

Comfort and Confidence of Nurses Providing Sexual Assault Medical Forensic Examinations with TeleSANE Guidance

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Abstract

This study evaluates changes in comfort and confidence of nurses performing sexual assault medical forensic examinations (SAMFEs) using Telehealth sexual assault nurse examiner (TeleSANE) guidance. De-identified data was used from pre- and post-training comfort and confidence surveys after the 7-hour Texas Teleforensic Remote Assistance Center (Tex-TRAC) Forensic and Cart Training (N=878). Descriptive statistics and effect sizes of nurses' comfort and confidence in the overall score and five components were examined: practicing trauma-informed care (TIC), documenting a patient's history of sexual assault (SA), identifying anogenital anatomy, documenting injuries, and collecting evidence. The Wilcoxon signed-rank test or *t*-test were applied to examine pre- and post-training improvements. The Wilcoxon signed-rank test results identified that an overall change in median cumulative score was significantly larger in the post-training survey (pre-training survey median (Mdn_{pre})=17, post-training survey Mdn_{post} =20, $z=6.15$, $p<0.001$, $r=-0.75$). Among the comfort components, the median score of the component "collecting evidence" increased from 3 to 4 ($z=-5.71$, $p<0.001$, $r=-.76$), and the mean score of the component "documenting a patient history of SA" showed significant improvement in the post-training survey (t ($df=77$) = -5.63, $p<0.001$, Cohen's $d=0.64$). The cumulative median score of confidence also improved ($Mdn_{pre}=16$ vs. $Mdn_{post}=20$, $z=-6.55$, $p<0.001$, $r=.77$). The medians of the following three components of confidence were significantly higher in the post-training survey ($Mdn_{pre}=3$, $Mdn_{post}=4$): practicing TIC ($Z=-6.38$, $p<0.001$, $r=-.84$), identifying anogenital anatomy ($z=-5.94$, $p<0.001$, $r=-.77$), and documenting and collecting evidence ($z=-6.29$, $p<0.001$, $r=-.79$). Findings suggest that the Tex-TRAC Forensic and Cart Training helps improve nurses' comfort and confidence, suggesting increased availability of high-quality care for patients seeking care following SA.

Keywords: Sexual Assault, Sexual Assault Nurse Examiners, Tex-TRAC, Comfort and Confidence, TeleSANE

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Introduction

One in four women and one in 26 men experience sexual assault (SA) in their lifetimes (Leemis et al., 2022). Individuals experiencing SA may face detrimental health

consequences such as unplanned pregnancies (Mekonnen et al., 2022), sexually transmitted infections (STIs) (Dutra, Lewis, & Counts, 2025; Tao et al., 2025; Skjælaaen et al., 2022), post-traumatic stress disorder (PTSD) (Baert et al., 2023), and cardiovascular

diseases (Jakubowski et al., 2021). Additionally, they could engage in health-risk behaviors (Austin & Short, 2020). In 2016, there were approximately 323,450 SA survivors aged 12 and older in the U.S. (U.S. Government Accountability Office [USGAO], 2018). In Texas, there were 20,620 SA cases reported in 2024 (Texas Department of Public Safety [DPS], 2025). Despite the high number of SA cases, many survivors face challenges accessing SA medical forensic examinations (SAMFEs), especially in remote locations, primarily due to unprepared/untrained staff, thus limiting access to SANEs and high-quality trauma-informed care (TIC), which is essential and a standard of care for the SA patients (Gillespie et al., 2021; Hollender, 2023; Lechner et al., 2021).

Sexual Assault Nurse Examiner (SANE) Program

Since the mid-1970s, SANE programs have delivered specialized care to patients after SA (Narcavage-Bradley, Pozar, & Pierce-Weeks, 2022). Many SA patients reported receiving high-quality health care from SANEs (Hollender, 2023; Lechner et al., 2021). SANEs are registered or advanced practice nurses with specialized education to provide high-quality and trauma-informed SAMFEs. However, access to SANEs is limited in rural and underserved areas (Friday, 2025; International Association of Forensic Nurses (IAFN), 2024; IAFN, 2021; Thiede & Miyamoto, 2021; Senate Bill 71, 2019). There were approximately 950 SANE programs in the U.S. in 2018 (USGAO, 2018; Davis et al., 2021). In 2021, only 17-20% of the hospitals had SANE programs (Friday, 2025). This percentage was slightly increased in 2024 to around 25% of the U.S. hospitals having SANE programs (IAFN, 2024). Most SANE programs are concentrated in metropolitan areas, including in Texas (Thiede, E., & Miyamoto 2021; Texas Senate Bill 71, 2019). In rural and underserved

areas, challenges arose in initiating and sustaining SANE programs due to low patient volume, leading to SANEs' inability to retain competency in this field (Treat et al., 2022). For SANEs, such specialized and quality care requires intensive initial and ongoing education to attain and maintain competency. For Emergency Department (ED) nurses, lack of comfort and confidence in providing SAMFEs with limited education and support creates a service gap for SA patients (Davis et al., 2021). This is a challenging issue in a state as large as Texas. To overcome this, a telehealth platform can be utilized to connect nurses at the EDs, without or with limited SAMFE experience, to expert SANEs (TeleSANEs) who guide them through performing a SAMFE (Miyamoto & Downing, 2023).

Comfort and confidence as behavior constructs

Comfort and confidence are critical for nurses to successfully provide high-quality care in specialty areas of practice. While performing SAMFE components, service provider's comfort is fundamental for the quality care of the traumatized patients (Leininger, 1981, in Malinowski & Stamler, 2002; Fry & MacGregor, 2014). Confidence, which is interchangeably used as a measure of the perceived self-efficacy of many health behavior theories, means having a positive belief in one's capabilities to perform a particular action to achieve the desired outcome (Carpinello et al., 2000). Being comfortable and confident as a service provider will allow providers to maintain their ability to critically think and perform their best (Fry & MacGregor, 2014) and enhance patients' comfort, feeling respected, and empowerment (Busch & Rimondini, 2021). To perform SAMFEs, nurses should be comfortable and confident in each specific component (i.e., providing TIC or evidence collection).

Prior studies and gaps

Several studies examined the level of confidence among nurses in various settings, including the ED), neonatal and prenatal palliative care (Peng et al., 2018), end-of-life care (Bruno, 2022), and substance use care (Wilson et al., 2021). Prior studies also identified that the clinicians' professional confidence and personal comfort in neonatal palliative care significantly increased when they had a supportive workplace (Peng et al., 2018) or received continuous mentorship and support (Bruno, 2022).

Limited studies have examined both the comfort and confidence of non-SANE-educated nurses to provide SAMFEs with the TeleSANEs' guidance (Walsh et al., 2024). Local nurses' confidence in ability to deliver compassionate forensic care, provide a comprehensive forensic examination, and capture quality images significantly increased one year after TeleSANE program implementation, demonstrating that initial training reinforced by TeleSANE partnership is associated with increased nurse confidence (Miyamoto et al., 2021). According to their findings, the TeleSANE partnership's may lead to an increase in nurse confidence (Miyamoto et al., 2021). Studies had also used confidence scales using different components (Weaver, Knox, & McPherson, 2019; Melnyk et al., 2014; Myint et al., 2025). For example, Weaver et al.'s (2019) study used the scale established by Melnyk et al. (2014), and its focus was professional nurses, not necessarily nurses at the ED. Myint et al.'s (2026) study focused on nurses working at the ED and found that the confidence of nurses to use a telehealth program improved in the post-survey.. Despite having these studies, assessing nurses' comfort level to deliver trauma-informed care and SAMFEs was missing. To address the gap in providing quality SAMFEs in rural and underserved areas of Texas, the Center of Excellence in Forensic Nursing at

Texas A&M University developed the Texas Teleforensic Remote Assistance Center (Tex-TRAC) (Texas A&M School of Nursing, n.d.). Nurses in participating hospitals are trained by Tex-TRAC staff to provide SAMFEs utilizing TeleSANE (i.e., expert SANE) guidance via a telehealth platform (Miyamoto & Downing, 2023).

The study aimed to address the gap in literature regarding the comfort and confidence of nurses using TeleSANE guidance in the five core components of SAMFEs. Nurses' comfort and confidence was assessed before and after the Tex-TRAC Forensic and Cart Training on providing SAMFEs with TeleSANE guidance. This study will contribute to the existing limited forensic nursing literature by evaluating comfort and confidence levels of nurses who received guidance from expert/experienced TeleSANEs.

Methods

Sample and Setting

The sample included registered nurses from three hospitals in rural and underserved Texas communities who participated in the Tex-TRAC Program's Forensic and Cart Training, a required skills-based training in order for them to provide SAMFEs with the help of TeleSANE-guidance in their hospitals. Nurse participants provided informed consent for their de-identified data to be utilized in this study. This study was approved by the Institutional Review Board of Texas A&M University with IRB number (IRB2019-1227F).

Training

Tex-TRAC staff provided a 7-hour Forensic & Cart Training to prepare nurses to work collaboratively with TeleSANEs to perform SAMFEs. Tex-TRAC staff leading the training included the Forensic Nurse Manager, an expert/experienced SANE and

TeleSANE, and the Tex-TRAC Associate Program Director, an expert in using the telehealth cart equipment. This training was not intended to prepare nurses to be SANEs; instead, it prepared them for what they might hear, see, or be asked to do during a SAMFE while being guided by the expert/experienced TeleSANEs. Didactic components of the training included the following areas: team approach and inclusion of state-certified SA patient advocates to provide hospital accompaniment; patient options during SAMFEs; understanding biases toward patients after SA; medical screening exam to ensure patients are medically and psychiatrically stable prior to SAMFEs; STI prophylaxis and emergency contraception; indications for obtaining labs; TIC and an introduction to the neurobiology of trauma and its effects on patient behavior and memory while taking a patient's verbatim history of the SA; physical examination, including head-to-toe assessment and anogenital exam to identify injuries; photo-documentation and written description of injuries; and evidence collection based on the history of the patients SA. Hands-on training components included a review of SA evidence kit contents with demonstration, skills practice, demonstration of the Tex-TRAC Telehealth Cart features, and initiating a TeleSANE encounter. Regarding TIC, the Tex-TRAC Forensic and Cart training also discussed the six principles of TIC that aim to prevent further trauma to patients: safety; trustworthiness and transparency; peer support; collaboration and mutuality; empowerment, voice, and choice; and cultural, historical, and gender issues (Substance Abuse Mental Health Services Administration [SAMHSA], 2014). In SAMFEs, TIC is demonstrated through building trust and collaboration, careful word choice, and ensuring psychological safety in addition to physical safety (Poldon et al., 2021).

Tex-TRAC Forensic and Cart Training is required of any nurses who will provide SAMFEs using TeleSANE guidance prior to a hospital's initiation of Tex-TRAC services. Continuing education credit was provided to nurses who attended the full training. The training satisfies the Texas Board of Nursing forensic evidence collection education required of all nurses working in the EDs. The present study focused on nurses who examined patients aged 13 and up after a SA.

Data collection tool and data collection

A novel pre/post comfort and confidence survey was developed based on the five core components of SAMFEs: (1) practicing TIC, (2) documenting a patient history of SA, (3) identifying anogenital anatomy, (4) documenting injuries, and (5) collecting evidence (Office on Violence Against Women, 2025). The survey included 10 components with good internal consistency reliability (Cronbach's $\alpha=0.903$). The questionnaire contained two sub-scales that measured comfort and confidence; each sub-scale had five SAMFE components for participants to rate their comfort and confidence in each component.

The response choices for each sub-scale used a five-point Likert-type scale: not at all comfortable=1, not very comfortable=2, neutral=3, comfortable=4, and very comfortable=5; and not at all confident=1, not very confident=2, neutral=3, confident=4, and very confident=5. Data were collected before and after the training sessions using a pre/post survey design. Surveys were administered via an online web-based survey platform, Qualtrics® (Qualtrics, 2024) immediately before and after each Forensic and Cart training session conducted in three hospitals in Texas from 2022 to 2024. The number of nurses recruited and retained for the training at the time of survey was 121, however only 100 participated in comfort and confidence

surveys. Of those 100 participants, 90% ($n=90$) responded to both pre- and post-surveys. Despite individual variables having less than 5% missingness, 13% ($n=12$) of surveys had missing responses in at least one question. As missingness $>10\%$ could lead to bias (Madley-Dowd et al., 2019; Jakobsen et al., 2017), we excluded those ($n=12$) leaving the final sample at 78.

Data analysis

Descriptive statistical analyses were performed to examine participants' comfort and confidence in the five exam components. Number and frequency distribution of individual statements based on responses were described. To determine if the data were normally distributed, visual inspection with histogram and a numerical test with Shapiro-Wilk W test for normality was performed (StataCorp, n.d.). The Shapiro-Wilk test (W statistic) considered normal distribution if the $p>0.05$ and non-normal distribution otherwise (i.e., $p<0.05$). Depending on the normality of data (i.e., for both individual item for comfort and confidence data as well as the cumulative comfort scores and cumulative confidence score), the most relevant tests were used, i.e., paired t -test for normally distributed data and Wilcoxon signed-rank test for data that deviate from normal distribution to examine changes in comfort and confidence levels before and after the training session on each sub-scale and cumulative comfort scores and cumulative confidence score. Mean, SD, and p -value for t -test output and standardized test statistics (z), and p -value for Wilcoxon signed rank test were described.

To understand clinical effectiveness, we calculated effect sizes of Cohen's d for normally distributed data and rank-biserial correlation (r) of each group after Wilcoxon signed-rank test for data that deviate from normal distribution (Peres, 2026; Dankel & Loenneke, 2021). The cutoff values are effect

sizes small ($d=0.2$), medium ($d=0.5$), and large ($d=0.8$) (Cohen, 1992; 1998; Lakens, 2013; Goulet-Pelletier & Cousineau, 2018). Microsoft Excel was used to clean the data and Stata SE 18.5 version was used for other analyses (StataCorp., 2025).

Results

Results revealed that both comfort and confidence levels of nurses significantly increased from the pre-training to the post-training surveys. In the post-training survey, percentage of nurses reporting to be very comfortable or comfortable in all components increased, ranging from 78% ($n=61$, documenting history of SA) to 87% ($n=68$, practicing TIC). Similarly, nurses reporting confident or very confident increased in all components, ranging from 75% ($n=59$, documenting a patient history of SA and collecting evidence) to 89% ($n=70$, practicing TIC). Details of descriptive statistics are presented in Supplementary Tables 1, 2).

Changes in comfort levels in the post survey

The median cumulative score was significantly larger in the post-training survey (Pre-training survey Median (Mdn)=17, post-training survey Mdn=20, $z=-6.15$, $p<0.001$, $r=-0.75$), indicating potential the training's effects (Table 1).

Among the comfort components, only the median score of "collecting evidence" increased from 3 to 4 ($z=-5.71$, $p<0.001$, $r=-.76$). The median scores of three components showed the same (i.e., $Mdn_{pre}=4$, $Mdn_{post}=4$). However, the mean score of a component "documenting a patient history of SA" showed significant improvement in the post-training survey (t ($df=77$) $=-5.63$, $p<0.001$, Cohen's $d=0.64$) [**Note.** The results of the remaining four components were based on

Table 1.*Mean and Median Scores of Comfort and Confidence Level of Participants (N=78)*

	Mean score				Median score			
	Comfort level		Confidence level		Comfort level		Confidence level	
	Pre- trainin g survey	Post- trainin g survey	Pre- trainin g survey	Post- trainin g survey	Pre- trainin g survey	Post- trainin g survey	Pre- training survey	Post- trainin g survey
Trauma- informed care	3.53	4.28	3.35	4.28	4	4	3	4
Documentin g a Patient's SA history	3.28	4	3.12	3.97	4	4	3	4
Identifying Anogenital anatomy	3.26	4.09	3.17	4.13	4	4	3	4
Injury documentati on	3.4	4.05	3.32	4.06	4	4	4	4
Evidence collection	3.01	3.97	2.79	3.87	3	4	3	4
Overall score	16.47	20.40	15.743	20.32	17	20	16	20

Table 2.
Effect Sizes for Comfort and Confidence Level

Components	Comfort Level Effect Sizes, <i>r</i>					Confidence Level Effect Sizes, <i>r</i>				
	<i>z</i>	<i>p</i> -value	Median (pre-training)	Median (Post-training)	Effect size	<i>z</i>	<i>p</i> -value	Median (pre-training)	Median (Post-training)	Effect size
Cumulative score	-6.15	<0.001	17	20	-.75	-6.55	<0.001	16	20	-.77
Practicing trauma-informed care	-6.12	<0.001	4	4	-.87	-6.38	<0.001	3, M=3.12	4, M=3.97	-.84
Documenting a patient history of sexual assault (# this is Cohen's <i>d</i> effect size)	NA	<0.001	4	4	0.64	NA	<0.001	3	4	0.82
Identifying anogenital anatomy	-5.45	<0.001	4	4	-.74	-5.94	<0.001	3	4	-.77
Documenting injuries	-4.74	<0.001	4	4	-.67	-5.72	<0.001	4	4	-.79
Collecting evidence	-5.71	<0.001	3	4	-.76	-6.29	<0.001	3	4	-.79

Note. Regarding the comfort and confidence level of the item "Documenting a patient history of sexual assault," the Cohen's *d* effect sizes for paired pre and post surveys data were calculated. All other tests were using Wilcoxon's signed rank test.

Wilcoxon signed-rank test. (Table 2). Since the pre and post data of the item documenting a patient history of SA is normally distributed, we described the result from paired *t*-test (Supplementary Table 3).]

Changes in Confidence Levels

There was an improvement in cumulative and individual item median and mean score in confidence levels following the training (See Table 1), Supplementary Tables 1 and 2), with an increase in the proportion of nurses reporting "very confident" or "confident" in all five areas. Wilcoxon signed-rank test results showed that the median cumulative score was higher in the post-training survey (Mdn_{pre}=16 and Mdn_{post}=20) with significant test results ($z=-$

6.55, $p<0.001$, $r=.77$). Similarly, higher medians of the following three components (Mdn_{pre}=3 and Mdn_{post}=4) in the post-training survey: practicing TIC ($z=-6.38$, $p<0.001$, $r=-.84$), identifying anogenital anatomy ($z=-5.94$, $p<0.001$, $r=-.77$), and collecting evidence ($z=-6.29$, $p<0.001$, $r=-.79$). However, the median score of confidence level in documenting injuries was the same in the pre- and post-training surveys (i.e., Mdn=4), ($z=-5.719$, $p<0.001$). For component documenting a patient history of SA, the median was the same in both surveys (i.e., Mdn=4), however, mean score improved significantly (pre-training mean score (M_{pre})=3.12, M_{post}=3.97, t ($df=77$)=-7.20, $p<0.001$, Cohen's $d=0.82$). [**Note.** Since the pre- and post-data of the item

documenting a patient history of SA is normally distributed, the paired *t*-test was described. The results of the remaining four components were based on Wilcoxon signed-rank test.]

Discussion

This study assessed comfort and confidence levels of nurses in five core areas of SAMFEs: practicing TIC, documenting a patient history of SA, identifying anogenital anatomy, documenting injuries, and collecting evidence. Findings revealed positive shifts (i.e., more percentage of nurses reported being “comfortable” or “more comfortable” and “very confident” or “confident” in the post-training surveys). These positive shifts may continue increasing once TeleSANE partnerships are implemented as demonstrated by Miyamoto and colleagues (2021).

Comfort levels

The following three components significantly improved after the training: documenting a patient history of SA, identifying anogenital anatomy, and collecting evidence. The medians for overall comfort score and one of its components, “collecting evidence,” were significantly improved, suggesting the training helped the nurses’ comfort when performing SAMFEs.

Collecting evidence

There was a significant median score increase in the post-training survey in the comfort level of collecting evidence. This finding suggests that prior to the training, the nurses may have limited knowledge of proper evidence collection procedures or be concerned about legal consequences (Markos & Roach, 2022). Perhaps training helped the nurses to acquire knowledge and skills about evidence collection (i.e., what, how, and where). It is also possible that their concerns about legal consequences lessened after they

learned the proper technique of evidence collection. All these uncertainties require further research.

Practicing TIC, identifying, documenting a patient’s SA history, identifying anogenital anatomy, and documenting injuries

Following training completion, a higher proportion of training participants reported feeling “comfortable” or “very comfortable” in components such as practicing TIC, identifying anogenital anatomy, and documenting injuries. However, the median score in both surveys remained the same. This finding suggests that the overall distribution in these four components shifted toward a higher percentage, despite the median score remaining unchanged. This could be due to the fact that some nurses still feel burdened (Gesner et al., 2022) or have inadequate knowledge and training (Johnson, 2011; Taiye, 2015; Kebede, Endris, & Zegeye, 2016) when documenting SA history or injuries. The study findings on more nurses reporting comfortable or very comfortable in the post-training highlighted the fact that our training increased comfort practicing TIC and these components, which has the potential to improve patients health outcomes following SA by empowering them to hold a positive attitude and creating a safe environment (Bryson et al., 2017; Brown et al., 2022; Nielson et al., 2015). Regardless, these findings highlight a need for further research on these components among ED nurses.

Confidence levels

The Tex-TRAC Forensic and Cart Training shows a promising impact on increasing nurses’ confidence regarding expected standards of care, such as practicing TIC and other components of SAMFEs. Most participants reported some degree of improvement in confidence in the post-

training survey. This finding highlighted that the participants' confidence level shifted towards being "confident" or "more confident" in performing all SAMFE components except documenting injuries. Our findings regarding the training helping them improve their confidence are aligned with a prior study that found that training improved the nurses' positive attitude and confidence in using specific telehealth technology with the support of TeleSANE (Myint et al., 2026). We discussed further details in the specific components in the following paragraphs.

Practicing TIC

Findings showed that a higher percentage of nurses reported being "confident" or "more confident" in the post-training survey, suggesting our training helped them improve their confidence level. Given that many nurses at ED lack confidence in their ability to avoid retraumatizing patients (Chandramani et al., 2020), these findings have promising results. Further studies regarding the reasons for lack of confidence in practicing TIC among nurses at ED may be helpful.

Documenting a patient's SA history

Findings of lower confidence in the pre-training surveys supported a prior study's results (Demsash et al., 2023) that found motivation, knowledge, training, use of documentation systems (e.g., electronic systems), and availability of standard documentation tools were significant factors for professional health practice. Moreover, another study identified barriers and benefits to the use of information and communication technologies, including incompetence in technology, workload, and time (Perez et al., 2022). Although their study did not specifically focus on the nurses, understanding these factors can be helpful for

the nurses' documentation practices, and requires further studies.

Identifying anogenital anatomy

Findings revealed that there is an improvement in the confidence of the nurses regarding identifying anogenital anatomy after the training. This component requires the nurses to identify anatomy and assess for injuries and foreign materials around the anogenital and perineal areas. The nurses require knowledge, skill, collaboration with the patient, and a private and safe space when identifying anogenital anatomy so the patient feels comfortable, safe, and cared for. The increased post-training scores demonstrate the effectiveness of the Tex-TRAC Forensic and Cart Training in preparing nurses for this aspect of the SAMFE. Additionally, considering the holistic preparation for the nurse at the ED, including hands-on examination of anogenital anatomy during the training, especially for the early-career nurses could improve their confidence in identifying anogenital anatomy (Burton, Carey, & Moret, 2022).

Confidence in evidence collection

This study identified the greatest increase in confidence level of the nurses in evidence collection from pre- to post-training surveys. Since evidence collection is not an area of common practices for nurses outside the forensic setting, nurses commonly have low confidence in medical forensic evidence collection prior to training. Understanding the need for collection of sufficient, uncontaminated biological evidence and proper handling of evidence (e.g., packaging, sealing, and labeling) for court proceedings would potentially make them doubt their confidence in performing this skill in the pre-training survey (Magalhães et al., 2015). Increased confidence scores suggest the Tex-TRAC Forensic and Cart Training is effective

in increasing nurses' confidence in evidence collection.

Confidence in documenting injuries

The exam component in which participants reported the highest confidence in the pre-training survey was documenting injuries. We found that the median score remained unchanged in both pre- and post-training surveys. However, there was an increased number of nurses reporting being "confident" or "very confident" in the post-training survey, suggesting training helps improve most nurses' confidence level. This finding is somewhat aligned with findings from a recent study in Arkansas, in which 13% of ED nurses felt extremely confident providing quality forensic SA examinations following the 1-hour onboarding presentation, telehealth technology, and 24/7 telemedicine-based SANE consultation (Walsh et al., 2025). Despite not being directly comparable, our findings were consistent with another study by Torregosa and colleagues (2023), in which the authors observed a positive outcome in SANE's confidence following SANE training.

Implications for TeleSANE Practice

For nurses in the ED to give patients the best care after SA, they need to feel comfortable and confident. This study's findings are consistent with prior research that indicates that levels of comfort and confidence can increase following the training to deliver sexual health services for patients with a history of sexual trauma (White et al., 2020). Comfort and confidence of the nurses utilizing TeleSANE services are critical for sustaining these programs and ensuring improved access to high-quality care and TIC in their local hospitals. Training is integral to increasing comfort and confidence, as initial findings indicate the Tex-TRAC Forensic and Cart Training was successful in achieving these outcomes. To

sustain comfort and confidence, ongoing support and education are necessary. Tex-TRAC offers continuing education through synchronous online training.

While this study focused on comfort and confidence, there are other factors that impact the sustainability of TeleSANE programs. Maybe including all five components in future theory and hands-on training, preservice training, or in-service training could be helpful. Other variables that may be valuable for future assessment include the impact of nurse sociodemographic characteristics on comfort and confidence (e.g., level of education and practice experience) performing SAMFEs and the impact of ongoing support and continuing education on SAMFEs. The impact of TeleSANEs on the number of successful and unsuccessful cases when presenting evidence to the court, as well as their testimony experiences, could also impact the comfort and confidence of nurses utilizing TeleSANEs.

Finally, results of this study show low skewness in comfort and confidence because of included responses such as "Not at all comfortable/Not comfortable" and "Neutral." This is expected with a five-point Likert scale using scores 1-5, including the "Neutral" category (Kankaraš & Capecci, 2025).

Strengths and limitations

The strength of this study was the utilization of original data provided by nurses in rural and underserved community hospitals throughout Texas. This study specifically explored the comfort and confidence levels of the five-core components of SAMFEs among clinicians participating in a TeleSANE program. However, this study has some constraints. There were partially missing responses in surveys, which could not be included in all the analyses. Some participants left the

training early and did not complete the post-training survey, while others joined late due to their work schedules and did not complete the pre-training survey. A larger sample size could have yielded significant results in terms of effect size for each exam component instead of for each sub-scale (comfort sub-scale and confidence sub-scale).

For analyses comparing pre- and post-training score changes in comfort and confidence, choices included “Neutral” responses with the “Not at all comfortable/Not comfortable” and “Not very confident/Not confident” responses. The goal was to reflect that nurses did not select response choices that indicated they were “Very comfortable/comfortable” or “Very confident/Confident,” which was of primary interest. In future analyses, it might be easier to interpret results if participants are forced to select a negatively or positively balanced response. Moreover, our study did not focus on changes in the comfort and confidence levels over time, which might be worth exploring. Additionally, this study did not examine the long-term effects on confidence or comfort, which contradicted the findings of Torregosa et al. (2023) concerning training; thus, further research is necessary in this area.

Socio-demographic data was not gathered due to nurses working in small rural hospitals, for which socio-demographic data would make them potentially identifiable. Previous research has revealed that the level of education and years of experience positively correlate with increased comfort and confidence levels among professional nurses (Weaver, Knox, & McPherson, 2019). It was not possible in this analysis to establish correlations between socio-demographic attributes of participants and their levels of comfort and confidence. Findings would be strengthened by measuring the long-term impacts on comfort and confidence, though ongoing support and education to prevent

them are likely essential to bolstering the effects of initial one-time training.

Conclusion

Results indicate that hospital nurses in rural and underserved areas throughout Texas demonstrated increased levels of comfort and confidence in the pre- and post-training surveys to perform SAMFEs utilizing TeleSANE guidance. Implementing ongoing education and offering robust support for nurses could effectively enhance their retention within the program and mitigate the potential for high turnover rates related to low comfort and confidence. Further case studies or qualitative research on current support systems for nurses to prevent vicarious trauma and burnout should also be performed. By recruiting new staff and keeping the existing nurses can ensure that the patients after SA have access to high-quality, trauma-informed care. This will improve the health of and reduce the health inequity for SA patients in the rural and underserved areas.

Implication for health behavior research

Findings from this study highlighted that there was an improvement in the comfort and confidence of nurses in the cumulative score and some components of SAMFEs after Tex-TRAC Forensic and CART training. As briefly mentioned in the introduction, comfort and confidence are fundamental for nurses to perform desired actions (e.g., quality SAMFEs and effectively dealing with SA patients). Specifically, this study’s findings enhance the nurses’ self-efficacy, which has the potential for practicing trauma-informed, patient-centered care with adoption of Tex-TRAC TeleSANE guidance when performing SAMFEs, especially in rural and underserved areas.

Discussion questions

Why are comfort and confidence the most fundamental skills required for nurses to adopt TeleSANE programs?

In addition to confidence and comfort in using TeleSANE guidance, what other critical factors are needed that impact the sustainability of TeleSANE programs? List them and discuss why they are critical.

Conflict of Interest: The authors have no conflicts of interest to declare.

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Supplementary Tables

Supplementary Table 1:*Nurses' Comfort Level: Pre-training and Post-training Surveys (N=78)*

Components of Comfort	Pre and post training surveys	Not at all comfortable: N (%)	Not very comfortable: N (%)	Neutral : N (%)	Comfortable: N (%)	Very comfortable: N (%)
Practicing trauma-informed care	Pre-training	6 (7.69)	4 (5.13)	23 (29.49)	33 (42.31)	12 (15.38)
	Post-training	0 (0.00)	0 (0.00)	10 (12.82)	36 (46.15)	32 (41.03)
Documenting a patient history of Sexual Assault	Pre-training	8 (10.26)	9 (11.54)	20 (25.64)	35 (44.87)	6 (7.69)
	Post-training	0 (0.00)	1 (1.28)	16 (20.51)	43 (55.13)	18 (23.08)
Identifying anogenital anatomy	Pre-training	8 (10.26)	9 (11.54)	21 (26.92)	35 (44.87)	5 (6.41)
	Post-training	1 (1.28)	2 (2.56)	11 (14.10)	39 (50.00)	25 (32.05)
Documenting injuries	Pre-training	7 (8.97)	7 (8.97)	18 (23.08)	40 (51.28)	6 (7.69)
	Post-training	2 (2.56)	0 (0.00)	11 (14.10)	44 (56.41)	21 (26.92)
Collecting evidence	Pre-training	12 (15.38)	12 (15.38)	22 (28.21)	27 (34.62)	5 (6.41)
	Post-training	2 (2.56)	2 (2.56)	10 (12.82)	46 (58.97)	18 (23.08)

Supplementary Table 2:*Confidence Level: Pre-training and Post-training Surveys (N=78)*

Components of confidence	Pre and post training surveys	Not at all confident: N (%)	Not very confident: N (%)	Neutral: N (%)	Confident: N (%)	Very confident: N (%)
Practicing trauma-informed care	Pre-training	6 (7.69)	10 (12.82)	24 (30.77)	27 (34.62)	11 (4.10)
	Post-training	0 (0.00)	1 (1.28)	7 (8.97)	39 (50.00)	31 (39.74)
Documenting a patient history of sexual assault	Pre-training	7 (8.97)	18 (23.08)	19 (24.36)	27 (34.62)	7 (8.97)
	Post-training	0 (0.00)	0 (0.00)	19 (24.36)	42 (53.85)	17 (21.79)
Identifying anogenital anatomy	Pre-training	9 (11.54)	9 (11.54)	28 (35.90)	24 (30.77)	8 (10.26)
	Post-training	1 (1.28)	1 (1.28)	12 (15.38)	37 (47.44)	27 (34.62)
Documenting injuries	Pre-training	5 (6.41)	14 (17.95)	16 (20.51)	37 (47.44)	6 (7.69)
	Post-training	1 (1.28)	0 (0.00)	13 (16.67)	43 (55.13)	21 (26.92)
Collecting evidence	Pre-training	10 (12.82)	19 (24.36)	29 (37.18)	17 (21.79)	3 (3.85)
	Post-training	3 (3.85)	2 (2.56)	14 (17.95)	42 (53.85)	17 (21.79)

Supplementary Table 3.

Comfort Paired t-test for Component-2: Documenting a Patient History of Sexual Assault (N=78)

	T-test results	Mean	Std. err	Std. dev	95% CI	
Comfort	t (df=77)=-7.20, p<0.001					
Pre-training survey		3.28	0.12	1.10	3.03	3.53
Post-training survey		4.00	0.08	0.70	3.84	4.16
Difference		-0.72	0.13	1.13	-0.97	-0.46
Confidence	t (df=77)=-7.20, p<0.001					
Pre-training survey		3.12	0.13	1.14	2.86	3.37
Post-training survey		3.97	0.08	0.68	3.82	4.13
Difference		-0.86	0.12	1.05	-1.10	-0.62
Note. Since the data are normally distributed, we used paired t-test to examine changes in comfort and confidence level						