

Research Article

Trends in the Provision of Trauma Treatment in Substance Use Treatment Centers: An Analysis of National Public Health Data from 2015-2020

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Abstract

Objectives: This study evaluates data from the National Survey of Substance Abuse Treatment Services years 2015-2020. The analysis seeks to determine the prevalence and changes of trauma-specific treatment in Substance Use Treatment (SUD) facilities. Additionally, the analysis seeks to determine if there are any factors that may correlate with the provision of trauma-specific programs in SUD facilities.

Methods: Publicly available data from the NSSATS survey 2015-2020 were analyzed for significance, descriptive factors, and correlates of trauma-specific programming.

Results: Trauma-specific programming has increased significantly among SUD facilities during from 2015-2020. Payer source and region are factors that correlate with whether or not trauma-specific programming is provided in SUD settings.

Conclusion: Trauma informed care appears to be gaining prevalence in SUD treatment within the U.S. Additional research is needed on the challenges of implementing trauma-specific programming in military funded and other federally funded programs.

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Keywords: Mental health; Substance use; Trauma treatment

Introduction

The National Survey of Substance Abuse Treatment Services is conducted by SAMHSA on an annual basis. The survey provides a wealth of data related to operational, clinical, and related services in substance use treatment facilities across the U.S. Though the survey is widely publicized by SAMHSA, there are many aspects of the data that are not directly analyzed in context of existing literature. One such area is the provision of trauma-specific programs in substance use treatment settings. Due to the emphasis on trauma informed care over the past decade, it is important to know if efforts to emphasize trauma treatment in addictions and mental health settings have been effective. This study seeks to understand the trends in provision of trauma-specific treatment programs in substance use settings from 2015 to 2020. Moreover, the study explores the differences in provision of trauma-specific programs based on payer sources throughout the U.S. Descriptive data provides a glimpse into regional and geographic differences based on state-level analyses as well. To date, the trauma-specific data in the NSSATS survey has not been examined in research since 2012 [1]. Thus, it is pertinent to the scholarly literature to analyze the changes that have occurred since the previous study over 10 years ago.

Prior analysis of trauma treatment trends in NSSATS data

Capezza and Najavits [1] first examined the prevalence of trauma counseling in substance use treatment centers who respond to the NSSATS survey. The study by Capezza and Najavits [1] provides the groundwork by which this current analysis is conducted. This original study examined data from the 2009 NSSATS results. Included in the analysis was indication that over 64% of SUD programs provided trauma counseling either sometimes (43.9%) or often/always (21.3%) [1]. The current study seeks to examine what the current rate of trauma counseling is and how it has changed from 2015-2020. Moreover, the current study analyzes the provision of a trauma-specific program for persons with SUD who are in a treatment setting. This analysis differs from Capezza et al., due to the fact that Capezza examined whether or not some type of trauma counseling was provided in each setting and not the presence of a trauma-specific program itself. Capezza et al., [2] also provide an excellent model of analysis for trends in intimate partner violence services from NSSATS data as well. A thorough review of the literature found that the 2012 study by Capezza and Najavits was the only such article to examine the NSSATS data for trends in trauma treatment among SUD centers across the U.S.

Prevalence of PTSD among Persons with SUD

To begin to understand the importance of trauma treatment in a SUD setting, one must appreciate the prevalence of PTSD among persons who live with SUD. The landmark Adverse Childhood Experiences study (ACE) provided one of the first acknowledgement of the impact of trauma upon the development of SUD [3]. The ACE study pointed to the development of maladaptive coping measures, like alcohol and other substance use, as being influenced by the impact of early life trauma. Essentially, the greater the amount of trauma

experienced in childhood, the greater the likelihood of medical, mental health, and substance use disorders later in life along with earlier death [3]. The ACE study led to a deluge of publications related to the connection between trauma and addiction.

When looking specifically at the prevalence of trauma among persons with SUD, Gielen et al., [4] found some striking results. Among a sample of adults with SUD compared to adults with no SUD, the researchers found that 97.4% of those with SUD reported significant trauma exposure. Additionally, those in the SUD group indicated PTSD at a rate of 37.6%, significantly higher than healthy controls. One of the most impactful results of the Gielen et al., study indicated that clinicians treating persons with SUD, were very likely to miss the presence of PTSD among their clients; indicating a further need for more specific screening, assessment, and specialized treatment of trauma among persons with SUD. In an earlier study Driessen et al., [5] also pointed to sub-clinical PTSD as a concern among those being treated for SUD. Driessen et al., [5] found that PTSD was present at a very high rate among persons in SUD treatment. Moreover, Driessen concluded that PTSD was a major risk factor associated with poorer clinical outcomes among persons in SUD treatment. Again, the importance of screening, assessment, diagnosis, and subsequent treatment come to the forefront with the results of the Driessen et al., [5] study. Gielen et al., [6] added data qualitatively to reinforce the fact that severe underdiagnosis of PTSD has been present in SUD treatment as well.

In a more recent study, Connolly et al., [7] analyzed a large public health dataset that provided responses to questions about both mental health and substance use in 2012. Among the results, Connolly et al., found that individuals who self-report having PTSD indicate higher severity of tobacco, alcohol, and substance use disorder demonstrating that PTSD is a significant predictor of both the presence of and the severity of substance use in the general public. Evidence from the Connolly et al., [7] analysis points to the continued need for trauma-related treatment for persons with SUD.

Trauma and retention in SUD treatment

An important factor of successful SUD treatment is program retention [8]. SUD treatment retention is problematic for many organizations and clinicians who provide services. Kumar et al., [9] conducted a study to examine some of the key factors associated with lower levels of treatment retention in an outpatient sample of persons engaged in a buprenorphine program. Kumar et al., [9] found that participants who reported early life physical and emotional neglect were significantly more likely to drop out of the program prior to completing treatment. The results of the study point to the importance of screening/assessing for trauma impact among persons seeking treatment. Moreover, the results provide consideration for the importance of addressing early life trauma in order to improve treatment retention and possibly outcomes overall within SUD settings.

Integrating the treatment of trauma and SUD symptoms

An array of literature points to the effectiveness of treating trauma to alleviate symptoms of SUD and trauma-related symptomatology. Lopez et al., [10] conducted an analysis of trajectories of substance use among a sample of women who received integrated PTSD and SUD treatment. The integrated treatment was compared to SUD treatment alone or treatment as usual. Women who received the integrated trauma/SUD treatment were more likely to better manage their SUD

symptoms a year after completion of the treatment episode [10]. Results of the study point to the importance of offering trauma-specific treatment in SUD settings as a way to help maintain amelioration of SUD symptoms post-treatment intervention for women in recovery. These results point to the value of the current analysis aimed at understanding how likely persons with a SUD have access to concurrent trauma/SUD treatment. In regard to specific trauma treatment, there are several approaches that have demonstrated effectiveness in alleviating trauma and SUD symptomatology among those engaged in treatment: Seeking Safety [11-13], Cognitive Processing Therapy [11,14,15], Prolonged Exposure [16-18] and EMDR [19-21].

Methodology

The data used in this analysis was the National Survey of Substance Abuse Treatment Services (N-SSATS) results from 2015 to 2020. This data can be accessed online through the Substance Abuse & Mental Health Data Archive's website. These datasets contain information about drug and alcohol abuse facilities across the United States and United States territories. IRB approval was provided by the University of Texas Health Science Center San Antonio IRB.

The dependent variable of interest in this analysis was "SRVC116", which indicates whether or not a facility provides counseling for people who have experienced trauma. The independent variables were "STATE", "REVCHK1", "REVCHK2", "REVCHK3", "REVCHK5", "REVCHK8", "REVCHK10", "REVCHK15" and "REVCHK17". The variable "STATE" indicates what state or territory the facility is located in. The "REVCHK" variables represent whether or not a facility accepts or offers cash/self-payment, private insurance, free treatment, medicaid, medicare, state financed insurance (other than medicaid), federal military insurance, or IHS (Indian Health Service) contract care funds, respectively. Another variable called "REGION" was added to determine what region a state is located in (Northeast, Midwest, West, South, or Territory).

For each pertinent question (excluding "STATE"), facilities could either answer "yes" or "no". However, there was a small amount of missing data as well as some unknown information. For the sake of simplicity, these data points were removed in all calculations. There were several objectives for this. Z-tests for two proportions, correlation analysis, and logistic regression were conducted to determine statistical significance and a conservative alpha level of 0.001 was chosen. The data from each year was combined to form one master data set for the first part of the analysis and then 2020 alone were used for the second part of the analysis.

Results

There were a total of 174 missing and "don't know" values from 2015-2020 for facilities offering trauma counseling. Removing these values, it is shown in figure 1 that the percentage of facilities that offered trauma-specific programs in 2015 was 32.36% (N=13,813), 35.96% (N=14,376) in 2016, 38.01% (N=13,585) in 2017, 39.59% (N=14,778) in 2018, 42.72% (N=15,945) in 2019 and 45.37% (N=16,022) in 2020. In order to determine if there was a significant increase in the number of facilities offering trauma-specific programs in 2015 versus 2020, a right-tailed z-test for two population proportions was utilized. It was found that the proportion of facilities offering trauma-specific programs in 2020 ($p_1=0.4537$) was significantly more than 2015 ($p_2=0.3236$), $z=-23.02$, $p<0.000$.

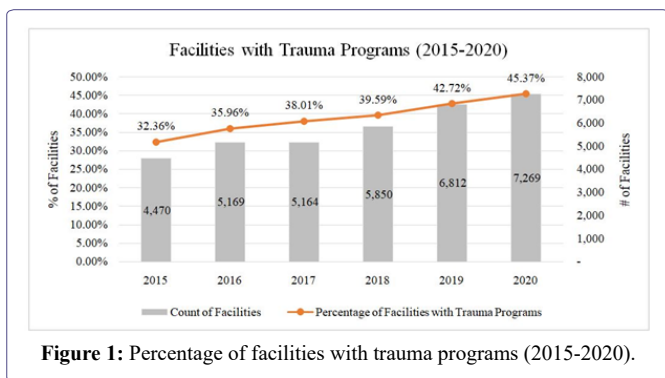


Figure 1: Percentage of facilities with trauma programs (2015-2020).

The next step of the analysis was to investigate the distribution of geographical regions that offer trauma-specific programs. There were no missing values for REGION but as mentioned before, there were 174 missing values for facilities offering trauma counseling. After excluding these values, it can be seen in figure 2 that the percentage of facilities that offer trauma-specific programs was 45.57% (N=24,023) in the West, 43.33% (N=16,775) in the Northeast, 36.31% (N=25,976) in the South, 35.52% (N=746) for territories and 32.48% (N=20,999) in the Midwest.

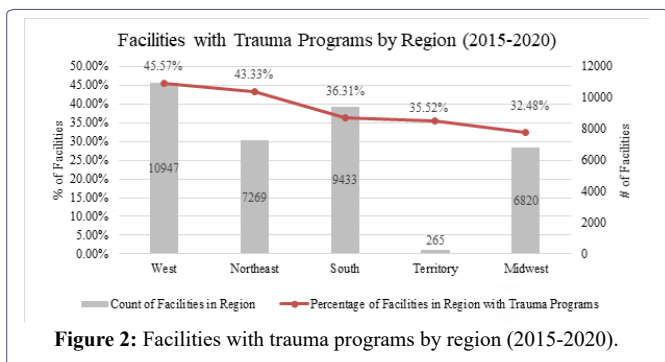


Figure 2: Facilities with trauma programs by region (2015-2020).

The payer sources of each facility were also analyzed. There were a total of 737 unusable values for free therapy (N=87,956), 797 for cash/self-payment (N=87,896), 1652 for medicare (N=87,041), 1225 for medicaid (N=87,468), 3622 for state insurance (N=85,071), 4545 for military insurance (N=84,148), 1172 for private insurance (N=87,521) and 14048 for IHS (N=74,645). Please note that the total values were calculated by removing the unusable values. According to figure 3, payer source acceptance has remained fairly consistent throughout the years. Additionally, analysis was done to see which payer sources had the highest proportion of trauma programs. IHS had the highest percentage of facilities (50.72%) and free therapy had the lowest (32.75%) (Figure 4). Lastly, to determine if the acceptance of each payer source has increased or decreased from 2015 to 2020, a z-test for two proportions was conducted for each payer source. The results for these tests in table 1 show that all payer sources have changed from 2015 to 2020 except for cash/self-payment and state insurance. It is important to note that negative test statistics indicate an increase in the payer source from 2015 to 2020 and positive values represent a decrease.

The next part of the analysis was calculating correlation coefficients for each variable. According to table 2, state insurance ($\rho=0.52$), private insurance ($\rho=0.044$), and IHS ($\rho=0.055$) were significantly positively correlated with trauma counseling. No other payer sources were significant. The highest positive correlation in the matrix was state insurance and medicaid ($\rho=0.426$) and the highest negative correlation was free therapy and cash/self-payment ($\rho=-0.356$).

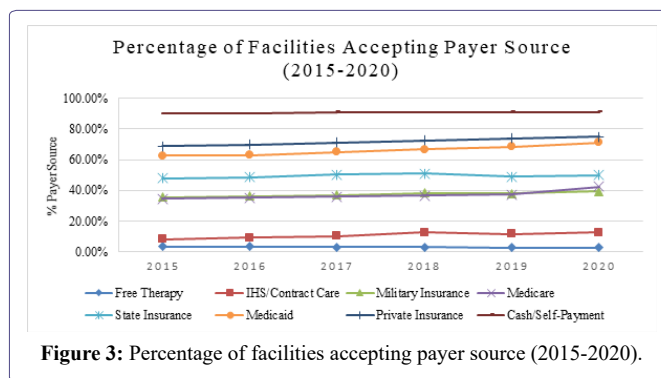


Figure 3: Percentage of facilities accepting payer source (2015-2020).

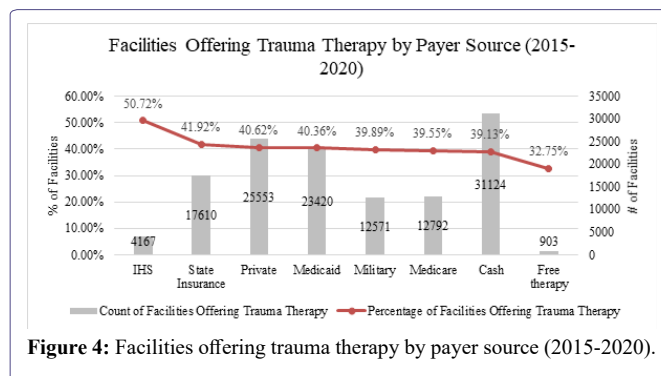


Figure 4: Facilities offering trauma therapy by payer source (2015-2020).

Payer Source			z-score	p-value
Free Therapy	0.036	0.028	3.66	**0.000
Cash/Self-Payment	0.901	0.910	-2.74	0.006
Medicare	0.347	0.423	-13.47	**0.000
Medicaid	0.628	0.712	-15.35	**0.000
State Insurance	0.479	0.498	-3.22	0.001
Military Insurance	0.357	0.393	-6.32	**0.000
Private Insurance	0.687	0.749	-11.81	**0.000
IHS/683	0.082	0.126	-11.54	**0.000

Table 1: z-test for two proportions results.

Note. **Test statistic is significant at 0.001 level (two-tailed)

To quantify the relationship between trauma-specific programs and payer source, nine separate logistic regression models were created. It is important to note that all variables could not be included in one model due to too many missing values. Additionally, the "REGION" variable was transformed into a binary variable: 1 if the state was in the top two regions for trauma counseling (West and Northeast) and 0 if the state is the one of the bottom 3 regions (South, Territory, Midwest). According to table 3, free therapy was significantly negatively related to trauma based counseling with an odds ratio of 0.747, meaning that a facility that offers free therapy is 25.3% less likely to offer trauma counseling. Medicaid, state insurance, private insurance, IHS, and region were positively related to trauma therapy. Medicaid had an odds ratio of 1.154, meaning that a facility that accepts medicaid is 15.4% more likely to offer trauma counseling. State insurance had an odds ratio of 1.236, meaning that a facility that accepts state insurance is 23.6% more likely to offer trauma counseling. IHS had an odds ratio of 1.672, meaning that a facility that accepts IHS funds is 67% more likely to offer trauma therapy. Lastly, region had an odds

	Trauma Program	Free Therapy	Cash/Self-Payment	Medicare	Medicaid	State Insurance	Military Insurance	Private Insurance
Free Therapy	-0.017							
Cash/Self-Payment	-0.007	**-.0356						
Medicare	0.006	**-.072	**0.121					
Medicaid	0.032	**-.0157	**0.152	**0.427				
State Insurance	**0.052	**-.087	**0.152	**0.336	**0.426			
Military Insurance	0.016	**-.055	**0.122	**0.390	**0.234	**0.328		
Private Insurance	**0.044	**-.0179	**0.321	**0.327	**0.302	**0.347	**0.360	
IHS Funds	**0.055	-0.029	-0.003	**0.052	-0.028	**0.134	**0.196	**0.049

Table 2: Correlations between variables of interest.

ratio of 1.524, meaning that facilities in the West and Northeast are 52.4% more likely to offer trauma counseling than facilities in the South, Midwest and territories.

Region	z-score	p-value	Odds Ratio
Free Therapy	-7.09	**0.000	0.747
Cash/Self-Payment	-1.83	0.068	0.958
Medicare	1.71	0.086	1.0249
Medicaid	9.72	**0.000	1.154
State Insurance	15.07	**0.000	1.236
Military Insurance	2.64	0.008	1.0392
Private Insurance	13.16	**0.000	1.228
IHS	21.90	**0.000	1.672
Region	30.42	*0.000	1.5238

Table 3: Logistic regression results.

Note. **Variable is significant at 0.001 level (two-tailed)

Data for 2020 alone was also analyzed. According to figure 5, trauma-specific programs by region in 2020 alone was fairly consistent with the results for 2015-2020. However, the South region was now in second place and the Northeast was in third place; the two had been swapped in the 2015-2020 data (Figure 2). According to figure 6, the ranking of payer sources for trauma counseling for 2020 are almost identical to the rankings for 2015-2020 combined. However, military insurance was higher than Medicaid for ranking number 4.

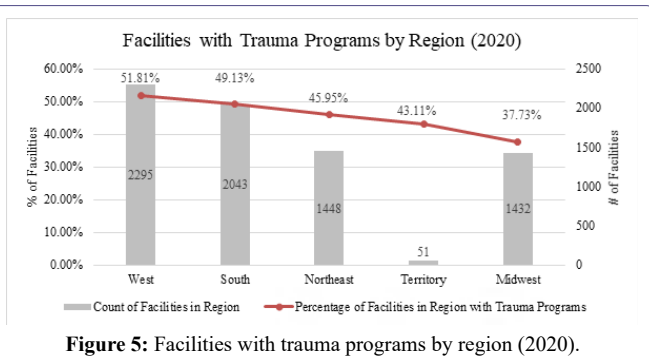


Figure 5: Facilities with trauma programs by region (2020).

Discussion

Results of the study revealed some important conclusions regarding the increased focus on trauma-specific programs in SUD

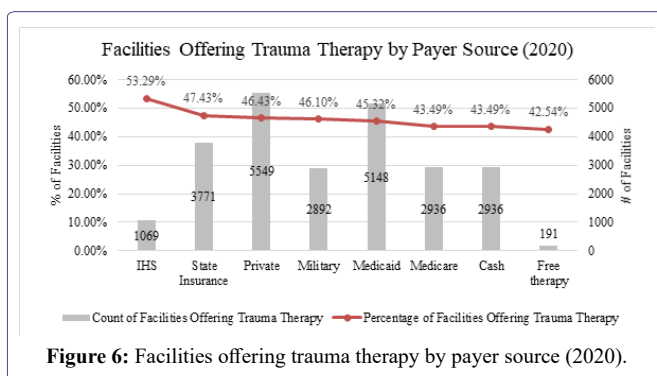


Figure 6: Facilities offering trauma therapy by payer source (2020).

treatment settings. Since 2015, a significant increase in facilities reporting trauma-specific programs has taken place ($p < 0.000$). These results are very encouraging, possibly pointing to some level of effectiveness regarding the focus on trauma-informed care in SUD, mental health, and medical service areas throughout the past several years. The most encouraging aspect is the steady trajectory of trauma-specific programs that are visible in the data (Figure 1). Further analysis will be needed when the 2021 data and beyond are reported in order to see if any significant changes occurred as a result of the COVID-19 pandemic. However, to date, the 2021 data is not available for analysis.

Additional results point to some regional differences in the provision of trauma-specific programming in SUD settings. Combined through 2015-2020, the western region of the U.S. led the way in trauma-specific programming followed by the northeast. The 2020 data alone demonstrates that the southern region of the U.S. has made some strides in provision of trauma services by reaching the second ranked regional status. Additional analysis will be needed with future data to see if this trend continues for the southern region. These data are important indicators regarding where trauma-informed care has taken root and expanded within SUD treatment facilities. On a regional level, the data could be very useful in understanding where state-level intervention with training, education, and fiscal support for program development might be needed and most effective.

Payer sources remained consistent in regard to acceptance at SUD facilities across 2015-2020. IHS, state insurance, and private insurance were significantly positively correlated with trauma therapy. Free therapy and self-pay were negatively, but not significantly, correlated with the provision of trauma programming. It is interesting to

note that federally funded programs, other than IHS, were not significantly correlated with the provision of trauma-specific programming, perhaps indicating an opportunity to evaluate the need for training, education, and intervention on a federal level for programs offering SUD treatment. The lack of significant positive correlation is especially concerning for facilities that are funded via military due to well-established connections between military-based PTSD and SUD.

These data must be considered in light of the regional differences discussed above, where the western and northeastern regions carried more trauma programming from 2015-2020. The analysis did not review payer source on a region-by-region basis for this study. Such an analysis would be recommended for future research that may be able to identify on a state-by-state level of what type of training and/or funding would be most helpful to expand the use of trauma-specific programming.

Conclusion

Trauma-specific programming in SUD treatment settings has significantly increased from 2015-2020. This is important due to the critical role that trauma informed care plays in the treatment of substance use disorder. Both regional and payer differences exist in the provision of trauma-specific programming in SUD treatment. Such differences highlight the need for continued study and analysis of state-level data to identify opportunities to expand training, education, and funding for trauma informed care in SUD treatment settings. Further research is also recommended in understanding the challenges and limitations of implementation of trauma-informed care for facilities that are federally funded, outside of IHS, due to the lack of positive correlation between federal funding and trauma-specific programming. The most immediate call for research in the area of federally funded facilities is among those who are funded via military due to the lack of significant positive correlation between military funding and trauma-specific programs. Limitations of this study are that it does not provide state-level data, specific types of trauma treatment being provided, and shows data prior to the impact of COVID-19 upon the SUD service delivery modalities.

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