutral.

No one reported feeling somewhat dissatisfied or very dissatisfied with the mode of their prior

education.

Utilizing the same Likert scale, participants were then questioned about their satisfaction

with the content of their prior TIC education. Four participants (two nursing, two LIP) reported

being very satisfied, while five (two nursing, three LIP) reported feeling somewhat satisfied.

The final question of the pre-educational questionnaire asked participants to gauge their

confidence level in their ability to provide a trauma-informed approach in patient interactions

based on their past education. A five-point Likert scale was used where participants had to

report feeling 1 = not at all confident to 5 = very confident. Six (one nursing, all five LIPs)

participants reported feeling moderately confident, while three nursing staff members reported

feeling somewhat confident in their ability to provide TIC.

Matched pairs. Similar to all respondents, fifteen or 75% of the participants who completed both the pre- and post-surveys (*n* = 20) had no prior trauma-informed education. This consisted of seven nursing staff members and eight LIPs. Five or 25% of the participants, consisting of two nursing staff and three LIPs, had received prior TIC education. Two participants, both LIPs, reported self-selected continuing education in TIC. Three (two nursing, one LIP) reported receiving employer mandated or required education. With regards to the mode of education, four participants (two nursing staff members and two LIPs) only received education through lectures or speakers with slide presentations. One LIP reported education through a handout.

Utilizing a five-point Likert scale, ranging from 1 = very dissatisfied to 5 = very satisfied, participants were questioned about their satisfaction with the mode of their prior TIC education. Three participants (two nursing, one LIP) stated they were very satisfied with the type of prior education received, while two LIPs reported being somewhat satisfied. Utilizing the same Likert scale, participants were then questioned about their satisfaction with the content of their prior TIC education. Three participants (two nursing, one LIP) reported being very satisfied, while two LIPs reported feeling somewhat satisfied.

The final question of the pre-intervention questionnaire asked participants to gauge their confidence level in their ability to provide a trauma-informed approach in patient interactions based on their past education. A five-point Likert scale was used where participants had to report feeling 1 = not at all confident to 5 = very confident. Four (one nursing, three LIPs) participants reported feeling moderately confident, while one nursing staff member reported feeling somewhat confident in their ability to provide TIC.

Pre-educational intervention knowledge assessment test. Along with the questionnaire regarding information about prior education on TIC, participants were also asked to complete a test to assess their knowledge on TIC approaches in primary care. There were 12 questions on the test. Each question was worth one point for a maximum possible score of 12.

All respondents. For all respondents (N = 39) scores ranged from 5.0 to 11.00 with a median of 8.0 (IQR = 2.00). Those without prior TIC training (*n* = 30) scored from a 5.0 to a 10.0 with a median of 8.0 (IQR = 2.00). Exhibiting higher scores than the group as a whole and those without prior training, were those with prior TIC training (*n* = 9). Their scores ranged from 6.0 to 11.00 with a median of 9.0 (IQR = 2.50). LIPs and nursing staff scores were also compared. LIPs (*n* = 21) had scores that ranged from 5.0 to 11.0 with a median of 9.0 (IQR = 1.00). While the nursing staff (*n* = 18) had scores that ranged from 6.0 to 11.0 with a median of 8.0 (IQR = 1.25). See Table 6 for these results.

Matched pairs. Analyzing the scores of only those who completed both pre- and post-surveys (*n* = 20) showed very similar results. Only looking at the pre-intervention scores, the group's scores ranged from 6.0 to 11.0 with a median of 8.0 (IQR = 2.00). Those with no prior training (*n* = 15) had scores from 6.0 to 10.0 with a median of 8 (IQR = 2.00). Those with prior training (*n* = 5) had scores that ranged from 7.0 to 11.0 with a median of 9.0 (IQR = 2.50). The matched pairs were further analyzed into LIPs (*n* = 11) and nursing staff (*n* = 9) for further comparison in pre-intervention scores. LIPs scores ranged from 6.0 to 10.00 with median of 9.0 (IQR = 1.00). Nursing staff scores ranged from 6.0 to 11.00 with a median of 7.0 (IQR = 2.00). See Table 7 for a summary of these results.

Post-educational intervention knowledge assessment test. After evaluating the educational interventions provided by this project, participants were asked to complete another

knowledge assessment test. This was the same 12-question test given before the educational
interventions of the project.

   All respondents. For all respondents (N = 31) scores ranged from 6.0 to 12.0, with only
one individual receiving a perfect score of 12.0. The median also increased from 8.0 to 10.0
post-intervention (IQR = 1.00). As the pre- and post-survey groups encompassed all respondents
and were not comprised of the same individuals, the matched pairs must be analyzed for a true
comparison.

   Matched pairs. Analyzing the scores of only those who completed both pre- and post-
surveys (*n* = 20) showed an overall increase in scores. Similar to the pre-intervention knowledge
assessment test, the scores ranged from 6.0 to 11.00. However, the median increased from 8.0 to
10.0 (IQR = 1.00).

   In order to find it there was a statistically significant increase in scores pre- and post-
intervention, a paired t-test could be run. First, tests for normal distribution were determined.
The pre-intervention test scores were normally distributed, however, the histogram of the post-
intervention test scores exhibited significant negative or left skewness. The Q-Q plot did not
reflect a normal distribution, as data points did not cluster around the expected straight line. In
addition, the Kolmogorov-Smirnov test (p = .000) and Shapiro-Wilk test (p = .001) both
indicated the post-test scores were not normally distributed. Thus, the alternative non-parametric
Wilcoxon Signed Rank test was performed. This test revealed a statistically significant increase
in knowledge in primary care clinicians' understanding of trauma-informed approaches
following participation in the coordinated education provided by the Scholarly Project, z = -
3.219, p = .001, with a large effect size (*r* = .51). The median score on the knowledge

assessment test increased from pre-educational intervention (Md = 8.0) to post-educational intervention (Md = 10.0). SPSS output from this calculation is included in Figure 3.

 Prior trauma-informed training. The group (n = 20) was divided into those without prior trauma-informed training (n = 15) and those with prior trauma-informed training (n = 5). Those without prior trauma training had scores that ranged from 6.0 to 11.00 with the scores increasing from the pre-intervention surveys. The median increased from 8.0 to 10.0 (IQR = 2.00). Those with prior TIC training all scored a 10.0. Thus, the median increased from 9.0 to 10.0 from pre- to post-intervention. To determine if there was a statistical difference in the post-knowledge assessment scores between those who received only the training provided in the educational intervention (no prior training) and those who received additional training prior to the education intervention, a Mann-Whitney U Test was performed since post-intervention test scores were not normally distributed. This test revealed no significant difference in the post-intervention knowledge assessment scores between those without prior trauma-informed training (Md = 10, n = 15) and those with prior trauma-informed training (Md = 10, n = 5), U = 32.5, z = -.469, p = .672, r = .1. See Table 8 for a summary of these results.

 The point changes in the knowledge assessment test scores were then compared. For those without prior trauma-informed training, the test point change from pre- to post-test ranged from -1 to 3, representing a -8.33 to 25% change in post-test scores. The median point change was 1.0 (IQR = 3.00). Similar to those without TIC training, the point change from pre- to post-test for those with prior trauma training also ranged from -1 to 3 points, representing a -8.33 to 25% change in post-test scores. The median point change was 1.0 (IQR = 2.50). Another Mann-Whitney U test was completed to analyze the point change in knowledge assessment scores from pre-intervention to post-intervention. This test revealed no significant difference in the change in

test scores between those with prior training ($Md = 1$, $n = 5$) and those with no prior training (Md = 1, $n = 15$), $U = 39.5$, $z = .181$, $p = .866$, $r = .04$. See Table 9 for a summary of these results.

  Clinical roles. The matched pairs were further analyzed into LIPs ($n = 11$) and nursing staff ($n = 9$) for further comparison to pre-intervention scores. LIPs scores increased from the pre-intervention range of 6.0 to 10.00 with a median of 9.0 (IQR = 1.00) to a range of 9.0 to 11.00 with a median of 10.0 (IQR = 1.00). Nursing staff scores decreased from the pre-intervention range of 6.0 to 11.00 to the post-intervention range of 6.0 to 10.0. However, the median increased from 7.0 (IQR = 2.00) to 10.0 (IQR = 3.00). To ascertain if there was a statistical difference between the post-knowledge assessment scores of LIPs and nursing staff members, a Mann-Whitney U Test was performed as the post-knowledge assessment scores were not normally distributed. This test revealed a significant difference in the post-intervention knowledge assessment scores between and LIPs ($Md = 10$, $n = 11$) and nursing staff members ($Md = 10$, $n = 9$), $U = 23.5$, $z = -2.124$, $p = .046$, $r = .48$. LIPs (mean rank = 12.86) scored higher than nursing staff members (mean rank = 7.61), although both had medians of 10.0. A summary of these results is also included in Table 8.

  The point changes in the knowledge assessment test scores were then compared. For LIPs, the test point change from pre- to post-test ranged from 0 to 3 points, representing a zero to 25% increase in post-test scores. The median point change was 1.0 (IQR = 2.00). For nursing staff members, the test point change from pre- to post-test ranged from -1 to 3 points, representing a -8.33 to 25% change in post-test scores. The median point change was 1.0 (IQR = 3.00). Another Mann-Whitney U test was completed to analyze the point change in knowledge assessment scores from pre-intervention to post-intervention. This test revealed no significant

difference in the change in test scores between LIPs ($Md = 1$, $n = 11$) and nursing staff ($Md = 1$,

$n = 9$), $U = 32.5$, $z = -1.341$, $p = .201$, $r = .3$. See Table 9 for a summary of these results.

Post-educational intervention questionnaire. This survey sought to assess the

educational interventions provided through this Scholarly Project. All respondents to the post-

survey were considered (N = 31). Twenty-nine participants or 93.5% (12 nursing, 17 LIPs)

watched the TED talk video online. Thirty participants or 96.8% (13 nursing, 17 LIPs) reviewed

the emailed slide presentation. Twenty-seven or 87.1% (12 nursing, 15 LIPs) were present for

the in-person presentation with case studies and discussion. One participant, a LIP, completed

only one educational intervention, the emailed slide presentation. Two nursing staff members

and three LIPs completed two interventions, while a total of 25 clinicians (11 nursing, 14 LIPs)

participated in all three educational interventions.

When asked which educational intervention in the project was the most helpful in

learning the concepts of trauma-informed care, four LIPs (12.9% of total participants) reported

the TED talk video as being the most helpful. Ten or 32.3% (four nursing, six LIPs) reported the

emailed slide presentation as being the most helpful, while just over half (54.8%) or 17

participants (nine nursing, eight LIP) reported the in-person presentation as the most helpful.

Similar to the five-point Likert scale used in the pre-intervention survey, participants

were asked to report satisfaction with the mode of trauma-informed education received through

this project ranging from 1 = very dissatisfied to 5 = very satisfied. Overwhelmingly 90.3% or

28 participants (13 nursing, 15 LIPs) reported feeling very satisfied with the mode of education

received through this project, while only 9.7% or three LIPs reported feeling somewhat satisfied.

There were no reports of 3 = neutral, 2 = somewhat dissatisfied, or 1 = very dissatisfied.

Similar to the prior question, participants were then asked to report satisfaction with the content of the education received through this project. Again, 90.3% or 28 participants (12 nursing, 16 LIPs) reported feeling very satisfied, while 9.7% or three participants (one nursing, two LIPs) reported feeling somewhat satisfied with the content of the education provided. There were no reports of 3 = neutral, 2 = somewhat dissatisfied, or 1 = very dissatisfied.

After receiving trauma-informed education through this project, participants were asked to report confidence level on a five-point Likert scale in providing a trauma-informed approach in patient interactions. Fifteen participants (four nursing, 11 LIPs) or almost half (48.4%) of the total reported feeling very confident in providing trauma-informed care. Thirteen (six nursing, seven LIPs) or 41.9% reported feeling moderately confident, while three nursing staff members (9.7%) reported only feeling somewhat confident. No one reported feeling 2 = only slightly confident or 1 = not at all confident in providing a trauma-informed approach in patient interactions.

Confidence level compared to post-educational intervention knowledge test. To discover whether or not confidence level in providing trauma-informed care in patient interactions post-intervention had any relationship to post-intervention knowledge test scores, a Kruskal-Wallis test was performed including all post-survey respondents (N = 31). The three confidence levels reported were 5 = very confident, 4 = moderately confident, and 3 = somewhat confident. The test did not reveal a statistically significant difference in post-intervention knowledge assessment scores across the three reported confidence levels (Gp1, *n* = 3: somewhat confident, Gp2, *n* = 13: moderately confident, Gp3, *n* = 15: very confident), X^2 (2, *n* = 31) = 3.96, p = .138. Although the results were not significant, there may have been a practical difference between the groups, with the "very confident" group scoring a median 10.0 points, the

"moderately confident" group scoring a median 9.0 points, and the "somewhat confident" group scoring a median 7.0 points. SPSS output from this calculation is included in Figure 4.

   Matched pairs confidence level. Due to the very small group within the matched pairs that received trauma-informed training prior to the coordinated educational interventions ($n = 5$), no statistical tests were run comparing confidence level in providing a trauma-informed approach in patient interactions pre- and post-interventions. Three participants indicated a one-point increase in confidence level from "moderately confident" pre-intervention to "very confident" post-intervention. Two participants indicated no change in confidence level, with one reporting feeling "moderately confident" and another feeling "somewhat confident" both pre- and post-intervention.

   Number of interventions compared to post-educational intervention knowledge test. To assess the impact of the number of interventions on the post-intervention knowledge assessment scores, a Mann-Whitney U test was completed. There was only one person who completed one intervention, and five individuals that completed two interventions. While the other 25 completed all three interventions. As such, the post-intervention scores of those who completed one or two interventions (six participants) were compared with those who completed all three (25 participants). This analysis revealed no significant difference in the post-intervention scores between those who completed one or two interventions ($Md = 10$, $n = 6$) and those who completed all three interventions ($Md = 10$, $n = 25$), $U = 78$, $z = .156$, $p = .903$, $r = .03$. See Table 10 for a summary of these results.

   Open-ended questions. Two final questions inquired about any supportive measures or resources staff members had to provide a TIC approach and any barriers they have experienced that hinder this approach. Five participants cited the materials from this project (TED talk,

video, emailed slide presentation, slide presentation and handout from in-person presentation) as being resources they would use to help provide a TIC approach to their patients. Knowledge from the project helped participants to realize the importance of asking permission during physical assessments, keeping an open mind, and operating under the assumption that most patients have experienced some sort of trauma. Others cited using materials from other organizations (professional and community) and conferences as resources. Many reported utilizing other staff members both within the clinic and within the greater university community as supportive measures, with specific mentions of the counseling and mental health staff, clinic nursing staff, student affairs department, and other colleagues (nursing and LIPs) who have received TIC education through this project. One participant referred to screening tools such as the PHQ-2 and PHQ-9 as helpful, while two participants specifically mentioned the online questionnaires filled out by students prior to their first visit for gynecology services, inclusive of questions regarding intimate partner violence and past trauma as well as information on what to expect during a pelvic exam with explanations for each step of the exam. One participant mentioned time with patients as a supportive measure for providing TIC.

With respect to barriers experienced in providing a TIC approach, six participants (three nursing, three LIPs) did not experience or anticipate any barriers. Time constraints and limitations with the amount of time given to see patients was named by several participants (two nursing, six LIPs) as barriers. One LIP mentioned that time limitations can hinder the development of a trusting relationship prior to trauma-specific questions or the physical exam, and one nurse mentioned that signs of trauma can be missed when the clinic is very busy with limited time for each patient. Mental health provider availability was also reported as a barrier to care. In addition, decreased knowledge and understanding of TIC was reported as a barrier by

three participants. A specific comment made referred to poor staff reaction when trauma causes

behaviors and actions in patients that can be defensive or even aggressive. Without an

understanding of trauma, staff may have a negative reaction to signs and symptoms of patient

trauma. The lack of continuity of care in the student population was also cited as a barrier, as

students may see a different provider each visit or they may also seek care outside of the student

health center. Although one does not need to know about prior trauma to provide a TIC

approach, one participant mentioned not knowing about trauma history as a barrier.

Discussion

Reviewing the results and reflecting on the process and outcomes of this project led to

several conclusions reflected in themes from the literature review. In this project, primary care

clinicians' knowledge of TIC approaches based on their post-intervention knowledge assessment

scores increased (p = .001) following participation in the coordinated education. Only one study

reviewed discussed a post-workshop online quiz in which medical students scored an average

grade of 95% (range 60-100%) and 96% (range 58-100%) during the two reported years,

respectively (Pletcher et al., 2019). Additionally, other study participants self-reported increased

knowledge post-intervention (Strait & Bolman, 2017; Goldstein et al., 2018; Pletcher et al.,

2019). Further analyzing the pre- and post- intervention scores revealed that LIPs scored higher

than nursing staff members (p = .046). This could indicate that LIPs are exposed to more

trauma-informed education than nursing staff members, either in formal education or in

continuing education. However, none of the literature reviewed discussed trauma education as it

pertained to LIPs in comparison to nursing. Overall, providing education to all clinicians may

improve their knowledge of trauma-informed approaches which are critical in patient

interactions due to the high percentage of trauma within the greater community.

However, although education increased knowledge on trauma-informed approaches, there is still a lack of trauma-informed training in formal education. In Dichter et al.'s survey (2018), less than a third of responding program directors of U.S. family medicine residency programs reported including TIC in their curriculum. In another survey, only 25% of NPs (N = 188) reported receiving education in undergraduate nursing programs, and 36% received education in their NP graduate programs (Kalmakis et al., 2017). Focus groups from this same survey indicated that the lack of formal education on TIC was particularly concerning (Kalmakis et al., 2017). Mirroring this trend, only one participant in the 39 completed pre-intervention surveys of this project indicated receiving TIC in college. Perhaps, in order to introduce the concepts and create a strong foundation of TIC knowledge, formal education is needed in healthcare curriculum.

Besides formal healthcare education (college, graduate school), trauma training should also be part of ongoing continuing education throughout a career. One exposure to trauma training is not sufficient. Looking specifically at the matched pairs, the knowledge assessment scores of those who received prior trauma-informed training were not statistically different (p = .672) from those who had no prior training post-intervention, indicating that prior training does not reflect competence in the knowledge of trauma concepts. Similarly, students in Goldstein et al.'s (2018) study reported that one-time training was not adequate to master TIC. Eighty-two percent of medical students participating a TIC workshop in Pletcher et al.'s (2019) study believed additional training on TIC in their medical education would be beneficial. Commentary from Earls (2018) also suggested that education should be an ongoing activity. In their expert opinion, Roberts, Chandler, and Kalmakis (2019) also agreed that education was critical for primary care providers to identify needs and provide the appropriate management for trauma-

affected patients. Patients, then, may benefit from their clinicians' receiving continuing education that involves trauma-informed approaches throughout their careers.

Continuing education may also increase clinicians' confidence in their ability to provide TIC. Participants in prior studies (Strait & Bolman, 2017; Goldstein et al., 2018; Kalmakis et al., 2018; Pletcher et al., 2019) expressed increased confidence in meeting the trauma needs of their patients after training, which mirrored the finding of this project where the majority reported feeling very confident (48.4%) or moderately confident (41.9%) in the ability to provide a trauma-informed approach post-intervention. Only 9.7% reported feeling somewhat confident with no reports of feeling only slightly confident or not at all confident. In addition, from the matched pairs, three of the five participants indicated a one-point increase in confidence level from feeling moderately confident pre-intervention to very confident post-intervention. With education leading to increased confidence, clinicians will be more likely to utilize trauma-informed approaches and methods to connect with patients which could then lead to increased patient engagement.

Although three different methods (video, slide presentation, in-person presentation) of education were provided and 80.6% of participants completed all three interventions, over half (54.8%) of participants in this project chose the in-person presentation as being the most helpful in learning the concepts of TIC. This reflected studies that showed NPs (Kalmakis et al., 2017) and first-year residents (Pletcher et al., 2019) preferred in-person teaching. Face-to-face learning, whether by lecture or small group discussion, may be an important part of trauma education as interaction and discussion between individuals may help in learning the specific concepts and skills needed in a trauma-informed approach. However, as clinicians are often busy and not always able to attend in-person training, having a variety of modes available for

continuing education may be the best way for the most clinicians to get exposure to trauma-informed concepts. Although participants found the in-person training as the most helpful among the three interventions, fewer clinicians attended the in-person training in comparison to the other interventions. In addition, most of the participants (90.3%) reported feeling very satisfied with the modes and content of the education provided. Thus, due to time constraints and perhaps, differences in learning styles, trauma-informed education should include varying modes of education, but should certainly include an in-person option.

Finally, as Goldstein et al.'s (2018) study participants found screening tools, instruction, mentorship, and collaborative care to be needed resources for providing TIC, the project participants also reported similar observations. They cited educational materials, other staff members, community resources, and screening tools as being supportive measures in providing a trauma-informed approach. Other surveys have indicated that barriers to care include inadequate resources, a lack of a TIC champion, and lack of time (Goldstein et al., 2018; Dichter et al. ,2018). The participants of this project reported that lack of time, limited mental health provider availability, and the lack of TIC education were barriers experienced in trying to provide a trauma-informed approach. Perhaps by increasing supportive measures and addressing barriers, organizations can foster an increased use of TIC amongst clinicians.

In conclusion, trauma-informed education can increase clinicians' knowledge and awareness of trauma amongst their patients and communities. Formal education is needed to create a strong foundation of trauma concepts in healthcare education, while continuing education is needed throughout a career to refresh clinicians on trauma-informed approaches. Education helps to increase clinicians' confidence in their ability to provide adequate care to trauma-affected populations, which encourages clinicians to use these approaches. Additional

education could also focus on nursing staff as, for reasons unknown, this group might be less exposed to trauma-informed education than LIPs. Education should include a variety of modes but in-person training should be encouraged when available, as face-to-face interaction may be helpful in learning trauma concepts. An organization should be assessed for supportive measures in providing TIC, while barriers to care should be addressed and eliminated.

Strengths and Limitations

 Strengths. Since this project was based in a clinic as opposed to a large hospital setting, education was easily tailored to address specific student healthcare patient needs. Also, as a small-scale project, starting the conversation on TIC was a tool for staff engagement that may encourage leadership to consider adopting a department or organizational-wide TIC approach or encourage individuals to become TIC unit champions. Change will only be addressed and sustained if staff and leadership remain actively involved and committed to a trauma-informed approach. Moreover, as this project focused on the four "R's", key assumptions in a trauma-informed approach, this laid the groundwork for the implementation of the six key principles of a trauma-informed approach. These principles align to ten implementation domains which guide change at multiple levels should this student health center decide to fully adopt a TIC approach (SAMHSA, 2014).

 Another strength of this project was its ability to increase exposure to trauma-informed education for clinicians. At the beginning of the project, only nine clinicians out of 49 eligible staff members (18.4%) had any previous trauma-informed education. At the end of the project, 31 out of 48 eligible staff members completed the post-intervention survey indicating that at least 64.6% of clinicians had now gained some trauma education. This did not account for others that may have accessed the education but did not complete the final surveys. This particular study

design allowed for maximum exposure to the interventions by encouraging clinician choice.

Clinicians accessed education at their pace and according to their preferences by having three

different interventions available from which they could choose. When given the choice, most

clinicians actually chose to participate in two to three interventions, with only one clinician

choosing only one.

Limitations. There were several limitations to this project. As a quasi-experimental pre-

test/post-test design, this project lacked a randomized control group with which to compare

findings, reducing internal validity. Additionally, the participants did not all receive the same

interventions. Rather, they could self-select which education they participated in based on

personal preference, learning style, and time available. Thus, this project design did not

accommodate for the evaluation of different educational modes, as each mode was not only

different with regards to type but also in terms of time spent, with the video taking as little as 16

minutes, while the emailed slide presentation was about 20 minutes and the in-person

presentation about 45 minutes. However, the purpose of the project was to increase knowledge

about TIC through at least one exposure to trauma-informed education, regardless of the mode of

education, which did occur.

In this specific setting, there were approximately 48-49 eligible primary care clinicians

during the course of the project. As this was a convenience sample, it was inherently biased. In

addition, due to the small size and homogenous staff, clinical role was the only demographic

information obtained in both surveys to protect participant identities. As such, even if all

clinicians participated in the project, the results from this small, homogenous group are not

generalizable to all primary care clinicians across various settings. As mentioned prior, for this

population of primary care clinicians, an ideal sample size of around 44 participants was needed.

However, only 39 participated in the pre-intervention surveys, and 31 participated in the post-

intervention surveys, resulting in only 20 matched pairs. This should be considered when

determining the generalizability of the statistical tests run. With limited data derived from the

small samples, there might not have been enough data points to find statistically significant

correlations between pre- and post-intervention knowledge scores. Plus, although the knowledge

assessment test was created for this project with assistance from a known trauma expert, it had

not been validated as a reliable tool to measure the understanding and application of a TIC

approach in a primary care setting. Additionally, as a TIC approach incorporates all staff

members, this practice project was limited in scope as it only focused on clinicians. Engagement

of all employees, including all administrative and support staff, would be needed to adopt an

organizational change (SAMHSA, 2014).

Another limitation was found during data analysis. All participants were asked to use a

unique identifier consisting of the participant's favorite animal, color, and number (e.g.

dogyellow99). This unique identifier was then used to link data between the pre- and post-

surveys for comparison. Some participants forgot the unique identifier they used in the pre-

surveys, and thus, had to wait until they remembered it or try to utilize one they believed was

close so they could complete the post-surveys. This was definitely a barrier to survey

completion as preferences can change over time. Additionally, some participants had very

similar unique identifiers, requiring closer analysis to decipher whether responses were

duplicates or different individuals. Moving forward, future surveys should require a simpler, yet

easy to remember unique identifier that will not change.

Finally, one of the project's additional aims was to measure the confidence level of

clinicians' ability to provide TIC. Although this was asked of everyone who completed the post-

intervention questionnaire, confidence levels were only asked of those who had prior trauma

training in the pre-intervention questionnaire. Measuring how confidence changed from before

to after the educational interventions for all participants could have further contributed to

knowledge. Moving forward, if this project is replicated, the question of confidence or self-

efficacy could be asked both before and after education from all participants.

Clinical Practice Implications and Next Steps

As discussed prior, this project aspired to create a dialogue and staff engagement around

TIC, which ideally would lead to steps for a unit or department to fully adopt a TIC approach.

One way to engage staff is through education. Annual requirements for ongoing TIC education

can be championed throughout the healthcare center for all staff as one exposure to trauma

training may not be sufficient to fully understand the concepts and skills needed in a trauma-

informed approach. Additionally, since LIPs scored higher than nursing staff members in the

knowledge assessment tests, more educational activities could be provided to nursing staff

members to increase trauma awareness. All organizational education provided should include

different modes to accommodate for time constraints and learning preferences, however in-

person training should be encouraged when possible.

This project might also generate interest to research the prevalence of ACEs in the

community as well as the prevalence of resilience factors to combat the effects of trauma. A

pilot study could also be created to trial recommended screening tools such as the Life Event

Checklist or Primary Care PTSD Screen (Substance Abuse and Mental Health Services

Administration – Health Resources and Services Administration Center for Integrated Health

Solutions, n.d.) or a new integrated health history questionnaire that incorporates ACE screening

questions as well as sources of trauma in adulthood could be designed and tested. However, as

SAMHSA (2014) recommends resisting re-traumatization, these tools may also be a triggering source for some patients. Thus, more research is needed to determine if the benefits of screening actually outweigh the potential for re-traumatization.

Additional research could also be completed on the efficacy of TIC educational programs. Different educational modes with respect to knowledge outcomes could be compared in another study. Although the literature and this project suggested that participants prefer in-person education, another study could determine if this is indeed the best way to learn the concepts of TIC or if in-person education should also supplement other educational modes.

Role of the Doctor of Nursing Practice - Advanced Practice Provider

With support from organizational leadership, Doctor of Nursing Practice-Advanced Practice Providers (DNP-APPs) could lead an organizational shift towards adopting a trauma-informed approach. Policies can be reviewed and assessed for trauma awareness as recommended by SAMHSA (2014). Policies around training and workforce development are particularly important, as ongoing training and exposure to TIC could influence clinicians to utilize trauma-informed approaches in all patient encounters, building connections between patients and providers and encouraging patient engagement in their healthcare. In addition, policies could be reviewed with respect to staff and patient safety, including interventions for staff or patients in crisis. There should be supportive plans in place should staff or patients choose to disclose trauma. The process by which students are able to provide feedback and organizational self-evaluation of the comments provided should also be addressed. Continual feedback and self-evaluation are important for an organization to continue to grow and strive to meet patient needs.

DNP-APPs could also serve as organizational TIC champions, creating continuing education appropriate for all staff members, not just clinicians. DNP-APPs could address supportive measures to help encourage a trauma-informed approach while also working to remove barriers to care. Curating a plethora of resources including educational materials, links to informational sites, patient handouts, and connections to community resources such as mental health or sexual assault support groups, a DNP-APP can serve as a hub of information for both staff and patients.

Products of the Scholarly Practice Project

When completed, the final report of this scholarly project will be submitted to the University of Virginia School of Nursing. Project findings will be presented to the Student Health Center: General Medical Services and University of Virginia School of Nursing faculty in March-April of 2020. Educational materials produced (Appendix P) will be available to the School of Nursing as well as the student health primary care center. Additional presentations focusing on a trauma-informed approach for clinicians will be presented to the Surgical Trauma Intensive Care Unit at the University of Virginia Health System during the summer of 2020.

Abstracts were submitted and accepted for poster presentations for the 2020 Virginia Council of Nurse Practitioners Annual Conference in March 2020 and the University of Virginia's 2020 Professional Nursing Staff Organization Evidence-Based Practice Symposium: Idea to Implementation: Celebrating Research and Evidence-Based Practice in April 2020. In addition, a manuscript will be electronically submitted for publication consideration to the *Journal of American College Health*, a bimonthly peer-reviewed public health journal focusing on college health, according to the journal guidelines (Appendix Q). The draft manuscript for publication is located in Appendix R.

References

Bandura, A. (2004). Health Promotion by Social Cognitive Means. *Health Education &*

    Behavior, *31*(2), 143–164. https://doi.org/10.1177/1090198104263660

Centers for Disease Control and Prevention. (2019). Adverse childhood experiences (ACEs).

    Retrieved from

    https://www.cdc.gov/violenceprevention/childabuseandneglect/acestudy/index.html

Dichter, M. E., Teitelman, A., Klusaritz, H., Maurer, D. M., Cronholm, P. F., & Doubeni, C. A.

    (2018). Trauma-informed care training in family medicine residency programs: Results

    from a CERA survey. *Family Medicine*, *50*(8), 617–

    622. https://doi.org/10.22454/FamMed.2018.505481

Duff, B., Massey, D., Gooch, R., & Wallis, M. (2018). The impact of a multimodal education

    strategy (the DeTER program) on nurses' recognition and response to deteriorating

    patients. *Nurse Education in Practice, 21*, 130-135.

    https://doi.org/10.1016/j.nepr.2018.05.011

Dumyati, G., Concannon, C. van Wijngaarden, E., Love, T.M., Graman, P., Pettis,

    A.M….Shelly, M. (2014). Sustained reduction of central line-associated bloodstream

    infections outside the intensive care unit with a multimodal intervention focusing on

    central line maintenance. *American Journal of Infection Control, 42*(7), 723-730.

    https://doi.org/10.1016/j.ajic.2014.03.353

Earls, M. F. (2018). Trauma-Informed Primary Care: Prevention, Recognition, and Promoting

    Resilience. *North Carolina Medical Journal*, *79*(2), 108–

    112. https://doi.org/10.18043/ncm.79.2.108

Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., …

    Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many

    of the leading causes of death in adults. The Adverse Childhood Experiences (ACE)

    Study. *American Journal of Preventive Medicine*, *14*(4), 245–258.

Goldstein, E., Murray-García, J., Sciolla, A. F., & Topitzes, J. (2018). Medical students'

    perspectives on trauma-informed care training. *The Permanente Journal*, *22*, 17–

    126. https://doi.org/10.7812/TPP/17-126

Harvard University Center on the Developing Child. (2019). Toxic stress. Retrieved from

    https://developingchild.harvard.edu/science/key-concepts/toxic-stress/

Kalmakis, K.A., Chandler, G.E., Roberts, S.J., & Leung, K. (2017). Nurse practitioner

    screening for childhood adversity among adult primary care patients: A mixed-method

    study. *Journal of the American Association of Nurse Practitioners, 29,* 35-45. DOI:

    10.1002/2327-6924.12378

Kalmakis, K. A., Shafer, M. B., Chandler, G. E., Aponte, E. V., & Roberts, S. J. (2018).

    Screening for childhood adversity among adult primary care patients. *Journal of the*

    American Association of Nurse Practitioners, *30*(4), 193–

    200. https://doi.org/10.1097/JXX.0000000000000033

Karatekin, C. (2018a). Adverse childhood experiences (ACEs) and help-seeking for health-

    related interventions in young adults. *The Journal of Psychology: Interdisciplinary and*

    Applied, 153(1) 6-22. https://doi-

    org.proxy01.its.virginia.edu/10.1080/00223980.2018.1476316

Karatekin, C. (2018b). Adverse Childhood Experiences (ACEs), Stress and Mental Health in

College Students. *Stress & Health: Journal of the International Society for the Investigation of Stress*, *34*(1), 36–45. https://doi.org/10.1002/smi.2761

Merrick, M.T., Ford, D.C., Ports, K.A., & Guinn, A.S. (2018). Prevalence of adverse childhood experiences from the 2011-2014 behavioral risk factor surveillance system in 23 States. *JAMA Pediatr.* 2018;172(11), 1038–1044. doi:10.1001/jamapediatrics.2018.2537

Oral, R., Ramirez, M., Coohey, C., Nakada, S., Walz, A., Kuntz, A., … Peek-Asa, C. (2016). Adverse childhood experiences and trauma informed care: the future of health care. *Pediatric Research*, *79*(1–2), 227–233. https://doi.org/10.1038/pr.2015.197

Pletcher, B. A., O'Connor, M., Swift-Taylor, M. E., & DallaPiazza, M. (2019). Adverse childhood experiences: A case-based workshop introducing medical students to trauma-informed care. *MedEdPORTAL: The Journal of Teaching and Learning Resources*, *15*, 10803. https://doi.org/10.15766/mep_2374-8265.10803

Roberts, S. J., Chandler, G. E., & Kalmakis, K. (2019). A model for trauma-informed primary care. *Journal of the American Association of Nurse Practitioners*, *31*(2), 139–144. https://doi.org/10.1097/JXX.0000000000000116

Strait, J., & Bolman, T. (2017). Consideration of personal adverse childhood experiences during implementation of trauma-informed care curriculum in graduate health programs. *The Permanente Journal*, *21*, 16–061. https://doi.org/10.7812/TPP/16-061

Substance Abuse and Mental Health Services Administration– Health Resources and Services Administration Center for Integrated Health Solutions (n.d.) Screening tools. Retrieved from https://www.integration.samhsa.gov/clinical-practice/screening-tools#TRAUMA.

Substance Abuse and Mental Health Services Administration. (2014). SAMHSA's concept of trauma and guidance for a trauma-informed approach. Retrieved from

https://store.samhsa.gov/product/SAMHSA-s-Concept-of-Trauma-and-Guidance-for-a-

Trauma-Informed-Approach/SMA14-4884.html

Substance Abuse and Mental Health Services Administration. (2015). Trauma-informed care in

behavioral health services: KAP keys for clinicians. Retrieved from

https://store.samhsa.gov/product/Trauma-Informed-Care-in-Behavioral-Health-

Services/SMA15-4420

Windle, M., Haardorfer, R., Getachew, B. Shah, J., Payne, J., Pillai, D., & Berg, C. (2018). A

multivariate analysis of adverse childhood experiences and health behaviors and

outcomes among college students. *Journal of American College Health, 66*(4), 246-251.

doi:10.1080/07448481.2018.1431892

Yousef, R. H., Salem, M.R., & Mahmoud, A.T. (2020). Impact of implementation of a modified

World Health Organization multimodal hand hygiene strategy in a university teaching

hospital. *American Journal of Infection Control, 43*(3), 249-254.

https://doi.org/10.1016/j.ajic.2019.07.019

Tables

Table 1

Studies on Trauma-Informed Care (TIC) Educational Interventions for Providers Caring for Adults in Primary Care

Reference & Design	Subjects & Setting Period of Data collection	Intervention Related to PICO Control/Comparison	Outcomes Related to PICO	Quality Limitations/Risk of Bias
Dichter, M.E. et al., 2018 Survey	Program directors of U.S. family medicine residency programs that are accredited by the Accreditation Council for Graduate Medical Education (ACGME) and opted to participate in the survey (n = 263); setting – educational institutions (family medicine residency programs) September 2017 – October 2017 (2 months)	Trauma-informed education in family medicine residency curriculum N/A	• Less than a third (27%) of programs included TIC training in their curriculum • Programs that included TIC training exhibited greater confidence in meeting trauma-related needs of patients versus programs that had no TIC training • Biggest barrier to meeting trauma-related patient needs was a lack of a TIC practice champion for those without no TIC curriculum • Biggest barrier to meeting trauma-related patient needs was lack of time for those with TIC curriculum • For programs with TIC curriculum, 97.2% utilized didactics as main teaching method with about 8.5% programs also reporting other methods such as standardized patients, cases or clinical supervision	Level III, C Limitations: nonresponse bias – survey was voluntary so no information collected regarding TIC curriculum in non-responders; voluntary response bias – those who responded may have strong feelings about the questions in the survey; limited sample size – about 50% of all U.S. family medicine residency programs

| Goldstein, E. et al., 2018

Prospective study with a post-educational intervention survey (one group post-test design) | Convenience sample of University of California, Davis medical students from the Summer Institute on Race and Health (n = 20); setting – educational institution

June 2014, June 2015 (month of June for 2 years) | TIC training program (6 hours over 3 days – 2-hour modules consisting of lectures, discussions, and practice)

N/A | • Themes identified as strengths after a TIC training: knowledge, recognition, and understanding of trauma's impact; ability to establish patient safety; increased confidence and comfort to discuss trauma with patients
• Themes identified when exploring situations where TIC would be helpful: recognizing trauma-related medical conditions and recognizing trauma-related mental health conditions
• Themes identified as further needed resources for clinicians to provide TIC: screening tools, instruction/mentorship & practice, & collaborative care
• Themes identified as further needed resources from an organization to provide TIC: medical curriculum & training; coordinated collaborative care; screening tools | Level II, C

Limitations: convenience sample – taken from students opting to attend the Summer Institute on Race and Health – these students have a strong desire to provide care to underserved populations; small sample (n = 20) – not representative of medical student population; social desirability bias - study based on self-report surveys; lacks control; lacks randomization |
| Kalmakis, K.A. et al., 2017

Mixed-method study (cross-sectional, correlational designed | Questionnaire: convenience sample of nurse practitioners who were members of the Massachusetts State NP Organization (n = 188); setting – online | Questionnaire: online survey which measured: knowledge of childhood abuse prevalence and conditions for which a history of childhood abuse would be suspected; rating frequency of screening, perceived role in screening, patient utility if | • When discussing formal education in screening patients for histories of childhood abuse, 47% of responding NPs reported receiving no formal education. Consequently, over half (52%) of NPs surveyed reported they were "not at all" or "only somewhat" confident in their ability to screen adult patients for history of childhood abuse. | Level II, C

Limitations: small sample that is less diverse than national NP statistics – not generalizable due to small size and homogeneity |

questionnaire and focus groups)	1 month (November 2014) Focus groups: Female NPs recruited from questionnaire (n = 12); setting – online 3-month period in 2015 (6 focus groups, each online meeting lasted approximately 60 min.)	screened, and confidence in screening; and NP ACE score and knowledge of someone with a history of childhood trauma outside professional role N/A Focus groups: online NP facilitated meetings – discussed NP's current practices for inquiring about childhood adversity, the benefits of screening patients, NP's role in screening, responses to disclosures, and thoughts about educational programs N/A	• Formal TIC is lacking with only 25% of NPs receiving formal education in undergraduate nursing programs, 36% receiving education in their NP programs, and 27% receiving education via continuing education programs. • Favored ways to learn about screening adult patients for childhood trauma: in-person continuing education programs (78%), online educational modules (53%), small group workshops (46%) • Feedback from surveys produced several themes – the most common theme was the request to teach screenings for childhood abuse in graduate and undergraduate nursing programs • Focus groups found the lack of formal education on childhood abuse concerning, discussing the lack of knowledge of the language used to screen patients and respond to patient experiences.	
Kalmakis, K.A. et al., 2018 Prospective study with a post-educational	Adult patients (n = 71) and NP student interviewers (n = unknown) in a primary care setting (NP owned practice in rural Massachusetts)	Primary: One-on-one ACE screening interviews of the patients conducted by NP students. Secondary: educational intervention with post-interview questionnaire -	The authors reported that after only completing two interviews, NP students reported feeling very comfortable conducting the ACE screening interviews and very confident in their knowledge and ability to screen for ACEs. However, the authors do not display detailed breakdown data extracted from	Level II, C Limitations: since the main focus of this study was on data collected from patients during the interview, all data

| intervention survey (one group post-test design) | 4 weeks in 2017 | Prior to the interviews, the NP students attended two 2-hour educational sessions on TIC covering: introduction to the long-term effects of ACEs on health, the TIC orientation to healthcare, and mock interviewing to learn how to talk to patients about ACEs. NP students then completed post-patient interview questionnaires rating their comfort level with ACE screening, NP confidence in the ability to screen, time spent on screening, and plan for follow-up care.

N/A | the NP student questionnaires within the article for scrutiny. | was focused on the interview outcomes – no demographic data was collected on the NP student interviewers – in this respect, the only data collected on the NP students was based on their post-interview surveys; there is no mention of how many NP student interviewers participated and their backgrounds; a detailed breakdown of items on the NP questionnaire were not provided to be critically analyzed; NP students were conducting the ACE screening interviews – as novices in a provider role, they may be lacking in patient-provider communication skills |
| Pletcher, B.A. et al., 2019 | First year medical students (n = 535), setting – educational institution | Mandatory 3-hour ACE workshop integrated into a new, required health equity and social justice | • Data extracted from academic year 2018-2019 evaluations surveys, indicates that medical students believed their knowledge and skills | Level II, C

Limitations: timing of workshop coincided |

Prospective study with a post-educational intervention survey (one group post-test design)	3 years – academic years 2016-2017, 2017-2018, 2018-2019	course – included a didactic session on the science and health consequences of ACEs and best practices for TIC and facilitated case discussion in small groups exploring an ACE screening tool, and a resilience questionnaire N/A	improved to a considerable degree on the following objectives: describing the physical and mental health consequences of ACEs, discussing the use of the ACE survey in the medical home, discussing the impact of resilience on mitigating ACEs, and describing how TIC benefits patients • Of the components of the ACE workshop, the effectiveness of the facilitator in small group activities was rated most favorably by students, indicating that a strong facilitator contributed to their change in attitudes or perspectives related to ACEs • A large majority (82%) reported feeling more comfortable conducting an ACE screening in clinical care and believed that additional training on ACEs is needed in medical education.	with other course exams – students wanted more time to explore the content without worrying about other course requirements; mandatory course was during the 1st year of medical school – without ongoing education, students may forget core concepts of ACEs once in clinical practicum
Strait, J. & Bolman, T., 2017 Prospective study with a pre- and post-educational intervention survey (one	Students (n = 967) from 9 health professional programs including doctor of osteopathy, doctor of podiatric medicine, doctor of optometry, doctor of dental medicine, doctor of physical therapy, doctor of	Interprofessional education course focused on ACEs and TIC – teams of at least nine, with at least one student from each health profession, gathered to work through healthcare cases with small group discussion facilitated by a proctor; on top of discussion each	• Due to the pre-test post-test design, there were inconsistent responses to the surveys, resulting in 169 students who responded to both. • When asked, "How likely will you be to administer and assess an ACE questionnaire for your patients?" there was a substantial increase in students who responded "extremely likely" post-education (42%) versus pre-education (13.6%). In addition,	Level II, C Limitations: small sample - as surveys were not mandatory for participants, only 17.5% of those who took the course completed both pre- and post-surveys, leading to lack of

| group pre-test post-test design) | veterinary medicine, doctor of pharmacy, master of science in nursing, master of science in physician assistant studies; setting – educational institutions (2 different healthcare campuses)

Three 2-hour sessions, 1 night a week for 3 weeks | session provided education: 1st session – lecture, 2nd session – video, 3rd session – case role-play; each group also created a fact sheet re: ACEs and TIC aimed at the general public

N/A | less students responded "uncertain what this is" post-education (0.6%) versus pre-education (33.1%), indicating they had a greater understanding of ACEs and TIC given their curriculum.
• Confidence in knowing how to help patients who have disclosed trauma increased post-education as predicted by the authors.
• Students who opted to voluntarily assess their own ACE score, depicted a greater familiarity and understanding of ACE and TIC. | generalizability to the student sample and greater population; due to IRB restrictions in what was approved, there was no data collected on students' own ACE scores in relation to their familiarity and understanding of ACE and TIC and no data on students' comfort level in assessing for ACEs |

Table 2

Articles on Trauma-Informed Care Educational Interventions for Providers Caring for Adults in Primary Care

Reference	Summary of Relevant Material
Earls, M., (2018) Journal commentary	• Trauma-informed primary care practices integrate knowledge of trauma into policies and procedures. All staff and leadership must be involved in developing a primary practice where TIC is infused within the organizational structure. • Integrated collaborative care with mental health professionals is particularly effective when caring for trauma patients. • Key points of creating a TIC primary practice: communication with families in respectful and supportive ways, education of staff, creation and support of a healthy office environment, and implementation using a quality improvement approach • Staff education and training is an ongoing activity that should consist of understanding: the impact of trauma, the importance of addressing trauma in primary care, the importance of working with families, the importance of cultural sensitivity
Roberts, S.J., Chandler, G.E., & Kalmakis, K., 2019 Expert opinion	• A model for trauma-informed primary care should integrate key elements of TIC: recognition, realization, response, respect, and resilience. • The proposed model for integrating a trauma-informed lens in primary care has five components: 1) screening and trauma recognition, 2) understanding the health effects of trauma, 3) patient-centered communication and care, 4) emphasizing emotional safety and avoiding triggers, and 5) knowledge of helpful treatment for trauma patients. • In order for the first step, screening and trauma recognition, to be effective, primary care providers must be educated in TIC in order to feel confident in their ability to incorporate this approach into their practice. All patients must be screened in order to identify patient needs and provide the appropriate referrals and resources.

Table 3

Demographic Characteristics of a Sample of Primary Care Clinicians Participating in Pre-

Intervention Surveys (N = 39)

Characteristic	*n*	%
Clinical Role		
Licensed Independent Practitioner	21	53.8
Nursing Staff	18	46.2
Exposure to Prior Trauma-Informed Education		
No Prior Exposure	30	76.9
Prior Trauma Education	9	23.1

Table 4

Demographic Characteristics of a Sample of Primary Care Clinicians Participating in Post-

Intervention Surveys (N = 31)

Characteristic	*n*	%
Clinical Role		
Licensed Independent Practitioner	18	58.1
Nursing Staff	13	41.9

Table 5

Demographic Characteristics of a Sample of Primary Care Clinicians Participating in Pre- and Post-Intervention Surveys (N = 20)

Characteristic	*n*	%
Clinical Role		
Licensed Independent Practitioner	11	55.0
Nursing Staff	9	45.0
Exposure to Prior Trauma-Informed Education		
No Prior Exposure	15	75.0
Prior Trauma Education	5	25.0

Table 6

*Pre-Intervention Knowledge Assessment Scores of all Participants (*N = 39*)*

Variable	*n*	*Md (IQR)*
Participants	39	8 (2.00)
Prior trauma training		
Yes	9	9 (2.50)
No	30	8 (2.00)
Clinical role		
LIP	21	9 (1.00)
Nursing	18	8 (1.25)

Table 7

*Pre-Intervention Knowledge Assessment Scores of Matched Pairs (*n = 20*)*

Variable	*n*	*Md (IQR)*
Participants	20	8 (2.00)
Prior trauma training		
Yes	5	9 (2.50)
No	15	8 (2.00)
Clinical role		
LIP	11	9 (1.00)
Nursing	9	7 (2.00)

Table 8

*Post-Intervention Knowledge Assessment Scores of Matched Pairs with Significance (*n=20)

Variable	n	Md (IQR)	p-value
Prior trauma training			
Yes	5	10 (0.00)	.672
No	15	10 (2.00)	
Clinical role			
LIP	11	10 (1.00)	.046
Nursing	9	10 (3.00)	

Note. Mann-Whitney U test used, significance set at $p < 0.05$. *p*-value was calculated using exact *p*-value.

Table 9

Point Change in Knowledge Assessment Scores of Matched Pairs from Pre- to Post-Intervention

*with Significance (*n=20)

Variable	n	Md (IQR)	p-value
Prior trauma training			
Yes	5	1 (2.50)	.866
No	15	1 (3.00)	
Clinical role			
LIP	11	1 (2.00)	.201
Nursing	9	1 (3.00)	

Note. Mann-Whitney U test used, significance set at $p < 0.05$. p-value was calculated using exact p-value.

Table 10

Post-Intervention Knowledge Assessment Scores of all Participants with Significance (N=31)

Variable	n	Md (IQR)	p-value
Number of interventions			
1 or 2 interventions	6	10 (2.00)	0.903
3 interventions	25	10 (1.00)	

Note. Mann-Whitney U test used, significance set at $p < 0.05$. *p*-value was calculated using exact *p*-value.
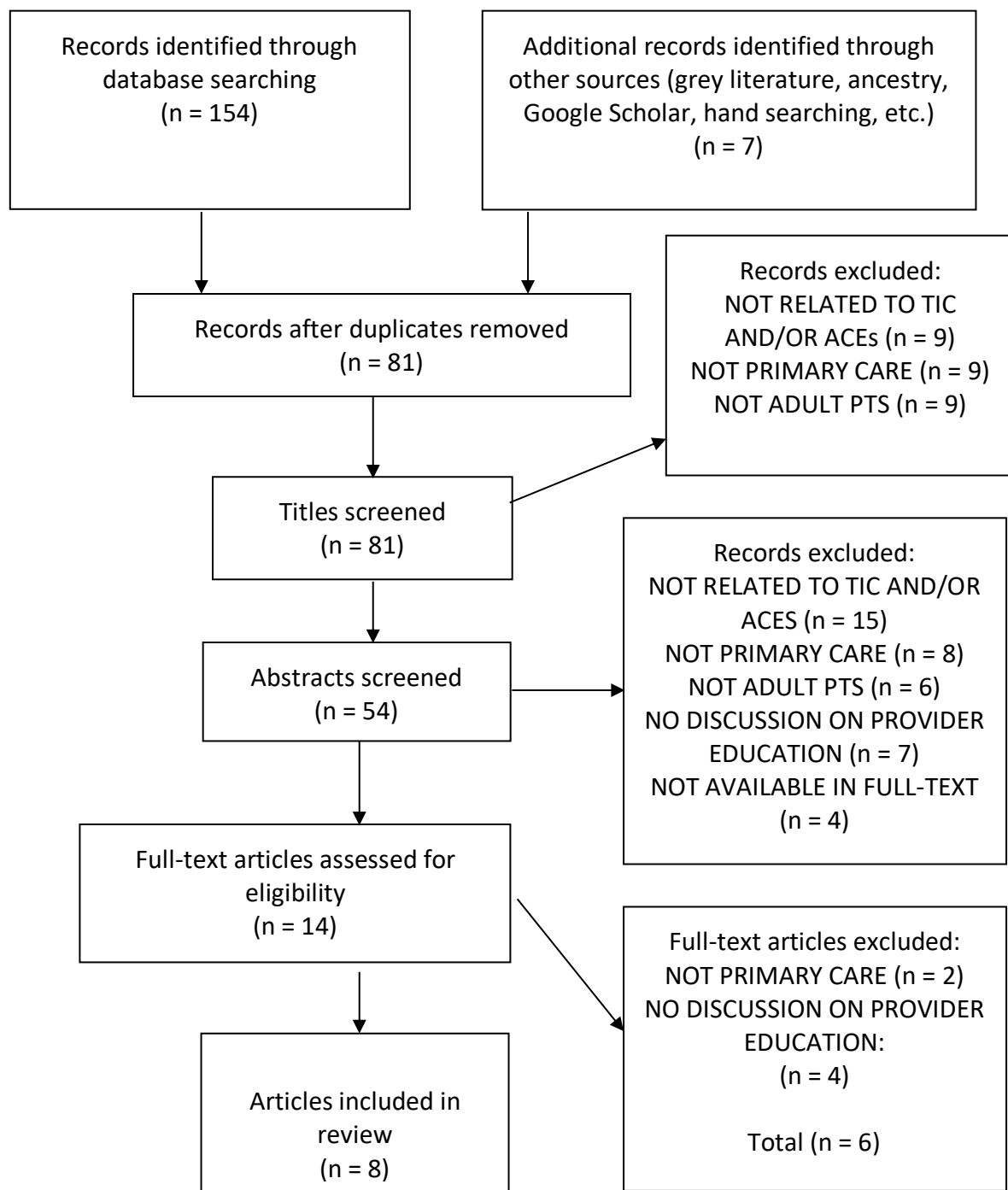
Figures
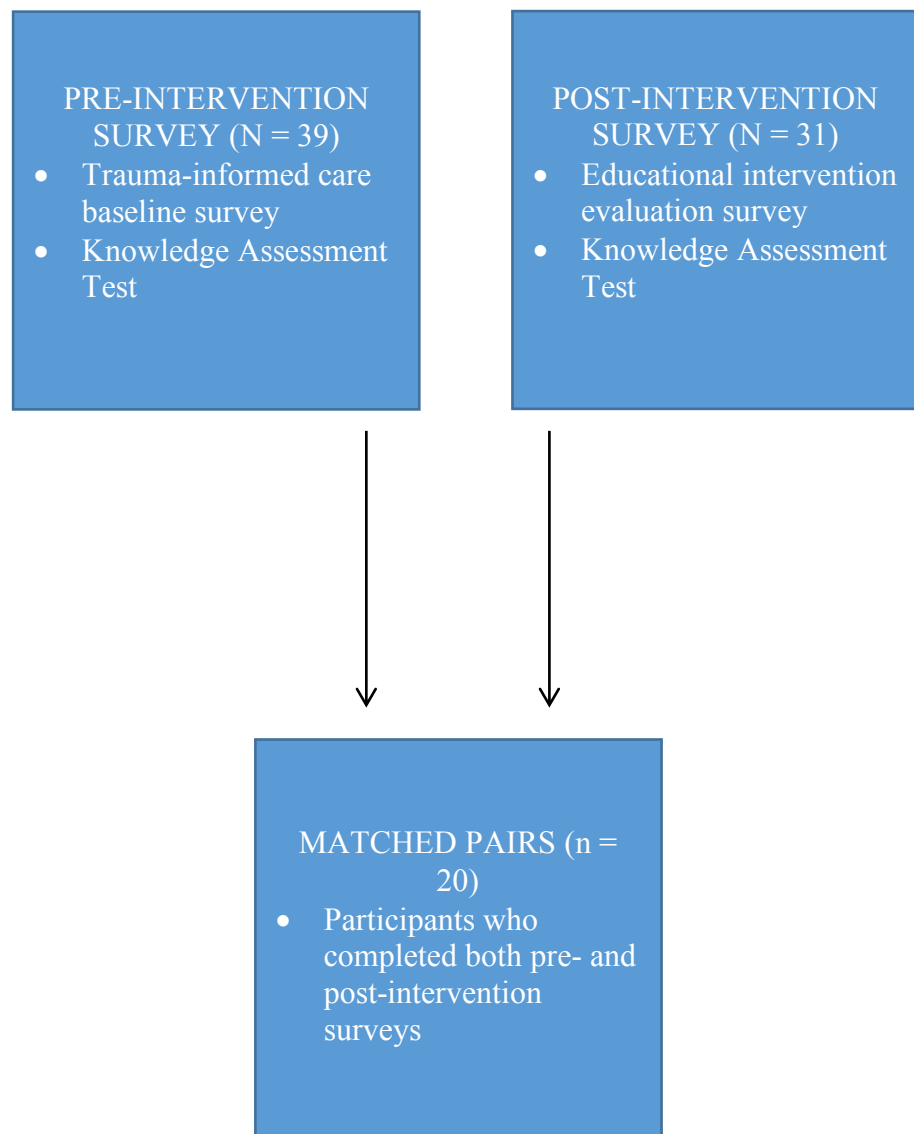

Figure 1. Article flow diagram.

Figure 2.   Matched pairs diagram. This figure illustrates the two groups from which the matched

pairs were found.

Wilcoxon Signed Ranks Test

Descriptive Statistics

	N	25th	Percentiles 50th (Median)	75th
Pretest	20	7.0000	8.0000	9.0000
Posttest	20	9.0000	10.0000	10.0000

Ranks

		N	Mean Rank	Sum of Ranks
Posttest - Pretest	Negative Ranks	2[a]	5.00	10.00
	Positive Ranks	15[b]	9.53	143.00
	Ties	3[c]		
	Total	20		

a. Posttest < Pretest
b. Posttest > Pretest
c. Posttest = Pretest

Test Statistics[a]

	Posttest - Pretest
Z	-3.219[b]
Asymp. Sig. (2-tailed)	.001

a. Wilcoxon Signed Ranks Test
b. Based on negative ranks.

Figure 3. Wilcoxon Signed Rank test SPSS output comparing pre- and post-intervention knowledge assessment scores.

Independent-Samples Kruskal-Wallis Test

PosttestALL across PostConfALL

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of PosttestALL is the same across categories of PostConfALL.	Independent-Samples Kruskal-Wallis Test	.138	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .050.

Independent-Samples Kruskal-Wallis Test Summary

Total N	31
Test Statistic	3.963[a,b]
Degree Of Freedom	2
Asymptotic Sig.(2-sided test)	.138

a. The test statistic is adjusted for ties.
b. Multiple comparisons are not performed because the overall test does not show significant differences across samples.

Pairwise Comparisons of PostConfALL

Sample 1-Sample 2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.[a]
somewhat confident-moderately confident	27.500	7.172	1.116	.132	.397
somewhat confident-very confident	35.000	8.126	1.538	.062	.186
moderately confident-very confident	128.000	20.748	1.470	.071	.212

Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same.

 Asymptotic significances (1-sided tests) are displayed. The significance level is .05.
a. Significance values have been adjusted by the Bonferroni correction for multiple tests.

Report

PosttestALL

PostConfALL	N	Median
somewhat confident	3	7.0000
moderately confident	13	9.0000
very confident	15	10.0000
Total	31	10.0000

Figure 4. Kruskal-Wallis test SPSS output comparing post-intervention knowledge assessment scores among confidence levels.

Appendix A

Formal Consent from ███████████████ Student Health Center

8/1/2019 RE: DNP Project Permission - Gallanosa, Kathryn M *HS

RE: DNP Project Permission

Hayden, Meredith (meh5e) <meh5e@virginia.edu>

Tue 7/23/2019 4:58 PM

To:Gallanosa, Kathryn M (kmg3p) <kmg3p@virginia.edu>; Cc: Ahern, Karen A <kaa7p@virginia.edu>;

Hello May,
You have permission to do this project at Student Health.
I do not think I need to be listed on your protocol, but I would like to receive a copy of it. Thanks,
Dr. Hayden

Meredith Hayden, MD Associate Executive Director

Office 434.924.1537
Clinic 434.924.3915
Asst Sara Gouldman 434.243.3740

University of Virginia Department of Student Health 400 Brandon Avenue
Box 800760
Charlottesville, VA 22908

-----Original Message-----
From: Gallanosa, Kathryn M *HS <KMG3P@hscmail.mcc.virginia.edu> Sent: Tuesday, July 23, 2019 1:23 PM
To: Hayden, Meredith (meh5e) <meh5e@virginia.edu>
Cc: Ahern, Karen A (kaa7p) <kaa7p@virginia.edu>
Subject: DNP Project Permission

Dr. Hayden,

I am in the process of putting in my project protocol into the IRB. Would you like me to add you and/or Karen Ahern into the protocol so that you may have access to it?

I have spoken to Karen's contact at the IRB-HSR, and she recommended that I apply to the IRB-SBS, so that is where I created my protocol. Also, the protocol asks for proof of permission. As such, would you be able to provide written permission (email is fine) that I conduct this project: Educational Interventions for Primary Care Providers to Promote a Trauma-Informed Care Approach in a Student Health Setting??

Thank you very much.

Respectfully,

8/1/2019 RE: DNP Project Permission - Gallanosa, Kathryn M *HS

May

Kathryn May Gallanosa, MSN, RN, CNL

Appendix B

Baseline Trauma-Informed Education Questionnaire

1. Please create a unique identifier for yourself that encompasses your FAVORITE ANIMAL + COLOR + NUMBER. For example: dogyellow99. This will ensure that your data is linked among the surveys.
    a. Your unique identifier: _____

2. What is your clinical role?
    a. Nursing (nursing assistant, licensed practical nurse, registered nurse)
    b. Licensed Independent Practitioner (physician, nurse practitioner)

3. Have you ever received trauma-informed education before?
    a. Yes
    b. **No – if no, you may skip the rest of the questions in this section**

4. If yes, what was the setting for the trauma-informed education you received? PLEASE SELECT ALL THAT APPLY.
    a. College (e.g. community college, undergraduate institution)
    b. Graduate school
    c. Employer mandated/required education
    d. Self-selected continuing education

5. What was the media or mode of the education? PLEASE SELECT ALL THAT APPLY.
    a. Lecture or speaker with slide presentation
    b. Handout
    c. Poster presentation
    d. Webinar/online module(s)
    e. Online forum
    f. Video
    g. Case study with small group discussion
    h. Other (please specify/comment):

6. How satisfied were you with the media or mode of trauma-informed education received?
    a. Very satisfied
    b. Somewhat satisfied
    c. Neutral
    d. Somewhat dissatisfied
    e. Very dissatisfied

7. How satisfied were you with the content of the education received?
    a. Very satisfied
    b. Somewhat satisfied
    c. Neutral
    d. Somewhat dissatisfied

  e. Very dissatisfied

8. Based on your past education, how confident are you in your ability to provide a trauma-informed approach in patient interactions?
  a. Very confident
  b. Moderately confident
  c. Somewhat confident
  d. Only slightly confident
  e. Not at all confident

Appendix C

Trauma-Informed Care Knowledge Assessment

1. Please include your created unique identifier that encompasses your FAVORITE
   ANIMAL + COLOR + NUMBER. For example: dogyellow99. This will ensure that
   your data is linked among the surveys.
      a. Your unique identifier: _____

2. What is your clinical role?
      a. Nursing (nursing assistant, licensed practical nurse, registered nurse)
      b. Licensed Independent Practitioner (physician, nurse practitioner)

3. The following are all signs and symptoms of trauma that a health care professional may
   observe during a patient encounter EXCEPT:
      a. Agitation, uncooperative with treatment
      b. Startling easily, not wanting to be touched
      c. Tremors, slow heart rate
      d. Anxiety, panic attacks

4. Trauma-informed care is an approach that:
      a. Seeks to revisit and reflect upon a patient's past trauma in order to begin the
         healing process
      b. Seeks to understand trauma through an individual's relationships with
         community, culture, and the greater society
      c. Involves the training of only those in direct patient care roles
      d. Focuses solely on patients with trauma histories that have led to chronic health
         issues

5. Which of the following is not considered one of the main principles in trauma-informed
   care?
      a. Realizing the widespread impact of trauma
      b. Recognizing the signs and symptoms of trauma
      c. Responding by fully integrating knowledge into policies, procedures, and
         practices
      d. Reflecting on past trauma to better understand the trajectory of unhealthy
         behaviors to disease

6. Trauma-informed care actions for clinicians in patient encounters include all of the
   following EXCEPT:
      a. Asking permission before you begin a physical exam
      b. Move along to collect other health information if a patient does not want to
         answer sexual history questions
      c. Reviewing the patient's chart for trauma-related documentation
      d. Asking the patient to shift or move clothing out of the way instead of doing it
         yourself

7. Adverse childhood experiences (ACEs) can affect health through the following mechanism:
   a. Elevated heart rate causes damage to heart muscle
   b. Prolonged stress response disrupts neurodevelopment
   c. Anxious feelings affect normal bowel motility
   d. Hyperventilation causes changes in the lungs

8. Examples of adverse childhood experiences (ACEs) include all of the following EXCEPT:
   a. Parent or household member who was incarcerated
   b. Sexual abuse
   c. Failing a grade in school
   d. Domestic violence

9. What percentage of the general population in the U.S. has suffered from one or more ACE?
   a. 20%
   b. 40%
   c. 60%
   d. 75%

10. Health risk behaviors associated with past trauma include all of the following EXCEPT:
    a. Skipping meals
    b. Tobacco use
    c. Overeating
    d. Unprotected sexual activity

11. Patients who have experienced trauma are NOT at increased risk for:
    a. Heart disease
    b. Cancer
    c. Kidney disease
    d. Lung disease

12. During a routine examination, a patient becomes agitated, uncooperative, and states that they want to leave. From a trauma-informed care perspective, what is most likely occurring with this patient?
    a. The patient is upset because they feel that they had been waiting too long to be seen by a provider.
    b. The patient is experiencing an emotional trigger from a past event.
    c. The patient does not like authority figures.
    d. The patient is stressed by school and work commitments.

13. Self-awareness of trauma history is most helpful for clinical staff to:
    a. Prevent burnout
    b. Reduce the surprise of their own trauma being triggered

      c.   Reduce the risk of compassion fatigue

      d.   Prevent secondary trauma

14. Who should be trained to recognize trauma behaviors?
      a.   Front desk staff
      b.   Nursing staff
      c.   Providers
      d.   All of these should be trained to recognize trauma behaviors

Appendix D

Post-Intervention Questionnaire

1. Please create a unique identifier for yourself that encompasses your FAVORITE

    ANIMAL + COLOR + NUMBER. For example: dogyellow99. This will ensure that

    your data is linked among the surveys.

    a. Your unique identifier: _____

2. What is your clinical role?

    a. Nursing (nursing assistant, licensed practical nurse, registered nurse)

    b. Licensed Independent Practitioner (physician, nurse practitioner)

3. Which educational intervention(s) did you participate in? SELECT ALL THAT

    APPLY.

    a. Slide presentation

    b. Case study with discussion

    c. Video

4. Which educational intervention was the most helpful in learning the concepts of trauma-

    informed primary care?

    a. Slide presentation

    b. Case study with discussion

    c. Video

5. How satisfied are you with the media or mode of trauma-informed education received

    through this project?

    a. Very satisfied

    b. Somewhat satisfied

  c. Neutral

  d. Somewhat dissatisfied

  e. Very dissatisfied

6. How satisfied are you with the content of the education received through this project?

  a. Very satisfied

  b. Somewhat satisfied

  c. Neutral

  d. Somewhat dissatisfied

  e. Very dissatisfied

7. After receiving education through this project, how confident are you in your ability to provide a trauma-informed approach in patient interactions?

  a. Very confident

  b. Moderately confident

  c. Somewhat confident

  d. Only slightly confident

  e. Not at all confident

8. Please describe any supportive measures/resources you have to provide a trauma-informed care approach.

  a. _____

9. Please describe any barriers you have experienced in providing a trauma-informed care approach.

  a. _____

At end of survey:

We thank you for your time spent taking this survey. Your response has been recorded.

If you have completed the survey, please email Kathryn May Gallanosa at kmg3p@virginia.edu to receive your $5 coffee card and be entered into the raffle for a $100 gift card for participating in this project.

Appendix E

Introductory Recruitment Email

Dear Primary Care Clinician,

My name is Kathryn May Gallanosa ("May"), and I am a Doctor of Nursing Practice (DNP) student from the University of Virginia and a RN in the ████████████████ at █████████ ██████. For those unfamiliar with the DNP degree, it is a clinical degree focusing on leadership and the translation of research into clinical practice. DNP students assess research, evaluate the impact of that research on healthcare, and, when necessary, make changes to enhance the quality of care and improve patient outcomes.

This Fall, I will be completing a Scholarly Project that focuses on providing a trauma-informed approach in a primary care student health setting.

Background:
According to the Substance Abuse and Mental Health Services Administration (SAMHSA, 2014):

> Individual trauma results from an event, series of events, or set of circumstances that is experienced by an individual as physically or emotionally harmful or life threatening and that has lasting effects on the individual's functioning and mental, physical, social, emotional, or spiritual well-being (p. 7)

Around 60% of the general population has suffered from trauma in childhood that may be affecting their functioning and mental and/or physical health (Merrick, Ford, Ports, & Guinn, 2018). More specifically, college students with past trauma have experienced higher levels of mental health symptoms and illnesses as well as increased health risk behaviors such as tobacco use, substance abuse, and poor nutrition than those with no history of trauma (Windle et al., 2018, Karatekin, 2018a; Karatekin, 2018b). As such, it is important for primary care providers in a student health setting to be mindful of past trauma when delivering care.

Project: Educational Interventions for Primary Care Providers to Promote a Trauma-Informed Care Approach in a Student Health Setting

The purpose of this project will be to provide coordinated education to promote primary care clinicians' understanding of trauma-informed approaches in a student health setting. Additional aims of the project include measuring clinician satisfaction with educational interventions, determining educational preferences, measuring confidence in providing trauma-informed care post-intervention, and measuring knowledge assessment post-intervention. This project will consist of a pre-intervention survey, three educational opportunities on trauma-informed care (video, slide presentation, and case study with discussion), and a post-intervention survey. The surveys (2) should take about 10-15 minutes to complete. All survey responses will be kept confidential, and only aggregate data will be reported. Each educational activity (video, case study, slide presentation) will take roughly 20 to 45 minutes of time. The video is about 16 minutes long. The slide presentation will take about 20-25 minutes to review. The case study

and discussion will be roughly 45 minutes and will be presented during a regularly scheduled staff meeting. The time frame projected is October to December. Recruitment will begin in October. Pre-intervention surveys will be sent out in October. Educational activities will occur in October and November with the post-intervention survey sent out in December.

After completing the post-intervention survey, all participants will receive a five-dollar gift card from a local coffee shop as well as entry into a raffle for a $100 gift card.

Thank you for your consideration in participating in this project. If you have any questions, please feel free to contact me.

Sincerely,

May Gallanosa, MSN, RN, FNP-BC, CNL
Kmg3p@virginia.edu

References:

Karatekin, C. (2018a). Adverse childhood experiences (ACEs) and help-seeking for health-related interventions in young adults. *The Journal of Psychology: Interdisciplinary and Applied, 153*(1) 6-22. https://doi-org.proxy01.its.virginia.edu/10.1080/00223980.2018.1476316

Karatekin, C. (2018b). Adverse Childhood Experiences (ACEs), Stress and Mental Health in College Students. *Stress & Health: Journal of the International Society for the Investigation of Stress*, *34*(1), 36–45. https://doi.org/10.1002/smi.2761

Substance Abuse and Mental Health Services Administration. (2014). SAMHSA's concept of trauma and guidance for a trauma-informed approach. Retrieved from https://store.samhsa.gov/product/SAMHSA-s-Concept-of-Trauma-and-Guidance-for-a-Trauma-Informed-Approach/SMA14-4884.html

Windle, M., Haardorfer, R., Getachew, B. Shah, J., Payne, J., Pillai, D., & Berg, C. (2018). A multivariate analysis of adverse childhood experiences and health behaviors and outcomes among college students. *Journal of American College Health, 66*(4), 246-251. doi:10.1080/07448481.2018.1431892

Appendix F

Follow-up Recruitment Email

Dear Primary Care Clinician,

My name is May Gallanosa, and I am a DNP student implementing an educational project at Elson Student Health focused on trauma-informed care approaches in a primary care setting. The purpose of this project will be to provide coordinated education to promote primary care clinicians' understanding of trauma-informed approaches in a student health setting. Additional aims of the project include measuring clinician satisfaction with educational interventions, determining educational preferences, measuring confidence in providing trauma-informed care post-intervention, and measuring knowledge assessment post-intervention. I have been present around the clinic for the past couple of weeks, so you may have seen me around. Please feel free to ask me any questions you may have about the project either in person or you may email me at kmg3p@virginia.edu .

This is a follow-up email reminding you of the project and inviting you to participate. After completing the post-intervention survey, all participants will receive a five-dollar gift card from a local coffee shop as well as entry into a raffle for a $100 gift card.

If you are interested, please click on the link below to begin the initial survey:

Trauma-informed care for primary care providers – INITIAL SURVEY

If the above link does not work, please copy and paste the following link into your browser:

https://virginiahsd.co1.qualtrics.com/jfe/form/SV_9yFF88TvDO3HyqF

Please see the initial email below for a more detailed description of the project:

Dear Primary Care Clinician,

My name is Kathryn May Gallanosa ("May"), and I am a Doctor of Nursing Practice (DNP) student from the University of Virginia and a RN in the ███████████████ at ██████████ ██████. For those unfamiliar with the DNP degree, it is a clinical degree focusing on leadership and the translation of research into clinical practice. DNP students assess research, evaluate the impact of that research on healthcare, and, when necessary, make changes to enhance the quality of care and improve patient outcomes.

This Fall, I will be completing a Scholarly Project that focuses on providing a trauma-informed approach in a primary care student health setting.

Background:
According to the Substance Abuse and Mental Health Services Administration (SAMHSA,

2014):

> Individual trauma results from an event, series of events, or set of circumstances that is experienced by an individual as physically or emotionally harmful or life threatening and that has lasting effects on the individual's functioning and mental, physical, social, emotional, or spiritual well-being (p. 7)

Around 60% of the general population has suffered from trauma in childhood that may be affecting their functioning and mental and/or physical health (Merrick, Ford, Ports, & Guinn, 2018). More specifically, college students with past trauma have experienced higher levels of mental health symptoms and illnesses as well as increased health risk behaviors such as tobacco use, substance abuse, and poor nutrition than those with no history of trauma (Windle et al., 2018, Karatekin, 2018a; Karatekin, 2018b). As such, it is important for primary care providers in a student health setting to be mindful of past trauma when delivering care.

Project: Educational Interventions for Primary Care Providers to Promote a Trauma-Informed Care Approach in a Student Health Setting

The purpose of this project will be to provide coordinated education to promote primary care clinicians' understanding of trauma-informed approaches in a student health setting. Additional aims of the project include measuring clinician satisfaction with educational interventions, determining educational preferences, measuring confidence in providing trauma-informed care post-intervention, and measuring knowledge assessment post-intervention. This project will consist of a pre-intervention survey, three educational opportunities on trauma-informed care (video, slide presentation, and case study with discussion), and a post-intervention survey. The surveys (2) should take about 10-15 minutes to complete. All survey responses will be kept confidential, and only aggregate data will be reported. Each educational activity (video, case study, slide presentation) will take roughly 20 to 45 minutes of time. The video is about 16 minutes long. The slide presentation will take about 20-25 minutes to review. The case study and discussion will be roughly 45 minutes and will be presented during a regularly scheduled staff meeting. The time frame projected is from October to December. Recruitment will begin in October. Pre-intervention surveys will be sent out in October. Educational activities will occur in October and November with the post-intervention survey sent out in December.

After completing the post-intervention survey, all participants will receive a five-dollar gift card from a local coffee shop as well as entry into a raffle for a $100 gift card.

Thank you for your consideration in participating in this project. If you have any questions, please feel free to contact me.

Sincerely,

May Gallanosa, MSN, RN, FNP-BC, CNL
Kmg3p@virginia.edu

References:

Karatekin, C. (2018a). Adverse childhood experiences (ACEs) and help-seeking for health-
        related interventions in young adults. *The Journal of Psychology: Interdisciplinary and
        Applied, 153*(1) 6-22. https://doi-
        org.proxy01.its.virginia.edu/10.1080/00223980.2018.1476316

Karatekin, C. (2018b). Adverse Childhood Experiences (ACEs), Stress and Mental Health in
        College Students. *Stress & Health: Journal of the International Society for the
        Investigation of Stress*, *34*(1), 36–45. https://doi.org/10.1002/smi.2761

Substance Abuse and Mental Health Services Administration. (2014). SAMHSA's concept of
        trauma and guidance for a trauma-informed approach. Retrieved from
        https://store.samhsa.gov/product/SAMHSA-s-Concept-of-Trauma-and-Guidance-for-a-
        Trauma-Informed-Approach/SMA14-4884.html

Windle, M., Haardorfer, R., Getachew, B. Shah, J., Payne, J., Pillai, D., & Berg, C. (2018). A
        multivariate analysis of adverse childhood experiences and health behaviors and
        outcomes among college students. *Journal of American College Health, 66*(4), 246-251.
        doi:10.1080/07448481.2018.1431892

Appendix G

Educational Intervention #1: TED Talk Video Email

Dear Primary Care Clinician,

My name is May Gallanosa, and I am a DNP student implementing an educational project at Elson Student Health. The purpose of this project is to provide coordinated education to promote primary care clinicians' understanding of trauma-informed approaches in a student health setting. The first educational intervention in this project consists of a video discussing Adverse Childhood Experiences (ACEs). This video is a TED talk by Nadine Burke Harris, MD, MPH, FAAP, a pediatrician and current Surgeon General for the state of California. You may view this video at your own pace. It is 15 minutes and 59 seconds long. Please click on the link below to view the video:

How Childhood Trauma Affects Health Across a Lifetime
https://www.ted.com/talks/nadine_burke_harris_how_childhood_trauma_affects_health_across_a_lifetime?language=en#t-942419

*If you have not already done so, please complete the initial survey of the project by clicking the link below **BEFORE** watching the video.

Trauma-informed care for primary care providers – INITIAL SURVEY

If the above link does not work, please copy and paste the following link into your browser:

https://virginiahsd.co1.qualtrics.com/jfe/form/SV_9yFF88TvDO3HyqF

You may see me around the clinic, and please feel free to ask me any questions you have about the project either in person or via email at kmg3p@virginia.edu .
After completing the post-intervention survey, all participants will receive a five-dollar gift card from a local coffee shop as well as entry into a raffle for a $100 gift card.
Thank you for participating.

Respectfully,

May Gallanosa, MSN, RN, FNP-BC, CNL
kmg3p@virginia.edu

Appendix H

Educational Intervention #2: Slide Presentation Email

Dear Primary Care Clinician,

My name is May Gallanosa, and I am a DNP student implementing an educational project at Elson Student Health. The purpose of this project is to provide coordinated education to promote primary care clinicians' understanding of trauma-informed approaches in student health settings.

The second educational intervention in this project is a short PowerPoint presentation entitled, "Promoting a Trauma-Informed Care Approach for Primary Care Clinicians: Background and Basics." The presentation is attached to this email, and you can view it at your leisure. It should take about 15-20 minutes to read through the slides.

*If you have not already done so, please complete the initial survey of the project by clicking the link below **BEFORE** reviewing the PowerPoint presentation.

Trauma-informed care for primary care providers – INITIAL SURVEY

If the above link does not work, please copy and paste the following link into your browser:

https://virginiahsd.co1.qualtrics.com/jfe/form/SV_9yFF88TvDO3HyqF

Also if you have not already done so, feel free to view the following video which was the first educational intervention of the project. This video discusses Adverse Childhood Experiences (ACEs). This video is a TED talk by Nadine Burke Harris, MD, MPH, FAAP, a pediatrician and current Surgeon General for the state of California. You may view this video at your own pace. It is 15 minutes and 59 seconds long. Please click on the link below to view the video:

How Childhood Trauma Affects Health Across a Lifetime

https://www.ted.com/talks/nadine_burke_harris_how_childhood_trauma_affects_health_across_a_lifetime?language=en#t-942419

You may see me around the clinic, and please feel free to ask me any questions you have about the project either in person or via email at kmg3p@virginia.edu.

After completing the post-intervention survey, all participants will receive a five-dollar gift card from a local coffee shop as well as entry into a raffle for a $100 gift card.

Thank you for participating.

Respectfully,

May Gallanosa, MSN, RN, FNP-BC, CNL
kmg3p@virginia.edu

Appendix I

Reminder Email to Participate

From: Hayden, Meredith (meh5e)
Sent: Wednesday, November 6, 2019 3:11 PM
To: Conley, Christa J (cjh9c) <cjh9c@virginia.edu>
Subject: Trauma Informed Care Project Reminder

Christa,
Please send this to all Medical Services Physicians, NPs, RNs, LPNs and CNAs.

Dear Medical Services Clinicians and Nurses,

There is still time to enroll in the ***Trauma Informed Care Project***!
About 40% of staff eligible Medical Services staff are currently enrolled- let's get that up to 100%.
As long as you complete the survey and first two educational interventions before the staff meeting presentation on Nov 19th, you are good to go.

Benefits of enrolling:
-      Learn about Trauma Informed Care for the benefit of our patients
-      Support the educational mission of Student Health by assisting a UVA student with her DNP project
-      Earn a $5 gist card to a local coffee shop for participation
-      Be entered to win a $100 gift card

Here's how you can participate:

1.   Take the initial survey: Trauma-informed care for primary care providers – INITIAL SURVEY. If the link does not work, please copy and paste the following link into your browser: https://virginiahsd.co1.qualtrics.com/jfe/form/SV_9yFF88TvDO3HyqF
2.   After taking the survey, complete the educational interventions:
a.   1st educational intervention: View the following video (15 minutes and 59 seconds long), "***How Childhood Trauma Affects Health Across a Lifetime***": https://www.ted.com/talks/nadine_burke_harris_how_childhood_trauma_affects_health_across_a_lifetime?language=en#t-942419
b.   2nd educational intervention: View the attached PowerPoint presentation entitled, "***Promoting a Trauma-Informed Care Approach for Primary Care Clinicians: Background and Basics***." It should take about 15-20 minutes to read through the slides.
c.   The 3rd and final educational intervention will be during a Medical Services Staff Meeting on 11/19, 8-9 am.
Thank you and please let me know if you have any questions.
Sincerely,
Meredith

, MD
Associate Executive Director

Appendix J

Educational Intervention #3: Reminder Email and Notice of In-Person Presentation

This is a friendly reminder that this is the last week to catch up and enroll in the Trauma-Informed Care Project before the final educational intervention on Tuesday, November 19th!

At this time, **63%** of eligible staff are enrolled!

How can you catch up?

- FIRST, take the initial survey: Click on the following link – INITIALSURVEY. If the link does not work, please copy and paste the following link into your browser: https://virginiahsd.co1.qualtrics.com/jfe/form/SV_9yFF88TvDO3HyqF

- NEXT, complete the following educational interventions:

  1. View the following video (15 minutes and 59 seconds long), "How Childhood Trauma Affects Health Across a Lifetime":
   https://www.ted.com/talks/nadine_burke_harris_how_childhood_trauma_affects_health_across_a_lifetime?language=en#t-942419

  2. View the attached PowerPoint presentation entitled, "Promoting a Trauma-Informed Care Approach for Primary Care Clinicians: Background and Basics." It should take about 15-20 minutes to read through the slides.

  3. **Come to the Medical Services Staff Meeting on Tuesday, November 19th from 8 to 9 AM for a discussion on Trauma-Informed Care Actions for Primary Care Clinicians.**

After Tuesday, a final survey will be released to evaluate the project. For those that participate, you will receive a $5 gift card to a local coffee shop AND be entered in a raffle for a $100 gift card.

Please contact me if you have any questions. Thank you for participating, and I hope to see you on Tuesday.

Respectfully,

May

Appendix K

Post-Educational Intervention Survey Email

Dear Primary Care Clinician,

Thank you to everyone who attended my presentation this morning! You all were very engaged with great comments and questions that really enhanced the presentation and gave me things to think about. I hope that trauma-informed care is a continuing dialogue that you have with your colleagues and patients moving forward.

Thank you for everyone that participated in my DNP Scholarly Practice Project: Educational Interventions for Primary Care Providers to Promote a Trauma-Informed Care Approach in a Student Health Setting.

This project consisted of 3 educational interventions:
1. Video - "How Childhood Trauma Affects Health Across a Lifetime" a TED talk by Dr. Nadine Burke Harris
2. Emailed PowerPoint presentation – "Promoting a Trauma-Informed Care Approach for Primary Care Clinicians: Background and Basics"
3. In-person PowerPoint presentation with case studies – "Promoting a Trauma-Informed Care Approach for Primary Care Clinicians: Responding to Trauma and Resisting Re-traumatization.

Now it's time for the post-education survey! Please click on the link below to access the survey. Please use the same unique identifier you used in the pre-educational survey. That will help with data analysis to ensure we are assessing the same participants who took the initial survey.

POST-EDUCATIONAL SURVEY

If the link does not work, please copy and paste the following link into your browser:

https://virginiahsd.co1.qualtrics.com/jfe/form/SV_4Uhj79jED2D3L5b

I hope that you were able to partake in each educational intervention, however, even if you missed one or two of the interventions, you can still participate and complete the post-survey as long as you completed the initial survey **BEFORE** accessing the education.

After completing the post-intervention survey, please contact me (kmg3p@virginia.edu) to receive a $5 gift card from a local coffee shop as well as entry into a raffle for a $100 gift card.

Thank you for your participation! A special thank you goes to Dr. ███████████, Dr. ███████████, ███████████, ███████████, and all the wonderful staff in Medical Services that I have learned so much from in the past couple of months.

In gratitude,

May Gallanosa, MSN, RN, FNP-BC, CNL
Kmg3p@virginia.edu

Appendix L

Reminder Email #1 – Post-Educational Intervention Survey

Dear Primary Care Clinician,

Thank you for participating in my DNP Scholarly Practice Project: Educational Interventions for Primary Care Providers to Promote a Trauma-Informed Care Approach in a Student Health Setting.

This is a friendly reminder to please complete the post-survey!

- Please click on the link below to access the survey.
- Please use the same unique identifier you used in the pre-educational/initial survey. That will help with data analysis to ensure we are assessing the same participants who took the initial survey.

POST-EDUCATIONAL SURVEY

If the link does not work, please copy and paste the following link into your browser:

https://virginiahsd.co1.qualtrics.com/jfe/form/SV_4Uhj79jED2D3L5b

I hope to be able to close the survey on Saturday, December 7th!

As a reminder, those who can participate have:

1. Completed the initial survey
2. Participated in **at least one** of the following educational interventions:

   a. Video - "How Childhood Trauma Affects Health Across a Lifetime" a TED talk by Dr. Nadine Burke Harris

   b. Emailed PowerPoint presentation – "Promoting a Trauma-Informed Care Approach for Primary Care Clinicians: Background and Basics"

   c. In-person PowerPoint presentation with case studies – "Promoting a Trauma-Informed Care Approach for Primary Care Clinicians: Responding to Trauma and Resisting Re-traumatization.

After completing the post-intervention survey, please contact me (kmg3p@virginia.edu) to receive a $5 gift card from Starbucks as well as entry into a raffle for a $100 gift card.

Thank you for your participation!

In gratitude,

May Gallanosa, MSN, RN, FNP-BC, CNL
Kmg3p@virginia.edu

Appendix M

Reminder Email #2 – Post-Educational Intervention Survey

Dear Primary Care Clinician,

Thank you for participating in my DNP Scholarly Practice Project: Educational Interventions for Primary Care Providers to Promote a Trauma-Informed Care Approach in a Student Health Setting.

This is it! If you filled out a pre-survey, please don't forget to fill out the POST-SURVEY! Due date 12/11/19!

·   Please click on the link below to access the survey.
·   Please use the same unique identifier you used in the pre-educational/initial survey. That will help with data analysis to ensure we are assessing the same participants who took the initial survey.

POST-EDUCATIONAL SURVEY

If the link does not work, please copy and paste the following link into your browser:

https://virginiahsd.co1.qualtrics.com/jfe/form/SV_4Uhj79jED2D3L5b

As a reminder, those who can participate have:

1.   Completed the initial survey
2.   Participated in **at least one** of the following educational interventions:

a.   Video - "How Childhood Trauma Affects Health Across a Lifetime" a TED talk by Dr. Nadine Burke Harris

b.   Emailed PowerPoint presentation – "Promoting a Trauma-Informed Care Approach for Primary Care Clinicians: Background and Basics"

c.   In-person PowerPoint presentation with case studies – "Promoting a Trauma-Informed Care Approach for Primary Care Clinicians: Responding to Trauma and Resisting Re-traumatization.

After completing the post-intervention survey, please contact me (kmg3p@virginia.edu) to receive a $5 gift card from Starbucks as well as entry into a raffle for a $100 gift card. THE WINNER WILL BE NOTIFIED NEXT WEEK!

Thank you for your participation!

In gratitude,

May

Kathryn May Gallanosa, MSN, RN, FNP-BC, CNL

Appendix N

IRB-SBS Approval Certificate: Protocol Number 2879

10/3/2019 Approval Certificate 2879

OFFICE OF THE VICE PRESIDENT FOR RESEARCH
HUMAN RESEARCH PROTECTION PROGRAM
INSTITUTIONAL REVIEW BOARD FOR THE SOCIAL AND BEHAVIORAL SCIENCES

IRB-SBS Chair: Moon, Tonya
IRB-SBS Director: Blackwood, Bronwyn

PROTOCOL NUMBER (2879) APPROVAL CERTIFICATE

The UVA IRB-SBS reviewed "Educational Interventions for Primary Care Providers to Promote a Trauma-Informed Care Approach in a Student Health Setting" and determined that the protocol met the qualifications for approval as described in 45 CFR 46.

Principal Investigator: Gallanosa, Kathryn

Faculty Sponsor: Reid, Kathryn

Protocol Number: 2879

Protocol Title: Educational Interventions for Primary Care Providers to Promote a Trauma-Informed Care Approach in a Student Health Setting

Is this research funded? No **Review category**: Exempt Review

3A. Benign behavioral interventions: no identifiers **Review Type**:

Modifications: Yes **Continuation**: No
Unexpected Adverse Events: No

Approval Date: 2019-09-16

As indicated in the Principal Investigator, Faculty Sponsor, and Department Chair Assurances as part of the IRB requirements for approv the PI has ultimate responsibility for the conduct of the study, the ethical performance of the project, the protection of the rights and welfare of human subjects, and strict adherence to any stipulations imposed by the IRB-SBS.

The PI and research team will comply with all UVA policies and procedures, as well as with all applicable Federal, State, and local laws regarding the protection of human subjects in research, including, but not limited to, the following:

1. That no participants will be recruited or data accessed under the protocol until the Investigator has received this approval certificate.

2. That no participants will be recruited or entered under the protocol until all researchers for the project including the Faculty Sponsor

    completed their human investigation research ethics educational requirement (CITI training is required every 4 years for UVA researchers). The PI ensures that all personnel performing the project are qualified, appropriately trained, and will adhere to the provisions of the approved protocol.

3. That any modifications of the protocol or consent form will not be implemented without prior written approval from the IRB-SBS Chai designee except when necessary to eliminate immediate hazards to the participants.
4. That any deviation from the protocol and/or consent form that is serious, unexpected and related to the study or a death occurring d the study will be reported promptly to the SBS Review Board in writing.
5. That all protocol forms for continuations of this protocol will be completed and returned within the time limit stated on the renewal notification letter.
6. That all participants will be recruited and consented as stated in the protocol approved or exempted by the IRB-SBS board. If written consent is required, all participants will be consented by signing a copy of the consent form unless this requirement is waived by the board.
7. That the IRB-SBS office will be notified within 30 days of a change in the Principal Investigator for the study.
8. That the IRB-SBS office will be notified when the active study is complete.

https://researchcompliance.web.virginia.edu/irbsbs/protocol/pr/approvalCertificateProtocol.cfm?PR=0.865673423066.0.604463220278.0.614524 136917&HIDEEDIT... 1/2

10/3/2019 Approval Certificate 2879

9. The SBS Review Board reserves the right to suspend and/or terminate this study at any time if, in its opinion, (1) the risks of further research are prohibitive, or (2) the above agreement is breached.

Date this Protocol Approval Certificate was generated: 2019-10-03

Appendix O

Consent Page for Project Participation

Consent to Act as a Participant in a Project: Educational Interventions for Primary Care Providers to Promote a Trauma-Informed Care Approach in a Student Health Setting

Principal Investigator: Kathryn May Gallanosa, MSN, RN, FNP-BC, CNL
Contact: kmg3p@virginia.edu
You can contact the principal investigator (PI) if you have any questions about the study, concerns, or complaints.

IRB-SBS Protocol Number: 2879

Source of Support: No funding or financial compensation was provided by any source.

Conflict of Interest: No conflict of interest to report.

Introduction: I invite you to take part in a scholarly project, Educational Interventions for Primary Care Providers to Promote a Trauma-Informed Care Approach in a Student Health Setting at ▮▮▮▮▮▮▮▮▮▮▮▮▮, which seeks to educate primary care clinicians on trauma-informed care practices in health care. Taking part in this project is entirely voluntary. I urge you to discuss any questions or concerns about this project with the principal investigator. If you decide to participate, you must indicate at the bottom of this form that you would like to take part by clicking on the designated box. If you do not consent, please click on the corresponding box, and you will be directed out of the survey.

Purpose: The purpose of this project will be to provide coordinated education to promote primary care clinicians' understanding of trauma-informed approaches in a student health setting. Additional aims of the project include measuring clinician satisfaction with educational interventions, determining educational preferences, measuring confidence in providing trauma-informed care post-intervention, and measuring knowledge assessment post-intervention.

Inclusion Criteria: All participants must be primary care clinicians at the ▮▮▮▮▮▮▮▮ ▮▮▮▮▮▮▮▮▮ Student Health Center. Primary care clinicians are defined as nursing staff (licensed practical nurses, certified nursing assistants, registered nurses) and licensed

independent practitioners (physicians, nurse practitioners, physician assistants) who work in Medical Services.

Procedures: This project will consist of a pre-intervention survey, three educational activities on trauma-informed care (video, slide presentation, and case study with discussion), and a post-intervention survey. The pre-intervention survey consists of questions on prior, if any, trauma-informed care education and a baseline knowledge assessment test. The post-intervention survey consists of a knowledge assessment test and questions about the educational project experience.

Time Duration of the Procedures and Study: If you agree to participate in this project, the surveys (2) should take about 10-15 minutes to complete. All survey responses will be kept confidential, and only aggregate data will be reported. Each educational activity (video, case study, slide presentation) will take roughly 20 to 45 minutes of time. The video is about 16 minutes long. The slide presentation will take about 20-25 minutes to review. The case study and discussion will be roughly 45 minutes and will be presented during a regularly scheduled staff meeting. The time frame projected is October to December. Recruitment will begin in October. Pre-intervention surveys will be sent out in October. Educational activities will occur in October and November with the post-intervention survey sent out in December.

Risks: Since the educational interventions are about trauma-informed care, there is a possibility that participants may be affected by the content of the education if they have experienced trauma in their past. The probability of harm is low, as the education does not include any graphic content; however, the PI does not know if any of the participants have experienced any previous trauma. Before education is given, there will be a content warning to participants:

The content and discussion in this educational intervention will be based around trauma-informed care and trauma-informed approaches in medical care. Some content may be emotionally or physically triggering to those who have experienced past traumatic events, either in childhood or as an adult. Participants are encouraged to seek care from ███ Faculty and Employee Assistance Programs (FEAP) Counseling Services and/or their primary care providers if health care services are needed. Please contact 9-1-1 in the event of an emergency.

Statement of Confidentiality: You will create a unique identifier (favorite animal + color + number) that will be used to track survey responses. All survey answers will be kept confidential, and in the event of any publication or presentation resulting from the project, no personally identifiable information will be shared. Only aggregate data will be reported and

presented. The survey records will be stored and protected on a firewall-protected database, Qualtrics. Your participation in this project will be kept confidential to the extent permitted by law. However, it is possible that other people may become aware of your participation in this project. For example, the ███████████████ Institutional Review Board for Social and Behavioral Research (a committee that reviews and approves research studies) may inspect and copy records pertaining to this project.

If you choose to participate, you are free to withdraw from the project at any time. Your survey responses prior to withdrawal may be used if it contributes to the overall project results. However, if you choose to withdraw your permission for the use of your survey responses at any time, you must do this in writing. Please write to Kathryn Gallanosa and let her know you do not want your survey responses used in any way. You may contact her at kmg3p@virginia.edu.

Costs for Participation: There are no costs to participate in this project.

Compensation for Participation: You will be given a $5 gift card to a local coffee shop as well as entry into a raffle for a $100 gift card upon completion of the pre-intervention survey, educational activities, and post-intervention survey.

Contact Information for Questions or Concerns: You have the right to ask any questions you may have about this project. If you have any questions or concerns, please contact the principal investigator, Kathryn May Gallanosa, at kmg3p@virginia.edu.

To obtain more information about the study, ask questions about the research procedures, express concerns about your participation, or report illness, injury or other problems, please contact: █████████, Ph.D., Chair, Institutional Review Board for the Social and Behavioral Sciences, ██ ██████████████████████████████████

For more information about participation in this project and about the Institutional Review Board (IRB), a committee that reviews and approves research studies to protect your rights, please visit the ███████████████ Institutional Review Board for Social and Behavioral Research website at ██████████████████████████

Consent/Permission to Participate in the Project: Before making the decision to participate, you should have reviewed the information in this form and had the opportunity to ask any questions or address any concerns with the principal investigator.

By clicking "I consent," you are acknowledging that you have received this information, have had the opportunity to ask any questions, and have had your questions answered.

By clicking "I DO NOT consent," you are acknowledging that you do not want to participate in this project, and you will be directed out of the survey.

 Your participation is appreciated. Thank you for considering to be part of this project.

 Please note that this survey will be best displayed on a laptop or desktop computer. Some features may be less compatible for use on a mobile device.

- I consent, begin the project survey
- I do not consent, I do not wish to participate

Appendix P

Trauma-informed Care Educational Products

Promoting a Trauma-Informed Care Approach for Primary Care Clinicians:

Background & Basics

Kathryn May Gallanosa, MSN, RN, FNP-BC, CNL

Fall 2019

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Educational Disclosure:

The content and discussion in this educational intervention will be based around trauma-informed care and trauma-informed approaches in medical care. Some content may be emotionally or physically triggering to those who have experienced past traumatic events, either in childhood or as an adult. Participants are encouraged to seek care from UVA Faculty and Employee Assistance Programs (FEAP) Counseling Services and/or their primary care providers if health care services are needed. Please contact 9-1-1 in the event of an emergency.

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Contents

1. Objectives

2. Trauma and ACEs

3. ACEs and child development

4. ACEs and health

5. Trauma throughout a lifespan

6. Trauma-informed care

7. 4 "R's" in a trauma-informed approach

Objectives

- Define trauma and adverse childhood experiences (ACEs).
- Describe how ACEs affect child development.
- Correlate ACEs with health-risk behaviors and chronic conditions.
- Identify other types of trauma throughout a lifespan.
- Define trauma-informed care.
- Learn the four "R's" in a trauma-informed approach.

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What is trauma?

Individual trauma results from an event, series of events, or set of circumstances that is experienced by an individual as <u>physically or emotionally harmful or life threatening</u> and that has <u>lasting adverse effects</u> on the individual's functioning and mental, physical, social, emotional, or spiritual well-being.

(Substance Abuse and Mental Health Services Administration, 2014, p. 7)

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Trauma…

- Can occur at any time during a person's life

- May refer to one event or multiple traumatic experiences

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Childhood Trauma

- Known as **adverse childhood experiences or ACEs** – traumatic experiences that occur prior to the age of 18
  - Abuse – emotional, physical, sexual
  - Household dysfunction – exposure to substance abuse, mental illness, violent treatment of mother or stepmother, criminal behavior in the household
  - Landmark ACE Study - https://www.cdc.gov/violenceprevention/childabuseandneglect/acestudy/about.html
    - CDC and Kaiser Permanente conducted a study in the late 1990s looking at childhood trauma and its effects over a lifetime
    - Data analyzed from over 17,000 people over ten years
    - Participants all had insurance, 80% Caucasian, 43% college graduates

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ACE Study Results

- 50% experienced at least one ACE
- 6% reported ≥ 4 ACEs
- Dose response relationship existed: if exposed to one ACE, there was a 65-93% probability of exposure to another ACE
- As the number of exposures to ACEs increased → prevalence and risk for health-risk behaviors also increased
  - Examples: smoking, overeating, physical inactivity, alcohol abuse, drug use, self-harm
- As the number of exposures to ACEs increased → odds ratio of certain diseases increased
  - Depression, anxiety, HIV, cancer, ischemic heart disease, diabetes, lung disease, liver disease, skeletal fractures, obesity
- Other associated conditions: hypertension, gynecologic diseases, STIs, unintended pregnancy

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ACEs and Child Development

- Stress, which results in brief periods of elevated heartrate & mild elevations in hormones, is a normal and healthy part of development.

- However, when children experience overwhelming stress <u>frequently or for prolonged periods of time without supportive factors</u>, **toxic stress responses** are created.

- This toxic stress response can remain activated, disrupting brain development and other organ systems in children, which can increase the risk for cognitive impairments and stress-related disease as the child grows into an adult.

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Effects of Toxic Stress

- Poorly controlled stress response systems that are overreactive or slow to shut down
- Overactivation of hormone and neurochemical systems:
  - Sympathetic-adrenomedullary system
  - Hypothalamic-pituitary-adrenocortical system
- Suppression of immune response
- Changes in the expression of genes that regulate the stress response

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Effects of Toxic Stress

- Disruptions or changes in brain architecture:
  - Prefrontal cortex – impairment in executive functions
    - Decreased problem solving, memory, reasoning, attention, impulse control
  - Amygdala – maladaptive behavioral responses
    - Hypervigilance, decreased socio-emotional functioning
  - Hippocampus – negative behavioral changes
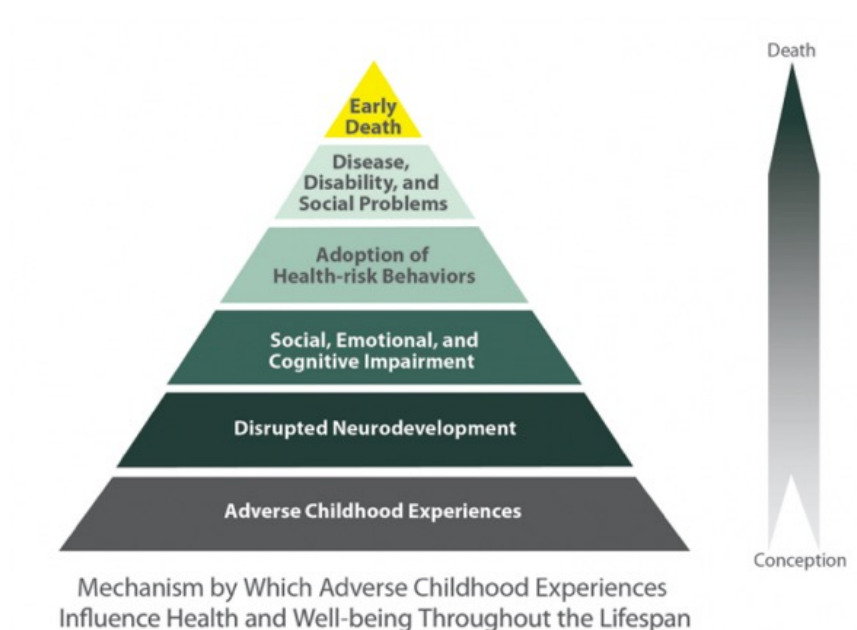   - Reduced ability to regulate mood, impaired memory, impaired learning

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ACEs and Health

- Effects of toxic stress responses disrupt normal neurodevelopment in children, leading to social, emotional, and cognitive impairment.

- These impairments can then lead to the adoption of health-risk behaviors in adolescents and teenagers, which can then carry into adulthood.
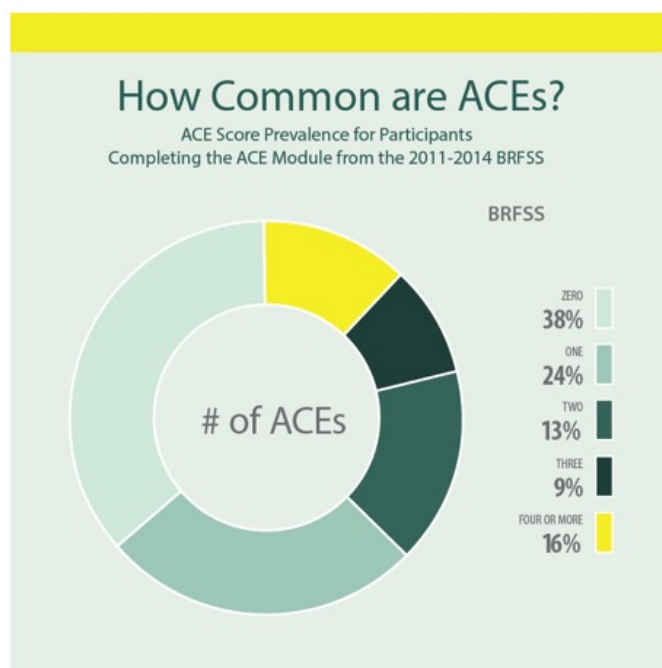
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ACEs and Health

- These maladaptive behaviors subsequently lead to disease, disability, and social problems in adulthood, as many affected are unable to fully function to their highest potential as productive members of society.

- Disease and related social problems add additional stress to the mind and body, resulting in an earlier death than expected from a healthy individual

- Thus is it very important to recognize trauma and intervene ASAP!

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Death

Early Death

Disease, Disability, and Social Problems

Adoption of Health-risk Behaviors

Social, Emotional, and Cognitive Impairment

Disrupted Neurodevelopment

Adverse Childhood Experiences

Conception

Mechanism by Which Adverse Childhood Experiences Influence Health and Well-being Throughout the Lifespan

https://www.cdc.gov/violenceprevention/childabuseandneglect/acestudy/ace-graphics.html

Other Examples of Trauma Throughout a Lifespan:

- Abuse – emotional, physical, sexual
- Rape
- Bullying – physical, mental, online
- Online predatory behavior
- School or public shootings
- Exposure to gun violence
- Exposure to combat
- Witnessing or experiencing violence
- Living in a war zone

- Refugee experience
- Serious medical injury, illness, or disease
- Natural disaster
- Terrorism
- Living in poverty, homelessness
- Trauma associated with race, sex, gender, sexual orientation, or disability discrimination

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How Common are ACEs?

ACE Score Prevalence for Participants
Completing the ACE Module from the 2011-2014 BRFSS

BRFSS

# of ACEs

ZERO	38%
ONE	24%
TWO	13%
THREE	9%
FOUR OR MORE	16%

- Data here comes from the Behavioral Risk Factor Surveillance System (BRFSS) for the years 2011-2014

- The BRFSS is an annual, state-based, random-digit-dial telephone survey that collects data from non-institutionalized U.S. adults regarding health conditions and risk factors.

- **62% reported at least one ACE**

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What is the impact of ACEs, trauma in college students?

- Greater likelihood of seeking help for psychological/psychiatric issues **BUT** also more likely to find interventions less helpful & stop treatment prematurely
- Experience higher levels of mental health symptoms, illnesses
  - Depression, anxiety, stress, ADHD symptoms, suicidal ideation

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What is the impact of ACEs, trauma in college students?

- Increased health risk behaviors
  - Cigarette use, alcohol use, marijuana use
  - Lower levels of fruit & vegetable intake
  - Decreased hours of sleep

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How can we address trauma in our patients?

Acknowledging trauma as a widespread public health concern, the Substance Abuse and Mental Health Services Administration (SAMHSA) created the concepts and framework of the **trauma-informed care (TIC) approach**, providing guidance to reduce the burden of trauma on the individual, family, and community. This approach is defined as a comprehensive, multilevel method utilized to shift the way individuals, groups, organizations, and communities view and address past trauma.

Although this framework was initially meant for application in the behavioral health realm, SAMHSA also intended for application to expand to other fields, including medical health care.

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Trauma-Informed Care

Trauma-informed care (TIC) takes a trauma-informed care approach to the delivery of behavioral health services that includes an **understanding of trauma and an awareness of the impact it can have across settings, services, and populations**.

TIC views trauma through an ecological and cultural lens and **recognizes that context plays a significant role in how individuals perceive and process traumatic events**, whether acute or chronic. TIC involves **vigilance in anticipating and avoiding institutional processes and individual practices that are likely to retraumatize individuals** who already have histories of trauma. TIC upholds the importance of consumer participation in the development, delivery, and evaluation of services. (SAMHSA, 2015, p. 1)

Four R's: Key Assumptions in a Trauma-Informed Approach

- <u>Realization</u> - prevalence of trauma
- <u>Recognition</u> - widespread impact of trauma, signs & symptoms of trauma – in patients and within ourselves
- <u>Response</u> – integrating knowledge into policies, procedures, & practices
- <u>Resistance of re-traumatization</u> - reflection of policies, procedure, & practices on patients & staff

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Realization of Trauma's Impact

- Around 60% of general population has suffered from at least one traumatic event – this is probably a low estimate
- Past trauma could be contributing to a patient's current health problems or resulting in non-adherence to recommended treatment
- Past trauma may cause patients to avoid seeking medical care
  - Postponed care may lead to emergency services

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Realization of Trauma's Impact

- Past trauma could result in patients being particularly sensitive to certain situations that remind them or their trauma → TRIGGERS
- Triggers could cause the person to relive or re-experience their trauma
  - This is true for BOTH patients AND providers

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Examples of Possible Triggers in a Primary Healthcare Setting

- White lab coats
- Room temperature – too hot, too cold
- Medical equipment
- Sounds of medical equipment, latex gloves
- Smell of disinfectant, latex gloves
- Sparse, uncomfortable patient rooms

Experiences in a primary care setting that may be distressing to those with past trauma:

- Personal questions asked during health history assessment (ex. sexual history)
- Power dynamic between patient & provider – feelings of loss of power or control
- Invasive procedures
    - May be in vulnerable physical positions
- Removal of clothing
- Physical touch/contact
- Feelings of loss of privacy

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Recognizing signs & symptoms of patient distress:

- Emotional reactions – anxiety, fear, powerlessness, helplessness, worry, anger
- Physical or somatic reactions – nausea, light headedness, increase in BP, headaches, stomach aches, increase in heart rate and respiration or holding breath
- Behavioral reactions – crying, uncooperative, argumentative, unresponsive, restlessness
- Cognitive reactions – memory impairment or forgetfulness, inability to give adequate history

Slide from SAMHSA. (2013). It's just good medicine: Trauma-informed primary care [PowerPoint slides]. Retrieved from https://www.integration.samhsa.gov/about-us/CIHS_TIC_Webinar_PDF.pdf

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What are appropriate actions for clinicians to provide a trauma-informed care approach?

Please join me on Tuesday, November 19th from 8-9 am at Elson Student Health Center to explore
Trauma-Informed Care Actions for Primary Care Clinicians: Responding to Trauma & Resisting Re-traumatization

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References

Centers for Disease Control and Prevention. (2019). Adverse childhood experiences (ACEs). Retrieved from https://www.cdc.gov/violenceprevention/childabuseandneglect/acestudy/index.html

Esden, J.L. (2018). Adverse childhood experiences and implementing trauma-informed primary care. The Nurse Practitioner, 43(12), 10-21. doi: 10.1097/01.NPR.0000547550.48517.e9

Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., … Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. The Adverse Childhood Experiences (ACE) Study. American Journal of Preventive Medicine, 14(4), 245–258.

Harvard University Center on the Developing Child. (2019). Toxic stress. Retrieved from https://developingchild.harvard.edu/science/key-concepts/toxic-stress/

Karatekin, C. (2018a). Adverse childhood experiences (ACEs) and help-seeking for health-related interventions in young adults. The Journal of Psychology: Interdisciplinary and Applied, 153(1) 6-22. https://doi-org.proxy01.its.virginia.edu/10.1080/00223980.2018.1476316

Karatekin, C. (2018b). Adverse Childhood Experiences (ACEs), Stress and Mental Health in College Students. Stress & Health: Journal of the International Society for the Investigation of Stress, 34(1), 36–45. https://doi.org/10.1002/smi.2761

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References

Merrick, M.T., Ford, D.C., Ports, K. A., Guinn, A. S. (2018). Prevalence of Adverse Childhood Experiences From the 2011-2014 Behavioral Risk Factor Surveillance System in 23 States. JAMA Pediatrics, 172(11), 1038-1044.

National Scientific Council on the Developing Child. (2014). Working paper 3: Excessive stress disrupts the architecture of the developing brain. Retrieved from https://46y5eh11fhgw3ve3ytpwxt9r-wpengine.netdna-ssl.com/wp-content/uploads/2005/05/Stress_Disrupts_Architecture_Developing_Brain-1.pdf

Substance Abuse and Mental Health Services Administration. (2013). It's just good medicine: Trauma-informed primary care [PowerPoint slides]. Retrieved from https://www.integration.samhsa.gov/about-us/CIHS_TIC_Webinar_PDF.pdf

Substance Abuse and Mental Health Services Administration. (2014). SAMHSA's concept of trauma and guidance for a trauma-informed approach. Retrieved from https://store.samhsa.gov/product/SAMHSA-s-Concept-of-Trauma-and-Guidance-for-a-Trauma-Informed-Approach/SMA14-4884.html

Substance Abuse and Mental Health Services Administration. (2015). Trauma-informed care in behavioral health services: KAP keys for clinicians. Retrieved from https://store.samhsa.gov/product/Trauma-Informed-Care-in-Behavioral-Health-Services/SMA15-4420

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References

Windle, M., Haardorfer, R., Getachew, B. Shah, J., Payne, J., Pillai, D., & Berg, C. (2018). A multivariate analysis of adverse childhood experiences and health behaviors and outcomes among college students. *Journal of American College Health, 66*(4), 246-251. doi:10.1080/07448481.2018.1431892

Trauma-Informed Care Actions for Primary Care Clinicians:

Responding to Trauma & Resisting Re-traumatization

Kathryn May Gallanosa, MSN, RN, FNP-BC, CNL
Student, Doctor of Nursing Practice Program, Class of 2020
Fall 2019

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Educational Disclosure:

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Contents

1. Objectives

2. Trauma, ACEs, Stress Injury

3. Trauma and health

4. Trauma and college students

5. Trauma-informed care

6. Response and Resisting Re-traumatiziation

7. Case Study

*Some slides reproduced and used with permission from R.J. Westphal, PhD, RN, "Trauma Informed Approach in Primary Care" (2018)

Objectives

- Define trauma and adverse childhood experiences (ACEs).
- Understand the relationship between trauma health-risk behaviors and chronic conditions.
- Understand the impact of trauma in college students.
- Define trauma-informed care.
- Learn the four "R's" in a trauma-informed approach.
- Review realization and recognition of trauma.
- Learn suggested guidance for responding to trauma and resisting re-traumatization.

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Case Study

An 18-year old first year female comes to the clinic with complaints of bothersome vaginal discharge. She is accompanied by her roommate. She is upset that she's had to wait 20 min to be seen. Her VS show an elevated HR and BP, and she's been pacing the room while waiting. After discussing her current problem, you offer a pelvic exam to address her discharge. She states, "I don't really do those." She remarks that as a busy student during exam time, she keeps missing her appointments.

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What is trauma?

TRAUMA refers to experiences that cause <u>intense physical and psychological stress reactions</u>. It can refer to a <u>single event, multiple events, or a set of circumstances</u> that is experienced by an individual as physically and emotionally harmful or threatening and that has <u>long lasting adverse effects on the individual's physical, social, emotional, or spiritual well-being</u>."

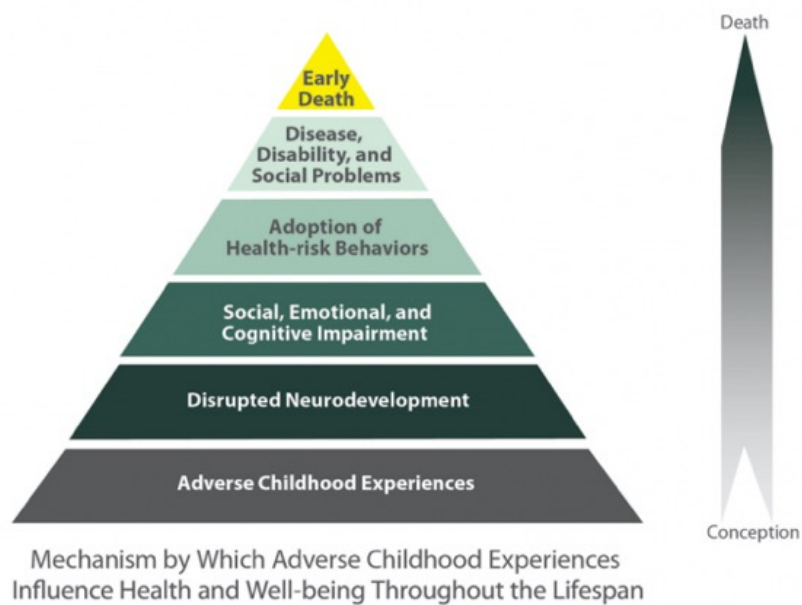(Substance Abuse and Mental Health Services Administration, 2014, p. 7)

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Childhood Trauma

Adverse childhood experiences or ACEs – traumatic experiences that occur prior to the age of 18

- Landmark ACE study
- Abuse
- Household dysfunction

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Other Examples of Trauma Throughout a Lifespan:

- Abuse – emotional, physical, sexual
- Rape
- Bullying – physical, mental, online
- Online predatory behavior
- School or public shootings
- Exposure to gun violence
- Exposure to combat
- Witnessing or experiencing violence
- Living in a war zone
- Refugee experience
- Serious medical injury, illness, or disease
- Natural disaster
- Terrorism
- Living in poverty, homelessness
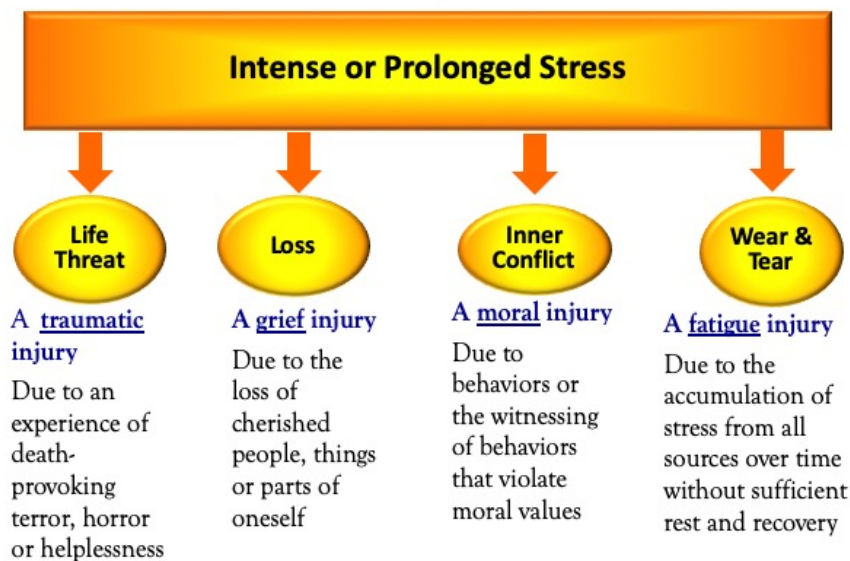- Trauma associated with race, sex, gender, sexual orientation, or disability discrimination

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Mechanism by Which Adverse Childhood Experiences Influence Health and Well-being Throughout the Lifespan

https://www.cdc.gov/violenceprevention/childabuseandneglect/acestudy/ace-graphics.html

https://www.cdc.gov/violenceprevention/childabuseandneglect/acestudy/about.html

Stress Injuries

Intense or Prolonged Stress

Life Threat	Loss	Inner Conflict	Wear & Tear
A traumatic injury	A grief injury	A moral injury	A fatigue injury
Due to an experience of death-provoking terror, horror or helplessness	Due to the loss of cherished people, things or parts of oneself	Due to behaviors or the witnessing of behaviors that violate moral values	Due to the accumulation of stress from all sources over time without sufficient rest and recovery

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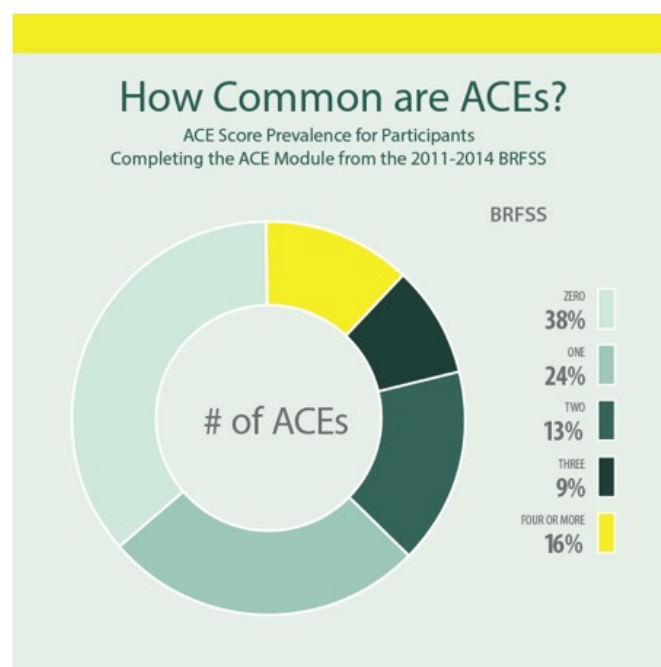
Stress Injury Risk

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What is the impact of ACEs, trauma in college students?

- Greater likelihood of seeking help for psychological/psychiatric issues **BUT** also more likely to find interventions less helpful & stop treatment prematurely
- Experience higher levels of mental health symptoms, illnesses
- Increased health risk behaviors

How Common are ACEs?

ACE Score Prevalence for Participants
Completing the ACE Module from the 2011-2014 BRFSS

BRFSS

# of ACEs

ZERO
38%

ONE
24%

TWO
13%

THREE
9%

FOUR OR MORE
16%

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How can we address trauma in our patients?

Four R's: Key Assumptions in a Trauma-Informed Approach

- <u>Realization</u> - prevalence of trauma
- <u>Recognition</u> - widespread impact of trauma, signs & symptoms of trauma – in patients and within ourselves
- <u>Response</u> – integrating knowledge into policies, procedures, & practices
- <u>Resistance of re-traumatization</u> - reflection of policies, procedure, & practices on patients & staff

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REALIZATION: Why is understanding trauma important?

- To provide effective services we need to understand that life situations, such as trauma, may be contributing to our patients' current problems
- **Trauma affects patients' health and engagement**:
  - Repeatedly missed or cancelled appointments
  - Avoiding preventative care
  - Poor adherence to healthcare recommendations
  - Chronic unexplained pain
  - Anxiety about certain medical procedures
    - Triggers

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Examples of Possible Triggers in a Primary Healthcare Setting

- Sights: white lab coats, medical equipment, restraints, x-ray bib

- Sounds: medical equipment, snapping of gloves

- Smells: rubbing alcohol, disinfectant, latex gloves

Experiences in a primary care setting that may be distressing to those with past trauma:

- Personal questions asked during health history assessment (ex. sexual history)
- Power dynamic between patient & provider – feelings of loss of power or control
- Invasive procedures
    - May be in vulnerable physical positions
- Removal of clothing
- Gender of healthcare provider
- Physical touch/contact
- Feelings of loss of privacy

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RECOGNITION: Signs & symptoms of patient distress

Emotional reactions

Physical or somatic reactions

Behavioral reactions

Cognitive reactions

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RESPONSE: What are appropriate actions for clinicians to provide a trauma-informed care approach?

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Responding through "OSCAR" Communication

- **Observe**: Actively observe behaviors; look for patterns
- **State observations**: State your observations of the behaviors; just the facts without interpretations or judgments
- **Clarify Role**: State why you are concerned about the behavior to validate why you are addressing the issue
- **Ask why**: Seek clarification; try to understand the other person's perception of the behaviors
- **Respond**: Provide Guided Options. Clarify concern if indicated; integrate patient preferences

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RESISTING RE-TRAUMATIZATION

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Responding to trauma & Resisting Re-traumatization: Trauma-Informed Actions

Pre-visit
Initial Encounter
Physical Examination
Invasive Examinations, Procedures
Post-visit

Remember the importance of PHYSICAL, PSYCHOLOGICAL, & EMOTIONAL SAFETY

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**Responding & Resisting Re-traumatization:
Trauma-Informed Policies**

- Train all staff – not just direct providers
- Adopt collaborative team/patient-centered approaches
- Sensitive exams – chaperone opt-out
- Referrals/Resources
- Screening?

Remember the importance of PHYSICAL, PSYCHOLOGICAL, & EMOTIONAL SAFETY

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Resources

- Medical Services – transgender services, unwanted sexual encounters, eating disorders, tobacco cessation, substance use disorder
- Counseling and Psychological Services (CAPS)
- Health Promotion and Wellbeing
- Student Disability and Access Center
- Faculty and Employee Assistance Program (FEAP)
- Social Services/SAMHSA

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Case Study 1

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A
R

An 18-year old first year female comes to the clinic with complaints of bothersome vaginal discharge. She is accompanied by her roommate. She is upset that she's had to wait 20 min to be seen. Her VS show an elevated HR and BP, and she's been pacing the room while waiting. After discussing her current problem, you offer a pelvic exam to address her discharge. She states, "I don't really do those." She remarks that as a busy student during exam time, she keeps missing her appointments.

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Case Study 1

O

Observe: actively observe behaviors
State observations: just the facts

S

C

"I see that you are upset. Your heart rate and blood pressure are both elevated, and you have been pacing."

A

R

"I notice you've been missing appointments."

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Case Study 1

Clarify role: why are you concerned?

O
S
C
A
R

"As a member of your healthcare team, I am concerned that you are upset and want to help with your problem."

Case Study 1

Ask why: seek clarification

O
S
C
A
R

"You stated that you are not interested in a pelvic exam to assess your discharge. Have you ever had a pelvic exam? Are you anxious about the exam?"

"How can I help you make it to your appointments? Is travel to the clinic or time of the appointment a problem?"

Case Study 1

Respond: provide patient centered options

O

S "Would you like to try collecting a sample of your discharge yourself instead of completing a pelvic exam?"

C "We can start with urine tests first if that you are comfortable with that."

A "Would you prefer a male or female provider?"

R "For sensitive exams, we provide a chaperone to be your patient advocate. Is it okay if they are present? Would you like your friend to stay with you for support?"

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Case Study 2

O
S
C
A
R

A 20-year old third year male student comes in with complaints of general abdominal pain and feeling tired all the time. He is currently FaceTiming with his mother so that she can listen and watch the appointment. His PHQ-2 is positive for depression. He is quiet and withdrawn.

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Case Study 2

O
S
C
A
R

Observe: actively observe behaviors
State observations: just the facts

"I see that you have someone on FaceTime."

"The nurse stated that you had a positive depression screening."

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Case Study 2

O
S
C
A
R

Clarify role: why are you concerned?

"As a member of your healthcare team, I am concerned about your pain and fatigue and want to help with your problem."

"Because you had a positive screening, I think it's a good idea for us to complete a more thorough depression assessment."

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Case Study 2

Ask why: seek clarification

O

"Do you mind putting your mother on hold for a moment? ...Patient trust and confidentiality is very important, and I just want to make sure you are okay with her listening and watching."

S

C

"Do you consent for your mother to listen to and watch our appointment? If so, do you mind if I speak to her?"

A

To student & mother: "What are your major concerns today?"

R

"Tell me about this pain and fatigue. Are there circumstances that make your symptoms better or worse?"

"If you have been experiencing a lot of stress, can you tell me how you have been coping."

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Case Study 2

Respond: provide patient centered options

O

"Would you like to talk to someone in CAPS?"

S

"Would it be okay to complete a physical exam and assess your abdomen? Do you mind lifting your shirt for me? I will tell you what I'm doing before I do it. Let me know if you are uncomfortable at any time or if you feel any pain."

C

A

"Let's come up with a plan to address your depression and coping skills and increase your resiliency. Let me tell you about some resources, and you can decide what you are interested in exploring."

R

"We may need to draw blood for lab work. Would you be okay with that?"

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Take Away Points

- Physical, psychological, emotional safety
- Be cognizant of trauma in your patients, colleagues, and selves
- Practice and policies
- Know resources

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THANK YOU!

- Follow up survey
- Please contact me after you finish the post-survey to receive:

- $5 coffee card

- Entrance in a raffle for $100 gift card

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References

American College Health Association. (2019). Best practices for sensitive exams. Retrieved from https://www.acha.org/documents/resources/guidelines/ACHA_Best_Practices_for_Sensitive_Exams_October2019.pdf

Centers for Disease Control and Prevention. (2019). Adverse childhood experiences (ACEs). Retrieved from https://www.cdc.gov/violenceprevention/childabuseandneglect/acestudy/index.html

Esden, J.L. (2018). Adverse childhood experiences and implementing trauma-informed primary care. *The Nurse Practitioner, 43*(12), 10-21. doi: 10.1097/01.NPR.0000547550.48517.e9

Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., … Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. The Adverse Childhood Experiences (ACE) Study. *American Journal of Preventive Medicine, 14*(4), 245–258. doi:http://dx.doi.org/10.1016/S0749-3797(98)00017-8

Harvard University Center on the Developing Child. (2019). Toxic stress. Retrieved from https://developingchild.harvard.edu/science/key-concepts/toxic-stress/

Karatekin, C. (2018a). Adverse childhood experiences (ACEs) and help-seeking for health-related interventions in young adults. *The Journal of Psychology: Interdisciplinary and Applied, 153*(1) 6-22. https://doi-org.proxy01.its.virginia.edu/10.1080/00223980.2018.1476316

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References

Karatekin, C. (2018b). Adverse Childhood Experiences (ACEs), Stress and Mental Health in College Students. *Stress & Health: Journal of the International Society for the Investigation of Stress, 34*(1), 36–45. https://doi.org/10.1002/smi.2761

Merrick, M.T., Ford, D.C., Ports, K. A., Guinn, A. S. (2018). Prevalence of Adverse Childhood Experiences From the 2011-2014 Behavioral Risk Factor Surveillance System in 23 States. JAMA Pediatrics, 172(11), 1038-1044.

Merrick, M.T., Ford, D.C., Ports, K.A. Guinn, A.S., Chen, J., Klevens, J., …Mercy, J.A. (2019). Vital signs: Estimated proportion of adult health problems attributable to adverse childhood experiences and implications for prevention – 25 states, 2015-2017. *MMWR Morbidity and Mortality Weekly Report 2019, 68,* 999-1005. DOI: http://dx.doi.org/10.15585/mmwr.mm6844e1external icon

National Scientific Council on the Developing Child. (2014). Working paper 3: Excessive stress disrupts the architecture of the developing brain. Retrieved from https://46y5eh11fhgw3ve3ytpwxt9r-wpengine.netdna-ssl.com/wp-content/uploads/2005/05/Stress_Disrupts_Architecture_Developing_Brain-1.pdf

Ravi, A. & Little, V. (2017). Providing trauma-informed care. *American Family Physician, 95*(10), 655-657. Retrieved from https://www.aafp.org/afp/2017/0515/p655.html
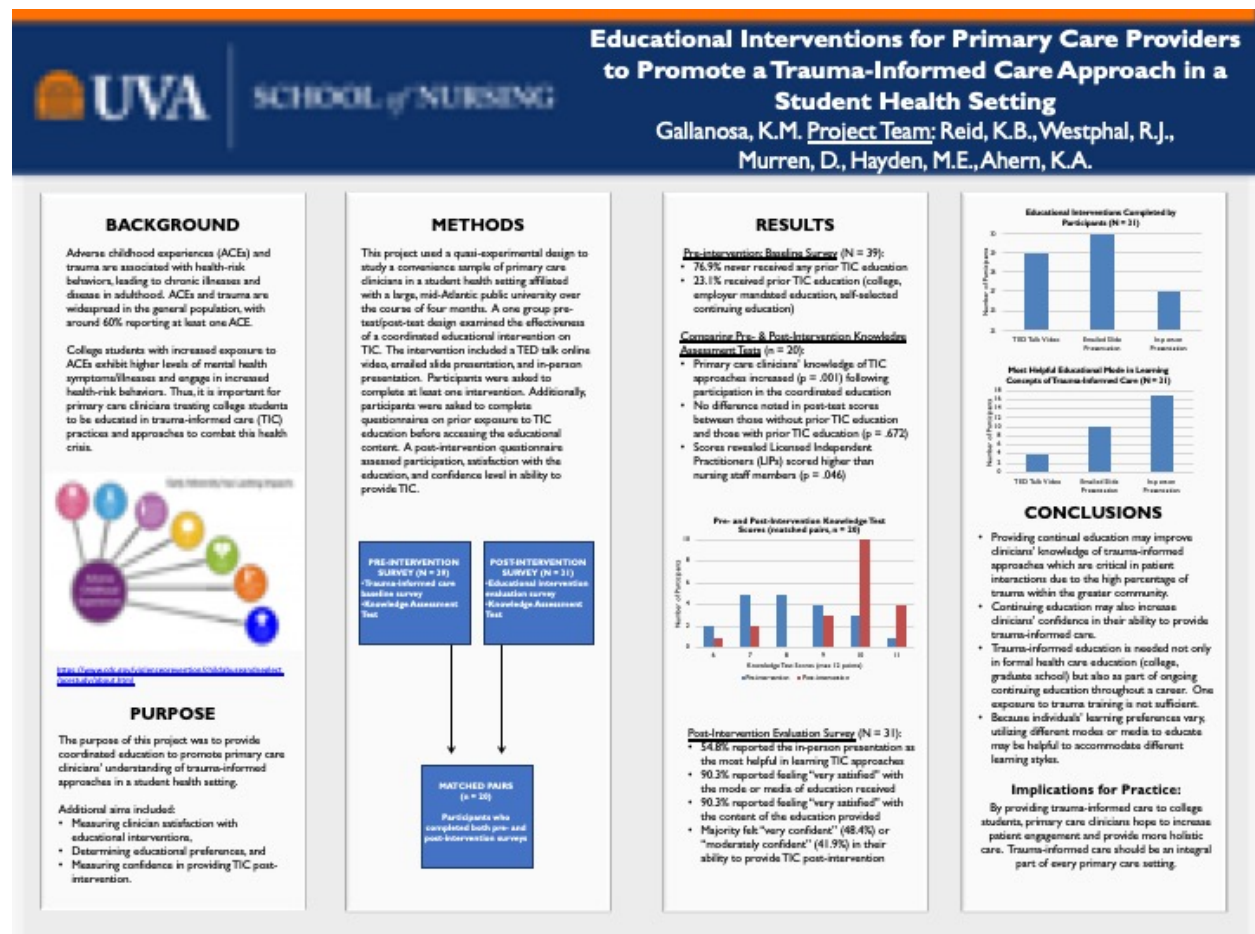
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References

Substance Abuse and Mental Health Services Administration. (2013). It's just good medicine: Trauma-informed primary care [PowerPoint slides]. Retrieved from https://www.integration.samhsa.gov/about-us/CIHS_TIC_Webinar_PDF.pdf

Substance Abuse and Mental Health Services Administration. (2014). SAMHSA's concept of trauma and guidance for a trauma-informed approach. Retrieved from https://store.samhsa.gov/product/SAMHSA-s-Concept-of-Trauma-and-Guidance-for-a-Trauma-Informed-Approach/SMA14-4884.html

Substance Abuse and Mental Health Services Administration. (2015). Trauma-informed care in behavioral health services: KAP keys for clinicians. Retrieved from https://store.samhsa.gov/product/Trauma-Informed-Care-in-Behavioral-Health-Services/SMA15-4420

Westphal, R.J. (2018). Trauma informed approach in primary care. [PowerPoint slides].

Windle, M., Haardorfer, R., Getachew, B. Shah, J., Payne, J., Pillai, D., & Berg, C. (2018). A multivariate analysis of adverse childhood experiences and health behaviors and outcomes among college students. *Journal of American College Health, 66*(4), 246-251. doi:10.1080/07448481.2018.1431892

Educational Interventions for Primary Care Providers to Promote a Trauma-Informed Care Approach in a Student Health Setting. Gallanosa, K.M. Project Team: Reid, K.B., Westphal, R.J., Murren, D., Hayden, M.E., Ahern, K.A. UVA School of Nursing.

Appendix Q

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Appendix R

DRAFT Manuscript for Publication Submission to the *Journal of American College Health*

Title Page

Educational Interventions for Primary Care Providers to Promote a Trauma-Informed Care Approach in a Student Health Setting

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Educational Interventions for Primary Care Providers to Promote a Trauma-Informed Care Approach in a Student Health Setting

Objective: To provide coordinated education to promote primary care clinicians' understanding of trauma-informed care (TIC) approaches in a college health setting.

Participants: A convenience sample of primary care clinicians at the student health center of a mid-Atlantic public university.

Methods: A quasi-experimental one-group pre-test/post-test examining the effectiveness of coordinated interventions on learning TIC approaches. Changes in knowledge, satisfaction with education, and confidence in providing TIC were assessed post-education.

Results: Knowledge of TIC approaches increased (p = .001) following participation. No difference noted in post-test scores between those with and without prior TIC education (p = .672). 54.8% reported the in-person presentation as the most helpful. 90.3% were "very satisfied" with the mode and content of education. The majority felt "very confident" (48.4%) or "moderately confident" (41.9%) in providing TIC post-intervention.

Conclusions: Results suggest ongoing trauma-informed education is needed to increase knowledge and confidence. One exposure to training is insufficient. In-person training may be the preferred method.

Keywords: trauma; trauma-informed care; adverse childhood experiences; ACE; student health

Introduction

According to the Substance Abuse and Mental Health Services Administration (SAMHSA,

2014):

> Individual trauma results from an event, series of events, or set of circumstances that is
>
> experienced by an individual as physically or emotionally harmful or life threatening and
>
> that has lasting effects on the individual's functioning and mental, physical, social,
>
> emotional, or spiritual well-being (p. 7)

One type of trauma is childhood trauma known as Adverse Childhood Experiences or

ACEs. This is trauma that occurs prior to the age of 18. In most studies this specifically refers

to psychological, physical, and sexual abuse and household dysfunction which includes

exposure to substance abuse, mental illness, domestic violence, and criminal behavior.

Felitti et al. in the landmark ACE study, found a relationship between ACEs and the

adoption of health-risk behaviors in adulthood. They found that as ACEs increased, the

prevalence and risk for health risk factors also increased (Felitti et al., 1998). This includes, for

example, smoking, physical inactivity, and alcohol and drug abuse. Additionally, they found

that as ACEs increased, so did the presence of certain conditions which were among the leading

causes of death in the U.S. (Felitti et al., 1998). This includes heart disease, cancer, lung

disease, diabetes, and fractures or accidental injuries.

Since the ACE Study, the path has been identified on how ACEs lead to disease and, in

some cases, early death (Centers for Disease Control and Prevention [CDC], 2019). Events that

lead to stress usually cause a positive stress response, a normal and healthy part of development,

resulting in brief periods of elevated heart rate and mild elevations in hormone levels (Harvard

University Center on the Developing Child, 2019). However, when children are exposed to

stressors, such as ACEs, frequently or for extended periods of time without supportive factors,

there is a prolonged activation of the stress response, generating toxic stress (Harvard University

Center on the Developing Child, 2019).   Toxic stress responses disrupt neurodevelopment in

children, leading to social, emotional, and cognitive impairment (CDC, 2019). In the absence of

support and appropriate coping mechanisms, these impairments can lead to the adoption of

health-risk behaviors in adolescents and teenagers, which can then carry into adulthood (CDC,

2019). These maladaptive behaviors subsequently give rise to disease, disability, and social

problems in adulthood, as many affected are unable to fully function to their highest potential as

productive members of society (CDC, 2019). Disease and related social problems add additional

stress to the mind and body, resulting in an earlier death than expected from a healthy individual

(CDC, 2019). Thus, is it very important to recognize trauma and intervene as soon as possible.

Prevalence of trauma

Felitti et al. (1998) found that more than half of their respondents reported experiencing at least

one ACE, with 6.2% reporting ≥ 4 exposures, displaying the prevalence of ACEs in their studied

population, which was comprised of patients with insurance who were 80% Caucasian and 43%

college graduates. This group was not representative of the general population. Thus, they

posited that trauma in the greater population was probably underestimated and underreported,

signaling a greater need for a public health response.

Additionally, in random telephone surveys answered by 248,934 noninstitutionalized

adults from 23 states in the U.S., during the years 2011-2014, only 38% of participants stated

they had not experienced an ACE (Merrick, Ford, Ports, & Guinn, 2018). Twenty-four percent

had experienced at least one ACE, and 16% had suffered from four or more (Merrick et al.,

2018).

It is important to note that other types of trauma aside from what is defined as an ACE do occur in childhood and adulthood. Several examples include living in poverty, surviving gun violence and school shootings, suffering from online bullying, experiencing racism or sexism, and surviving a life-threatening illness/natural disaster/war. Trauma can affect anyone and everyone, as it is not blinded to age, sex, race, ethnicity, socioeconomic status, religious affiliation, geography, or sexual orientation (SAMHSA, 2014). Thus, there are many people in the general population that continue to suffer mentally, physically, socially, or spiritually from the effects of their past or current trauma.

Revolutionizing how behavioral health services clients, SAMHSA (2014) created the framework for a trauma-informed approach to address the widespread trauma in communities. This approach takes into consideration the lived experience of trauma and its ill effects in every aspect of care. Although this framework was initially meant for application in the behavioral health realm, SAMHSA also intended for application to expand to other fields, including medical healthcare (2014).

Rationale for a trauma-informed approach in primary care

Changes in policies and perspectives are needed in order to transform healthcare facilities into organizations that recognize and effectively treat the health effects of past trauma. The principles of TIC have been championed and utilized by social services and mental health organizations, but there is a lack of translation into primary healthcare settings, where many ACEs and past trauma can be identified and related conditions treated in an earlier phase. In their published guidance, SAMHSA (2014) suggested the beginning phase to creating a trauma-informed organization would be the adoption of the Four "R's": Key Assumptions in a Trauma-Informed Approach: realization, recognition, responding, and resisting re-traumatization. All

people within an organization should realize the widespread effect of trauma and understand how

trauma can affect individuals, families, groups, organizations, and communities (SAMHSA,

2014). Trauma should be recognized through signs and symptoms in order to be treated and

addressed (SAMHSA, 2014). By integrating TIC approaches in policies and behaviors,

organizations could actively respond to trauma affecting their staff, patients, and communities

(SAMHSA, 2014). By seeking to resist re-traumatization, healthcare leadership could

implement policies that create a non-toxic, safe environment for staff and patients (SAMHSA,

2014).

   As disciplines such as social services and public policy are more suited to address the primary

prevention of ACEs, the realm of healthcare is well suited to address certain aspects of secondary

and tertiary prevention of trauma (Oral et al., 2016). Secondary prevention entails actions such

as identifying and immediately intervening on ACEs in order to reduce the severity and acute

consequences of these traumatic experiences, while tertiary prevention focuses on treating and

reducing the long-term effects of ACEs such as the management of chronic illnesses (Oral et al.,

2016). Thus, integrating a trauma-informed approach into a primary care setting where

providers can screen and identify past and present trauma as well as manage chronic diseases

stemming from its effects is an ideal intervention to improve individual, family, and community

health. This project aimed to set the groundwork for a trauma-informed approach in a primary

care setting by providing coordinated education to primary care clinicians to promote their

understanding of trauma-informed patient care.

Review of literature

A literature search was performed to identify themes and gaps in knowledge in trauma-informed

education in healthcare settings, with the goal to answer the PICO question: For healthcare

providers caring for adults in primary care, does an educational intervention on trauma-informed care (TIC) and adverse childhood experiences (ACEs) increase 1) providers' knowledge of TIC and ACEs and 2) confidence in delivering TIC?

Articles that described or investigated TIC and ACEs were included. Inclusion criteria and search terms were initially kept as broad as possible to ensure a comprehensive review of the literature. All levels of evidence were included in the searches. A healthcare research librarian assisted in crafting a search strategy to ensure a wide and comprehensive search. The number of articles identified and selected at each stage is summarized in Figure 1, Article flow diagram.

Eight relevant articles were included for analysis. Of these eight articles, five were studies (3 prospective studies with a post-educational intervention survey/one group post-test design, 1 mixed method study -cross-sectional, correlational designed questionnaire with focus groups, and 1 prospective study with a pre- and post-educational intervention survey/one group pre-test post-test design). One was a general survey, and the last two articles consisted of one journal commentary and one expert opinion.

An emerging theme from reviewing all selected articles was the importance of education. Trauma-informed education is not a standard element of the formal curriculum for many healthcare students (Dichter et al., 2018; Goldstein et al., 2018; Kalamakis et al., 2017). Although the path from childhood traumas to mental health conditions and chronic illnesses resulting in premature death has been studied and explored (CDC, 2019), an understanding of trauma and its ill effects are still not a mandatory component of formal (educational institution) or informal (healthcare organization, clinic, work setting) healthcare education. Information gleaned suggest that learners across disciplines acknowledge the value of TIC education to not only help to increase knowledge, recognition, and understanding of trauma but to also increase

their confidence in delivering appropriate care (Dichter et al., 2018; Goldstein et al., 2018; Pletcher et al., 2019; Strait & Bolman, 2017). Thus, these studies help to call attention to the importance of dedicated trauma-informed education in formal academic settings.

Another theme regarding education transpired from the studies. Clinicians and students realized they needed ongoing education and resources to be able to successfully implement a trauma-informed approach. Identified needs included TIC practice champions, screening tools, additional instruction, mentorship, practice, and coordinated collaborative care (Dichter et al., 2018; Goldstein, et al., 2018; Kalmakis et al., 2017). These tools are means of creating a continuing dialogue around trauma-informed approaches that clinicians and students can utilize in their healthcare settings. Additionally, guidance provided by Earls (2018) and Roberts et al. (2019) speak to the importance of a strong educational foundation in trauma and ACEs needed to create a trauma-informed primary care practice.

ACEs, trauma in college students

College students, as a young adult population, suffer from trauma and ACEs, and several studies have examined the consequences of trauma in college students. With increased exposure to ACEs, there was an increase in the likelihood of seeking help for psychological or psychiatric issues (Karatekin, 2018a; Windle et al., 2018). Despite seeking help, one study covering undergraduate students at a large public university (n =321) found college students with higher ACEs (three or more), were also more likely to find interventions less helpful and more likely to stop care prematurely (Karatekin, 2018a). Additionally, those students with increased exposure to ACEs also experienced higher levels of mental health symptoms and illness, including depression, anxiety, stress, ADHD symptoms, and suicidal ideation (Windle et al., 2018, Karatekin, 2018a; Karatekin, 2018b). Windle et al. (2018), studying students from seven

universities in Georgia (n = 2,969), also found a relationship between increased ACEs and increased health risk behaviors such as substance use (cigarette, alcohol, marijuana), decreased levels of fruit and vegetable intake, and decreased hours of sleep.

In addition to ACEs and past trauma, college students may also be experiencing increased stressors with adjusting to school, new social situations, new living arrangements, some financial independence, and living away from home and their usual support systems. Due to these increased stressors, college students with ACEs may engage in risky health behaviors to cope due to prior, and possibly unaddressed, ACEs and lack of resilience. This critical time in young adulthood may be an ideal time to redirect unhealthy behaviors and address a history of ACEs before chronic illnesses manifest. Thus, it is important for providers in a student health setting to be trauma-informed and trained. Therefore, the purpose of this project was to provide coordinated education to promote primary care clinicians' knowledge of TIC approaches in a student health setting. Additional aims included measuring: clinician satisfaction with the education provided, determining clinician preference for educational modes, and confidence in providing TIC post-intervention.

Methods

Participants and procedures

A quasi-experimental one-group pre-test/post-test was used to examine the effectiveness of a coordinated educational intervention on learning TIC approaches. Changes in knowledge were assessed pre- and post-education. Satisfaction with education and confidence in providing TIC were also assessed.

Participants came from a convenience sample of primary care clinicians at the student health center of a large, mid-Atlantic public university. As this student health center also

encompassed other services such as laboratory services, counseling and psychological services, student disability access, and health promotion counseling, it was imperative to identify only primary care clinicians eligible to participate. These individuals were identified by the associate executive director of the student health center who corresponded with staff via email. The sample included licensed independent practitioners (LIPs) such as physicians and nurse practitioners and nursing staff members such as certified nursing assistants, licensed practical nurses, and registered nurses.

Prior to beginning, the Institutional Review Board at the university in addition to the research board of the student health center approved the project. Responses were recorded from October through December 2019. The pre- and post-surveys, inclusive of the knowledge assessment tests, were both accessed through Qualtrics. To maintain confidentiality while tracking survey responses, each participant was asked to create a unique identifier when filling out the pre-surveys. They were asked to use the same unique identifier when completing the post-surveys.

Introductory and recruitment emails were sent in early October 2019 with a follow-up email sent in mid-October 2019, including a link to consent and participate in the project through the online survey tool, Qualtrics. After consenting, participants were then asked to fill out a baseline survey and complete a knowledge assessment test based on trauma-informed approaches.

Over the course of two months, October – November 2019, three educational interventions were introduced to staff roughly a week apart. Education took on different modes to appeal to different learning styles and suit the time constraints of busy clinicians. In studies assessing education programs, utilizing various modes to teach was a highly effective strategy in

sustaining changes over time (Duff, Massey, Gooch, & Wallis, 2018; Dumyati et al., 2014; Yousef, Salem, & Mahmoud, 2020). The first intervention was a video link to a TED talk by Nadine Burke Harris, MD, MPH, FAAP, a pediatrician and current Surgeon General for the state of California. The talk, which lasts 16 minutes, is titled "How Childhood Trauma Affects Health Across a Lifetime," and it mainly focuses on the lifetime effects of ACEs. As a video, it was convenient for busy clinicians to watch on their own time. The second intervention was an emailed slide presentation titled "Promoting a Trauma-Informed Care Approach for Primary Care Clinicians: Background and Basics." It would take about 15-20 minutes to review the slides. This presentation focused on the realization and recognition of trauma. This intervention was also convenient for busy clinicians who could view it at their own pace. The third intervention was an in-person presentation with case studies that incorporated discussion and the application of concepts with time for questions and comments. This presentation lasted 50 minutes. It was titled "Trauma-Informed Care Actions for Primary Care Clinicians: Responding to Trauma and Resisting Re-traumatization. Although the most time-consuming, this mode might have been more helpful for those that prefer traditional lecture-style learning with discussion and time for questions.

Immediately after the third intervention, a post-intervention survey was emailed to the eligible clinicians. This included an evaluation survey as well as the same knowledge assessment test taken at the beginning of the project. As an incentive for participating in the project, all participants received a $5 coffee card to a local coffee shop and were included in a raffle for a $100 gift card. Participation was defined as completing the pre-survey, partaking in at least one educational intervention, and completing the post-survey.

Measures

Pre-intervention survey

In the baseline survey, participants indicated their clinical role (LIP or nursing staff) and whether or not they had received any prior trauma-informed training. They then took a knowledge assessment test which was a 12-question test developed in consultation with an expert in the field of trauma and stress injury. One point was given for each correct answer for a maximum of 12 points.

Post-intervention survey

Immediately after the third intervention, a post-intervention survey was emailed to eligible clinicians. This included an evaluation survey as well as the same knowledge assessment test taken at the beginning of the project. The evaluation survey sought information on which interventions the participants utilized, their preferred intervention, their satisfaction with the mode and content of the education provided, as well as their confidence level in providing TIC post-intervention. Satisfaction and confidence levels were measured using five-point Likert scales. The post-intervention survey also included open-ended questions regarding supportive measures and barriers to providing TIC.

Statistical analyses

All statistical analyses were performed using Qualtrics, Microsoft Excel, or IBM SPSS 26 statistical software (International Business Machines Corporation, Armonk, NY, 2019). The knowledge assessment test scores were not normally distributed so non-parametric tests were used for all analyses. Pre- and post-test scores for the TIC knowledge assessment were obtained and analyzed utilizing Wilcoxon Signed Rank tests. Post-intervention knowledge assessment scores were also analyzed with respect to prior TIC training (yes/no) and clinical role (nursing staff or LIP) using Mann-Whitney U tests. To assess if there was a relationship between post-

test scores and confidence levels, a Kruskal-Wallis test was used. Finally, to assess whether or

not the number of interventions a clinician participated in had an impact on post-intervention test

scores, a Mann-Whitney U test was also completed. For all statistical tests, significance was set

at the α level of 0.05. Answers to the open-ended questions in the post-intervention surveys

were synthesized by the corresponding author.

Results

As participants were required to utilize unique identifiers to maintain confidentiality, 20

participants were identified as completing both pre- and post-surveys. Most of the data analyses

are based on the 20 participants, also described as the matched pairs.

Pre-intervention survey

After duplicates and those who did not consent were removed, there were 39 participants in the

pre-intervention surveys. Participants consisted of 21 LIPs (53.8%) and 18 nursing staff

members (46.2%).

Participants were also asked about their prior exposure to trauma-informed education.

Thirty participants (76.9%; 14 nursing staff, 16 LIPs) had no prior exposures to trauma-informed

education, while nine (23.1%; four nursing staff, five LIPs) had received prior trauma training.

Of those with prior training, only one respondent was exposed to TIC education in college, and

only four individuals reported exposure through employer-mandated or required education.

Matched pairs

The matched pairs, those who completed both pre- and post-intervention surveys, consisted of 11

LIPs (55%) and 9 nursing staff members (45%). Similar to all respondents, fifteen (75%) of the

participants who completed both the pre- and post-surveys ($n = 20$) had no prior trauma-

informed education. This consisted of seven nursing staff members and eight LIPs. Five (25%)

of the participants, consisting of two nursing staff and three LIPs, had received prior TIC

education. Of these five, three reported receiving employer mandated or required education. A

summary of these characteristics is located on Table 1.

Pre-intervention knowledge assessment test

Matched pairs

Analyzing the scores of only those who completed both pre- and post-surveys ($n = 20$), the

median score was 8.0 (IQR = 2.00). Those with no prior training ($n = 15$) also had a median

score of 8 (IQR = 2.00). Those with prior training ($n = 5$) had a median score of 9.0 (IQR =

2.50). The matched pairs were further analyzed into LIPs ($n = 11$) and nursing staff ($n = 9$) for

further comparison. LIPs had a median score of 9.0 (IQR = 1.00), while the nursing staff had a

median score of 7.0 (IQR = 2.00). See Table 2 for a summary of these results.

Post-intervention knowledge assessment test

Matched pairs

Analyzing the scores of only those who completed both pre- and post-surveys ($n = 20$) showed

an overall increase. The median score increased from 8.0 to 10.0 (IQR = 1.00). In order to find

if there was a statistically significant increase in scores pre- and post-intervention, the non-

parametric Wilcoxon Signed Rank test was performed because the post-test scores were not

normally distributed. This test revealed a statistically significant increase in knowledge in

primary care clinicians' understanding of trauma-informed approaches following participation in

the coordinated education, $z = -3.219$, $p = .001$, with a large effect size ($r = .51$). The median

score on the knowledge assessment test increased from pre-educational intervention ($Md = 8.0$)

to post-educational intervention ($Md = 10.0$).

Prior trauma-informed training. The group (*n* = 20) was divided into those without prior trauma-informed training (*n* = 15) and those with prior trauma-informed training (*n* = 5). Those without prior trauma training had a median score that increased from 8.0 to 10.0 (IQR = 2.00) from the pre-intervention surveys. Those with prior TIC training all scored a 10.0. Thus, the median increased from 9.0 to 10.0 from pre- to post-intervention. To determine if there was a statistical difference in the post-knowledge assessment scores between those who received only the training provided in the educational intervention (no prior training) and those who received additional training prior to the education intervention, a Mann-Whitney U Test was performed since post-intervention test scores were not normally distributed. This test revealed no significant difference in the post-intervention knowledge assessment scores between those without prior trauma-informed training (*Md* = 10, *n* = 15) and those with prior trauma-informed training (*Md* = 10, *n* = 5), *U* = 32.5, *z* = -.469, *p* = .672, *r* = .1. See Table 3 for a summary of these results.

Clinical roles. The matched pairs were further analyzed into LIPs (*n* = 11) and nursing staff (*n* = 9) for further comparison to pre-intervention scores. LIPs scores increased from the pre-intervention median of 9.0 (IQR = 1.00) to a post-intervention median of 10.0 (IQR = 1.00). Nursing staff scores also increased from a median of 7.0 (IQR = 2.00) to 10.0 (IQR = 3.00). To ascertain if there was a statistical difference between the post-knowledge assessment scores of LIPs and nursing staff members, a Mann-Whitney U Test was performed as the post-knowledge assessment scores were not normally distributed. This test revealed a significant difference in the post-intervention knowledge assessment scores between and LIPs (*Md* = 10, *n* = 11) and nursing staff members (*Md* = 10, *n* = 9), *U* = 23.5, *z* = -2.124, *p* = .046, *r* = .48. LIPs (mean rank

= 12.86) scored higher than nursing staff members (mean rank = 7.61), although both had

medians of 10.0. A summary of these results is also included in Table 3.

Post-intervention survey

In addition to the knowledge assessment test, participants were also asked to complete an

evaluation survey which sought to assess the educational interventions provided through this

project. All respondents to the post-survey were considered (N = 31), not just the matched pairs.

Twenty-nine participants or 93.5% (12 nursing, 17 LIPs) watched the TED talk video online.

Thirty participants or 96.8% (13 nursing, 17 LIPs) reviewed the emailed slide presentation.

Twenty-seven or 87.1% (12 nursing, 15 LIPs) were present for the in-person presentation with

case studies and discussion. One participant, a LIP, completed only one educational

intervention, the emailed slide presentation. Two nursing staff members and three LIPs

completed two interventions, while a total of 25 participants (11 nursing, 14 LIPs) participated in

all three educational interventions.

When asked which education intervention in the project was the most helpful in learning

the concepts of trauma-informed care, four LIPs (12.9% of total participants) reported the TED

talk video as being the most helpful. Ten or 32.26% (four nursing, six LIPs) reported the

emailed slide presentation as being the most helpful, while just over half (54.84%) or 17

participants (nine nursing, eight LIP) reported the in-person presentation as the most helpful.

Utilizing a five-point Likert scale, participants were asked to report satisfaction with the

mode of trauma-informed education received through this project ranging from 1 = very

dissatisfied to 5 = very satisfied. Overwhelmingly 90.3% or 28 participants (13 nursing, 15

LIPs) reported feeling very satisfied with the mode of education received through this project,

while only 9.7% or three LIPs reported feeling somewhat satisfied. There were no reports of 3 =

neutral, 2 = somewhat dissatisfied, or 1 = very dissatisfied.

Similar to the prior question, participants were then asked to report satisfaction with the

content of the education received through this project. Again, 90.3% or 28 participants (12

nursing, 16 LIPs) reported feeling very satisfied, while 9.7% or three participants (one nursing,

two LIPs) reported feeling somewhat satisfied with the content of the education provided. There

were no reports of 3 = neutral, 2 = somewhat dissatisfied, or 1 = very dissatisfied.

After receiving trauma-informed education through this project, participants were asked

to report confidence level on a five-point Likert scale in providing a trauma-informed approach

in patient interactions. Fifteen participants (four nursing, 11 LIPs) or almost half (48.39%) of the

total reported feeling very confident in providing trauma-informed care. Thirteen (six nursing,

seven LIPs), 41.94% reported feeling moderately confident, while three nursing staff members

(9.68%) reported only feeling somewhat confident. No one reported feeling 2 = only slightly

confident or 1 = not at all confident in providing a trauma-informed approach in patient

interactions.

Confidence level compared to post-educational intervention knowledge test

To discover whether or not confidence level in providing trauma-informed care in patient

interactions post-intervention had any relationship to post-intervention knowledge test scores, a

Kruskal-Wallis test was performed including all post-survey respondents (N = 31). The three

confidence levels reported were 5 = very confident, 4 = moderately confident, and 3 = somewhat

confident. The test did not reveal a statistically significant difference in post-intervention

knowledge assessment scores across the three reported confidence levels (Gp1, *n* = 3: somewhat

confident, Gp2, *n* = 13: moderately confident, Gp3, *n* = 15: very confident), X^2 (2, *n* = 31) = 3.96,

$p = .138$. Although the results were not significant, there may have been a practical difference between the groups, with the "very confident" group scoring a median 10.0 points, the "moderately confident" group scoring a median 9.0 points, and the "somewhat confident" group scoring a median 7.0 points.

Matched pairs confidence level. Due to the very small group within the matched pairs that received trauma-informed training prior to the coordinated educational interventions ($n = 5$), no statistical tests were run comparing confidence level in providing a trauma-informed approach in patient interactions pre- and post-interventions. Three participants indicated a one-point increase in confidence level from "moderately confident" pre-intervention to "very confident" post-intervention. Two participants indicated no change in confidence level, with one reporting feeling "moderately confident" and another feeling "somewhat confident" both pre- and post-intervention.

Number of interventions compared to post-educational intervention knowledge test

To assess the impact of the number of interventions on the post-intervention knowledge assessment scores, a Mann-Whitney U test was completed. There was only one person who completed one intervention, and five individuals that completed two interventions. While the other 25 completed all three interventions. As such, the post-intervention scores of those who completed one or two interventions (six participants) were compared with those who completed all three (25 participants). This analysis revealed no significant difference in the post-intervention scores between those who completed one or two interventions ($Md = 10$, $n = 6$) and those who completed all three interventions ($Md = 10$, $n = 25$), $U = 78$, $z = .156$, $p = .903$, $r = .03$. See Table 4 for a summary of these results.

Open-ended questions

Two final questions inquired about any supportive measures or resources staff members had to provide a TIC approach and any barriers they have experienced that hinder this approach. Five participants cited the materials from this project (TED talk, video, emailed slide presentation, slide presentation and handout from in-person presentation) as being resources they would use to help provide a TIC approach to their patients. Knowledge from the project helped participants to realize the importance of asking permission during physical assessments, keeping an open mind, and operating under the assumption that most patients have experienced some sort of trauma. Others cited using materials from other organizations (professional and community) and conferences as resources. Many reported utilizing other staff members both within the clinic and within the greater university community as supportive measures, with specific mentions of the counseling and mental health staff, clinic nursing staff, student affairs department, and other colleagues (nursing and LIPs) who have received TIC education through this project. One participant referred to screening tools such as the PHQ-2 and PHQ-9 as helpful, while two participants specifically mentioned the online questionnaires filled out by students prior to their first visit for gynecology services, inclusive of questions regarding intimate partner violence and past trauma as well as information on what to expect during a pelvic exam with explanations for each step of the exam. One participant mentioned time with patients as a supportive measure for providing TIC.

With respect to barriers experienced in providing a TIC approach, six participants (three nursing, three LIPs) did not experience or anticipate any barriers. Time constraints and limitations with the amount of time given to see patients was named by several participants (two nursing, six LIPs) as barriers. One LIP mentioned that time limitations can hinder the development of a trusting relationship prior to trauma-specific questions or the physical exam,

and one nurse mentioned that signs of trauma can be missed when the clinic is very busy with

limited time for each patient. Mental health provider availability was also reported as a barrier to

care. In addition, decreased knowledge and understanding of TIC was reported as a barrier by

three participants. A specific comment made referred to poor staff reaction when trauma causes

behaviors and actions in patients that can be defensive or even aggressive. Without an

understanding of trauma, staff may have a negative reaction to signs and symptoms of patient

trauma. The lack of continuity of care in the student population was also cited as a barrier, as

students may see a different provider each visit or they may seek care outside of the student

health center. Although one does not need to know about prior trauma to provide a TIC

approach, one participant mentioned not knowing about trauma history as a barrier.

Discussion

In this project, primary care clinicians' knowledge of TIC approaches based on their post-

intervention knowledge assessment scores increased ($p = .001$) following participation in the

coordinated education. Only one study reviewed discussed a post-workshop online quiz in

which medical students scored an average grade of 95% (range 60-100%) and 96% (range 58-

100%) during the two reported years, respectively (Pletcher et al., 2019). Additionally, other

study participants self-reported increased knowledge post-intervention (Strait & Bolman, 2017;

Goldstein et al., 2018; Pletcher et al., 2019). Further analyzing the pre- and post- intervention

scores revealed that LIPs scored higher than nursing staff members ($p = .046$). This could

indicate that LIPs are exposed to more trauma-informed education than nursing staff members,

either in formal education or in continuing education. However, none of the literature reviewed

discussed trauma education as it pertained to LIPs in comparison to nursing. Overall, providing

education to all clinicians may improve their knowledge of trauma-informed approaches which

are critical in patient interactions due to the high percentage of trauma within the general

population.

However, although education increased knowledge on trauma-informed approaches, there

is still a lack of trauma-informed training in formal education. In Dichter et al.'s survey (2018),

less than a third of responding program directors of U.S. family medicine residency programs

reported including TIC in their curriculum. In another survey, only 25% of NPs (N = 188)

reported receiving education in undergraduate nursing programs, and 36% received education in

their NP graduate programs (Kalmakis et al., 2017). Focus groups from this same survey

indicated that the lack of formal education on TIC was particularly concerning (Kalmakis et al.,

2017). Mirroring this trend, only one participant in the 39 completed pre-intervention surveys of

this project indicated receiving TIC in college. Perhaps, in order to introduce the concepts and

create a strong foundation of TIC knowledge, formal education is needed in healthcare

curriculum.

Besides formal healthcare education (college, graduate school), trauma training should

also be part of ongoing continuing education throughout a career. One exposure to trauma

training is not sufficient. Looking specifically at the matched pairs, the knowledge assessment

scores of those who received prior trauma-informed training were not statistically different (p =

.672) from those who had no prior training post-intervention, indicating that prior training does

not reflect competence in the knowledge of trauma concepts. Similarly, students in Goldstein et

al.'s (2018) study reported that one-time training was not adequate to master TIC. Eighty-two

percent of medical students participating a TIC workshop in Pletcher et al.'s (2019) study

believed additional training on TIC in their medical education would be beneficial. Commentary

from Earls (2018) also suggested that education should be an ongoing activity. In their expert

opinion, Roberts, Chandler, and Kalmakis (2019) also agreed that education was critical for

primary care providers to identify needs and provide the appropriate management for trauma-

affected patients. Patients, then, may benefit from their clinicians' receiving continuing

education that involves trauma-informed approaches throughout their careers.

Continuing education may also increase clinicians' confidence in their ability to provide

trauma-informed care. Participants in prior studies (Strait & Bolman, 2017; Goldstein et al.,

2018; Kalmakis et al., 2018; Pletcher et al., 2019) expressed increased confidence in meeting the

trauma needs of their patients after training, which mirrored the finding of this project where the

majority reported feeling very confident (48.4%) or moderately confident (41.9%) in the ability

to provide a trauma-informed approach post-intervention. Only 9.7% reported feeling somewhat

confident with no reports of feeling only slightly confident or not at all confident. In addition,

from the matched pairs, three of the five participants indicated a one-point increase in confidence

level from feeling moderately confident pre-intervention to very confident post-intervention.

With education leading to increased confidence, clinicians will be more likely to utilize trauma-

informed approaches and methods to connect with patients which could then lead to increased

patient engagement.

Although three different methods (video, slide presentation, in-person presentation) of

education were provided and 80.6% of participants completed all three interventions, over half

(54.8%) of participants in this project chose the in-person presentation as being the most helpful

in learning the concepts of TIC. This reflected studies that showed NPs (Kalmakis et al., 2017)

and first-year residents (Pletcher et al., 2019) preferred in-person teaching. Face-to-face

learning, whether by lecture or small group discussion, may be an important part of trauma

education as interaction and discussion between individuals may help in learning the specific

concepts and skills needed in a trauma-informed approach. However, as clinicians are often busy and not always able to attend in-person training, having a variety of modes available for continuing education may be the best way for the most clinicians to get exposure to trauma-informed concepts. Although participants found the in-person training as the most helpful among the three interventions, fewer clinicians attended the in-person training in comparison to the other interventions. In addition, most of the participants (90.3%) reported feeling very satisfied with the modes and content of the education provided. Thus, due to time constraints and perhaps, differences in learning styles, trauma-informed education should include varying modes of education, but should certainly include an in-person option.

Finally, as Goldstein et al.'s (2018) study participants found screening tools, instruction, mentorship, and collaborative care to be needed resources for providing TIC, the project participants also reported similar observations. They cited educational materials, other staff members, community resources, and screening tools as being supportive measures in providing a trauma-informed approach. Other surveys have indicated that barriers to care include inadequate resources, a lack of a TIC champion, and lack of time (Goldstein et al., 2018; Dichter et al. ,2018). The participants of this project reported that lack of time, limited mental health provider availability, and the lack of TIC education were barriers experienced in trying to provide a trauma-informed approach. Perhaps by increasing supportive measures and addressing barriers, organizations can foster an increased use of TIC amongst clinicians.

In conclusion, trauma-informed education can increase clinicians' knowledge and awareness of trauma amongst their patients and communities. Formal education is needed to create a strong foundation of trauma concepts in healthcare education, while continuing education is needed throughout a career to refresh clinicians on trauma-informed approaches.

Education helps to increase clinicians' confidence in their ability to provide adequate care to trauma-affected populations, which encourages clinicians to use these approaches. Additional education could also focus on nursing staff as, for reasons unknown, this group might be less exposed to trauma-informed education than LIPs. Education should include a variety of modes but in-person training should be encouraged when available, as face-to-face interaction may be helpful in learning trauma concepts. An organization should be assessed for supportive measures in providing TIC, while barriers to care should be addressed and eliminated.

Limitations

As a quasi-experimental pre-test/post-test design, this project lacked a randomized control group with which to compare findings, reducing internal validity. Additionally, the participants did not all receive the same interventions. Rather, they could self-select which education they participated in based on personal preference, learning style, and time available. Thus, this project design did not accommodate for the evaluation of different educational modes, as each mode was not only different with regards to type but also in terms of length of time spent (video = 16 minutes, emailed slide presentation = 15-20 minutes, in-person presentation = 45-50 minutes). However, the purpose of the project was to increase knowledge about TIC through at least one exposure to trauma-informed education, regardless of the mode of education, which did occur.

As a convenience sample taken from one student health clinic, it was inherently biased. Additionally, due to the small size and homogenous staff, clinical role was the only demographic information obtained in both surveys to protect participant identities. As such, even if all eligible clinicians participated in the project, the results from this small, homogenous group are not generalizable to other clinicians across various settings.

An online sample size calculator was used to determine the needed sample size based on this student health center's number of eligible clinicians. An ideal sample size of 44 participants was needed with a 95% confidence level and a significance level of .05. However, only 39 participated in the pre-intervention surveys, and 31 participated in the post-intervention surveys, resulting in only 20 matched pairs. This should be considered when determining the generalizability of the statistical tests run. With limited data derived from the small samples, there might not have been enough data points to find statistically significant correlations between pre- and post-test knowledge scores. Plus, although the knowledge assessment test was created for this project with assistance from a known trauma expert, it was not validated tool. Additionally, as a TIC approach incorporates all staff members, this project was limited in scope, focusing only on clinicians. Engagement of all employees, including all administrative and support staff, would be needed to adopt an organizational change (SAMHSA, 2014).

Another limitation was found during data analysis. All participants were asked to use a unique identifier consisting of the participant's favorite animal, color, and number (e.g. dogyellow99). This unique identifier was then used to link data between the pre- and post-surveys for comparison. Some participants forgot the unique identifier they used in the pre-surveys, and thus, had to wait until they remembered it or try to utilize one they believed was close so they could complete the post-surveys. This was definitely a barrier to survey completion as preferences can change over time. Additionally, some participants had very similar unique identifiers, requiring closer analysis to decipher whether responses were duplicates or different individuals. Moving forward, future surveys should require a simpler, yet easy to remember unique identifier that will not change.

Finally, one of the project's additional aims was to measure the confidence level of

clinicians' ability to provide TIC. Although this was asked of everyone who completed the post-

intervention questionnaire, confidence levels were only asked of those who had prior trauma

training in the pre-intervention questionnaire. Measuring how confidence changed from before

to after the educational interventions for all participants could have further contributed to

knowledge. Moving forward, if this project is replicated, the question of confidence or self-

efficacy could be asked both before and after education from all participants.

Clinical practice implications and next steps

This project aspired to create a dialogue and staff engagement around TIC, which ideally would

lead to steps for a unit or department to fully adopt a TIC approach. One way to engage staff is

through education. Annual requirements for ongoing TIC education can be championed

throughout the healthcare center for all staff as one exposure to trauma training may not be

sufficient to fully understand the concepts and skills needed in a trauma-informed approach.

Additionally, since LIPs scored higher than nursing staff members in the knowledge assessment

tests, more educational activities could be provided to nursing staff members to increase trauma

awareness. All organizational education provided should include different modes to

accommodate for time constraints and learning preferences, however in-person training should

be encouraged when possible.

This project might also generate interest to research the prevalence of ACEs as well as

the prevalence of resilience factors in the community to combat the effects of trauma. A pilot

study could trial recommended screening tools such as the Life Event Checklist or Primary Care

PTSD Screen (SAMHSA – Health Resources and Services Administration Center for Integrated

Health Solutions, n.d.), or a new integrated health history questionnaire, incorporating ACE

screening questions as well as sources of trauma in adulthood, could be designed and tested.

However, as SAMHSA (2014) recommends resisting re-traumatization, these tools may also be a

triggering source for some patients. Thus, more research is needed to determine if the benefits of

screening actually outweigh the potential for re-traumatization.

Additional research could also examine the efficacy of TIC educational programs.

Different educational modes with respect to knowledge outcomes could be compared in another

study. Although the literature and this project suggested that participants prefer in-person

education, another study could determine if this is indeed the best way to learn the concepts of

TIC or if in-person education should also supplement other educational modes.

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Declaration of interest statement

The authors have no conflicts of interest to report.

References

Centers for Disease Control and Prevention. (2019). Adverse childhood experiences (ACEs).

Retrieved from

https://www.cdc.gov/violenceprevention/childabuseandneglect/acestudy/index.html

Dichter, M. E., Teitelman, A., Klusaritz, H., Maurer, D. M., Cronholm, P. F., & Doubeni, C. A.

(2018). Trauma-informed care training in family medicine residency programs: Results

from a CERA survey. *Family Medicine*, *50*(8), 617–

622. https://doi.org/10.22454/FamMed.2018.505481

Duff, B., Massey, D., Gooch, R., & Wallis, M. (2018). The impact of a multimodal education

strategy (the DeTER program) on nurses' recognition and response to deteriorating

patients. *Nurse Education in Practice, 21*, 130-135.

https://doi.org/10.1016/j.nepr.2018.05.011

Dumyati, G., Concannon, C. van Wijngaarden, E., Love, T.M., Graman, P., Pettis,

A.M….Shelly, M. (2014). Sustained reduction of central line-associated bloodstream

infections outside the intensive care unit with a multimodal intervention focusing on

central line maintenance. *American Journal of Infection Control, 42*(7), 723-730.

https://doi.org/10.1016/j.ajic.2014.03.353

Earls, M. F. (2018). Trauma-Informed Primary Care: Prevention, Recognition, and Promoting

Resilience. *North Carolina Medical Journal*, *79*(2), 108–

112. https://doi.org/10.18043/ncm.79.2.108

Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., …

Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many

of the leading causes of death in adults. The Adverse Childhood Experiences (ACE)

Study. *American Journal of Preventive Medicine*, *14*(4), 245–258.

Goldstein, E., Murray-García, J., Sciolla, A. F., & Topitzes, J. (2018). Medical students'

perspectives on trauma-informed care training. *The Permanente Journal*, *22*, 17–

126. https://doi.org/10.7812/TPP/17-126

Harvard University Center on the Developing Child. (2019). Toxic stress. Retrieved from

https://developingchild.harvard.edu/science/key-concepts/toxic-stress/

Kalmakis, K.A., Chandler, G.E., Roberts, S.J., & Leung, K. (2017). Nurse practitioner

screening for childhood adversity among adult primary care patients: A mixed-method

study. *Journal of the American Association of Nurse Practitioners, 29,* 35-45. DOI:

10.1002/2327-6924.12378

Kalmakis, K. A., Shafer, M. B., Chandler, G. E., Aponte, E. V., & Roberts, S. J. (2018).

Screening for childhood adversity among adult primary care patients. *Journal of the*

American Association of Nurse Practitioners, *30*(4), 193–

200. https://doi.org/10.1097/JXX.0000000000000033

Karatekin, C. (2018a). Adverse childhood experiences (ACEs) and help-seeking for health-

related interventions in young adults. *The Journal of Psychology: Interdisciplinary and*

Applied, 153(1) 6-22. https://doi-

org.proxy01.its.virginia.edu/10.1080/00223980.2018.1476316

Karatekin, C. (2018b). Adverse Childhood Experiences (ACEs), Stress and Mental Health in

College Students. *Stress & Health: Journal of the International Society for the*

Investigation of Stress, *34*(1), 36–45. https://doi.org/10.1002/smi.2761

Merrick, M.T., Ford, D.C., Ports, K.A., & Guinn, A.S. (2018). Prevalence of adverse

childhood experiences from the 2011-2014 behavioral risk factor surveillance system in

    23 States. *JAMA Pediatr.* 2018;172(11), 1038–1044.

    doi:10.1001/jamapediatrics.2018.2537

Oral, R., Ramirez, M., Coohey, C., Nakada, S., Walz, A., Kuntz, A., … Peek-Asa, C. (2016).

    Adverse childhood experiences and trauma informed care: the future of health

    care. *Pediatric Research*, *79*(1–2), 227–233. https://doi.org/10.1038/pr.2015.197

Pletcher, B. A., O'Connor, M., Swift-Taylor, M. E., & DallaPiazza, M. (2019). Adverse

    childhood experiences: A case-based workshop introducing medical students to trauma-

    informed care. *MedEdPORTAL: The Journal of Teaching and Learning Resources*, *15*,

    10803. https://doi.org/10.15766/mep_2374-8265.10803

Roberts, S. J., Chandler, G. E., & Kalmakis, K. (2019). A model for trauma-informed primary

    care. *Journal of the American Association of Nurse Practitioners*, *31*(2), 139–

    144. https://doi.org/10.1097/JXX.0000000000000116

Strait, J., & Bolman, T. (2017). Consideration of personal adverse childhood experiences during

    implementation of trauma-informed care curriculum in graduate health programs. *The*

    Permanente Journal, *21*, 16–061. https://doi.org/10.7812/TPP/16-061

Substance Abuse and Mental Health Services Administration– Health Resources and Services

    Administration Center for Integrated Health Solutions (n.d.) Screening tools. Retrieved

    from https://www.integration.samhsa.gov/clinical-practice/screening-tools#TRAUMA.

Substance Abuse and Mental Health Services Administration. (2014). SAMHSA's concept of

    trauma and guidance for a trauma-informed approach. Retrieved from

    https://store.samhsa.gov/product/SAMHSA-s-Concept-of-Trauma-and-Guidance-for-a-

    Trauma-Informed-Approach/SMA14-4884.html

Windle, M., Haardorfer, R., Getachew, B. Shah, J., Payne, J., Pillai, D., & Berg, C. (2018).

    A multivariate analysis of adverse childhood experiences and health behaviors and

    outcomes among college students. *Journal of American College Health, 66*(4), 246-251.

    doi:10.1080/07448481.2018.1431892

Yousef, R. H., Salem, M.R., & Mahmoud, A.T. (2020). Impact of implementation of a

    modified World Health Organization multimodal hand hygiene strategy in a university

    teaching hospital. *American Journal of Infection Control, 43*(3), 249-254.

    https://doi.org/10.1016/j.ajic.2019.07.019

Table 1. Demographic characteristics of a sample of primary care clinicians participating in pre- and post-interventions surveys (N = 20).

Demographic Characteristics of a Sample of Primary Care Clinicians Participating in Pre- and Post-Intervention Surveys (N = 20)

Characteristic	*n*	%
Clinical Role		
Licensed Independent Practitioner	11	55.0
Nursing Staff	9	45.0
Exposure to Prior Trauma-Informed Education		
No Prior Exposure	15	75.0
Prior Trauma Education	5	25.0

Table 2. Pre-intervention knowledge assessment scores of matched pairs (n = 20).

*Pre-Intervention Knowledge Assessment Scores of Matched Pairs (*n = 20*)*

Variable	n	Md (IQR)
Participants	20	8 (2.00)
Prior trauma training		
Yes	5	9 (2.50)
No	15	8 (2.00)
Clinical role		
LIP	11	9 (1.00)
Nursing	9	7 (2.00)

Table 3. Post-intervention knowledge assessment scores of matched pairs with significance (n =

20).

*Post-Intervention Knowledge Assessment Scores of Matched Pairs with Significance (*n=20)*

Variable	n	Md (IQR)	p-value
Prior trauma training			
Yes	5	10 (0.00)	.672
No	15	10 (2.00)	
Clinical role			
LIP	11	10 (1.00)	.046
Nursing	9	10 (3.00)	

Note. Mann-Whitney U test used, significance set at $p < 0.05$. *p*-value was calculated using exact *p*-value.

Table 4. Post-intervention knowledge assessment scores of all participants with significance (N = 31)

Post-Intervention Knowledge Assessment Scores of all Participants with Significance (N=31)

Variable	*n*	*Md (IQR)*	*p*-value
Number of interventions			
1 or 2 interventions	6	10 (2.00)	0.903
3 interventions	25	10 (1.00)	

Note. Mann-Whitney U test used, significance set at $p < 0.05$. *p*-value was calculated using exact *p*-value.

Figure 1. Article flow diagram.