7-12-2023

Implementing Trauma-Informed Care Curriculum in a Doctoral Nursing Program

Mary D. Brown
University of Missouri-St. Louis, mdbnq6@umsystem.edu

Implementing Trauma-Informed Care Curriculum in a Doctoral Nursing Program

Mary D. Brown

B.S.N., University of Missouri-St. Louis, 2017

A Dissertation submitted to the Graduate School at the University of Missouri-St. Louis in partial fulfillment of the requirements for the degree Doctor of Nursing Practice with an emphasis in Psychiatric Mental Health Nurse Practitioner

August 2023

Advisory Committee

Anne Thatcher, DNP, MSW, APRN, PMHNP-BC, LMSW.

Chairperson

Kimberly Werner, Ph.D.

Amanda Finley, Ph.D., RN.

Abstract

Purpose: Trauma is highly prevalent with 70% of individuals encountering at least one traumatic event during their lifetime and approximately 30% experiencing four or more events (Wheeler & Phillips, 2021). Despite the dramatic impact of trauma, there is minimal literature to assist nurses in caring for patients with a trauma history. The purpose of this project was to evaluate the implementation of a virtual, asynchronous trauma-informed care (TIC) educational program for Doctor of Nursing Practice (DNP) students at a midsized, Midwestern public university using knowledge, attitudes, and competency scores as outcome measures.

Methods: This program evaluation (PE) project was an observational pre, immediate-post, and 30-day-post educational design. The 48-item Trauma-Informed Care (TIC) Provider Survey v2.0 was adapted in Qualtrics and utilized to assess DNP students' knowledge, attitudes, and competency in assessing for trauma and utilizing TIC practices.

Results: Participants (N = 23) included DNP students who completed the pre- and immediate-post TIC surveys. Of the 23 total participants, 10 students also completed the 30-day post retention survey. Repeated-measures *t*-tests were utilized to test for significant change across time associated with the TIC education. A statistically significant increase in DNP students' knowledge, competence, and use of TIC interventions was seen following the completion of six educational modules.

Implications for Practice: Statistically significant improvements in knowledge, competency and the use of TIC interventions suggests that DNP students who participate in TIC curriculum during their nursing program can gain the knowledge and competence to effectively use TIC skills in practice.

Implementing Trauma-Informed Care Curriculum in a Doctoral Nursing Program

Trauma is a highly subjective experience that can stem from a variety of events ranging from childhood neglect to an invasive medical procedure. According to Wheeler and Phillips (2021), 70% of individuals encounter a traumatic event during their lifetime and approximately 30% experience four or more events. The prevalence of potentially traumatic events including school and mass shootings, natural disasters, terrorist attacks, and the COVID-19 pandemic are cited as a significant public health concern worldwide (Wheeler & Phillips, 2021). The societal significance of trauma has gained awareness over the past 20 years following the creation of the visionary adverse childhood experiences (ACEs) study. According to the seminal study by Felitti et al. (1998), ACEs are types of traumas experienced during childhood which may include all forms of abuse and neglect, parenteral divorce, and household dysfunction involving substance use, mental illness, violence, or incarceration. The ACEs study revealed a dose exposure-response connection between ACEs and many common adult physical and mental health conditions including cancer, ischemic heart disease, lung disease, diabetes, post-traumatic stress disorder (PTSD), depression, and suicidal ideation (Felitti et al., 1998).

Understanding the impact that traumatic stress has on the mind and body is vital to ensure appropriate screening, assessment, diagnosis, and management. From a neurobiological perspective, toxic stress otherwise known as chronic stress, occurs with prolonged activation of two major bodily pathways namely the hypothalamus-pituitary-adrenal (HPA) axis and the sympathetic nervous system (SNS) (Schuurmans et al., 2021). A release of stress hormones, including epinephrine and norepinephrine from the SNS and cortisol from the HPA-axis, impacts a multitude of pathophysiological processes

causing difficulty in maintaining bodily homeostasis (Schuurmans et al., 2021). Prolonged activation of the stress response can cause an individual to be in a continuous state of hypervigilance, hypo-vigilance, or fluctuate between both states (Schuurmans et al., 2021). Furthermore, prolonged toxic stress in children may inhibit normal brain development and lead to physiological brain abnormalities resulting in cognitive dysfunction, emotional dysregulation, and an increased risk of developing addictive behaviors (Schuurmans et al., 2021).

Significant research supports the imperative for clinicians to identify the signs of trauma in their patients and to utilize trauma-informed healthcare practices. According to Pfeiffer and Grabbe (2021), medical trauma is common and may include enduring stressful hospitalizations, undergoing painful medical procedures, or receiving an unfavorable diagnosis such as cancer. Medical trauma may occur as an isolated event or lead to re-traumatization which occurs when an environmental trigger causes an individual to experience emotional salience or sensory cues that elicit the memory of past trauma (Cannon et al., 2019).

Of note, patients are not the only individuals who experience trauma. According to Cannon et al. (2019) approximately two-thirds of nursing students have a trauma history, making them susceptible to re-traumatization. Furthermore, vicarious trauma among nursing students and licensed clinicians is common and occurs when a patient's trauma disclosure creates adverse symptomology among healthcare providers. Without organizational-wide implementation of trauma-informed healthcare practices and utilization of resiliency skills, nursing students and clinicians may experience burnout, thus impacting their ability to provide quality patient care (Cannon et al., 2019).

Despite the plethora of trauma-related resources, there is minimal literature and training to assist nurses in caring for patients with a trauma history or how to utilize self-care and resiliency strategies to prevent burnout. Nurses, the largest group of healthcare workers, spend a substantial amount of time directly interacting with patients, yet many report lacking the knowledge and skills to successfully utilize TIC techniques. Substantial evidence suggests that a lack of TIC curriculum and training in nursing programs may be the culprit (Wheeler & Phillips, 2021). Furthermore, the lack of TIC training is concerning since nursing students may also cause significant patient distress if they fail to use TIC practices.

The purpose of this project was to evaluate the implementation of a virtual, asynchronous TIC educational program for Doctor of Nursing Practice (DNP) students at a midsized, Midwestern public university. The project was guided by the Institute for Healthcare Improvement (IHI) Model for Change Evidence-Based Practice (EBP) framework using the Plan-Do-Study-Act (PDSA) cycle as a guide. The primary outcome measures included participants' knowledge, attitudes, and self-reported competency in utilizing TIC practices using pre-, posttest, and one-month posttest scores from the 48-item TIC Provider Survey v2.0. The secondary outcome measures included perceived barriers to assessing for trauma and providing TIC interventions and participants' use of TIC interventions within the last six months. The aim of the project was to increase DNP students' knowledge, attitudes, and competency in assessing for trauma and providing TIC interventions following the completion of a TIC educational intervention. The study questions that guided this project were as follows: In DNP students at a mid-sized Midwestern public university:

1. What is the change (if any) in DNP students' knowledge following a TIC educational intervention?
2. What is the change (if any) in DNP students' attitudes regarding the use of TIC practices following a trauma-related educational intervention?
3. What is the change (if any) in DNP students' objective competency scores following a TIC educational intervention?

Review of Literature

A review of literature was conducted from May through June 2022 using the CINAHL, PubMed, and APA PsycInfo databases. Search terms included *trauma informed care* AND (*curriculum* OR *curricula* OR *education*) AND (*nursing students* OR *nursing faculty)* using Boolean operators AND and OR. The search yielded 71 results. Nine articles met inclusion criteria which included those that focused on TIC curriculum in nursing academia, published between 2017 and 2022, and written in English. Exclusion criteria included articles not in nursing academia, published before 2017, and those not written in English. Duplicates were removed and abstracts were reviewed for relevance. Search limitations included a significant number of TIC educational studies that were applicable to non-nursing specialties including social work and psychology. The ancestry method was used to find three additional articles as the number of relevant TIC publications was limited in nursing academia. The seminal ACEs article by Felitti et al. (1998) was also included, and a total of 13 articles were retained for use in this literature review.

Several recurrent themes were found in the literature search. Four studies were found from the literature that have successfully implemented groundwork TIC curriculum

into nursing programs (Cannon et al., 2019; Fiske et al., 2020; Pfeiffer & Grabbe, 2021; Wheeler & Phillips, 2021). However, many studies cited a lack of a specific TIC model to guide both undergraduate and graduate nursing curriculum despite the undeniable correlation between trauma and unfavorable physical and mental health outcomes. A pilot study conducted by Cannon et al. (2019) found that nursing students scored high in pre-curricular attitudes towards TIC but scored lower in pre-curricular knowledge and skills indicating that students are aware of the need for TIC curriculum but lack the necessary knowledge and skills to use in practice. The authors addressed the issue by incorporating TIC curriculum in two undergraduate and one graduate nursing course at a large Midwestern university and found that nursing students that participated in TIC education had increased post-curricular knowledge and skills regarding its practice (Cannon et al., 2019). Pfeiffer and Grabbe (2021) also found that nursing students are highly motivated to learn TIC content and subsequently developed an educational concept model and a one-hour online training module including ACEs, TIC, secondary traumatization, and resiliency competencies. Nursing students reported finding the resiliency component beneficial which taught the importance of self-care practices among nursing students and clinicians to better serve patients with a trauma history (Pfeiffer & Grabbe, 2021). Wheeler and Phillips (2021) echoed the need for self-care and resiliency competencies and addressed the lack of TIC curriculum in nursing education by utilizing two rounds of e-Delphi surveys to create a validated set of 88 TIC competencies specifically for nursing students. Fiske et al. (2020) also found that resiliency skills are not strictly inherent and can be fostered using an interprofessional educational approach. The consensus from all four studies is that current TIC nursing curriculum should be disseminated in all

undergraduate and graduate level courses of all specialties and should serve as a foundation for nursing faculty to rigorously evolve.

Trauma-Informed Care

Trauma-informed care (TIC) is an approach formulated by the Substance Abuse and Mental Health Services Administration (SAMHSA) that nursing students and clinicians can utilize to appropriately identify and care for patients with a trauma history. According to Pfeiffer and Grabbe (2022), SAMHSA also recommends implementing TIC practices at an organizational level to create an environment that supports self-care and resiliency among clinicians. The SAMHSA TIC framework is based on four vital assumptions including realizing the ubiquitous nature of trauma, recognizing trauma symptomology, appropriately responding to trauma at the individual and organizational level, and preventing re-traumatization of patients and staff (Pfeiffer & Grabbe, 2022). SAMHSA also recommends addressing six core principles including prioritizing safety, promoting collaboration between patients and providers, using system-wide transparency, offering peer support, encouraging patient empowerment, and addressing historical, cultural, and gender-related trauma (Pfeiffer & Grabbe, 2022). Many studies recommend using SAMHSA's TIC framework including Cannon et al. (2019) who found that educating nursing students and clinicians on SAMHSA's core principles and assumptions increases their knowledge, confidence, and competence in utilizing TIC skills in practice.

Barriers to Trauma-Informed Care

Many barriers to implementing TIC curriculum were found in the literature and should be addressed to increase the likelihood of successful implementation. Stokes et al. (2017) provided a unique perspective stating that the shift of nursing care focus from

holistic to primarily methodological and task-oriented is a hurdle to implementing TIC techniques. The authors also found that many nursing students may be reluctant to perform TIC practices because of their own unresolved trauma (Stokes et al., 2017). Pfeiffer and Grabbe (2021) agreed that unresolved trauma is a barrier and added that a lack of self-awareness and ability to self-reflect may inhibit nursing students' capability and willingness to learn and utilize TIC practices. Strait and Bolman (2017) noticed a similar pattern and found that a potential solution to the lack of self-awareness among nursing students may be mitigated if they willingly obtain their own ACE score. The authors also found that students who calculated their ACE score had a greater understanding of the importance of ACE and TIC content. Additional barriers were found by Clark and Jones (2022) including time constraints, unawareness of ACEs and TIC, a lack of formal education to appropriately screen for ACEs, and insufficient resources including appropriate screening tools.

Support for Implementation

Many authors found study strengths to support implementing TIC nursing curriculum. With the exception to Wheeler and Phillips (2022) and Strait and Bolman (2017), all other studies reported a large sample size as a major study strength. Participant diversity including a variety of demographics and nursing specialties was also cited as a common strength among several studies. Clark and Jones (2022) elaborated that participant diversity allowed knowledge and skills to be individually assessed among practicing Nurse Practitioners (NPs) and NP students. Cannon et al. (2019), Fiske et al. (2022), and Kuzma et al. (2022) also cited their ability to test knowledge and skills among both undergraduate and graduate nursing students as a significant study strength.

Limitations of Current Literature

Limitations were also thoroughly discussed in the literature. Several articles cited potential issues with trauma disclosure due to the nature of the subject. Interviewers are urged to frequently reiterate that all disclosed information is confidential, and faculty are also advised to maintain an empathetic and non-judgmental stance when working with nursing students. Several articles also mentioned potential issues with questionable generalizability since most studies consisted of a convenience sample of nursing students enrolled in a specific course that may not fully represent all nursing students. Furthermore, most studies took place at a single institution or facility, which may not be applicable in other geographic locations. Kuzma et al. (2022) also stressed their study participants were a voluntary sample which may have consisted of individuals already interested in learning TIC skills. Additionally, the authors stressed that students with a trauma history may have declined participation to prevent re-traumatization (Kuzma et al., 2022). The pretest-posttest design was cited as a weakness because it inhibits the ability to test long-term retention of TIC curriculum. Most studies cited the rationale for using the pretest-posttest design as feasible since academic intuitions face significant time constraints. Such studies strongly recommend testing retention several months after implementation of TIC curriculum.

TIC Provider Survey v2.0

Literature suggests the efficacy of a TIC educational intervention can be more objectively assessed using a reliable instrument (Bruce et al., 2018 & Kassam-Adams et al., 2015). Two articles supported the use of the validated TIC Provider Survey v2.0 to assess the knowledge, attitudes, comfortability, and competency of healthcare providers

in using TIC practices (Bruce et al., 2018 & Kassam-Adams et al., 2015). The 48-item TIC Provider Survey is licensed and copyrighted by the Creative Commons Global Network and contains five subcategories which include: 1) thirteen questions that assess knowledge about TIC practices; 2) seven questions that assess attitudes regarding TIC practices; 3) twelve items assessing self-rated TIC competency; 4) seven questions regarding the use of TIC practices within the last six months; and 5) nine questions regarding perceived barriers to using TIC practices. Bruce et al. (2018) and Kassam-Adams et al. (2015) found the internal consistency of their respective studies ranged from fair to excellent with Cronbach's alpha of 0.66 to 0.90 respectfully, suggesting instrument reliability.

Framework

Research suggests that utilizing an appropriate framework can assist nursing faculty in planning, implementing, and evaluating a TIC educational intervention. The IHI Model for Change was the chosen framework for this study using the PDSA cycle as a guide. The planning phase involved obtaining and synthesizing evidence via a thorough literature review. The PDSA cycle was further utilized to implement and evaluate a groundwork TIC educational program for Doctor of Nursing Practice (DNP) students of all specialties at a mid-sized, Midwestern public university. Additional PDSA cycles can be used by nursing faculty to further build on TIC nursing curriculum and to test long-term retention rates among nursing students participating in trauma-related curriculum.

In summary, trauma is a stress response that is highly prevalent worldwide and can lead to negative physical and mental health symptomology. The healthcare setting is a common culprit for medical trauma, re-traumatization and vicarious trauma among

patients and clinicians. A gap in literature exists regarding how to successfully implement TIC in nursing education programs. Nursing students and clinicians report lacking the necessary knowledge and skills to use TIC in practice despite recognizing its importance. A few studies have laid groundwork TIC nursing curriculum; however, they are still in the early stages and should be appropriately evaluated and vigorously evolved. The IHI Model for Change framework using the PDSA cycle allows nursing faculty to quickly test change to determine the efficacy of the TIC curriculum and to adjust the program accordingly.

Methods

Design

This program evaluation (PE) project utilized an observational pre-, immediate post-, and one-month post-educational design to collect quantitative data via three separate electronic Qualtrics surveys. Six TIC virtual and asynchronous educational modules developed by the Center for Pediatric Traumatic Stress (CPTS) were accessible for completion via electronic hyperlinks in the Canvas learning management system between January 23, 2023, and February 28, 2023.

Setting and Sample

This PE project took place at one mid-size, midwestern, public university's College of Nursing (CON), where approximately 239 graduate nursing students are currently enrolled. Thirty two Doctor of Nursing Practice (DNP) students enrolled in a mandatory spring 2023 intensive course were asked to voluntarily participate in the three TIC Qualtrics surveys to be entered in a $40.00 Amazon gift card raffle. Inclusion criteria were DNP students of all population foci including Family, Adult-Gero, Pediatric Acute and Primary Care, Women's Health, and Psychiatric Mental Health Nurse Practitioner

tracks enrolled in the spring 2023 intensive. Exclusion criteria were all students not enrolled in the spring 2023 intensive including PhD students.

Approval Processes

Formal approval for this PE project was sought by this primary investigator and obtained by the three-member UMSL advisory committee on November 14, 2023, and by the UMSL Institutional Review Board (IRB) on December 21, 2022. Potential study benefits included increasing DNP students' knowledge, attitudes, and competency in assessing for trauma and using TIC techniques in future practice. Minimal risk was involved in this project as this was no more than usual educational practices. Furthermore, DNP students consented to a required program intensive, and all compiled data were deidentified.

Procedures

Stakeholders met to discuss the need for improved TIC education for all Nurse Practitioner (NP) students. The Center for Pediatric Traumatic Stress (CPTS), which specializes in pediatric medical trauma, offers six educational modules specifically designed for healthcare providers via their website. Topics include an introduction to TIC practices, working with the welfare system, and identifying signs of secondary traumatic stress among healthcare providers. Three additional modules individually cover the "D-E-F" framework which includes, distress of the pediatric patient, emotional support practices, and family involvement. All students at the participating university enrolled in the Spring 2023 intensive were required to complete the six TIC modules provided by the CPTS, regardless of this project, and this project evaluated its implementation. Students accessed this content via the online learning management system, Canvas, from January

23, 2023, to February 28, 2023. The Provider Survey v2.0 was utilized to measure DNP students' knowledge, attitudes, and competency in utilizing TIC practices prior to participating in the online educational modules and again immediately after the education. An additional Provider Survey v2.0 link was available to test 30-day retention of TIC curriculum from March 26, 2023, through April 8, 2023. The Provider Survey v2.0 also collected data regarding DNP students' current use of TIC practices and identified their perceived barriers to assessing for trauma and utilizing appropriate interventions. Data were then be analyzed, and results were disseminated.

Data Collection and Analysis

The 40-item Trauma-Informed Care (TIC) Provider Survey v2.0 was deployed through an electronic Qualtrics survey and uploaded to Canvas learning management system. The TIC Provider Survey aims to measure DNP students' knowledge, attitudes, and self-reported competency in utilizing TIC practices. The survey also assessed DNP students' current use of TIC practices and their perceived barriers to assessing for trauma and utilizing appropriate interventions. Demographic data including age, gender, ethnicity, years of nursing experience, and NP specialty were also obtained and deidentified using the first four characters of participants' driver's licenses as a unique identifier. As part of the Spring 2023 intensive module, DNP students were asked if they would like to voluntarily complete the pre-education, immediate post-education, and 30-day post education Qualtrics surveys to be entered into a raffle to win a $40 Amazon gift card. Students were able to sign up for the raffle via a separate link at the end of the 30-day post-education survey. The separate survey allowed students to enter their name and e-mail but was not tied to the coded survey. The data collection window closed on April

8, 2023. Descriptive and inferential statistics were used to analyze this data using the Statistical Package for the Social Sciences (SPSS) v.29 software. Additionally, repeated paired samples *t*-tests were utilized to assess changes in participants' pre-education, immediate post-education, and 30-day post education scores.

Results

Descriptive Statistics

A total of 32 DNP students enrolled in the Spring 2023 intensive were asked to voluntarily complete pre-, immediate-post, and 30-day post-education surveys, with 23 participants completing the pre- and immediate-post surveys, and ten completing all three surveys. Most participants were between the ages of 20 and 29 (65.2%), female (95.7%), Caucasian (91.4%) and had between 0-5 years of experience *(*52.2%) or 6-10 years (30.4%) (see Table 1). There was a wide dispersal of program specialties, with the greatest percentage belonging to the Psychiatric track (*n* = 7; 30.4%) followed by Women's health (*n*=5; 21.7%) and Pediatric Primary Care (*n*=5; 21.7%) (see Table 1.). There was a 71.88% completion rate of pre- and immediate post-surveys of all possible participants and a 52.52% attrition rate with a corresponding 47.48% retention rate at the 30-day post-survey.

Table 1

DNP Student Participant Baseline Demographics

Variable/Level	Frequency (%)
Age	
20-29	15 (65.2%)
30-39	7 (30.4%)
40-49	1 (4.3%)

Gender	
Male	1 (4.3%)
Female	22 (95.7%)
Racial/Ethnic Identity	
Caucasian	21 (91.4%)
African American	1 (4.3%)
Prefer not to say	1 (4.3%)
Years of RN Experience	
0-5	12 (52.2%)
6-10	7 (30.4%)
11-15	4 (17.4%)
DNP Program Specialty	
Family (FNP)	3 (13.0%)
Pediatric (Acute care)	3 (13.0%)
Pediatric (Primary care)	5 (21.7%)
Psychiatric (PMHNP)	7 (30.4%)
Women's Health	5 (21.7%)

Note: N=23 participants

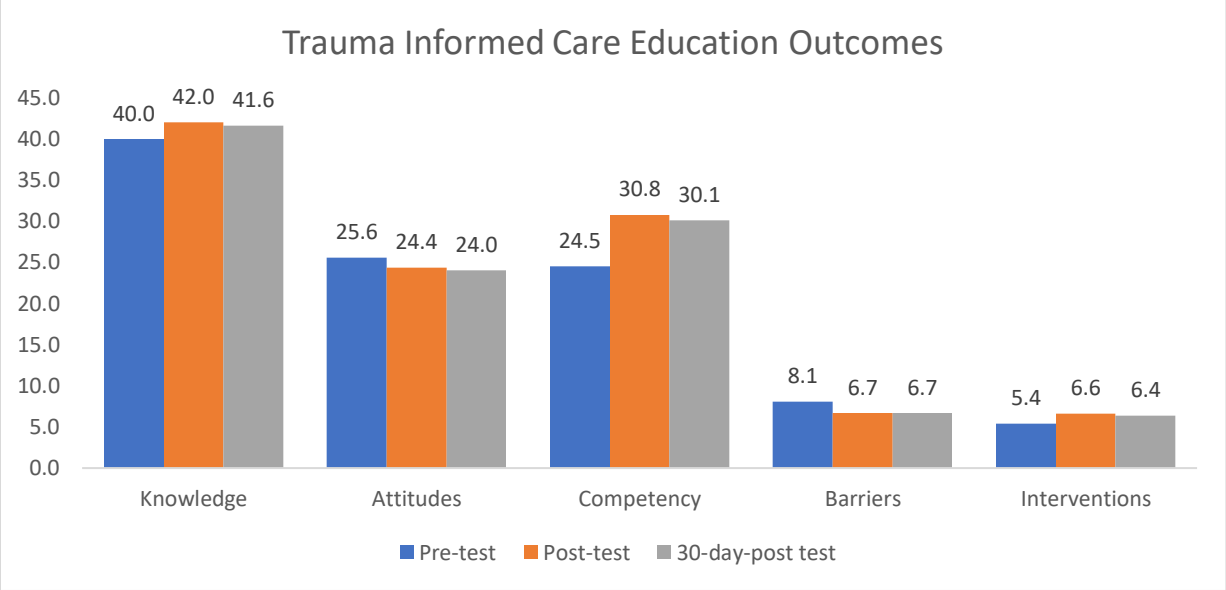
Inferential Statistics

The TIC v2.0 Provider survey consists of five subscales including knowledge of TIC, attitudes towards TIC, competency regarding TIC practices, barriers to utilizing TIC, and TIC interventions utilized within the last six months. Scores were calculated using the associated scoring rubric and coded in Qualtrics. Due to attrition across the three observations (pre-intervention, post-intervention, maintenance) of the TIC, repeated-measures *t*-tests were utilized to test for significance of change across time associated with the intervention. Means and standard deviations were reported and

interpreted for the *t*-test analyses. A Bonferroni-adjusted alpha value of 0.017 (0.05/3 = 0.017) was used to account for increased experiment wise error rates when testing multiple hypotheses concurrently.

Figure 1

Comparison of five subscales pre-post education



Note: N=23 participants for pre-and post-surveys and ten participants for the thirty-day-post surveys.

For the within-subjects comparisons, a statistically significant difference was detected for the Knowledge subscale between pre- and immediate-post-education surveys, $p = 0.004$, but not for any other Knowledge comparison. There was no significant change in Attitudes scores or Barriers scores across all three observations, $p > 0.05$ for all. For the Competency subscale, statistically significant increases were detected from pre-to immediate- post-education surveys $p < 0.001$, and from pre- to 30-day post-education surveys, $p = 0.009$. Similarly for the Interventions subscale, significant increases were found from pre-to immediate post-education, surveys $p = 0.01$, and from

pre- to 30-day-post-education surveys, $p = 0.003$. All the means and standard deviations, along with associated *p*-values, are presented in Table 2.

Table 2

Repeated samples paired t-test results.

Outcome/Comparison	*n*	Pre-education survey	Post-education survey	30-day post education survey	*p*-value
Knowledge					
Pre – Post	21	40.0 (3.2)	42.0 (4.1)		0.004*
Pre – Retention	9	39.1 (2.9)		41.6 (3.2)	0.08
Post – Retention	9		41.7 (3.4)	40.8 (2.8)	0.15
Attitudes					
Pre – Post	23	25.6 (2.2)	24.4 (2.4)		0.13
Pre – Retention	10	22.4 (1.3)		24.0 (3.3)	0.21
Post – Retention	10		24.3 (1.9)	24.0 (3.3)	0.68
Competency					
Pre – Post	22	24.5 (4.6)	30.8 (4.2)		< 0.001*
Pre – Retention	10	25.9 (3.3)		30.1 (4.2)	0.009*
Post – Retention	10		31.7 (4.0)	30.1 (4.2)	0.37
Barriers					
Pre – Post	23	8.1 (2.2)	6.7 (3.3)		0.04
Pre – Retention	10	8.4 (2.0)		6.7 (3.2)	0.09
Post – Retention	10		7.3 (4.6)	6.7 (3.32)	0.66
Interventions					
Pre – Post	22	5.4 (2.0)	6.6 (2.0)		0.01*
Pre – Retention	10	4.0 (2.4)		6.4 (2.4)	0.003*
Post – Retention	9		6.8 (1.6)	7.0 (1.6)	0.76

Note: Values are mean (standard deviation), * $p < 0.017$, statistically significant at Bonferroni-adjusted *p*-value

Discussion

This PE project investigated if six trauma-informed care educational modules would change the knowledge, attitudes, and competency of DNP students in utilizing TIC practices. Statistically significant *t*-test results for the pre-education to post-education

surveys suggests that TIC education increases doctoral nursing students' knowledge of TIC, however, retention was not statistically significant. Statistically significant *t*-test results also indicate that DNP students competency and use of TIC interventions are substantially increased immediately following the education and at 30 days post-education. Consistent with literature review findings including the pilot study conducted by Cannon et al. (2019), the results of this PE project suggests that attitudes among DNP students are minimally impacted by a TIC educational intervention as they are already aware of the need for TIC practices. While most DNP students realize the importance of TIC practices, they report a lack of knowledge and competence without a specific TIC nursing framework to guide educational practices.

Study strengths included DNP program specialty diversity including Pediatric Acute Care, Pediatric Primary Care, Women's Health, Family, and Psychiatric Nurse Practitioner tracks. Anonymity was also maintained as participants' responses were de-identified by using the first four digits of their driver's license as a unique identifier. Study limitations included time constraints, a small sample size, limited demographic diversity of participants, high attrition rates at the 30-day post survey, six students failing to add a unique identifier to their pre and/or post-education survey(s), and five participants submitting their 30-day post-education surveys outside of the acceptable collection window. Graduate students enrolled in the required Spring intensive only had approximately one month to complete the pre and post surveys and two weeks to complete the 30-day post-survey. Allotting more time for DNP students to complete the educational module and three surveys may have increased the number of participants, thus decreasing the risk of type II error. Furthermore, time constraints made testing long-

term sustainability a challenge. Generalizability was also a concern since participants consisted of a convenience sample of DNP students in one required Spring intensive that took place at only one mid-sized Midwestern public university, which may not be representative of all graduate nursing students.

Recommendations

The results of this program evaluation project indicate that TIC education should be a continued component of graduate nursing curricula, including DNP programs. However, given the mixed results and the low sample size, further research is needed to draw any strong conclusions as to the effect of this TIC curriculum. As cited in the literature review, current TIC curriculum should be rigorously evolved to include more interactive components including simulations to improve compliance and test DNP students' understanding. The Spring 2023 intensive was already module heavy, therefore, more interactive curriculum may have increased DNP students' participation. Further PDSA cycles may also be utilized to assess DNP graduates' ability to translate the knowledge obtained from TIC doctoral curricula into clinical practice as NPs.

Conclusion

Trauma is highly prevalent and can cause significant adverse symptomology among survivors. As evidenced in the literature review, graduate nursing students are aware of the need for TIC but lack the necessary knowledge and skills to use in practice. Many graduate nursing programs lack TIC curriculum and a specific framework to guide education and practice. This PE project evaluated the impact of six TIC educational modules on the knowledge, attitudes, and competency of doctoral nursing students.

Statistically significant results suggest that DNP students have substantially increased knowledge and competency in TIC practices when they receive appropriate TIC education during their graduate nursing program. The results of this program evaluation project indicate that TIC education should be a continued component of graduate nursing curricula, including DNP programs.

References

Bruce, M., Kassam-Adams, N., Rogers, M., Anderson, K., Sluys, K., & Richmond, T. (2018). Trauma providers' knowledge, views, and practice of trauma-informed care. *Journal of Trauma Nursing*. *25*(2), 131-138. https://doi.org/10.1097/JTN.0000000000000356

Cannon, L.M., Coolidge, E.M., LeGierse, J., Moskowitz, Y., Buckley, C., Chapin, E., Warren, M., & Kuzma, E.K. (2019). Trauma-informed education: Creating and pilot testing a nursing curriculum on trauma-informed care. *Nurse Education Today*, *85*(2), 1-8. https://doi.org/10.1016/j.nedt.2019.104256

Clark, A.M., & Jones, H.M. (2022). Barriers to screening for adverse childhood experiences. *Journal of Nurse Practitioners*, *18*(2), 190-194. https://doi.org/10.1016/j.nurpra.2021.11.004

Doughty, K. (2020). Increasing trauma-informed awareness and practice in higher education. *Journal of Continuing Education in Health Professionals*, *40*(1), 66-68. https://doi.org/10.1097/CEH. 10.1097/CEH.0000000000000279

Felitti, V.J., Anda, R.F., Nordenberg, D., Williamson, D.F., Spitz, A.M., Edwards, V., Koss, M.P., & Marks, J.S. (1998). Relationship of child abuse and household dysfunction to many of the leading causes of death in adults. *American Journal of Preventative Medicine*, *14*(4), 245-258. https://doi.org/10.1016/s0749-3797(98)00017-8

Fiske, E., Ashcraft, K.R., Hege, A., & Harmon, K. (2020). An interprofessional course on trauma-informed care. *Nurse Educator, 46*(4), 50-54. https://doi.org/10.1097/NNE.0000000000000935

Kassam-Adams, N., Rzucidlo, S., Campbell, M., Good, G., Bonifacio, E., Slouf, K., Schneider, S., McKenna, C., Hanson, C., & Grather, D. (2015). Nurses' views and current practice of trauma-informed pediatric nursing care. *Journal of Pediatric Nursing*, *30*(3), 478-484. https://doi.org/10.1016/j.pedn.2014.11.008

Kuzma, E.K., Cannon, L.M., Coolidge, E.M., Harris, M., Buckley, C., Chapin, E., Coley, K., & Arbogast-Wilson Harbor, M. (2022). Faculty, preceptor, and students' perceptions of the need for trauma-informed education. *Nurse Educator*, *1*(1), 1-6. https://doi.org/10.1097/NNE.0000000000001174

Pfeiffer, K.M., & Grabbe, L. (2022). An approach to trauma-informed education in prelicensure nursing curricula. *Nursing Forum*, *58*(2), 1-7. https://doi.org/10.1111/nuf.12726

Schuurmans, A.T., Nijhof, K.S., Cima, M., Scholte, A., Popma, A., & Otten, R. (2021). Alterations of autonomic nervous system and HPA axis basal activity and reactivity to acute stress: A comparison of traumatized adolescents and healthy controls. *Stress, 24*(6), 876-887. https://doi.org/10.1080/10253890.2021.190010

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), 1-7. https://doi.org/10.7812/TPP16-061

Stokes, Y., Jacob, J.D., Gifford, W., Squires, J., & Vandyk, A. (2017). Exploring nurses' knowledge and experience related to trauma-informed care. *Global Qualitative Nursing Research, 15*(4), 1-10. https://doi.org/10.1177/2333393617734510

Wheeler, K., & Phillips, K.E. (2021). The development of trauma and resilience competencies in nursing education. *Journal of the American Psychiatric Nurses Association, 27*(4), 322-333. https://doi.org/10.1177/1078390319878779

Appendix A.

Figure 2

Knowledge and Attitudes Regarding TIC

TIC Provider Survey v2.0 - All patient version

Based on your understanding and experience, indicate whether you more strongly agree or disagree with the following:	Strongly Disagree	Disagree	Agree	Strongly Agree
1. Almost everyone who is seriously injured or ill has at least one traumatic stress reaction in the immediate aftermath of the event.				
2. It is inevitable that most individuals who experience a life-threatening illness or injury will go on to develop significant posttraumatic stress or PTSD.				
3. Individuals who are more severely injured or ill generally have more serious traumatic stress reactions than those who are less severely injured or ill.				
4. Individuals who, at some point during the traumatic event, believe that they might die are at greater risk for posttraumatic stress reactions.				
5. Many individuals cope well on their own after experiencing serious illness or injury.				
6. The psychological effects of an injury or illness often last longer than the physical symptoms.				
7. Individuals with significant posttraumatic stress reactions usually show obvious signs of distress.				
8. I know the common signs and symptoms of traumatic stress in ill or injured patients.				
9. Some early traumatic stress reactions in patients can be part of a healthy emotional recovery process.				
10. There are things that providers can do to help prevent longer-term posttraumatic stress in ill and injured patients.				
11. There are effective screening measures for assessing traumatic stress that providers can use in practice.				
12. Healthcare staff can themselves experience signs of physical and/or emotional distress related to their work.				
13. The risk for staff distress is strongly influenced by both personal and work-place factors.				

Please indicate whether you more strongly agree or disagree with the following statements:	Strongly Disagree	Disagree	Agree	Strongly Agree
14. Providers should focus on medical care for hospitalized patients as opposed to patients' mental health.				
15. The way that medical care is provided can be changed to make it less stressful for patients.				
16. Providers can teach patients how to cope with trauma.				
17. Health care professionals should regularly assess for symptoms of traumatic stress.				
18. It is necessary for providers to have mental health information about their patients in order to provide appropriate medical care.				
19. I have colleagues I can turn to for help with a patient experiencing significant traumatic stress.				
20. Healthcare organizations should address how working with patients and families impacts staff.				

Figure 3

Competency and Comfortability with TIC Practices, Barriers, and Interventions Performed in the Last Six Months

How would you rate your competence and comfort in…	Not Competent	Somewhat Competent	Very Competent
21. Engaging with traumatized patients so that they feel comfortable talking to you/ comforted by you.			
22. Responding calmly and without judgment to a patient's strong emotional distress.			
23. Eliciting details of a traumatic event from a patient without re-traumatizing them.			
24. Educating patients about common traumatic stress reactions and symptoms.			
25. Changing or altering situations within the hospital that a patient might experience as traumatic.			
26. Responding to a patient's question about whether he/she will die.			
27. Assessing a patient's distress, emotional needs, and support systems soon after a traumatic event.			
28. Providing basic trauma-focused interventions (assessing symptoms, normalizing, providing anticipatory guidance, coping assistance).			
29. Understanding how traumatic stress may present itself differently in patients of different ages, gender, or cultures.			
30. Understanding the scientific or empirical basis behind assessment and intervention for traumatic stress.			
31. Responding to colleagues' distress, emotional needs, and need for support.			
32. Managing your own work-related stress or distress.			

Please indicate whether any of the following is a barrier for you in providing basic trauma-informed assessment / intervention:	Not a barrier	Somewhat of a barrier	Significant barrier
33. Time constraints			
34. Scope of practice constraints			
35. Lack of training			
36. Confusing or unclear information on trauma informed care			
37. Worry about further upsetting or traumatizing patients			
38. Lack of organizational support			
39. Level of personal stress/distress			

In the past SIX (6) months, have you done the following basic trauma-informed interventions?	No	Yes
40. Ask a patient questions to assess his/her symptoms of distress		
41. Ask patients' family members questions to assess their symptoms of distress		
42. Teach a patient specific ways to manage pain and anxiety during a procedure		
43. Teach a patient specific ways to cope with upsetting experiences		
44. Encourage patients to make use of their own social support system (family, friends, etc.)		
45. Teach family what to say to their family member after a difficult/painful/scary experience		
46. Provide information to family about emotional or behavioral reactions that indicate their family member may need help		
47. Assess and care for your personal emotional and physical health		
48. Utilize support for yourself / your team available from your organization		