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Implementation of a Trauma-Informed Care Elective in Medical Education

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Background: Education about the harm trauma does to one's health is lacking in traditional medical school curricula. The goal of our elective extracurricular course on trauma-informed care (TIC) was to provide students with experience, knowledge, and resources to care for future patients who may have lived through traumatic experiences.

Methods: We created a semester-long elective TIC course for first year medical students at a large, public medical school. We developed one pre- and one retrospective pre/post-course survey for students using a mix of sliding scale and free text responses to capture student evaluations of the course. ANOVA was used for statistical analysis.

Results : Of the 11 students who completed the retrospective pre- and post- surveys, there was a significant increase in student's rating of their knowledge regarding impact of trauma on health by the end of the course (retro pre: 45.55+24.73, post: 81.64+11.79). Importantly, the group felt significantly more comfortable screening for intimate partner violence (retro pre: 34.09+31.05, post: 77.00+23.81), performing a physical exam for patient's experiencing intimate partner violence (retro pre: 17.55+22.17, post: 67.27+18.35), accessing resources for patients experiencing addiction and recovery (retro pre: 35.00+32.25, post: 76.82+17.79), and caring for patients who have had adverse childhood experiences (retro pre: 28.27+32.18, post: 66.36+21.46).

Discussion: This study is limited in a small sample size and the biases that accompany survey-based qualitative studies. It can only be interpreted in the context of a large public medical school in the southern United States.

Conclusion: An elective course on TIC can be a way to make medical students feel more comfortable providing trauma-informed care. Additional research is needed to evaluate the long-term influence of a TIC course on medical students' patient interactions.

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Introduction

The Substance Abuse and Mental Health Services Administration (SAMHSA) defines trauma as resulting from events or experiences that physically or emotionally harm or threaten an individual.[1] The harms of trauma to one's health have been widely recognized, including association with health risk behaviors, negative impact on mental health, and increased physical symptoms.[1,2,3] Trauma-informed care (TIC) education can provide medical students with a lens through which to view the role trauma plays in health care; TIC, however, was lacking in the medical school curriculum at a large public medical school in the United States.

TIC in medical education is important for avoiding retraumatization and promoting a safe environment for all medical student's future patients.[1] Several medical schools have created

similar extracurricular programs for teaching TIC, including symposiums, conferences, advocacy groups and more, in addition to elective content.[4] These initiatives and ongoing research have generated educational resources specifically for the patient encounter, such as guiding students through a modified physical exam and suggesting other curricular content by which to achieve the goal of TIC education.[4,5] As these programs continue to create lesson plans, and resources, it is important to share and teach best practices in TIC to developing physicians.

After restructuring the medical school curriculum to condense the basic science education, topics including TIC, intimate partner violence (IPV) adverse childhood events (ACEs) and the role of trauma in substance use and recovery were given less didactic time. In efforts to increase student exposure to these topics and supplement information provided during preclinical year, students and faculty designed a semester-long elective course called the "Trauma-Informed Care Course".

The goal of the TIC course presented here was to educate students about the effects of trauma on physical and behavioral health and to familiarize students with TIC skills to incorporate into patient care. The aim of our evaluation was to assess the efficacy of our novel course in exposing medical students to the concepts of TIC so that they may feel more comfortable, confident, and knowledgeable when dealing with concepts of previous interpersonal trauma, adverse childhood events, and addiction and recovery and how these experiences impact patients and patient health.

Methods

Setting

At a large, public medical school with an associated teaching hospital in the Southern United States.

Course Design

Of the 188 first year students in the preclinical phase who could participate, 40 students expressed interest in taking the course via a preliminary interest electronic survey and 14 students voluntarily enrolled and completed the course. A faculty advisor from the department of Obstetrics and Gynecology (OBGYN) oversaw course development and implementation. The TIC course ran from January 13th, 2020 to May 11th, 2020 and consisted of 14 one-hour class meetings. Given the timing of the course, Spring 2020, 13/14 class meetings were held virtually in accordance with Covid-19 pandemic mitigation strategies. The course had been previously designed to include a combination of didactic lectures, on-site observation of a residential substance use disorder treatment program, Alcoholics Anonymous (AA) and Narcotics Anonymous (NA) open meeting observation, and simulated patient encounters. Pandemic constraints limited the course to didactic lectures, interactive group discussions, and AA/NA meetings which could be transitioned to a virtual platform.

Didactic lectures were given by medical faculty from the fields of OBGYN, Anesthesiology, Internal Medicine, Pediatrics, and Family Medicine who had demonstrated prior interest in TIC education. Speakers also included representatives from a local art museum, a local crisis center for women and families, staff and residents of a substance use treatment program, and leaders of a hospital interpersonal abuse care program. Students were expected to complete assignments as part of the curriculum (**Table 1**) and they delivered an oral presentation on best practices, resources, or lessons learned on a topic of their choosing related to TIC (**Table 2**).

Questionnaires

After receiving approval by the Institutional Review Board (IRB) at our institution we evaluated the course using a combination of anonymous pre- and retrospective pre/post-questionnaires based on our course objectives. In simple pre- and post-questionnaires, participants may be unaware of the actual extent of gaps in their knowledge

or experience of course material at the onset of the course. Thus, a benefit of retrospective pre/post is that students can estimate their previous knowledge and/or preparedness knowing what they now know, having taken the course, and these retrospective answers can be compared to what they said in their pre-course questionnaires.

The questionnaires asked participants to use a sliding scale to indicate their level of confidence, knowledge, and level of comfort with various topics, with 0 being "not at all" and 100 being "completely." Both questionnaires included free text sections including "What made you interested in taking this elective?" and "What do you hope to learn from this course?" on the pre-course survey and "Do you feel you accomplished your learning goals?" and a space for feedback on the post-course survey. Questionnaire data were collected using Qualtrics Provo UT, 2020, under license to our university.

Statistical Analysis

This is a survey-type study and the statistical analysis provided in this report compared student responses of pre- and retrospective pre- and post-evaluation of the items that fit within the course framework. We conducted analysis of variance (ANOVA) to compare the mean responses across the three measurements. Findings are significant for $p < 0.05$. Levene's test of homogeneity of variance was reviewed to ensure reporting significant differences in post hoc comparisons is accurate.

Results

All 14 students enrolled at the beginning of the course completed the course and all requirements. Of the 14 students, 12 (86%) completed the pre-course questionnaires and 11 (79%) completed the post-course questionnaires. While the number of evaluations is small, they do provide interesting insights into student self-perception and assessment of the course. All survey participants indicated they had accomplished their course learning goals.

Analysis via ANOVA found a significant variance ($p<0.05$) in the group's mean confidence in recognizing social contributors to health (F 3.442, p-value 0.045) and barriers to care (F 5.46, p-value 0.009). The group's confidence in their ability to empathize with patients who have experienced traumas or violence also varied significantly (F 3.45 , p-value 0.045) (**Table 3**). The group's average feeling of knowledge about the harms of violence and trauma to patient health varied significantly (F 10.55, p-value <0.001) (**Table 4**). Notably, there was a significant variation in the group's mean comfort level across all three contexts of ACEs, IPV, and addiction and recovery in recognizing signs (respectively, F 6.57, p-value 0.004, F 4.36, p-value 0.021, F 4.50, p-value 0.019), caring for (respectively F 8.16, p-value 0.001, F 6.19, p-value 0.005, F 5.57, p-value 0.009), and performing a physical exam (respectively F 18.14, p-value <0.001, F 23.64, p-value <0.001, F 12.53, p-value <0.001) (**Table 5**). Of the 11 students who completed the retrospective pre- and post- surveys, there was a significant increase in student's rating of their knowledge regarding impact of trauma on health by the end of the course (retro pre: 45.55+24.73, post: 81.64+11.79). Importantly, the group felt significantly more comfortable screening for intimate partner violence (retro pre: 34.09+31.05, post: 77.00+23.81), performing a physical exam for patient's experiencing intimate partner violence (retro pre: 17.55+22.17, post: 67.27+18.35), accessing resources for patients experiencing addiction and recovery (retro pre: 35.00+32.25, post: 76.82+17.79), and caring for patients who have had adverse childhood experiences (retro pre: 28.27+32.18, post: 66.36+21.46).

Discussion

Violence has long been recognized as a public health priority, occurring on a global scale and engendering acute and chronic, multi system effects on human health and behavior. Medical providers worldwide would likely benefit from training in a patient-centered approach to providing quality trauma-informed care. Our findings strongly suggest that this may be accomplished via a dedicated TIC course for medical students. As previously mentioned, several medical schools have developed their own unique program for exposing students to TIC. However, a guiding body of literature and widely accepted medical student competencies in TIC is still largely under development. Groups such as the Academy on Violence and Abuse (AVA) and SAMHSA have made great strides in developing competencies for health care professionals, but when and how best to incorporate these competencies at the medical student level will likely vary significantly among institutions.[1,6] The findings from the current study will help to influence future TIC course curriculum development and emphasize the importance of learning TIC concepts during undergraduate medical education.

Participants in this study indicated this course enhanced their TIC knowledge. The largest difference in sliding scale results were seen in confidence recognizing barriers to care face by patients and recognizing the role of interdisciplinary care teams to promote quality of care. This may have been because the course speakers were specifically chosen to represent a wide range of clinical and nonclinical speakers and various medical specialties. Less of an impact was seen on confidence in recognizing bias, stereotypes, and stigmas, which may represent an area of improvement to focus on in future course iterations (**Table 3**). The most significant impact in knowledge improvement was that regarding the impact of violence and trauma on patient health (**Table 4**). A particularly strong variation was seen in level of comfort performing a physical exam in the context of intimate partner violence, which was an emphasized component of the course with an entire day dedicated to this topic (**Table 5**).

Interestingly, there were no significant differences between pre- and post-survey questions about recognizing signs of ACEs, IPV, or addiction and recovery. This could be a result of previous lessons on trauma in medical education or elsewhere that largely emphasize recognition of warning signs. This could indicate that medical students perceive themselves to be more prepared to recognize signs of trauma but feel less confident about taking the next steps, such as reporting, modifying care, and offering resources and support, after a patient's traumatic experience is disclosed or recognized. A course specifically devoted to TIC has the opportunity to provide a clearer perspective on these steps beyond initial recognition, to dive deeper into discussion about clinical encounters and trauma's potential to harm health, and to give students the practical skills they can apply in their future medical practice, leading to better patient care.

The course evaluation has several limitations. First, as the number of participants is small, so too is the number of evaluations completed. Future iterations of the course may provide an increased sample size. Pre- and post- data were not matched, and thus results cannot be extrapolated to the individual level but rather are a comparison of the changes of the class as a whole after having taken the TIC course. While we feel all students could benefit from TIC training, an elective course is limited in enrollment and thus may reach a smaller group of students than would other TIC educational approaches, such as conferences and symposiums. However, the benefits of an elective course include more time with course content and longitudinal learning with peers. Additionally, while not originally designed for a virtual course, the SARS CoV-2 pandemic meant that majority of the course was virtual, and these results can only be interpreted in that context. In the future, in person and on-site observation as well as simulated patient encounters with real-time feedback would

be preferable for a TIC course. This is a qualitative study and is limited by the accompanying biases present in survey-based studies. Finally, the results can only be interpreted in the southern US medical school setting and might not apply in other geographical locations in the US.

Conclusion:

TIC is an important concept for all medical students to learn during their medical education and training. We believe this can be achieved via an elective TIC course, as demonstrated by this evaluation of our novel course.

Limitations Statement

Limitations to the study included a small sample size from a single clinic. The data in this study was also not stratified by patient demographic or diagnosis code. All patients were aggregated based on multiple codes.

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Table 1. Curriculum and Student Assignments

Category	Specific Topics	Assignments
General TIC	Introduction/Lecture from Residential Substance Use Treatment Program Faculty	Review course syllabus and expectations
	Interview with Substance Use Treatment Program Participant	
	Physical Exam Modifications for TIC	Review Elisseou trauma informed physical exam
	Bioethics: Reporting patient trauma and post-traumatic stress in obstetrics	
	Art Museum Activity - Observation/Implicit Bias	Art Observation and Bias Reflection
	Final Presentations: Resources, best practices, lessons learned	Presentations
ACEs	Adverse Childhood Events and Child Abuse	
	Documentary discussion	View documentary "Broken Places" or "Resilience"
Substance Use	Pain Management from Anesthesiology in Opioid Epidemic	
	NA and AA Meeting Debrief and Discussion	Attend NA/AA meetings and complete reflection
	Addiction medicine during the opioid epidemic	
IPV	Women's crisis center on how to screen for abuse and domestic violence resources	
	Legal aspects and resources in IPV and child abuse	

Table 2. Student Presentation Topics

Evidence for a Trauma-Informed Approach to the Patient with First Episode Psychosis
Screening Tools for Intimate Partner Violence
Addressing Pediatric & Young Adult Substance Abuse
Trauma at the End of Life
Post-Traumatic Stress Disorder in Black Americans
Healthcare Toolbox: A resource for healthcare providers handling the psychological and emotional impact of COVID-19
Primary Care in the Wake of Sexual Assault
Intimate Partner Violence, Elder Abuse, & Abuse of Vulnerable Adults
Domestic Violence Laws in North Carolina
Trauma-Informed Care to Young Gynecology Patients
Best Practices for a Trauma Informed Care Physical Exam
Addressing Acute Pain (and Opioids) in a Pandemic
What Medical Students Should Know About ACEs
Covid-19 and Substance Use Disorders

Table 3. Student confidence over the course in a variety of course topics

				ANOVA Findings			
I feel confident in my ability to…	**Pre (n=12)**	**Retrospective Pre (n=11)**	**Post (n=11)**	**F**	**Overall p-value**	**Pre-vs Post⋆**	**Retro Pre vs Post⋆**
Recognize social contributors to health	68.92+25.24	56.45+29.99	83.09+12.66	3.442	.045	.164	.013
Recognize barriers to care faced by patients	64.50+21.28	53.36+26.64	82.64+12.49	5.46	.009	.047	.003
Recognize the role of interdisciplinary care teams to promote quality of care	60.42+22.72	54.55+27.49	84.64+10.15	6.12	.006	.011	.003
Recognize my own implicit biases	59.42+16.18	42.55+27.56	64.82+24.85	2.78	.078	.581	.031
Recognize stereotypes and stigmas in the health care system	61.83+19.33	52.55+26.29	76.45+22.27	3.10	.059	.133	.019
Empathize with patients who have experienced traumas or violence	65.83+22.84	54.91+29.74	82.18+20.18	3.45	.045	.121	.014

Level of significance – p<.05. ⋆Post hoc comparison p-values

Table 4. Students feelings of knowledge towards course topics over the course

					ANOVA Findings		
How knowledgeable do you feel regarding the impact of violence and trauma on…	**Pre-(n=12)**	**Retrospective Pre (n=11)**	**Post (n=11)**	**F**	**Overall p-Value**	**Pre-vs Post⋆**	**Retro Pre vs Post⋆**
Patient health	45.33+24.90	45.55+24.73	81.64+11.7	10.55	<.001	<.001	.001
Patient's access to proper health care	51.92+27.80	48.82+26.31	74.91+18.9	3.68	.037	.030	.016
Provider and patient relationship	58.17+29.44	51.45+24.29	78.27+18.3	3.55	.041	.060	.016
Public health	51.75+27.89	50.45+30.08	77.91+16.8	4.05	.027	.021	.018

Level of significance – p<.05. ⋆Post hoc comparison p-values

Table 5. Student's level of comfort across three course contexts: ACEs, IPV, and addiction and recovery

Level of Comfort…	Adverse Childhood Experiences ANOVA Findings				Intimate Partner Violence ANOVA Findings				Addiction and Recovery ANOVA Findings			
	F	Overall p-value	Pre- vs Post*	Retro Pre vs Post*	F	Overall p-value	Pre- vs Post*	Retro Pre vs Post*	F	Overall p-value	Pre- vs Post*	Retro Pre vs Post*
Recognizing signs of	6.57	.004	.115	.01	4.36	.021	.150	.006	4.50	.019	.110	.005
Screening for	10.1	<.001	<.001	.002	7.69	.002	.004	.001	6.32	.005	.009	.002
Caring for	8.16	.001	<.001	.004	6.19	.005	.006	.003	5.57	.009	.013	.004
Performing a physical exam in the context of	18.1	<.001	<.001	<.001	23.6	<.001	<.001	<.001	12.5	<.001	<.001	<.001
Having a trauma-informed conversation with the patient about	18.5	<.001	<.001	<.001	12.7	<.001	<.001	<.001	8.44	.001	.002	.001
Reporting	14.0	<.001	<.001	<.001	8.06	.002	.001	.002	14.8	<.001	<.001	<.001
Accessing resources for	22.0	<.001	<.001	<.001	12.1	<.001	<.001	.001	11.0	<.001	<.001	.001
Empathizing with patients experiencing	4.82	.015	.036	.005	3.87	.032	.018	.018	2.73	.081	.099	.032

Level of significance – p<.05. *Post hoc comparison p-values