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Provider–patient relationships and trauma among pregnant patients with opioid-use disorder

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Abstract

Background and objectives: The provider–patient relationship is integral to medical practice and health outcomes, particularly among vulnerable patient populations. This study compared the provider–patient relationship among pregnant patients with opioid-use disorder (OUD), who did or did not have a history of moderate to severe trauma.

Methods: This was an exploratory data analysis of 119 patients enrolled in the Support Models for Addiction Related Treatment trial. Probable posttraumatic stress disorder (PTSD) was determined by a score ≥ 31 on the PTSD Checklist for Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition. The provider–patient relationship was assessed at 26 ± 4 weeks of pregnancy using the Kim Alliance Scale (KAS). Multivariable regression was used to examine the association of KAS with probable PTSD among pregnant people with OUD.

Results: The mean KAS score for pregnant participants without probable PTSD ($N = 88$) was 61.4 (SD ± 2.8) and for pregnant participants with probable PTSD ($N = 31$) was 59.6 (SD ± 3.7). Results demonstrated significant differences in KAS scores between those with and without probable PTSD after adjusting for demographic variables. Adjusted mean total KAS scores and scores on Empowerment and Communication subscales were significantly lower among those with probable PTSD compared to those without ($p = .04$ and 0.02, respectively) but did not differ significantly on Collaboration and Integration subscales.

Conclusions and scientific significance: Analyses show an association between probable PTSD and provider–patient relationship among pregnant patients with OUD, with those with probable PTSD having a worse alliance with obstetric providers. This novel finding helps characterize the provider–patient relationship among a uniquely vulnerable population and can inform efforts to integrate trauma-informed practices into prenatal care.

INTRODUCTION

Pregnancy and the postpartum period represent a time of increased vulnerability for birthing individuals and are associated with various well-documented risks to physical and mental health that range in scope and severity. By some estimates, over 40 million people experience a long-term health problem caused by childbirth each year.[1] These problems can persist for months to years, and some for life. Given the potential impact of these issues, it is crucial that birthing people initiate and remain engaged in care throughout this period.

Opioid-use disorder (OUD) and posttraumatic stress disorder (PTSD) represent two such issues that can further jeopardize the wellbeing of both the birthing person and the fetus, with profound, long-term consequences. Individuals who use illicit opioids during pregnancy are subject to many well-documented risks; deliveries among those with OUD are associated with increased odds of maternal death during hospitalization, cardiac arrest, intrauterine growth restriction, placental abruption, preterm birth, and stillbirth.[2,3] In the postpartum period, studies have shown that people with a history of OUD during pregnancy face an increased risk of fatal overdose.[4,5] There is also research demonstrating an increased risk of suicide during this time period for those with a prior substance-use disorder.[6,7] The potential consequences of maternal opioid use during pregnancy extend past delivery, with estimated national rates of neonatal opioid withdrawal syndrome rising significantly between 2010 and 2017.[8–10]

Estimates of the prevalence of PTSD among pregnant people vary widely, ranging up to 43%, and studies have shown that the odds of screening positive for PTSD during pregnancy are significantly higher among racial and ethnic minorities and those in high-risk groups.[11–14] The risks of having PTSD during pregnancy, both to the pregnant individuals and the fetus, are increasingly well-studied. Pregnant people with PTSD are at increased risk of adverse pregnancy outcomes, including spontaneous abortion, preterm delivery, and prolonged hospitalizations.[15–18] In addition, lifetime PTSD is associated with traumatic birth experience, anxiety related to pregnancy, anxiety and depressive disorders after delivery, and infant feeding problems.[19]

The concept of the working alliance was first described in the context of psychotherapy relationships and is defined by psychotherapist Edward Bordin as consisting of three features: (1) an agreement on goals of treatment, (2) an assignment of tasks needed to achieve these goals, and (3) the development of emotional bonds between the provider and the patient.[20] Studies show that a positive working alliance influences patients' health behaviors and is associated with improved health status, increased care efficiency, and greater patient adherence and satisfaction.[21–24] However, there is less research on the role and impact of the provider–patient relationship among disenfranchised patient populations, despite prior work demonstrating that patients from marginalized backgrounds, including minoritized racial, ethnic, and socioeconomic groups, have less robust relationships with their providers, likely reflecting distrust in the healthcare system secondary to systemic inequalities in medicine and in society as a whole.[25,26] Pregnant people with OUD and PTSD are a stigmatized population that is also disenfranchised.[27–29] Despite the potential severe consequences of OUD and PTSD in pregnancy, there is scarce research examining the relationships between this vulnerable population and providers or the impact of these relationships on medical outcomes despite the central role of the provider–patient relationship in medicine. Given the scarcity of research on this topic, we aimed to evaluate the provider–patient relationship among pregnant people meeting Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) criteria for OUD with and without probable PTSD.

MATERIALS AND METHODS

This was an exploratory analysis of data from the Support Models for Addiction Related Treatment (SMART) trial, a clinical trial in Connecticut and Massachusetts testing the efficacy of remote education and collaborative care treatment models for providers caring for pregnant individuals with OUD.[30] The SMART trial is recruiting participants from 12 obstetrical centers across these two states; recruitment began on June 1, 2020 and is ongoing. The study was approved by the institutional review boards of the centers participating in this study and is registered in Clinicaltrials.gov: NCT0424039.

Recruitment was conducted at each participating site, and interested patients were screened for eligibility. To be eligible to participate in the SMART study, individuals must be English-speaking, ≥18 years old, up to 34 weeks pregnant at the time of enrollment, and with a delivery date no later than July 1, 2024. Additionally, all patient participants must have confirmed OUD in accordance with the DSM-5 OUD questionnaire. Providers included general obstetrician-gynecologists, maternal–fetal medicine specialists and nurse midwives from various practice settings, including academic medical centers, community hospitals, private practices, and federally qualified health centers. As part of the parent study, providers received training for the management of OUD in pregnancy, but no formal trauma-informed care training was provided. Study data were collected and managed using REDCap electronic data capture tools hosted at the Yale School of Medicine.[31,32]

The exposure in this analysis was probable PTSD based on a score ≥31 on the PTSD Checklist for DSM-5 (PCL-5), which was measured at baseline.[33] This cutoff is based on research suggesting that a PCL-5 score between 31 and 33 is indicative of probable PTSD per the tool's developer. The primary outcomes assessed in this study were the score on the Kim Alliance Scale (KAS) and its four subscales, measured at the 26-week time point (26 ± 4 weeks of pregnancy) for participants who were already enrolled in the study, or measured at baseline if participants were >26 weeks pregnant upon enrollment in the study. The four subscales of the KAS are Collaboration, Communication, Integration, and Empowerment. The Collaboration subscale encompasses concepts of negotiation, participation, and

cooperation, such as "I make suggestions on what works best for me." The Communication subscale is comprised of items related to bonding, provision of information, and expression of concerns, such as "I can express negative feelings freely." The Integration subscale is comprised of items related to the balance in referent and expert social power, such as "I feel involved in my health care." Lastly, the Empowerment subscale involves concepts of self-efficacy, partnership, and equality, such as "I have an active partnership with my provider." The score range for the KAS is 16–64, with each of the four subscales having score ranges of 4–16 with scores >13 indicating high therapeutic alliance. Scoring of the KAS was done in accordance with the use guidelines.[34] Before completing the KAS, participants were prompted to think specifically about their relationship with their obstetric provider, who was either a physician or advanced practice provider.

Descriptive statistics were used to describe participants' baseline characteristics overall and by probable PTSD status. Bivariate analyses comparing the mean scores of the overall KAS and its subscales between participants with and without probable PTSD were tested with t tests. Multivariable regression was used to test the association of KAS outcomes with probable PTSD, adjusted for race/ethnicity (non-Hispanic White vs. non-White), age and gestational age at intake, education (no high school degree or high school degree vs. some college), and smoking and substance use during pregnancy (yes vs. no), all measured at baseline. Age and gestational age were dichotomized as above and below the sample median. Posthoc subgroup analyses were conducted with White and non-White participants. T tests were used to compare mean KAS total and subscale scores between participants with and without probable PTSD within white and non-White subgroups. Missing data were addressed using listwise deletion. All analyses were performed using IBM SPSS Statistics (Version 27)[35] and SAS (Version 9.4).[36]

RESULTS

There were 137 people enrolled in the trial who had completed the baseline assessment as of July 20, 2022. Of these, 18 participants were excluded due to missing data (six missing PCL-5 data, one missing education data, three missing substance use during pregnancy data, eight missing KAS data). This left 119 participants who had complete data and were included in analysis.

Participant characteristics are presented in Table 1 overall and by probable PTSD group. The mean age of participants was

TABLE 1 Baseline characteristics of participants.

	Overall (N = 119)	PCL < 31 (N = 88)	PCL ≥ 31 (N = 31)
Age (years, mean ± SD)	31.2 ± 4.7	29.7 ± 5.1	31.7 ± 4.5
Gestational age at intake (weeks, mean ± SD)	21.8 ± 6.9	21.2 ± 7.0	22.0 ± 6.9
Race, N (%)			
White	93 (78.2)	66 (75.0)	27 (87.1)
Non-White	26 (21.9)	22 (25.0)	4 (12.9)
Highest level of education completed, N (%)			
<12 years	23 (19.3)	17 (19.3)	6 (19.4)
12 years (high school diploma or GED)	42 (35.3)	32 (36.4)	10 (32.3)
Some postsecondary education	54 (45.4)	39 (44.3)	15 (48.4)
Substance use during pregnancy, N (%)[a]			
Tobacco	77 (64.7)	53 (60.2)	24 (77.4)
Alcohol	9 (7.6)	4 (4.6)	5 (16.1)
Marijuana	38 (31.9)	26 (29.6)	12 (38.7)
Other drugs (combined)	48 (40.3)	32 (36.4)	16 (51.6)
Fentanyl	25 (21.0)	14 (15.9)	11 (35.5)
Heroin	24 (20.2)	14 (15.9)	10 (32.3)
Other opioids	4 (3.4)	3 (3.4)	1 (3.2)
Cocaine	20 (16.8)	12 (13.6)	8 (25.8)
Benzodiazepines (nonprescribed)	11 (9.2)	8 (9.1)	3 (9.7)
Amphetamines (nonprescribed)	6 (5.0)	4 (4.6)	2 (6.5)

Abbreviations: GED, general education development; PCL, posttraumatic stress disorder checklist for Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition.
[a]Numbers add up to greater than the total due to multiple substance used simultaneously.

31.2 (SD ± 4.7) and the mean gestational age at intake was 21.8 weeks (SD ± 6.9). The majority of participants (N = 93, 78%) identified as non-Hispanic White. Roughly 20% of participants had less than a high school degree and 35% completed a high school degree but no postsecondary education. The remaining 45% had some postsecondary education, but only four participants reported having a Bachelor's degree. With regard to substance use during pregnancy, 77 participants (64.7%) reported tobacco use, nine (7.6%) reported alcohol use, 38 (31.9%) reported marijuana use, and 48 (40.3%) reported other substance use. Participants with probable PTSD were more likely to be White and to report substance use during pregnancy compared to those without probable PTSD.

Table 2 shows the raw mean scores on the total KAS scale and subscales overall and by probable PTSD status. The overall mean score on the KAS was 60.9 (SD ± 4.6), showing strong therapeutic alliance on average. Pregnant people without probable PTSD (N = 88) had higher average adjusted and unadjusted scores compared to those with probable PTSD (N = 31) for total KAS score and each of the subscales, but unadjusted means between probable PTSD groups were not statistically significant (all p > .12).

Results from multivariable regression models showed that there were significant differences in KAS scores between those with and without probable PTSD after adjusting for race/ethnicity, age, gestational age, education, and substance use during pregnancy (see Table 3). Adjusted mean total KAS scores were over two points lower among participants with probable PTSD compared to those without (β = −2.19, SE = 0.97, p = .03). Adjusted mean scores were also statistically significantly lower among participants with probable PTSD compared to those without on the Empowerment (β = −0.53, SE = 0.26, p = .04) and Communication (β = −0.72, SE = 0.29, p = .02) subscales. Analyses of the Collaboration and Integration subscales showed no significant difference in adjusted mean scores between the two groups studied.

In each model, average KAS scores were higher among White participants compared to non-White participants (all p ≤ .05) (see Table 3). In posthoc analyses, the interaction between probable PTSD and race was not statistically significant in any of the models, but subgroup examination of raw means suggested that White participants with probable PTSD had lower KAS total and subscale scores compared to those without probable PTSD (see Table 2). Among non-White participants, the mean Empowerment subscale score was lower in the probable PTSD group compared to the group without probable PTSD, but total KAS scores and Collaboration and Communication subscale scores were similar between groups, and

TABLE 2 Raw mean KAS scores by PTSD category, overall and by race/ethnicity subgroups.

Total sample	Overall (N = 119)		PCL-5 ≥ 31 (N = 31)		PCL-5 < 31 (N = 88)			
	Mean	SD	Mean	SD	Mean	SD	t	p
KAS total	60.9	4.6	59.6	5.9	61.4	4.0	1.51	.14
Empowerment subscale	15.3	1.3	15.1	1.7	15.4	1.1	1.04	.30
Collaboration subscale	15.3	1.3	15.0	1.4	15.4	1.3	1.42	.16
Integration subscale	15.0	1.9	14.7	2.2	15.1	1.8	1.01	.32
Communication subscale	15.3	1.3	14.9	1.7	15.5	1.1	1.59	.12
White participants	Overall (N = 93)		PCL-5 ≥ 31 (N = 27)		PCL-5 < 31 (N = 66)			
	Mean	SD	Mean	SD	Mean	SD	t	p
KAS total	61.6	4.1	59.8	6.0	62.4	2.8	2.15	.04
Empowerment subscale	15.5	1.1	15.2	1.6	15.6	0.8	1.36	.18
Collaboration subscale	**15.5**	**1.1**	**15.0**	**1.3**	**15.6**	**0.9**	**2.19**	**.04**
Integration subscale	15.2	1.7	14.7	2.3	15.5	1.3	1.74	.09
Communication subscale	**15.4**	**1.2**	**14.9**	**1.8**	**15.6**	**0.9**	**2.02**	**.05**
Non-White participants	Overall (N = 26)		PCL-5 ≥ 31 (N = 4)		PCL-5 < 31 (N = 22)			
	Mean	SD	Mean	SD	Mean	SD	t	p
KAS total	58.5	5.3	58.7	6.5	58.4	5.3	−.09	.93
Empowerment subscale	14.7	1.6	14.3	2.1	14.7	1.6	.44	.68
Collaboration subscale	14.7	2.0	14.8	1.9	14.7	2.1	−.07	.95
Integration subscale	14.2	2.4	14.8	1.5	14.0	2.5	−.76	.47
Communication subscale	15.0	1.6	15.0	2.0	15.0	1.6	−.04	.97

Note: PCL-5 scores ≥ 31 indicate probable PTSD. Bold values are significant at p < .05.

Abbreviations: KAS, Kim Alliance Scale; PCL-5, PTSD Checklist for Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition; PTSD, posttraumatic stress disorder.

TABLE 3 Results from multivariable regression models testing association of total KAS score and KAS subscale scores with probable PTSD.

Parameter	Total KAS β (95% CI)	p	Empowerment β (95% CI)	p	Collaboration β (95% CI)	p	Integration β (95% CI)	p	Communication β (95% CI)	p
PCL-5 ≥ 31 versus PCL-5 < 31	**−2.19** (**−4.12, −0.27**)	**.03**	**−.53** (**−1.05, −0.02**)	**.04**	−.5 (−1.08, 0.07)	.09	−.42 (−1.22, 0.38)	.3	**−.72** (**−1.29, −0.14**)	**.02**
White vs. non-White	**3.55** (**1.54, 5.55**)	**<.01**	**.93** (**0.39, 1.46**)	**<.01**	**.83** (**0.23, 1.43**)	**.01**	**1.18** (**0.34, 2.01**)	**.01**	**.61** (**0.01, 1.21**)	**.05**
Age >31 versus ≤ 31 years	−.08 (−1.77, 1.60)	.92	−.4 (−0.85, 0.05)	.08	.07 (−0.44, 0.57)	.79	.4 (−0.31, 1.10)	.27	−.13 (−0.64, 0.37)	.61
Gestational age ≥ 22 versus <22 weeks	.37 (−1.28, 2.01)	.66	−.12 (−0.56, 0.32)	.59	.04 (−0.45, 0.54)	.87	.31 (−0.37, 1.00)	.37	.13 (−0.37, 0.62)	.61
High school degree versus at least some postsecondary	1.77 (−0.07, 3.61)	.06	**.5** (**0.01, 0.99**)	**.05**	.53 (−0.02, 1.08)	.06	.6 (−0.17, 1.36)	.13	.14 (−0.42, 0.69)	.63
No high school degree versus at least some postsecondary	1.47 (−0.78, 3.72)	.2	**.71** (**0.11, 1.31**)	**.02**	.03 (−0.65, 0.70)	.7	.7 (−0.23, 1.64)	.14	.02 (−0.65, 0.70)	.95
Tobacco use during pregnancy (yes vs. no)	.32 (−1.46, 2.10)	.72	.01 (−0.46, 0.48)	.97	−.2 (−0.73, 0.33)	.46	.04 (−0.7, 0.78)	.91	.47 (−0.06, 1.01)	.08
Alcohol use during pregnancy (yes vs. no)	1.76 (−1.45, 4.98)	.28	**.9** (**0.04, 1.76**)	**.04**	.3 (−0.66, 1.27)	.53	.25 (−1.09, 1.59)	.71	.3 (−0.67, 1.26)	.54
Cannabis use during pregnancy (yes vs. no)	−.79 (−2.54, 0.96)	.37	−.26 (−0.72, 0.21)	.28	.12 (−0.41, 0.64)	.66	**−.72** (**−1.45, 0.01**)	**.05**	.06 (−0.47, 0.58)	.82
Other drug use during pregnancy (yes vs. no)[a]	−.4 (−2.17, 1.36)	.65	−.23 (−0.7, 0.24)	.34	.11 (−0.42, 0.64)	.69	−.19 (−0.92, 0.55)	.62	−.09 (−0.62, 0.44)	.74
Intercept	57.74 (54.93, 60.56)	<.01	14.77 (14.01, 15.52)	<.01	14.56 (13.71, 15.40)	<.01	13.75 (12.58, 14.93)	<.01	14.67 (13.83, 15.52)	<.01

Note: Bold values are significant at p < .05.

Abbreviations: β, regression coefficient; CI, confidence interval; KAS, Kim Alliance Scale; PCL-5, PTSD Checklist for Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition; PTSD, posttraumatic stress disorder.

[a]Other drugs include heroin, fentanyl, other opioids, cocaine, benzodiazepines, and amphetamines.

the Integration subscale was higher in the probable PTSD group. However, given the low number of non-White participants in our sample (N = 26), particularly those with probable PTSD (N = 4), these comparisons should be interpreted with caution.

DISCUSSION AND CONCLUSIONS

These analyses show that there is an association between probable PTSD status and provider-patient relationship among pregnant people with OUD, with those with probable PTSD having an overall worse alliance with their providers. Furthermore, these results indicate that pregnant people with both OUD and probable PTSD feel less like equal partners in decision making with their providers and less bonded to their providers than counterparts without probable PTSD.

Subgroup analyses reveal statistically significant differences in KAS scores among White participants between those with and without probable PTSD, but not among non-White participants. The lack of statistically significantly difference in KAS scores among non-White participants with and without probable PTSD may reflect a baseline level of mistrust in the healthcare system regardless of PTSD history. White participants, on the other hand, may not have been exposed to the same systemic inequalities and therefore may be less likely to experience a baseline level of mistrust in their providers. These findings align with prior research indicating that patients from minoritized and marginalized backgrounds face systemic inequalities in medicine, including during pregnancy, which may contribute to feeling less aligned with medical providers.[37,38] Less robust provider–patient alliances among non-White patients and those with history of trauma may impact engagement in and quality of prenatal care services, and have a negative effect on pregnancy outcomes.

Our findings support the importance of integrating trauma-informed care into medical practice, which has been receiving increasing attention over the past several decades. Trauma-informed care is defined as the assessment and potential modification of services to include an understanding of how trauma—including racism, discrimination, and oppression—impacts the person seeking the services. It acknowledges the importance of a person's life experiences in delivering effective care and meeting their individual needs.[39] The implementation of trauma-informed care in medicine has been shown to have positive impacts on patient satisfaction and is associated with a reduction in PTSD symptoms in primary care and addiction treatment settings.[40,41] Pregnant people experiencing comorbid psychiatric and substance use disorders may derive great benefit from receiving trauma-informed prenatal care, but little research has explored these potential impacts.[42–44] In addition, the utilization of a shared decision tool can enhance patient empowerment and ensure that pregnant individuals with OUD make informed treatment decisions that reflect their individual preferences and values.[45]

This study has several limitations. First, the small sample size and relatively low number of pregnant people meeting criteria for probable PTSD reflects limited power to examine an association. Additionally, the restricted geographical range of the study to the northeastern United States may limit the generalizability to pregnant people in other geographic locations. Third, we only included a single KAS score for each participant, collected at or after 22 weeks of pregnancy; administration of multiple KAS over the course of pregnancy and postpartum may have enabled interesting analysis of trends in provider–patient relationships over time. Additionally, because the data are self-reported, they may be subject to social desirability bias. Lastly, pregnant people participating in the larger SMART study may have varying levels of interaction with their obstetric providers depending on their prenatal care needs that may influence the results of the KAS and may not fully capture the patient experience. Further analysis of this topic may benefit from both quantitative and qualitative components to address some of this variety.

By conducting this analysis, we sought to preliminarily evaluate the needs of a very vulnerable population. Pervasive disparities exist to accessing and receiving quality medical care among pregnant people as well as among those with a history of complex health conditions such as OUD and PTSD. These inequalities are likely perpetuated by provider stigma and providers must continue to educate themselves and work to dismantle any counter-therapeutic attitudes that they may consciously or unconsciously hold. Assessing the impact on provider–patient relationship among this population may help elucidate one of the reasons behind these disparities in care, or perhaps one of their effects. Additional research is needed to expand upon this study to improve our collective understanding of why these discrepancies in the provider-patient relationship exist and how they can be addressed. Furthermore, thorough evaluation of the training in trauma-informed care that obstetric providers receive may help clarify these differences and provide an avenue of opportunity to improve these relationships. Improving the working alliance between pregnant patients with probable PTSD and their providers may require implementing additional trauma-informed practices that meet the needs of patients experiencing these challenging issues.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

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