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Patient-centered Care's Relationship with Substance Use Disorder Treatment Utilization

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Abstract

Background—Calls for more patient-centered care are growing in the substance use disorder (SUD) treatment field. However, evidence is sparse regarding whether patient-centered care improves access to, or utilization of, effective treatment services.

Methods—Using nationally representative survey data from SUD treatment clinics in the United States, we examine the association between patient-centered clinical care and the utilization of six services: methadone, buprenorphine, behavioral treatment, routine medical care, HIV testing, and suicide prevention counseling. We measured clinics' practice of and emphasis on patient-centered care with two variables: (1) whether the clinic regularly invites patients into clinical decision-

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making processes, and (2) whether supervisors believe in patient-centered healthcare and shared decision-making practices within their clinics.

Results—In 2017, only 23% of SUD treatment clinics regularly invited patients into care decision-making meetings when their cases were discussed. A composite variable captured clinical supervisors' own experience with and expectations for patient-clinician interaction within their clinics (Cronbach's $\alpha=0.79$). Results from regression models that controlled for several organizational and environmental factors show that patient-centered care was independently associated with greater utilization of four of six evidence-based services.

Conclusions—A minority of SUD clinics practice patient-centered healthcare in the United States. Given the connection to evidence-based services, increasing participatory mechanisms in SUD treatment service provision can facilitate patients' access to appropriate and evidence-based services.

1. Introduction

Patient-centered healthcare has become common and aims to improve the quality of healthcare by combining clinicians' technical expertise with patients' experiential expertise (Berwick, 2009; Epstein & Street, 2011; Gerteis et al., 1993; Institute of Medicine, 2001). Instead of making top-down decisions, clinicians are increasingly expected to engage in shared decision-making through deliberative collaboration and negotiation processes with patients. For instance, clinicians can invite patients to join clinical decision-making processes, explain different treatment options (with different possible consequences), and facilitate patients' informed decision-making. In response, patients are expected to share their care history, life circumstances, lived experience, and care preferences. Thus, patient-centered care should involve mutual and shared decision-making authority between patients and clinicians (Park, 2020).

Some clinicians and patients in the substance use disorder (SUD) treatment field favor a patient-centered approach and believe it could improve patient engagement in treatment plans. However, practicing patient-centered care can be difficult in a field where distrust is pervasive between patients and clinicians (Carr, 2010; Hardina et al., 2006; W. L. White, 2014). Additionally, patient-centered care may require extra time and resources, and financially constrained clinics—especially those facing regional competition—might find it burdensome to engage patients meaningfully in care decision-making (D'Aunno, 2006; Park et al., 2019).

Despite the difficulties, interest in patient-centered healthcare is growing in the SUD treatment field (Bradley & Kivlahan, 2014; Nicolaidis, 2011). The Affordable Care Act (ACA) encouraged SUD treatment clinics to provide patient-centered care by expanding potential patient pools (e.g., Medicaid expansion and making addiction treatment an essential health benefit) and encouraging the use of patient-centered outcome measures (e.g., satisfaction, health-related quality-of-life, productivity) (Bray et al., 2017; Humphreys & Frank, 2014; Ling et al., 2020; Molfenter, 2014).

Previous studies in the SUD field have examined patients' desire for a patient-centered approach (Korthuis et al., 2010), conditions supporting patient-centered care practices (Park et al., 2019), and effectiveness of the patient-centered approach to methadone treatment (Dunlap et al., 2018; Schwartz et al., 2014). Yet evidence is limited as to when and how a patient-centered approach may make a difference in service utilization. To fill this evidence gap, this study uses nationally representative data on SUD treatment clinics to examine the associations among SUD treatment clinics' practice of and emphasis on patient-centered care and their patients' utilization of such treatment and support services.

2. Material and methods

2.1 Data

This study uses data from the 2017 National Drug Abuse Treatment System Survey (NDATSS), a comprehensive representative survey of SUD treatment facilities in the United States (Chen et al., 2017). We stratified the sample by service modality type (i.e., outpatient opioid treatment programs, outpatient nonopioid treatment programs, inpatient clinics, and residential clinics). Prior studies have supported the validity and reliability of the NDATSS method and data (D'Aunno et al., 2014; Pollack & D'Aunno, 2010).

The NDATSS conducted the 2017 wave between September 2016 and May 2017, and it included original questions developed for this study, assessing clinics' patient-centered care practices. A professional survey group contacted directors and administrative supervisors of sample clinics and obtained a range of administrative, managerial, and clinical information. Out of 730 sampled clinics, either a director or a supervisor of 657 clinics completed some or all of the survey (90% response rate). To maintain sample representativeness and control for nonresponse bias, the study team developed survey weights that we apply in our analyses (Chen et al., 2017).

2.2 Patient-centered care variables

We used two measures to capture different dimensions of clinics' patient-centered care practices. The first variable measures whether clinics regularly invite patients to participate in their clinical decision-making processes. The survey asked administrative directors whether their clinics have a "regular meeting of all treatment providers or a case conference to discuss treatment planning and progress of individual clients" and whether patients are "regularly invited to attend this planning meeting when their case is being discussed." The first patient-centered care variable identifies clinics that answered "yes" on both questions. This variable captures a relatively clear and measurable organizational behavioral pattern but does not specify the nature of the patient-clinician interactions (e.g., whether patients and clinicians collaborated to formulate mutually agreeable care plans).

To compensate for the first variable's limitations, the second patient-centered care variable assesses clinical supervisors' emphasis on, and belief in, patient-centered care practices in their clinics. We developed a composite variable ($\alpha = 0.79$) using clinical supervisors' responses (1=strongly disagree, 5=strongly agree) to 10 statements regarding their own experience and expectations for patient-clinician interactions within their clinics (e.g., "The

quality of the interaction between staff and clients is more important than getting the tasks done”; “We discuss with our clients multiple options for treating their substance use disorder”; and “This organization encourages joint patient-staff agreement on treatment plans.”). We adopted question wordings and structures from two validated measures of person-centered care (i.e., P-CAT) (Edvardsson et al., 2010) and shared decision-making (i.e., SDM-Q-Doc) (Scholl et al., 2012)—widely used measures in long-term elderly care and primary care settings. The correlation between two patient-centered care variables was very low ($r = .07$), suggesting that two variables capture different dimensions of clinics’ patient-centeredness.

2.3 Service utilization variables

To explore the clinical implications of patient-centered care practices, we examined the associations between clinics’ patient-centered care practices and utilization patterns of a range of core (medication-assisted treatment, healthcare, and preventive services) and ancillary services: methadone, buprenorphine, behavioral treatment, routine medical care, HIV testing, and suicide prevention counseling. These evidence-based services facilitate patients’ long-term recovery and promote public health (Barnett et al., 2001; Centers for Disease Control and Prevention, 2017; Marlatt, 1996; Mattick et al., 2009; Morgenstern & Longabaugh, 2000). Service utilization variables measure the percentage of SUD patients who received the services in the last fiscal year, as reported by the clinic’s supervisors. The variables range from 0 to 100 percent. To improve data accuracy, we provided a worksheet for the clinical supervisors to collect relevant data prior to the survey. Unfortunately, we do not know whether the clinical supervisors provided answers based on their estimates or actual patient records. We discuss this limitation below.

2.4 Control variables

The analyses include various environmental- and organizational-level variables known or expected to be associated with service offering patterns in the SUD treatment field (Blum & Roman, 1985; D’Aunno, 2006; D’Aunno et al., 2019; Friedman et al., 2016; Friedmann et al., 1999, 2003; Park et al., 2019).

2.4.1 Environmental factors—State-level policy (e.g., ACA’s Medicaid expansion) and regional circumstances (e.g., demand for treatment services and urbanity) (Ali et al., 2016) likely influence SUD treatment clinics’ service utilization patterns. An indicator variable identified clinics located in a Medicaid expansion state from the U.S. Census Bureau’s 2018 annual report on health insurance coverage changes (1=located in Medicaid expansion state, 0=not located in Medicaid expansion state). The number of SUD treatment admissions in the clinics’ residing counties (Substance Abuse and Mental Health Services Administration, 2018) served as a proxy of regional service demand. The regional service demand variable was highly correlated with the urbanicity and number of clinics in the residing county (correlations > 0.5 , $p < 0.05$), variables that we initially considered and then dropped from the analysis.

2.4.2 Organizational characteristics—Some clinic attributes can be associated with patient-centered care practice and service utilization patterns (D’Aunno, 2006; Friedman et

al., 2016; Friedmann et al., 1999; Park et al., 2019). We controlled for clinics' service modality (outpatient opioid treatment programs, outpatient nonopioid treatment programs, inpatient clinics, and residential clinics), ownership (private for-profit, private nonprofit, and public), proportion of revenue from Medicaid and from private insurance (range from 0 to 100%), whether clinics are owned by hospitals or mental health organizations (1=yes, 0=no), and accreditation status (by either the Joint Commission or the Commission on Accreditation of Rehabilitation Facilities [1 = yes, 0 = no]).

2.4.3 Managerial factors—An administrative director's perspectives and practices can influence clinics' overall service output patterns (Cliff, 2012; D'Aunno, 2006; Friedmann et al., 2003). The survey measured how managers perceive the extent of regional competition (1=some/a great extent/a very great, 0=no/a little extent), whether they perceive the 12-step treatment model as effective (1=great/very great extent, 0=no/a little/some extent), and whether they rely on professional information to learn about developments in the SUD treatment field (0=no extent/a little extent/some extent, 1=a great extent/a very great extent).

2.4.4 Patient and staff characteristics—Compositions of staff and patients (e.g., who will provide and receive services) can shape the services that clinics offer (Blum & Roman, 1985; D'Aunno, 2006; Park et al., 2019). We measured and controlled for multiple patient characteristics (i.e., proportions of patients who are racial/ethnic minorities, female, have alcohol use disorder, have opioid use disorder, have prescription opioid use disorder, or receive services based on court orders) and staff characteristics (i.e., proportions of staff with medical training, academic credentials, and first-hand lived experience of SUD).

2.5 Analytic approach

To ensure national representativeness, we used survey weights in all analyses (Chen et al., 2017). We first calculated descriptive statistics and then estimated multivariate linear regression models to determine independent correlates of service availability. We included both patient-centered care variables (i.e., whether the clinics regularly invite patients to participate in their clinical decision-making processes and clinical supervisor's emphasis on and belief in patient-centered care practices in their clinics) in the models at the same time given a low correlation ($r = .07$) between the two variables. Our sensitivity analysis showed that each patient-centered care variable's relationships with the outcome variables were independent (see Appendix B). We excluded clinics that did not offer services (i.e., services were unavailable) from the analyses estimating proportions of SUD patients that utilized the individual services.

To maintain sample size and reduce estimation bias, we imputed missing values of patient-centered care and control variables 30 times using the multiple imputations by chained equations method (I. R. White et al., 2011).

We standardized or log-transformed some control variables to ease interpretation and satisfy statistical assumptions. For the analyses estimating utilization of methadone treatment services, we did not include service modality and accreditation status variables due to multicollinearity. In the United States, methadone maintenance is offered only in specially licensed and accredited outpatient opioid treatment programs (D'Aunno et al., 2019).

3. Results

3.1 Descriptive statistics

In 2017, less than a quarter of SUD treatment clinics regularly invited patients into the decision-making process when clinicians discussed their care (Table 1). The services that we examined in this paper show varying degrees of availability and utilization rates (Table 2). Ten percent of clinics offered methadone, and 70% of their patients accessed it; for buprenorphine, the comparable figures were 34% and 16%, respectively. Behavioral treatment, routine medical care, HIV tests, and suicide prevention counseling were available in 63–83% of clinics, and slightly more than half of the patients in those clinics utilized the services.

3.2 Patient-centered care and service utilization

Patient-centered care variables were significantly correlated with greater utilization of most services that we examined in this study (see abbreviated results in Table 3. Full analysis results are available in Appendix A). After controlling for multiple environmental and organizational factors, greater proportions of patients utilized behavioral treatment, routine medical care, HIV tests, and suicide prevention counseling in clinics that regularly invite patients into the clinical decision-making process. In similar fashion, patients were more likely to receive available behavioral treatment services when they received care at facilities whose clinical supervisor valued and emphasized patient-centered care practices. Patient-centered care variables accounted for 11% to 27% of variation explained by these models.

Environmental factors and organizational attributes were also correlated with service utilization patterns (see Appendix). For instance, patients are more likely to utilize HIV tests and suicide prevention counseling at clinics serving more patients with prescription opioid use disorder. Compared to the patients private for-profit clinics served, a greater proportion of patients who public or private nonprofit clinics served were expected to utilize HIV tests.

4. Discussion

Patient-centered care practices are significantly associated with patients' service use. In our regression analyses of 2017 NDATSS data, variables that capture patient-centered care were associated with patients' greater utilization of behavioral treatment, routine medical care, HIV tests, and suicide prevention counseling at clinics where these services were available. This pattern is particularly concerning, given the rarity of patient-centered care practices in SUD care. Despite the increasing calls for such practices in the field (Bradley & Kivlahan, 2014), less than one-quarter of the clinics in the United States invited patients to care decision-making meetings.

This organization-level correlation may not reflect a causal relationship. That said, clinicians who engage patients in care decision-making processes are plausibly better informed about the conditions and concerns of patients. These clinicians may also develop a more reasonable and responsive care plan that accommodates patients' distinctive circumstances and needs for services offered within their clinics than those who do not engage patients in this way.

Even if the detected association is not causal, patient-centered care practices are an important marker for other critical evidence-based practices. Clinical supervisors who endorse patient-centered care practices may be more likely to apply resources to support them (e.g., through trainings, added time), and thereby influence how front-line clinicians link patients to treatment and support services that facilitate recovery.

These results suggest that patients tend to utilize treatment and support services more in SUD treatment clinics that practice and emphasize patient-centered care. When it comes to intervening with SUD patients, the main focus has been to expand patients' access to evidence-based treatment services. Many clinics have implemented strategies that expand provider pools (e.g., training more professionals who can prescribe SUD treatment medications) and enable patients to gain access to clinics (e.g., mandating that insurance plans cover SUD diagnosis and treatment services). Such measures are surely valuable.

However, access to clinics carrying out effective treatment options does not guarantee a patient's utilization of those services. Poor therapeutic alliance, lack of insurance, financial problems, and other factors may hinder such use (Pinto et al., 2019). Many medical service studies have demonstrated that proper communication and collaboration between patients and clinicians is an important lever to improve patients' engagement with services offered (Beck et al., 2002). Although a clinic may provide state-of-the-art addiction treatment and ancillary services, patients may benefit more from them when they have meaningful opportunities to influence the decisions regarding their own healthcare.

It is important to note that clinical supervisors' emphasis on patient-centered care practices was significantly associated with greater utilization of only one service (i.e., behavioral treatment) and its effect size was much smaller than the other patient-centered care variables (i.e., a 13% increase in utilization when clinics regularly invite patients into care decision-making processes vs. 7% increase associated with the one standard deviation increase in the composite variable capturing patient-centered shared decision-making). This pattern suggests that little improvement in care quality and/or patient experience can be expected when organizational emphases and investments on patient-centered care are not translated into actual patient-clinician engagement.

4.1 Limitations

This study has several limitations. First, organization-level data, that directors and clinical supervisors administered, do not directly capture patient-centered care experiences or patients' service utilization patterns. Despite our efforts to accurately capture patients' service utilization trends, clinical supervisors might provide their estimate rather than using actual patient records. The organization-level estimate also does not directly capture how individual patients perceived the responsiveness and quality of services, how long they utilized the services, and in what capacity. Despite our efforts to measure key dimensions of patient-centered care practices, the outcome and primary predictor variables may not accurately capture the nature of SUD clinics' service outputs and front-line patient-centered care practices. To further explore the implications of patient-centered care practice in the SUD treatment field, future qualitative and mixed-method studies focusing on experiences

and perceptions of patients and providers and leveraging actual case records seem promising next steps.

Second, the current study may not capture the full implications of patient-centered care practices in the field. Beyond the six services examined, patient-centered care practices may facilitate patients' access to other treatment and support services (e.g., Hepatitis C testing, legal supports, housing assistance) that can help their long-term recovery. Given limited data on referrals, we do not assess the possibility of clinicians using referrals to link patients with responsive services, a potentially important way to facilitate patients' access to and utilization of services.

Last, the findings from this United States–based study may not be generalizable in other countries with different SUD care infrastructures and history, or with different cultural understandings of patient-centered care.

4.2 Conclusion

Only a minority of SUD clinics in the United States practice patient-centered healthcare. This study identified significant associations between patient-centered care and utilization of effective SUD treatment services. Our results suggest that incorporating patients' concerns and preferences into shared decision-making may be an important ingredient for improving patient engagement in effective substance use treatment services.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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References

- Ali MM, Teich J, Woodward A, & Han B (2016). The Implications of the Affordable Care Act for Behavioral Health Services Utilization. *Administration and Policy in Mental Health and Mental Health Services Research*, 43(1), 11–22. [PubMed: 25408457]
- Barnett PG, Zaric GS, & Brandeau ML (2001). The cost–effectiveness of buprenorphine maintenance therapy for opiate addiction in the United States. *Addiction*, 96(9), 1267–1278. 10.1046/j.1360-0443.2001.96912676.x [PubMed: 11672491]
- Beck RS, Daughtridge R, & Sloane PD (2002). Physician–patient communication in the primary care office: A systematic review. *The Journal of the American Board of Family Practice*, 15(1), 25–38. [PubMed: 11841136]
- Berwick DM (2009). What 'patient-centered' should mean: Confessions of an extremist. *Health Affairs*, 28(4), w555–w565. 10.1377/hlthaff.28.4.w555 [PubMed: 19454528]

- Blum TC, & Roman PM (1985). The Social Transformation of Alcoholism Intervention: Comparisons of Job Attitudes and Performance of Recovered Alcoholics and Non-Alcoholics. *Journal of Health and Social Behavior*, 26(4), 365–378. [PubMed: 4086759]
- Bradley KA, & Kivlahan DR (2014). Bringing Patient-Centered Care to Patients with Alcohol Use Disorders. *JAMA : The Journal of the American Medical Association*, 311(18), 1861–1862. 10.1001/jama.2014.3629 [PubMed: 24825640]
- Bray JW, Aden B, Eggman AA, Hellerstein L, Wittenberg E, Nosyk B, Stribling JC, & Schackman BR (2017). Quality of life as an outcome of opioid use disorder treatment: A systematic review. *Journal of Substance Abuse Treatment*, 76, 88–93. [PubMed: 28190543]
- Carr ES (2010). *Scripting addiction: The politics of therapeutic talk and American sobriety*. Princeton University Press.
- Centers for Disease Control and Prevention. (2017). High impact HIV prevention: Overview of select interventions & strategies. Danya International.
- Chen Q, Wilson DM, & D'Aunno T (2017). National Drug Abuse Treatment System Survey (NDATSS): Sampling and weighting documentation for NDATSS 2016–2017. Columbia University.
- Cliff B (2012). Patient-Centered Care: The Role of Healthcare Leadership. *Journal of Healthcare Management*, 57(6), 381. [PubMed: 23297604]
- D'Aunno T (2006). The role of organization and management in substance abuse treatment: Review and roadmap. *Journal of Substance Abuse Treatment*, 31(3), 221–233. [PubMed: 16996385]
- D'Aunno T, Park S, & Pollack HA (2019). Evidence-based treatment for opioid use disorders: A national study of methadone dose levels, 2011–2017. *Journal of Substance Abuse Treatment*, 96, 18–22. 10.1016/j.jsat.2018.10.006 [PubMed: 30466543]
- D'Aunno T, Pollack HA, Jiang L, Metsch LR, & Friedmann PD (2014). HIV Testing in the Nation's Opioid Treatment Programs, 2005–2011: The Role of State Regulations. *Health Services Research*, 49(1), 230–248. 10.1111/1475-6773.12094 [PubMed: 23855724]
- Dunlap LJ, Zarkin GA, Orme S, Meinhofer A, Kelly SM, O'Grady KE, Gryczynski J, Mitchell SG, & Schwartz RP (2018). Re-engineering methadone—Cost-effectiveness analysis of a patient-centered approach to methadone treatment. *Journal of Substance Abuse Treatment*, 94, 81–90. 10.1016/j.jsat.2018.07.014 [PubMed: 30243422]
- Edvardsson D, Fetherstonhaugh D, Nay R, & Gibson S (2010). Development and initial testing of the Person-centered Care Assessment Tool (P-CAT). *International Psychogeriatrics*, 22(1), 101–108. 10.1017/S1041610209990688 [PubMed: 19631005]
- Epstein RM, & Street RL (2011). The Values and Value of Patient-Centered Care. *The Annals of Family Medicine*, 9(2), 100–103. 10.1370/afm.1239 [PubMed: 21403134]
- Friedman A, Howard J, Shaw EK, Cohen DJ, Shahidi L, & Ferrante JM (2016). Facilitators and barriers to care coordination in patient-centered medical homes (PCMHs) from coordinators' perspectives. *Journal of the American Board of Family Medicine*, 29(1), 90–101. 10.3122/jabfm.2016.01.150175 [PubMed: 26769881]
- Friedmann PD, Alexander JA, & D'Aunno TA (1999). Organizational Correlates of Access to Primary Care and Mental Health Services in Drug Abuse Treatment Units. *Journal of Substance Abuse Treatment*, 16(1), 71–80. [PubMed: 9888124]
- Friedmann PD, Lemon SC, Durkin EM, & D'Aunno TA (2003). Trends in comprehensive service availability in outpatient drug abuse treatment. *Journal of Substance Abuse Treatment*, 24(1), 81–88. [PubMed: 12646334]
- Gerteis M, Edgman-Levitan S, Daley J, & Delbanco TL (1993). *Through the patient's eyes: Understanding and promoting patient-centered care*. Jossey-Bass.
- Hardina D, Middleton J, Montana S, & Simpson R (2006). *An empowering approach to managing social service organizations*. Springer Publishing Company.
- Humphreys K, & Frank RG (2014). The Affordable Care Act will revolutionize care for substance use disorders in the United States. *Addiction*, 109(12), 1957–1958. [PubMed: 24965487]
- Institute of Medicine. (2001). *Crossing the quality chasm: A new health system for the 21st century* (No. 0309072808). National Academies Press <https://www.ncbi.nlm.nih.gov/books/NBK222274/>

- Korthuis PT, Gregg J, Rogers WE, McCarty D, Nicolaidis C, & Boverman J (2010). Patients' reasons for choosing office-based buprenorphine: Preference for patient-centered care. *Journal of Addiction Medicine*, 4(4), 204–210. [PubMed: 21170143]
- Ling W, Nadipelli VR, Solem CT, Ronquest NA, Yeh Y-C, Learned SM, Mehra V, & Heidbreder C (2020). Effects of monthly buprenorphine extended-release injections on patient-centered outcomes: A long-term study. *Journal of Substance Abuse Treatment*, 110, 1–8. 10.1016/j.jsat.2019.11.004 [PubMed: 31952623]
- Marlatt GA (1996). Harm reduction: Come as you are. *Addictive Behaviors*, 21(6), 779–788. [PubMed: 8904943]
- Mattick RP, Breen C, Kimber J, & Davoli M (2009). Methadone maintenance therapy versus no opioid replacement therapy for opioid dependence. *Cochrane Database of Systematic Reviews*, 3 10.1002/14651858.CD002209.pub2
- Molfenter TD (2014). Addiction treatment centers' progress in preparing for health care reform. *Journal of Substance Abuse Treatment*, 46(2), 158–164. [PubMed: 24074851]
- Morgenstern J, & Longabaugh R (2000). Cognitive-behavioral treatment for alcohol dependence: A review of evidence for its hypothesized mechanisms of action. *Addiction*, 95(10), 1475–1490. 10.1046/j.1360-0443.2000.951014753.x [PubMed: 11070524]
- Nicolaidis C (2011). Police Officer, Deal-Maker, or Health Care Provider? Moving to a Patient-Centered Framework for Chronic Opioid Management. *Pain Medicine*, 12(6), 890–897. [PubMed: 21539703]
- Park S (2020). Beyond patient-centered care: A conceptual framework of co-production mechanisms with vulnerable groups in health and social service settings. *Public Management Review*, 22(3), 452–474. 10.1080/14719037.2019.1601241
- Park S, Grogan CM, Mosley JE, Humphreys K, Pollack HA, & Friedmann PD (2019). Correlates of patient-centered care practices at U.S. substance use disorder clinics. *Psychiatric Services*, 71(1), 35–42. 10.1176/appi.ps.201900121 [PubMed: 31500544]
- Pinto RM, Chen Y, & Park S (2019). A client-centered relational framework on barriers to the integration of HIV and substance use services: A systematic review. *Harm Reduction Journal*, 16(1), 71 10.1186/s12954-019-0347-x [PubMed: 31856845]
- Pollack HA, & D'Aunno T (2010). HIV testing and counseling in the nation's outpatient substance abuse treatment system, 1995–2005. *Journal of Substance Abuse Treatment*, 38(4), 307–316. 10.1016/j.jsat.2009.12.004 [PubMed: 20171038]
- Scholl I, Kriston L, Dirmaier J, Buchholz A, & Härter M (2012). Development and psychometric properties of the Shared Decision Making Questionnaire – physician version (SDM-Q-Doc). *Patient Education and Counseling*, 88(2), 284–290. [PubMed: 22480628]
- Schwartz RP, Alexandre PK, Kelly SM, O'Grady KE, Gryczynski J, & Jaffe JH (2014). Interim vs. standard methadone treatment: A benefit-cost analysis. *Journal of Substance Abuse Treatment*, 46(3), 306–314. 10.1016/j.jsat.2013.10.003 [PubMed: 24239030]
- Substance Abuse and Mental Health Services Administration. (2018). National Survey of Substance Abuse Treatment Services (N-SSATS). <https://www.dasis.samhsa.gov/dasis2/nssats.htm>
- U.S. Department of Health and Human Services, Office of the Surgeon General. (2016). Facing Addiction in America: The Surgeon General's report on alcohol, drugs, and health (p. 413). U.S. Department of Health and Human Services <https://addiction.surgeongeneral.gov/sites/default/files/surgeon-generals-report.pdf>
- White IR, Royston P, & Wood AM (2011). Multiple imputation using chained equations: Issues and guidance for practice. *Statistics in Medicine*, 30(4), 377–399. [PubMed: 21225900]
- White WL (2014). *Slaying the dragon: The history of addiction treatment and recovery in America* (2nd ed.). Chestnut Health Systems/Lighthouse Institute.

Highlights

- Demand for patient-centered care is growing in the addiction treatment field.
- In 2017, 23% of clinics invited patients to the clinical decision-making process.
- Patient-centered care was strongly associated with greater service *utilization*.

Table 1.Descriptive statistics of patient-centered care and control variables ($n=657$).

	Weighted %
Patient-centered care variables	
Invite patients into care decision-making processes	22.9
Clinical supervisors' value on patient-centered care practices (Mean±SD)	-0.1±0.9
Environmental factors	
Located in a Medicaid expansion state	69.6
Total SUD admissions in county (thousands) (Mean±SD)	14.0±22.6
Region	
Northeast	21.0
Midwest	23.1
South	29.3
West	26.7
Organizational characteristics	
Service modality	
Outpatient non-opioid treatment program	66.0
Outpatient opioid treatment program	8.4
Inpatient clinic	4.4
Residential clinic	21.2
Ownership	
Private for-profit	29.8
Private non-profit	57.1
Public	13.1
Proportion of revenue from private insurance (Mean±SD)	15.5±23.6
Owned by a hospital or mental health facility	25.1
Accredited	53.5
Managers' perception	
Director perceived high regional competition	59.6
Director's reliance on professional information sources	11.4
Clinical supervisor endorsed 12-step treatment model	55.6
Patient and staff characteristics	
Proportion of racial/ethnic minority patients (Mean±SD)	39.5±31.1
Proportion of patients with alcohol-use disorder (Mean±SD)	49.7±26.8
Proportion of patients with opioid-use disorder (Mean±SD)	32.7±32.3
Proportion of patients with prescription opioid-use disorder (Mean±SD)	27.6±25.4
Proportion of involuntary patients (Mean±SD)	46.1±34.8
Number of staff (Mean±SD)	21.7±36.9
Proportion of staff with medical training (MD or RN) (Mean±SD)	6.9±12.5
Proportion of staff with academic credentials (Mean±SD)	32.1±27.1

	Weighted %
Proportion of staff with lived experience (Mean±SD)	33.3±29.5
Average caseload (tens) (Mean±SD)	3.0±3.3

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Table 2.

Descriptive statistics of service availability and utilization.

	Availability of the service	Utilization among clinics offering the service (i.e., percentage of patients utilized the service)	
	Weighted %	Unweighted N	Weighted Mean±SD
Methadone	10.3	177	70.4±36.6
Buprenorphine	33.6	264	15.8±20.9
Behavioral treatment	78.3	463	52.4±30.6
Routine medical care	62.8	369	52.0±33.3
HIV Tests	83.5	526	59.1±42.2
Suicide prevention counseling	70.5	404	60.8±41.9

Table 3.

Abbreviated multivariate linear regression results—Patient-centered care and service utilization (i.e., percentage of patients utilized the service).

Variables \ Services	Methadone (N=168)	Buprenorphine (N=241)	Behavioral treatment (N=452)	Routine medical care (N=359)	HIV Tests (N=526)	Suicide prev. counseling (N=404)
	Coef. (95% CI)	Coef. (95% CI)	Coef. (95% CI)	Coef. (95% CI)	Coef. (95% CI)	Coef. (95% CI)
Patient-centered care variables						
Invite patients into care decision-making processes	2.72 (−8.89, 14.33)	−4.13 (−13.24, 4.98)	12.68 ^{**} (3.45, 21.91)	22.71 ^{***} (12.99, 32.43)	13.60 [*] (1.49, 25.71)	20.38 ^{**} (8.15, 32.61)
Patient-centered shared decision-making	5.06 (−0.83, 10.94)	−2.36 (−6.37, 1.65)	6.82 ^{**} (2.67, 10.97)	0.80 (−4.01, 5.62)	4.99 (−0.12, 10.09)	4.33 (−1.63, 10.29)
R-square	0.675	0.428	0.256	0.324	0.254	0.227
R-square with only control variables only (without patient-centered care variables)	0.662	0.413	0.188	0.249	0.225	0.179
Proportions of variations explained by patient- centered care variables	1.9%	3.5%	26.6%	23.1%	11.4%	21.1%

*
p < 0.05

**
p < 0.01

p < 0.001

Note: Results are controlled for environmental factors (located in Medicaid expansion state, total SUD admissions in county, region), organizational characteristics (service modality, ownership, proportion of revenue from private insurance, owned by a hospital or mental health facility, accreditation status), managers' perception (perceived high regional competition, reliance on professional information, endorsement on 12-step treatment model), patient and staff characteristics (proportion of racial/ethnic minority patients, proportion of patients with alcohol-use disorder, proportion of patients with opioid-use disorder, proportion of patients with prescription opioid-use disorder, proportion of involuntary patients, total number of staff, proportion of staff with medical training, proportion of staff with academic credentials, proportion of staff with lived experience, average caseload). Due to multicollinearity issue, the analysis estimating utilization of methadone treatment services did not include service modality and accreditation status variables. Full regression analysis results available in Appendix.