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Assessing the Impact of American Indian Peer Recovery Support on Substance Use and Health

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ABSTRACT

Peer Recovery Support (PRS) is emerging as a key intervention for communities and individuals as they address high rates of substance abuse and limited recovery resources. American Indian populations were among the first people to use concepts of PRS through abstinence-based revitalization movements and ceremonies. The present study examined the impact of PRS on substance use, emotional and psychological problems, and social connections among urban and reservation American Indian peers involved in a 3-year PRS program. A total of 224 individuals, 110 male and 114 female completed baseline GPRA. Of these, 65 peers completed baseline and 6-month follow-up GPRA. Involvement in PRS decreased substance use significantly among peers. Peer attendance at voluntary self-help groups and support from family and friends increased as a result of PRS.

KEYWORDS

American Indian; peer recovery support; substance use; urban and reservation

This is a story. It is written in a manner that reflects a western scientific paradigm. This paradigm is often the choice of treatment providers, researchers, academic journals, and funding agencies. We respect this paradigm and at the same time we honor the people, communities, tribes, and families involved in the Transitional Recovery and Culture Program (TRAC). There is a spiritual aspect of healing (recovery) that is difficult to measure by western scientific standards. To begin, we want you the reader to know who we, the storytellers, are. We want you to understand our relationship to recovery and to the American Indian communities involved in this healing journey.

I am a recovery ally and the evaluator for the Transitional Recovery and Culture program. I support sustainability and coalition building efforts through writing and research. The best part is working with authentic people who believe in recovery and share values of honesty, trust, hard work, acceptance and spirituality. I am inspired by the resilience and strength of peers. Through their stories and journey, I have learned how to support people in recovery and live a more balanced life. – Allyson Kelley, Evaluator

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I spend time with people recovering from substance use disorders, providing support, encouragement, motivation, information and direction as they feel they need. This entails a number of different activities—usually something the Peer enjoys doing—walking, eating, having coffee, visiting, and sometimes things they don't enjoy so much such as completing on-line forms, applications for assistance, going to court or seeing their Parole officer. - Lita Pepion, Peer Mentor Blackfeet/Athabaskan.

As TRAC program director I have come to understand my own recovery better. I once felt alone struggling with addictions and trauma; now I am proud to be part of the recovery movement. The best part of recovery is being centered in spirituality, healing and acceptance. – Dyani Bingham, Project Director Blackfeet/Assiniboine/Little Shell/Gros Ventre

I am fortunate to have had the opportunity to support the TRAC program as an AmeriCorps VISTA member during 2016. I seek to advocate for integrating culture-based programming wherever traditional Western techniques and approaches fall short of providing holistic, culturally-responsive services for indigenous people. I am grateful to have been able to serve the TRAC program and for being given the opportunity to witness the powerful and important impact of this work. – Erika Brown, TRAC AmeriCorps VISTA Member

The term *American Indian* has been used throughout this article, but it is important to note that this term does not reflect the unique tribal status of the 566 federally recognized tribes in the United States. We selected this term because it encompasses the tribes from the Northern Plains who participated in this program. Also, the effects of peer recovery support (PRS) may be different based on the unique cultural differences in American Indian populations and the location of urban versus reservation environments and how PRS is delivered.

Introduction

An estimated 50% of adults or 25 million people in the United States with substance use disorders (SUD) are in recovery (White, 2012). Recovery from SUD is a process of change through which individuals improve their health and wellness, live a self-directed life, and strive to reach their full potential. Recovery includes four primary dimensions: health, home, purpose, and community (Substance Abuse and Mental Health Services Administration [SAMHSA], 2012). Community-based PRS services are emerging as a key intervention for communities and individuals as they address high rates of substance abuse and limited recovery resources. PRS (coaching) is a nonclinical approach that includes mentoring, education, and support services provided by individuals with the lived experience of recovery to individuals with SUD or co-occurring substance use and mental disorders (Reif et al., 2014). Individuals provide PRS in a variety of community and institutional settings, either as volunteers or paid workers. PRS is effective because it emphasizes social support, empathy, and therapeutic relationships (White, 2009)—all of which predict successful recovery. Adults and youth with SUD benefit from PRS and services may occur before, after, or in lieu of treatment (Loveland & Boyle, 2005).

The success of PRS is largely based on the flexibility of the approach and the peer-based mutual help component (Laudet, 2007). However, documenting these

successes has been difficult because the very nature of PRS requires autonomy, self-directed recovery processes, and flexibility. Peer recovery coaching has not been rigorously evaluated. In one clinical trial involving peer coaches, SUD treatment, and child welfare services, results demonstrated improved family reunification rates compared with families who did not receive peer recovery coaching (Ryan, Marsh, Testa, & Louderman, 2006). In another study of PRS, authors report that recovery coaching and recovery supports were strongly associated with successful outcomes among drug court participants (Mangrum, 2008). Studies support recovery coaching as an effective intervention for SUD and co-occurring substance use and mental disorders (Reif et al., 2014; Solomon, 2004). In the meta-analysis of PRS related studies conducted by Reif and colleagues, there were two randomized control trials, four quasi-experimental studies, and four pre-/poststudies (2014). None of these studies targeted American Indian populations and communities (Kelley, Snell, & Bingham, 2015).

American Indian populations were among the first people to use concepts of PRS through abstinence-based revitalization movements and ceremonies including the Native American Church (Coyhis & White, 2006), societies, kinship systems, collectivism, and living values that support recovery. Despite widespread assimilation and destruction efforts, many American Indian people and communities remain resilient and know their language, traditions, stories, ceremonies, and culture (Gone & Calf Looking, 2011).

Culture is an important concept in recovery because it is the essence of individuals and communities (Frierson, Hood, & Hughes, 2002). *Culture* is a cumulative body of learned and shared behavior, values, customs, and beliefs common to a particular group. The role of culture in PRS is significant because culture is considered a form of treatment for SUD (Gone & Calf Looking, 2011). Aspects of culture that may facilitate healing and recovery within PRS include a balance of physical, emotional, spiritual, and mental supports. For example, talking circles, sweat lodge, prayer, and smudging are unique to American Indian populations and are integrated into PRS.

Understanding what recovery support looks like for American Indian populations disproportionately impacted by SUD (Urban Indian Health Institute, 2011) is an important first step in addressing this public health epidemic. American Indian or Alaska Native people are more likely to need treatment and recovery supports for illicit drug or alcohol use than any other racial or ethnic group (SAMHSA, 2012). However, the recovery process for American Indian populations is unique. First, recovery among American Indian populations often includes the entire community or family as opposed to the individual (Jilek-Aall, 1981). Second, unlike their European American counterparts, American Indian populations are less likely to enter treatment for SUD and more likely to enter a natural recovery, meaning they quit using drugs or alcohol without treatment. In one longitudinal study that compared European Americans and Navajos, the Navajos were more likely to quit drinking at an earlier age and report that treatment did not help them quit (recover; Kunitz, Levy, & Andrews, 1994). Most Navajos in this study cited family support, religion, and spirituality as the key factors in supporting long-term sobriety. Enculturation

is a key factor for American Indian people in their recovery (Stone, Whitbeck, Chen, Johnson, & Olson, 2006). Third, previous studies have consistently found that participation in cultural activities, traditional activities, and spiritual practices are protective against alcohol misuse (Hazel & Mohatt, 2001; Stone et al., 2006), although it is not clear how enculturation actually protects against SUD. New research focusing on the connections between traditional spirituality and healing may provide much-needed answers to the role of enculturation and healing for individuals in recovery (Owen, 2014). We could not locate similar PRS studies in other indigenous populations (Canada, Mexico, Australia); however, PRS has worked well in other settings and is a viable option for American Indian populations because it incorporates culture, spirituality, and connection.

A key difference in PRS and other peer-based recovery programs like Alcoholics Anonymous (AA) is that peer mentors provide a variety of recovery options and support services. AA may be one type of service offered to peers to explore. Another difference between PRS and AA is that PRS does not prescribe a set of actions to be undertaken to achieve and maintain sobriety, such as the AA 12 steps. PRS begins with a relationship between a peer mentor with the lived experience of recovery and a peer who seeks recovery. These relationships are advantageous for individuals who may not be comfortable in group settings like AA. Another difference between PRS and AA is that AA is grounded in regular group meetings facilitated by other members whereas PRS is not as structured. The flexibility inherent in PRS allows the peer mentor to support the peer in tailoring an approach to achieving and maintaining sobriety that suits the unique needs of the individual.

In the present study, we compared 6-month change rates for drug and alcohol use, depression, anxiety, suicide attempts, psychological and emotional impacts, attendance at voluntary self-help groups, and support from family and friends among American Indian peers enrolled in the TRAC. Briefly, depression may exacerbate alcohol abuse (Kishoe, Gopalkrishnan, Bery, & Ghulam, 2015) and anxiety is often reported by individuals in recovery (Friedmann, Saitz, & Samet, 1998). Alcohol and drug use are strongly associated with suicide and suicide attempts (Wojnar et al., 2008; Wilcox, Conner, & Caine, 2004) and individuals in recovery often report psychological and emotional problems. Voluntary self-help groups and social support provide a buffer between the stresses of everyday life and sustained long-term recovery.

TRAC

TRAC is a community-driven PRS approach conceptualized in August 2012 after tribal leaders voiced concerns about substance abuse and the need for more effective recovery supports (Kelley et al., 2015). The goals of the TRAC program are to improve sobriety rates in each community, increase community awareness of substance abuse problems and the need for supporting recovery, and increase community support for efforts to create sober communities. A tribal consortium located in Billings, Montana, received funding in October 2013 from the SAMHSA Center

for Substance Abuse and Treatment. The consortium partnered with tribal Chemical Dependency Program Directors and tribal leaders to identify communities that would be willing to pilot the TRAC program. This resulted in a culturally tailored, tribal-specific PRS that was preferred over a Pan-Native American Recovery approach that fails to recognize the unique traditions, language, and history of a given tribe (Owen, 2014). Six peer mentors (coaches) provided PRS in three communities, one reservation recovery program and two urban settings. Peer mentors in this program also served as cultural leaders, elders, healers, advisors, and spiritual teachers. A community advisory board supported the program and included community representatives from substance abuse/recovery supporting organizations, cultural programs, traditional knowledge keepers and elders, public and tribal schools, social service organizations, law enforcement, juvenile justice, community-based organizations, and others.

PRS in practice

TRAC peer mentors provided diverse recovery support activities that highlight the self-directed nature of PRS and the concept of “many paths to recovery.” Peers are American Indian and most are from Northern Plains Tribes. Peers represent diverse backgrounds and histories, some grew up in urban settings and others live on reservations. Many peers have experienced trauma in their lifetime. Peer mentors supported their peers using a variety of recovery support activities: sweat lodge, weekly talking circles, weekly Wellbriety meetings, wellness and physical fitness, spiritual gatherings, church, cedarling, feeding and outreach, employment and education guidance, sober housing support, food and necessities support, spiritual and cultural support, and transportation. Most peer mentors met with peers in-person or over the phone over a 6-month period.

All study procedures were approved by the Rocky Mountain Tribal Institutional Review Board. The study hypothesis is as follows: Involvement in PRS decreases substance use, depression, anxiety, suicide attempts, psychological and emotional impacts while increasing attendance at voluntary self-help groups and support from family and friends.

Method

We used a holistic approach based on the medicine wheel framework (Atlantic Council for International Cooperation, n.d.) to examine outcomes, including working with peers to review and validate results and enlisting cultural reviewers to ensure the results were culturally responsive to the unique status of American Indian populations and their healing process. The medicine wheel framework (Atlantic Council for International Cooperation, n.d.) served as a guide to implement the program and interpret the data. The medicine wheel includes four domains: spiritual, mental, emotional, and physical.

Sample and procedure

Peers were recruited from tribal chemical dependency programs, tribal health programs, community social service agencies, and through self-referral. Potential peers were contacted by a member of the TRAC team via telephone. Verbal consent was obtained for screening to determine eligibility. Written informed consent was obtained by the peer mentor before peers completed baseline intake using the Government Performance and Results Act (GPRA) tool. The GPRA tool is a federally mandated data collection and performance tool that all SAMSHA grantees must use (<http://www.samhsa.gov/grants/gpra-measurement-tools>).

Peers met with peer mentors over a 6-month period, at the end of which time the 6-month GPRA follow-up was administered. Peers who completed the 6-month follow-up assessment received a \$25 gift card. All peers discharged from the program were encouraged to continue to attend recovery support groups and maintain positive social connections to support their recovery. GPRA baseline and follow-up data were collected by trained peer mentors. GPRA data were entered into a database by a member of the program team. Analyses were conducted by the lead evaluator and first author at the end of the 3-year program.

Participants

A retrospective review of GPRA data was conducted by the lead evaluator. These data were collected from participants ($N = 224$) entering the program between September 2013 and April 2016. Of these, 65 peers completed baseline and 6-month GPRA interviews. All interviews were anonymous.

Measures

The GPRA includes seven sections: record management/demographics, drug and alcohol use, family and living conditions, education, employment and income, crime and criminal justice status, mental and physical health problems and treatment and recovery, and social connectedness. An example GPRA question is, "In the past 30 days, not due to your use of alcohol or drugs, how many days have you: a) experienced serious depression, b) experienced serious anxiety or tension, c) attempted suicide?" Response options are a number between 0 and 30, "refused to answer," or "don't know." To document the impact of PRS in this study, we selected GPRA questions with the medicine wheel framework in mind, including drug and alcohol use (physical domain), depression (emotional domain), anxiety (emotional and mental domains), suicide (emotional and spiritual domains), psychological and emotional impacts (emotional, spiritual, and mental domains), attendance at voluntary self-help groups (physical and spiritual domains), and support from family and friends (physical and mental domains).

Depression

Depression can exacerbate alcohol abuse and many people in recovery report depressive symptoms (Kishoe et al., 2015). Peers were asked, "In the past 30 days, not

due to your use of alcohol or drugs, how many days have you experienced serious depression?” Response options were a number between 0 and 30.

Anxiety

Individuals in recovery may experience anxiety which may precipitate relapse (Friedmann et al., 1998). Results from the National Epidemiologic Survey on Alcohol and Related Conditions show strong associations between drug use disorders and anxiety disorders (Grant & Dawson, 2006). Peers were asked, “In the past 30 days, not due to your use of alcohol or drugs, how many days have you experienced anxiety or tension?” Response options were a number between 0 and 30.

Suicide attempts

Alcohol and drug use are strongly associated with suicide and suicide attempts (Wojnar et al., 2008; Wilcox et al., 2004). Peers were asked, “In the past 30 days, not due to your use of alcohol or drugs, how many days have you attempted suicide?” Response options were a number between 0 and 30.

Psychological and emotional impacts

The psychological and emotional effects of drug and alcohol addiction and recovery may include mood swings, depression, decrease in pleasure in everyday life, and complications of mental illness (Croft, 2016). Peers were asked, “How much have you been bothered by psychological or emotional problems in the past 30 days?” Response options were based on a 5-point Likert scale ranging from 1 (*not at all*) to 5 (*extremely*).

Voluntary self-help groups and social support

Informal social networks provide critical support for individuals in recovery. Previous studies report that social support, spirituality, and self-help groups buffer stress and enhance the quality of life for individuals in recovery (Buckman, Bates, & Morgenstern, 2008). Peers were asked, “In the past 30 days, how many times did you attend voluntary self-help groups?” Responses options were a number between 1 and 99. Family and friends play a critical role in supporting long-term recovery and healing. Peers were asked, “In the past 30 days, did you have interaction with family and or friends that are supportive of your recovery?” Response options were yes or no.

Data preparation and analyses

All statistical analyses were performed using SPSS version 21.0. Descriptive frequencies and means for all variables of interest were computed. Bivariate analyses were conducted to assess the relationship between gender, age, and baseline measures of substance use. Paired samples t-tests were used to examine differences between baseline and 6-month follow-up data from the GPRA for all measures. Changes in continuous data (alcohol use, binge drinking, illegal drug use, combined alcohol and drug use, depression, anxiety, suicide attempts, and emotional impacts from substance use) were explored and differences from baseline and 6-month GPRA reports are outlined in the results section.

Table 1. Demographic characteristics baseline and 6-month GPRA follow-up ($n = 65$).

Interview	Baseline	Follow-up	Change
Housed	15	35	133.3%
Employed (full time/part time)	16	28	75.0%
Monthly income average	\$226.37	\$193.75	- 14.4%
Health status (excellent or very good)	18.0%	30.8%	71.1%

Results

Demographics

A total of 224 individuals, 110 male and 114 female completed baseline GPRA intakes throughout the 3-year program. Of these, 65 peers completed baseline and 6-month follow-up GPRAs. The mean age of peers completing 6-month follow-up GPRA was 36.15 years ($SD = 13.54$), 32 were male and 33 females, and three were veterans. The follow-up rate was 29.5% and this is significantly lower than the SAMSHA required follow-up rate of 80%. SAMHSA requests that all grantees maintain an 80% follow-up rate and if grantees are unable to maintain this, they can request technical assistance, additional training, and support. Peers could decline answering any GPRA question and this accounts for the differences in total response rates in the tables that follow. Chi-square analysis revealed no significant differences by gender or age.

Peers reported increased housing (133.3%), increased employment (75%) and improved health status (71%) from baseline report data. The only characteristic that decreased at the 6-month GPRA was monthly income (\$226.37 vs. \$193.75; see Table 1).

Alcohol and drug use

The mean and standard deviations of peer alcohol and drug use in the past 30 days is presented in Table 2. Results show decreases in drug and alcohol use from intake to 6-month follow-up. Significant differences were observed for past 30-day alcohol use, $M = 3.30$, $SD = 8.5$, $t(64) = 3.13$, $p = .003$; illegal drug use days, $M = 2.32$, $SD = 7.29$, $t(64) = 2.56$, $p = .01$] and alcohol and drug use days, $M = 1.09$, $SD = 4.53$, $t(64) = 1.94$, $p = .05$. Alcohol and drug use days reflect responses to the GPRA question, "During the past 30-days, how many days have you used both drugs and alcohol on the same day?" There was not a significant difference in past 30-day binge drinking days, $M = .67$, $SD = 4.05$, $t(64) = 1.34$, $p = .18$.

Table 2. Alcohol and drug use over the past 30-days, ($n = 65$).

Interview	Alcohol use, mean days (SD)	Alcohol binge, mean days (SD)	Illegal drug use, mean days (SD)	Alcohol and drug use, mean days (SD)
Intake	5.3 (8.0)	1.6 (3.2)	2.7 (7.1)	1.1 (4.5)
6-month follow-up	2.0 (4.9) **	1.0 (2.5)	.42 (1.7) *	.03 (.17)

* $p < .05$. ** $p < .001$.

Table 3. Anxiety, depression, emotional impact, and suicide attempts ($n = 65$).

Interview	Anxiety, mean days (<i>SD</i>)	Depression, mean days (<i>SD</i>)	Emotional impact, mean score (<i>SD</i>)	Suicide attempts, mean days (<i>SD</i>)
Intake	6.3 (9.4)	4.7 (8.8)	1.6 (1.7)	.02 (.12)
6-month follow-up	5.7 (9.8)	3.7 (8.1)	3.7 (1.5)**	.00 (.00)

* $p < .05$. ** $p < .001$.

Psychological and emotional impacts

The mean and standard deviations of anxiety, depression, emotional impacts, and suicide attempts are presented in Table 3. Six-month GPRA follow-up data show a significant increase in how much Peers are bothered by psychological or emotional problems, $M = -2.12$, $SD = 2.17$, $t(64) = -7.85$, $p = .00$. There was not a significant difference in depression, $M = .94$, $SD = 10.5$, $t(64) = .73$, $p = .47$; anxiety, $M = .55$, $SD = 11.1$, $t(64) = .41$, $p = .69$, or suicide attempts, $M = .02$, $SD = .12$, $t(64) = 1.0$, $p = .321$.

Six-month GPRA follow-up data show slight increases in attendance at voluntary self-help groups, $M = 3.20$, $SD = 6.1$ vs. $M = 4.2$, $SD = 6.2$, and the number of peers reporting interactions with family and friends in the past 30 days, $M = .74$, $SD = .62$ vs. $M = 1.12$, $SD = 1.2$.

Discussion

This study was designed to examine the impact of PRS on substance use, emotional and psychological problems, and social connections among American Indian peers involved in the TRAC program. The study's hypothesis—Involvement in PRS decreases substance use, depression, anxiety, suicide attempts, psychological and emotional impacts while increasing attendance at voluntary self-help groups and support from family and friends—was partially accepted. Involvement in PRS decreased substance use significantly. Involvement in PRS reduced depression and anxiety, but the decrease was not statistically significant. Suicide attempts did not decrease and psychological and emotional impacts increased significantly. Attendance at voluntary self-help groups and support from family and friends increased as a result of PRS.

Overall, PRS was effective in this study. This is consistent with previous that found recovery coaching as an effective intervention for SUD and co-occurring substance use and mental disorders (Reif et al., 2014; Solomon, 2004). The effectiveness of PRS in this study may be related to the flexibility and mutual help component of PRS that has been reported in previous studies (Laudet, 2007).

TRAC adds new information to the literature about PRS and American Indian populations. Peers reported gains in stable housing, employment, and improved health during the 6-month TRAC program. An area that requires further review is the average monthly income; despite gains in employment status, income decreased during the 6-month period. Peers completing the 6-month TRAC program report significant reductions in alcohol and illegal drug use. There were reductions in

binge drinking and combined drug and alcohol use, although not statistically significant. A possible reason for this includes limited frequency at intake (e.g., $M = 1.6$ days at intake vs. $M = 1.0$ days at follow-up). Anxiety and depression also decreased although peers were more bothered by psychological or emotional problems. To understand more about the emotional impacts reported by peers, the team asked peer mentors for possible explanations. One peer mentor said, “They are no longer numbing. ... it’s very stressful to build a life with no money, support, clue or help. I feel for the folks I work with—they are true Warriors who fight a battle of survival each and every day.” Results show that peers’ attendance at voluntary self-help groups and meeting with family and friends increased over the 6-month period. These results are encouraging because both group and healthy relationships provide support for peers in recovery beyond the PRS model and TRAC program.

However, challenges remain. First, retention of peers is a major challenge. TRAC served 224 peers over a 3-year period in six communities; of these, only 65 (29%) completed the program and 6-month follow-up GPRAs. However, attrition rates are a challenge reported by previous authors. In one U.S. study, 75% to 80% of individuals seeking recovery left at various stages in the referral, intake, and treatment processes (Loveland & Driscoll, 2014). In a meta-analysis of psychosocial interventions for SUD, nearly one-third of participants left before completing their treatment (Dutra et al., 2008). Possible reasons for attrition in TRAC include the transient nature of peers, incarceration, relapse, and inconsistent communication due to lack of resources. The transient nature of peers is often part of the recovery process as many peers are in transition between locations and experience unstable housing situations. Peers may be moving back to the reservation or to an urban center. Some peers are awaiting sentencing and during the 6-month period are incarcerated. Relapse may also contribute to high attrition rates. Alternately, some peers do not have access to a phone, computer, or transportation that facilitates meetings and communication with peer mentors and follow-up. Barriers to follow-up will be explored in future work.

Strengths and weaknesses

A major strength of this study is that it was facilitated by a tribal consortium and PRS was offered by American Indian people with the lived experience of recovery to other American Indian people in recovery. This cultural match supported trust, connection, and belonging that is difficult to find in many recovery/treatment settings (Gone & Calf Looking, 2011). TRAC is the first pilot program to implement PRS and report impacts on recovery in American Indian communities. This is an important first step in documenting the types of recovery support that are needed and how PRS can successfully be implemented and achieved in American Indian contexts.

The main weakness of this study, as mentioned previously, relates to attrition and small sample size. Another limitation is that the types of PRS supports and services delivered to peers were not documented because of the confidential nature of PRS and the exploratory nature of this pilot program. It is possible

that peers were involved in other recovery programs and services that supported their successes along with the TRAC program. Future work should consider how to document the kinds of PRS that peers receive, the frequency/duration of PRS, and the impact of PRS on recovery outcomes.

Conclusion

Previous studies have reported on the effectiveness of PRS (Reif et al., 2014). However, this is the first study that documents the impact of PRS in American Indian populations. American Indian populations were among the first to utilize concepts of PRS through kinship systems, values, and support for those in need. Future studies with American Indian populations may consider evaluating strength-based factors including resilience, spirituality, identity, and kinship systems that are unique to American Indian populations.

This is the first study that quantifies the impact of PRS on recovery and key recovery outcomes for American Indian people. Extending PRS to both urban and reservation American Indian peers and peer mentors, rather than focusing on one population or the other, increased access to PRS that was not previously available. Future research should explore the impact of PRS on family relationships, cultural connectedness, and community readiness to support recovery. The end goal of PRS is an improvement in key areas of life that were impacted by substance use. Results from the TRAC program give hope for individuals and communities who need recovery resources and promise for future work.

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