RED OAK® RECOVERY

THE WILLOWS® at RED OAK RECOVERY

CREATE Research

Substance Use and Mental Health Therapeutic Outcome Study

Find Treatment for Substance Use and Co-Occurring Disorders Today at Red Oak Recovery® and The Willows at Red Oak Recovery®

Call us today: 866.490.0063

Contents

Contents

Introduction

Red Oak Recovery® (ROR) and The Willows at Red Oak Recovery® (TW) are research-based, clinically-driven, multi-disciplinary treatment centers that target the intersection of substance use disorder, trauma, and co-occurring mental health issues. Our programs are gender specific and developmentally focused, delivering the highest quality of research-based interventions to provide maximum benefit to young adults and their families.

Since our inception, we have remained committed to raising the bar of clinical care and, as such, we are highly invested in continuous evaluation of our programs. This allows us to maximize the treatment experience, through ongoing programmatic improvements. Unfortunately, many programs only focus on the substance use component of wellness, failing to simultaneously address the needs of the entire person. Research supports a comprehensive, bio-psycho-social approach to treating the whole individual. As part of our commitment to the people we serve and the scientific community at large, we believe comprehensive evaluation of treatment effectiveness is our responsibility.

The following paper describes our primary research outcomes to date. The study described below is a comprehensive, independent, IRB-approved treatment outcome study. It was developed, launched, and currently is being overseen by the Center for Research, Assessment, and Treatment Efficacy (CReATE; Asheville, NC) in conjunction with the University of Arkansas Interdisciplinary Sciences Laboratory (ArKIDS). The primary objectives of the research are the evaluation of clients' response to clinical programming, which focuses on treating addiction, traumatic stress, and associated psychopathology. Utilizing state-of-the-art assessment, sampling, and retention techniques, the research team began enrolling consenting men and women in 2015. Seven hundred fifty-one (751) young adults have participated to date; data collection will continue, as ROR and TW strive to advance the empirical understanding of how clients respond to therapeutic interventions and what factors influence recovery over time.

The clinical teams at ROR and TW are comprised of dedicated, caring, and multi-credentialed professionals. Clinicians and staff are focused on providing a safe and healing environment for young adults and their families as they begin the recovery process from SUDs, co-occurring psychiatric disorders, and traumatic stress. Through the integration and utilization of a variety of clinical modalities, ROR and TW engage clients to discover healthy alternatives to their limiting beliefs and self-destructive behavior.

We are honored to support clients and their families throughout their initial journey towards health and beyond. We welcome you to the ROR and TW's communities.

Jack Kline, MS, LCMHCS, LCAS, CCS, CTT-2, MAC
President & Founder of Red Oak Recovery® & The Willows at Red Oak Recovery®

Study Methodology and Assessment Protocol

Phase one of the study includes a pre-treatment assessment, conducted when clients present for admission to ROR or TW, and a post-treatment assessment, completed when clients graduate from the program. For phase two, which includes conducting follow-up assessments at three months and 12 months after graduation from ROR and TW, clients are assessed as they navigate additional recovery programs, sober living environments, and re-entry into school, work, and their communities (rates of client participation in the follow up assessments are 70%, 71%, and 64%, respectively).

Assessments include multiple standardized instruments, measuring the extent and severity of substance use and psychopathology, as well as factors influencing therapeutic response, such as comorbid traumatic stress, social support, skill acquisition, and treatment satisfaction. Understanding the young adults served at ROR and TW, including their response to treatment and their recovery maintenance over time, allows for the highest quality of services, with the strongest evidence base, to be provided to clients and their families.

Demographics of Clients at Red Oak Recovery® and The Willows at Red Oak Recovery®

Over the course of this research project, we have assessed clients who presented for treatment at one of ROR's young-adult campuses. To date, 61.5% of participants are men, 38% are women, and 0.5% identify as non-binary or "other" **(see Fig. 1)**. The average age of participants is 22.3 years old (SD= 3.66, range 18-36), with no significant age differences between male and female study participants. Additionally, 88.3% of participants self identify as non-Hispanic white adults.

Regarding relationship status, the majority of participants report being single (93.7%), while 4.6% report being married or in a relationship, and less than 2% report divorce, separation, or relationship status as "other" (**see Fig. 2**).

Participants report a range of annual incomes in their families of origin, as well as varied educational histories (**see Fig. 3 and 4**).

Fig. 1: Gender

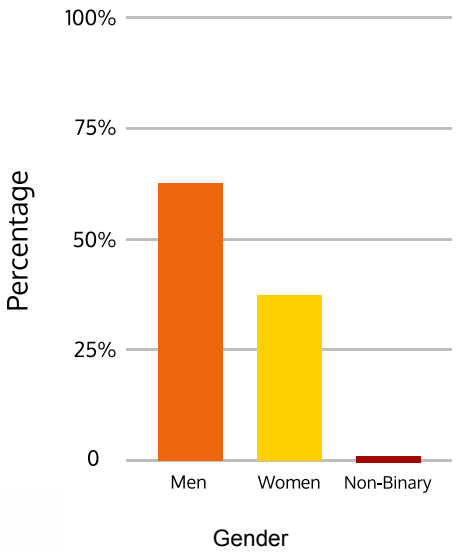


Fig. 2: Relationship Status

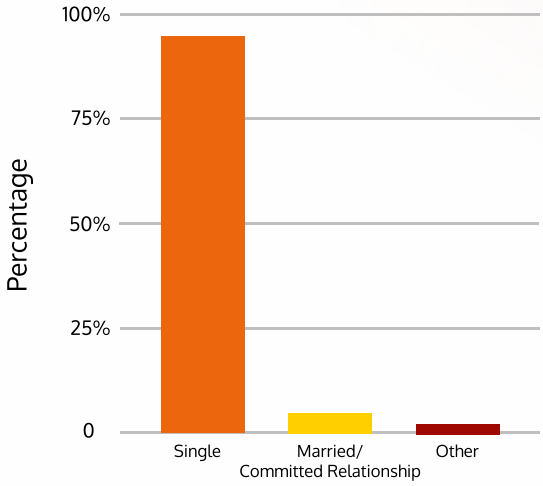


Fig. 3: Annual Family Income

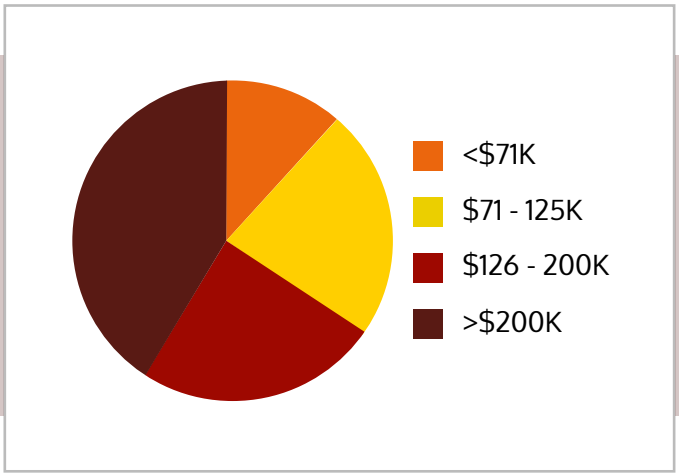
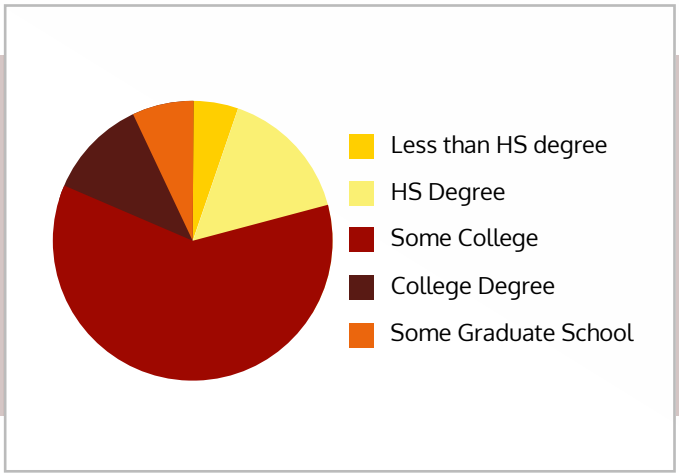


Fig. 4: Years of Education



As **Fig. 5** indicates, the funding for participants' treatment was largely provided by their parents.

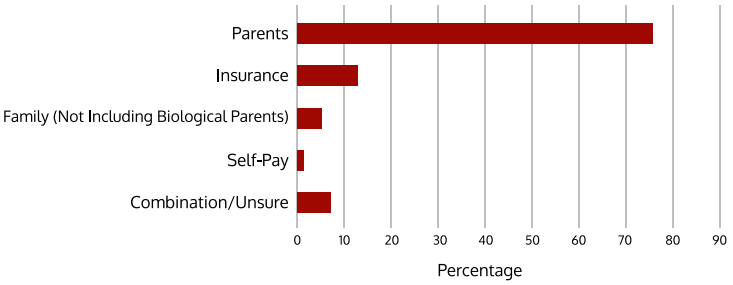


Fig. 5: Funding Source for Treatment

Approximately 79% of participants reported that admission to treatment at ROR or TW was suggested or required by a family member. Nine percent indicated that admission to treatment was suggested or required by the criminal justice system, with 12% reporting that admission was self determined or influenced by "other" factors.

Figures 6 and 7 illustrate participants' prior history of inpatient addiction treatment, as well as their use of psychiatric medication upon their admission to ROR and TW. As noted, the young adult clients at ROR and TW were accessing significant psychiatric care when admitted (75% were prescribed at least one medication) and 42% had received inpatient treatment prior to enrollment.

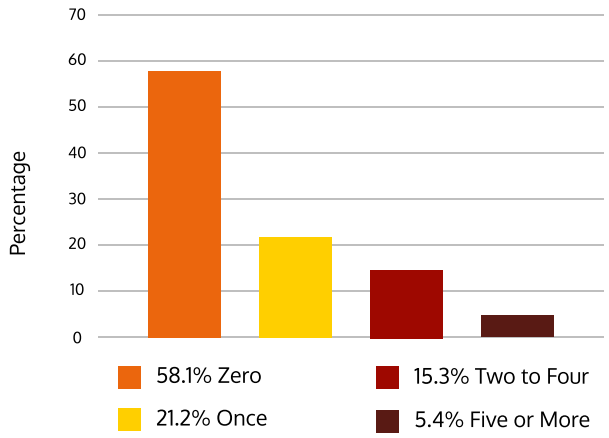


Fig. 6: History of Inpatient Addiction Treatment

NUMBER OF PRESCRIPTION PSYCHIATRIC MEDICATIONS	PERCENTAGE OF COHORT
0 medications	25.2%
1 medication	19.8%
2-4 medications	42.7%
5 or more medications	12.3%

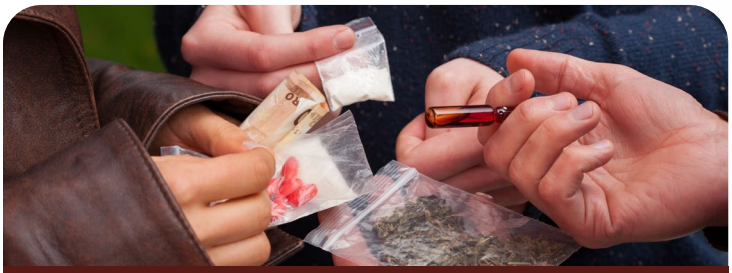
Fig. 7: Psychiatric Prescriptions When Admitted

Substance Use History at Admission to ROR and TW

As indicated in **(Table 1),** participants' history of substance use included a broad range of substances. The first column, labeled "Baseline %," provides the percentage of participants who used that substance in the month before program admission, at least once. Participants were also asked to indicate the number of days in the past they had used a given substance and at what approximate age they had initiated use.

Table 1: History of Substance Use

	Baseline %	Days in Past 30	Age of Initiation
Alcohol	72.5	7.45	14.75
Cannabis	69.7	10.45	15.24
"Drunk"	61.4	5.59	15.30
Benzodiazepines / Sedatives	43.2	4.30	17.52
Cocaine	31.3	2.04	18.16
Other Amph / Stimulants	24.3	2.53	16.31
Non-Medical Opioids / Methadone	23.2	1.99	17.64
PCP / Hallucinogens	16.1	0.56	17.56
Heroin	14.9	1.72	20.12
Methamphetamine	10.4	0.95	20.10
Crack	7.8	0.64	19.81



As depicted in **Figure 8 (right)**, the most commonly used substance reported by participants was cannabis (38%), followed by alcohol (21%) and opioids and substances that depress the central nervous system (16%). Of note, participants indicated which substance was their primary drug of choice; they likely used other substances as well. Study participants who indicated that more than one substance was used with similar frequency were classified as polysubstance users.

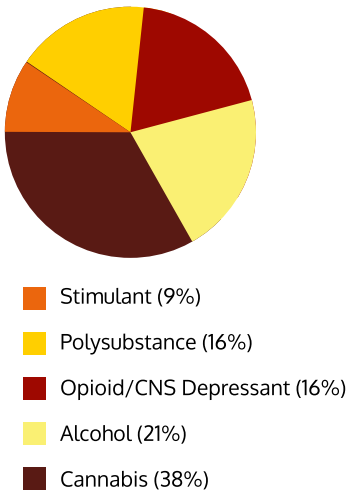


Fig. 8: Primary (Most Frequently Used) Substance at Baseline

Participants' Self Report of SUD Symptoms at Admission, Occurring Some/All of the Time

- **67.8%** reported intense urges to use drugs or alcohol.
- **86.8%** reported physical impairment related to substance use (i.e., blackout, shakes, hallucinations, seizure, overdose).
- **67.4%** reported an inability to keep substance use from disrupting the rest of their lives.
- **74.9%** felt treatment for their substance use problem was very important.

Participants' Mental Health Symptoms and Traumatic Stress at Admission

At admission to ROR and TW, clients reported considerable symptoms of substance use disorders and psychopathology **(Fig. 9).** This graph indicates the percentage of participants reporting clinically significant symptoms, assessed with standardized measures of psychopathology and SUDs.

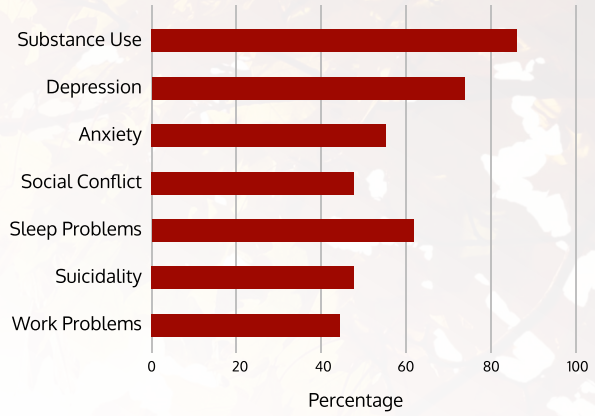


Fig. 9: Symptoms of Substance Use Disorders and Psychopathology

There is a strong relationship between SUDs and traumatic stress. At admission to ROR and TW, nearly half (45.2%) of participants reported significant symptoms of post-traumatic stress disorder (PTSD). A range of traumatic experiences were reported by participants, as seen in **Fig. 10**, with 40% of clients experiencing more than one type of extremely stressful event.

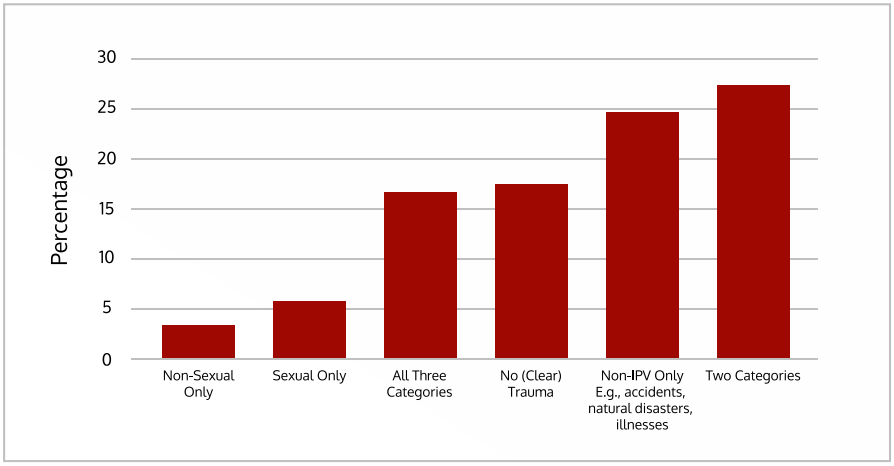


Fig. 10: Types of Traumatic Events Reported

- "Non-Interpersonal Violence"(IPV) reflects experiences such as a serious accident, fire, or explosion; natural disaster; and/or life threatening illness.
- "Non-Sexual Only" reflects experiences such as being mugged, physically attacked, shot, stabbed, or held at gunpoint by family/known person/stranger; and/or military combat/service in war zone.
- "Sexual Only" reflects experiences such as sexual assault, rape, attempted rape by family/known person; sexual assault, rape, attempted rape by stranger; sexual contact when you were younger than 18 with someone who was five or more years older.
- "Two Categories" and "All Three Categories" indicate the percentage of participants that endorsed two or three experiences from separate trauma categories.

Clinical symptoms of post-traumatic stress at admission to ROR and TW differed based on the type of traumatic events experienced by the young adult. Consistent with the literature, participants experiencing a greater number of traumatic events reported greater symptoms of traumatic stress. Of the trauma-exposed participants in the study, those who experienced trauma in all primary categories of stressors had the greatest symptoms of post-traumatic stress (50% of participants compared to 17% of participants reporting a sexual trauma exclusively).

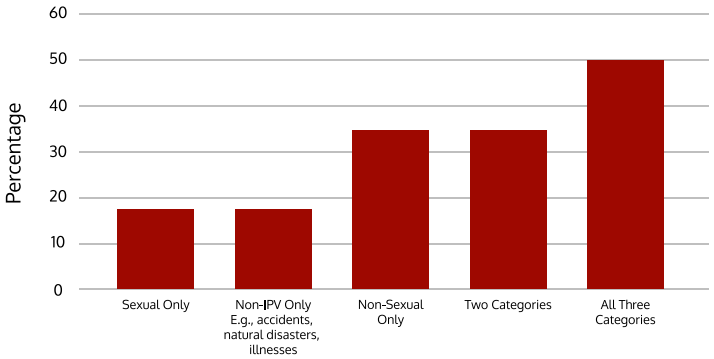


Fig. 11: Symptoms of Post-Traumatic Stress Based on Types of Trauma Experienced

Treatment Outcomes

Overall Outcomes

Study participants demonstrated significant improvements in symptoms of psychopathology and SUDs following their treatment at ROR and TW. Further, therapeutic gains were maintained and clients continued to demonstrate progress when re-assessed three months following graduation from treatment (see **Fig. 12**).

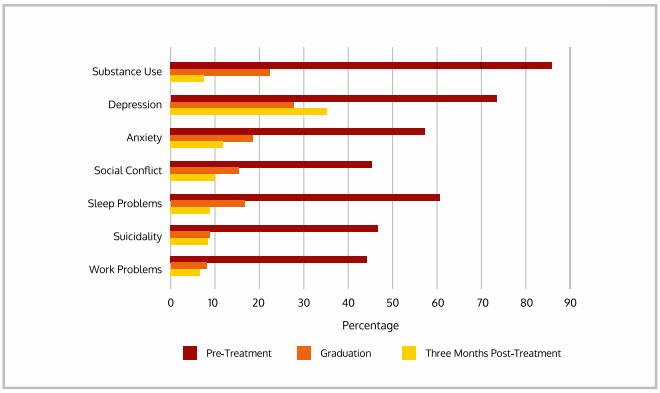


Fig. 12: Percent of Participants Reporting Significant Symptoms of Psychopathology and SUDs upon Admission, and at Follow-Up Assessments

As discussed above, study participants presented with significant symptoms of post-traumatic stress upon admission. Following treatment at ROR and TW, young adults demonstrated marked symptomatic improvements. At the three-month follow-up assessment, post-traumatic stress symptoms had increased slightly in study participants, indicating the importance of ongoing therapeutic monitoring, assessment and intervention, focusing on clients' trauma histories **(see Fig. 13)**.

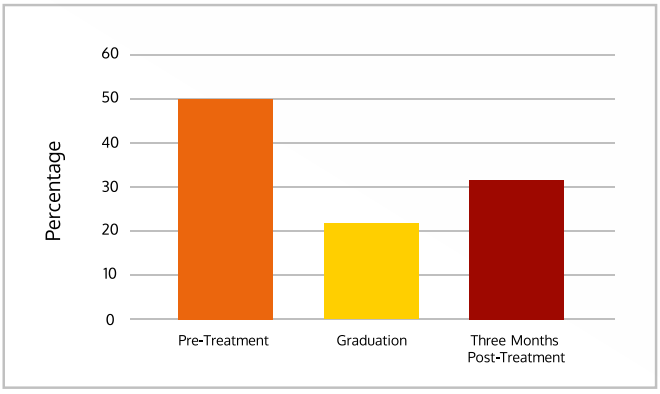


Fig. 13: Improvement in Symptoms of Post-Traumatic Stress

Substance-Specific Therapeutic Progress

15.2% reported lapse following graduation from ROR and TW **(see Table 2 and Fig. 14).**

Table 2:
Types of Substances Used
by Participants at the Three-Month Assessment

	Intake %	Days	3 Month %	Days
Alcohol	72.5	7.45	15.9	1.05
Cannabis	69.7	10.45	6.1	0.20
"Drunk"	61.4	5.59	11.7	0.33
Benzodiazepines / Sedatives	43.2	4.30	0.9	0.01
Cocaine	31.3	2.04	1.4	0.04
Other Amph / Stimulants	24.3	2.53	2.4	0.20
Non-Medical Opioids / Methadone	23.2	1.99	1.0	0.04
PCP / Hallucinogens	16.1	0.56	0.5	0.01
Heroin	14.9	1.72	0.5	0.02
Methamphetamine	10.4	0.95	0	n/a
Crack	7.8	0.64	0.5	0.03

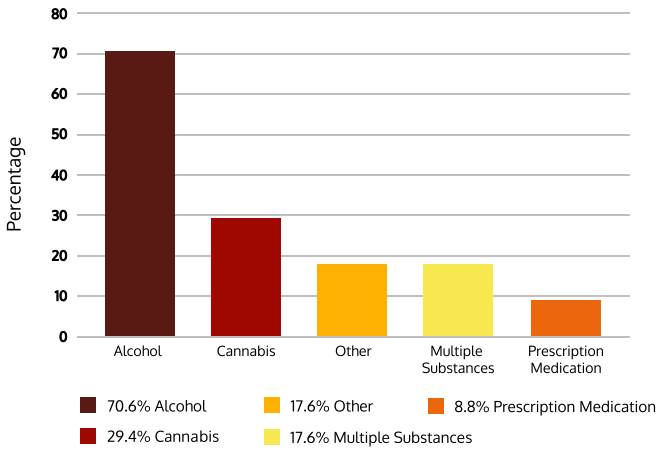


Fig. 14: Types of Substances Used in Lapse

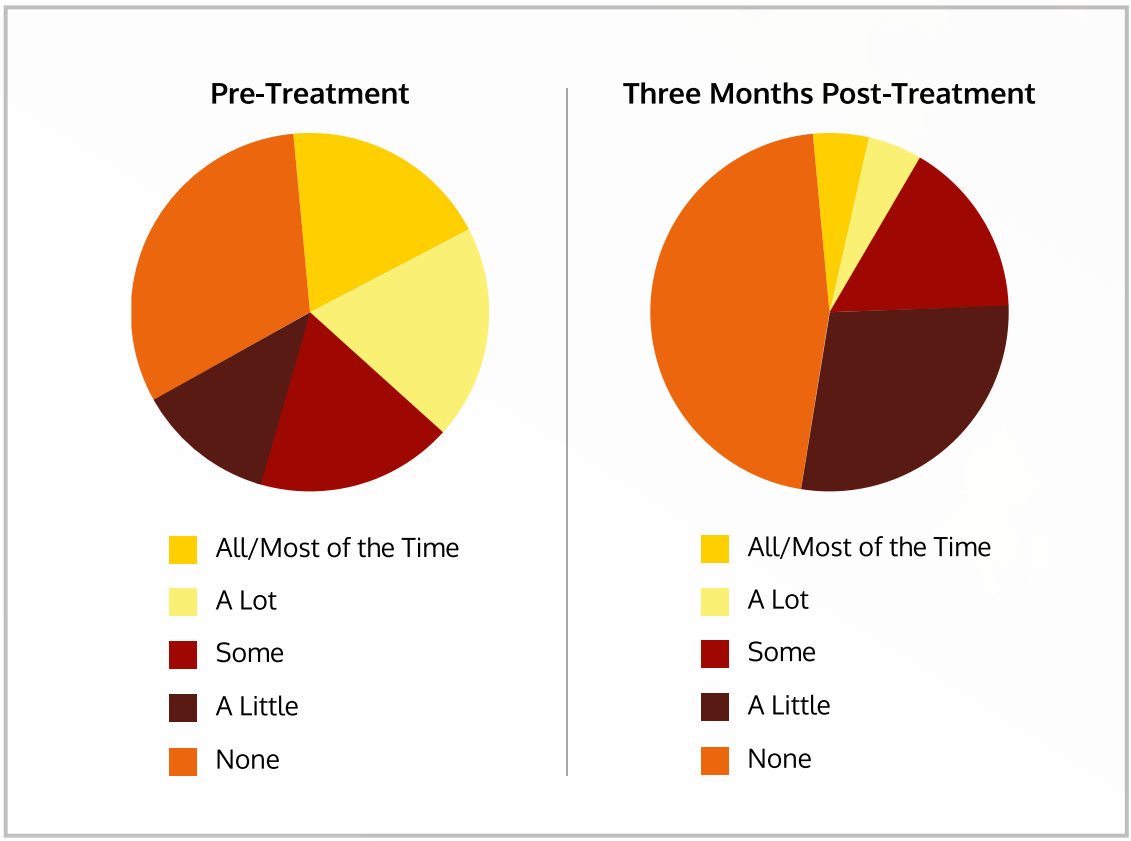


Fig. 15 and Fig. 16: Intensity of Urges to Use Substances Pre-Treatment **(Fig. 15)** and Intensity of Urges to Use Substances Post-Treatment **(Fig. 16)**

Lapse was significantly related to continued work problems, suicidality, depression, sleep disruption, and social conflict (**see Fig. 17**), although PTSD symptoms at follow-up were not different between participants reporting lapse (27.3%) versus no lapse (27.4%).

There were a number of variables associated with lapse at the three-month follow-up assessment. Specifically, participants living in college housing were more likely to relapse and those engaged in outpatient therapy and community-based recovery programs were less likely to lapse (see **Fig. 18**).

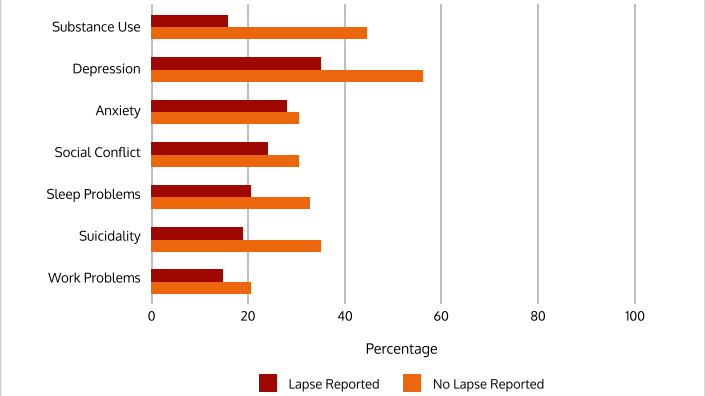


Fig. 17: Percentage of Participants Reporting Significant Symptoms at Follow-Up Based on Lapse History

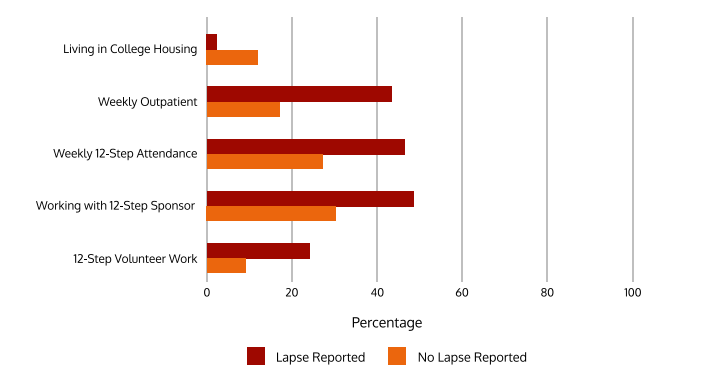


Fig. 18: Variables Significantly Related to Reported Lapse Status

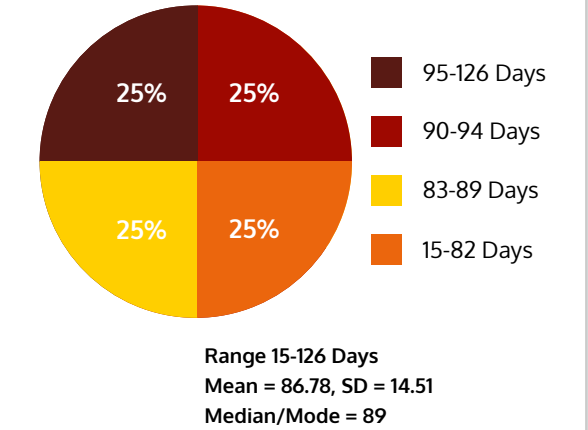


Fig. 19: Length of Stay

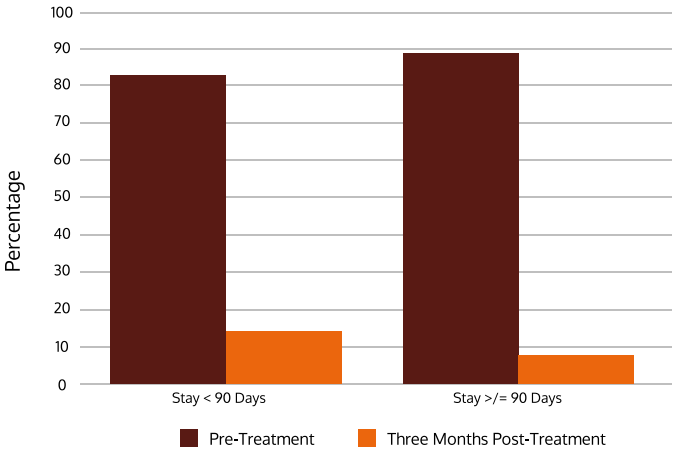


Fig. 20: Percent Reporting Significant Substance Use Symptoms at Follow-Up Based on Length of Stay

The amount of time study participants engaged in treatment at ROR and TW (i.e., length of stay; see **Fig. 19**) was related to a greater reduction in substance use symptoms at graduation and follow up assessments; thus, young adults who remained in treatment at ROR or TW for at least 90 days reported significantly fewer SUD symptoms at the three-month follow up assessment (**see Fig. 20**).

Skill Acquisition

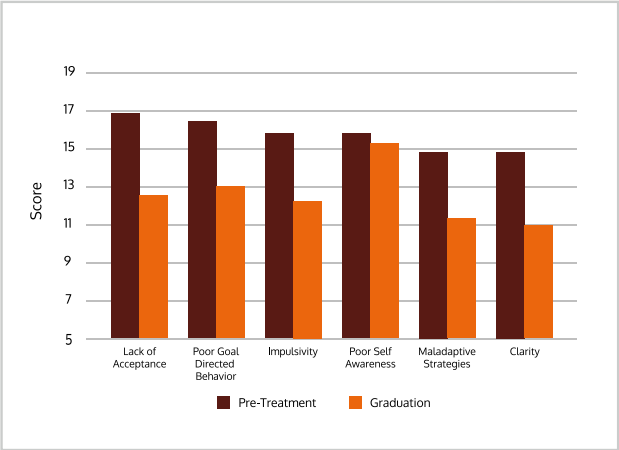


Fig. 21: Difficulties with Emotion Regulation

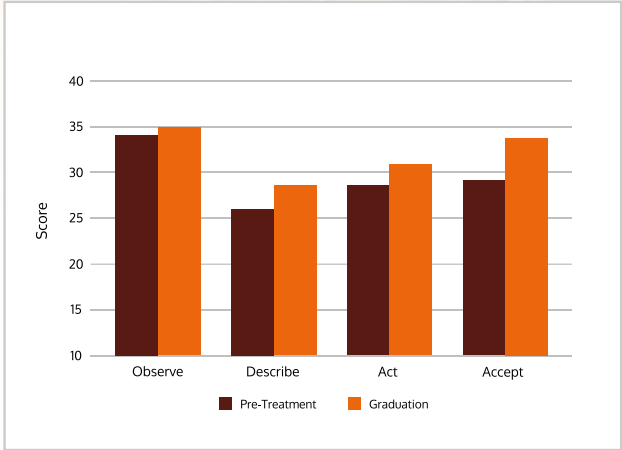


Fig. 22: Improvement in Mindfulness Skills

Learning the skills necessary to regulate one's emotional response – in particular reactivity and distress – is an essential component of overall heath and a predictor of improved outcomes following treatment. As **Fig. 21 and Fig. 22** indicate, difficulties with emotion regulation (e.g., impulse control difficulties, lack of awareness, difficulty engaging in goal-directed behavior, use of maladaptive regulatory strategies) significantly decreased, and mindfulness (e.g., acting with awareness, acceptance) significantly increased for study participants at graduation as compared to program entry.

Broad Wellness Indicators

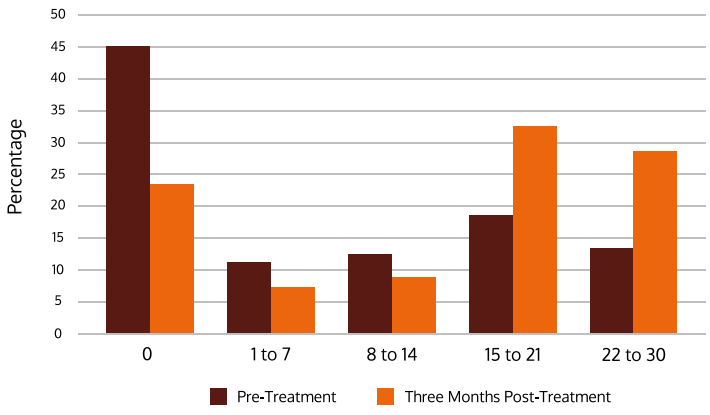


Fig. 23: Number of Days Worked/in School over the Past Month

As **Fig. 23** indicates, at entry, 54.8% of participants reported working or going to school during the previous month. At the time of the three-month follow-up, 76.6% reported working or going to school in the past month.

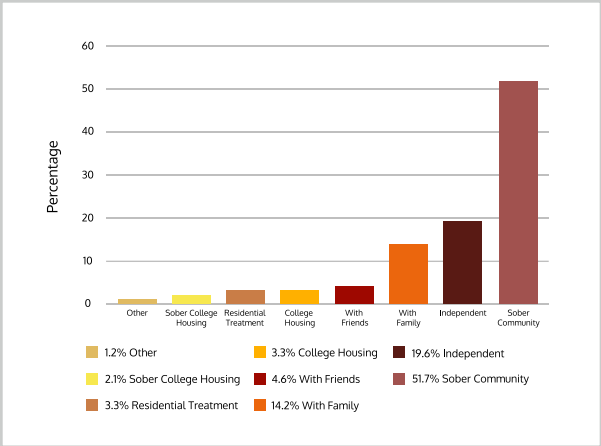


Fig. 24: Living Situation at Follow-Up Assessment

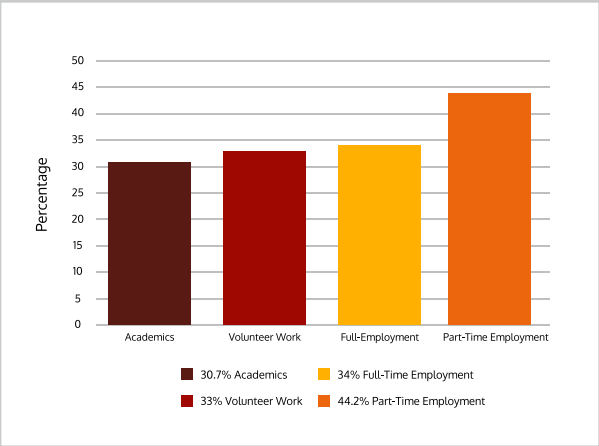


Fig. 25: Community/Social Engagement at Follow-Up Assessment

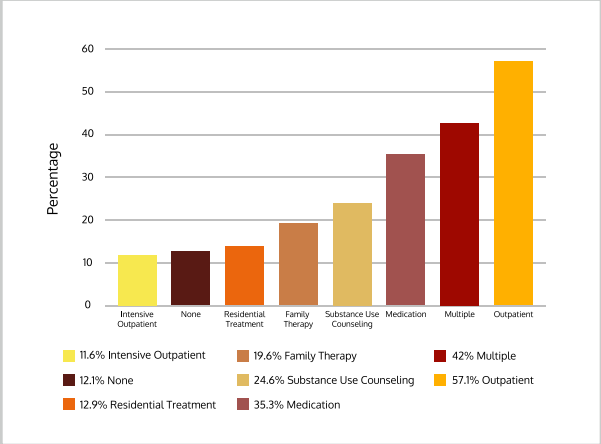


Fig. 26: Mental Health Service Use at Follow-Up Assessment

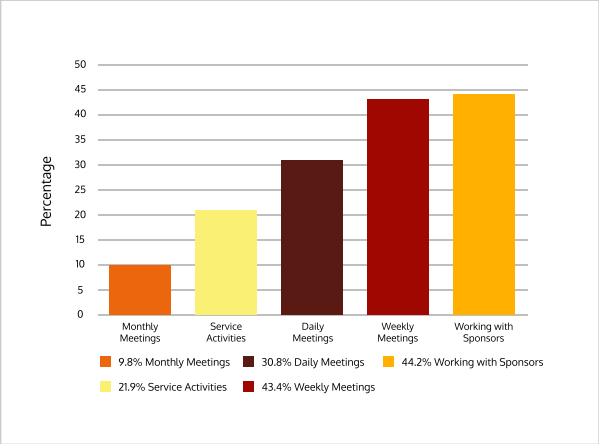


Fig. 27: 12-Step Engagement at Follow-Up Assessment

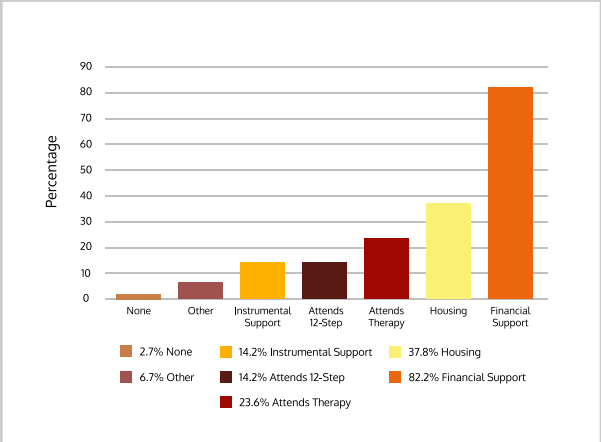


Fig. 28: Family Support at Follow-Up Assessment

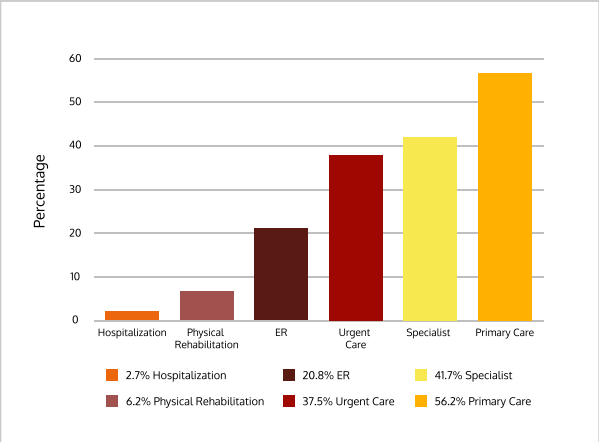


Fig. 29: Health Care Service Use at Follow-Up Assessment

Participant Satisfaction

Participants completed a standardized assessment instrument exploring their therapeutic experience at ROR and TW. The responses were, as **Figures 30-36** indicate, overwhelmingly positive.

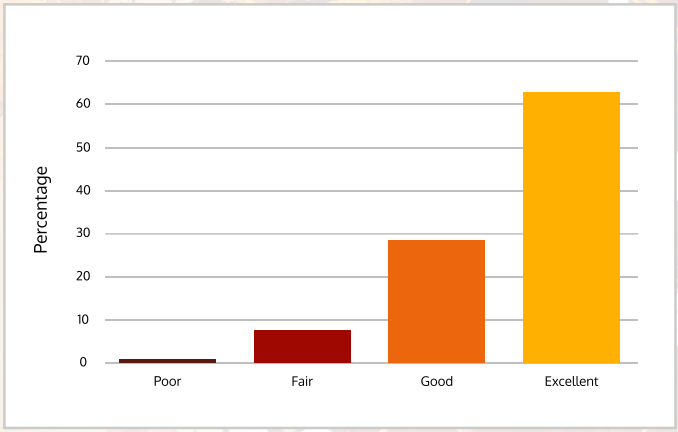


Fig. 30: How would you rate the quality of the service you received?

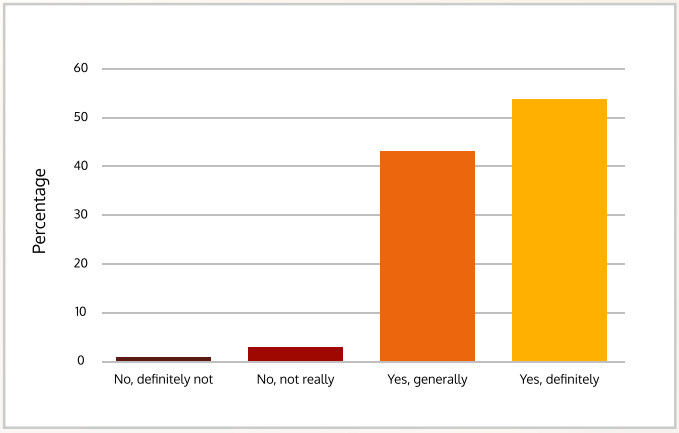


Fig. 31: Did you get the kind of service you wanted?

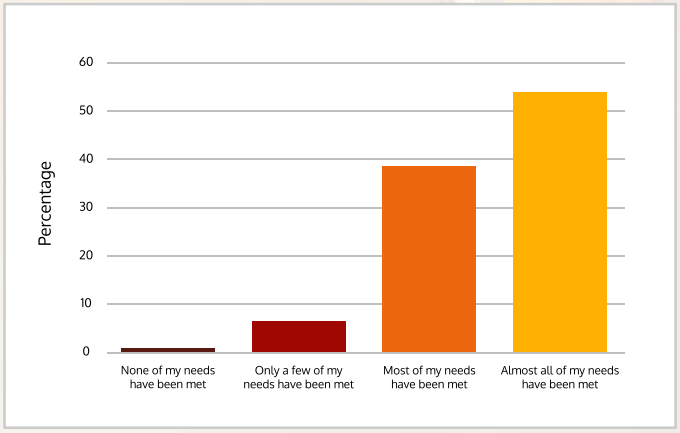


Fig. 32: To what extent has treatment at ROR or TW met your needs?

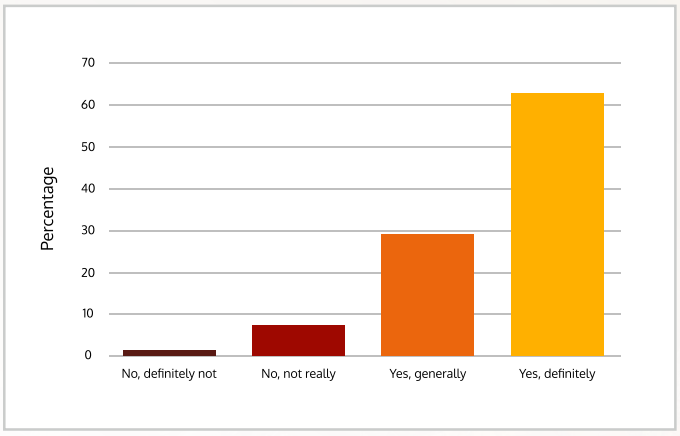


Fig. 33: If a friend were in need of similar help, would you recommend ROR or TW to him or her?

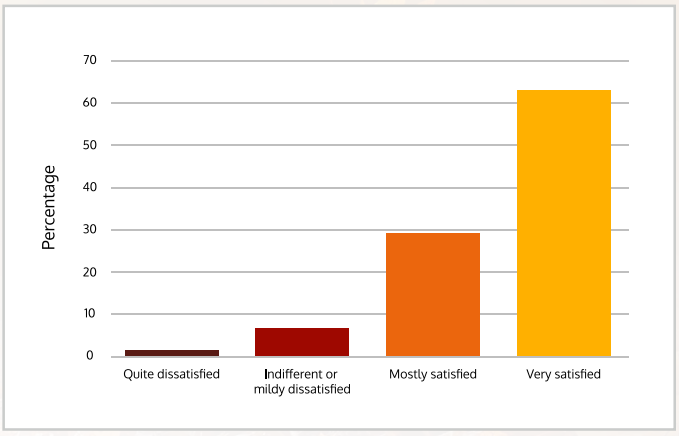


Fig. 34: How satisfied are you with the amount of help you have received?

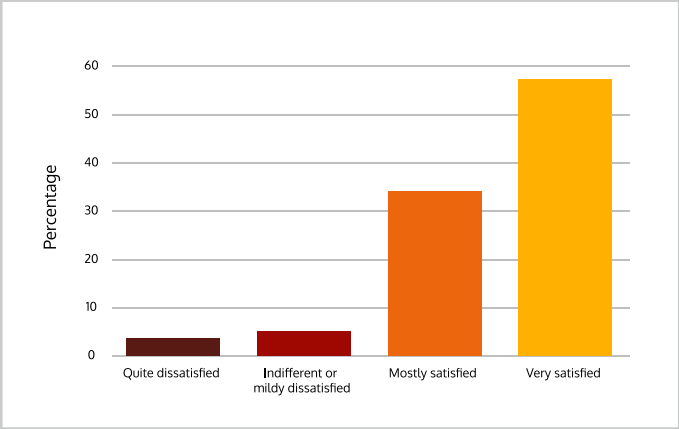


Fig. 35: In an overall, general sense, how satisfied are you with the services you have received?

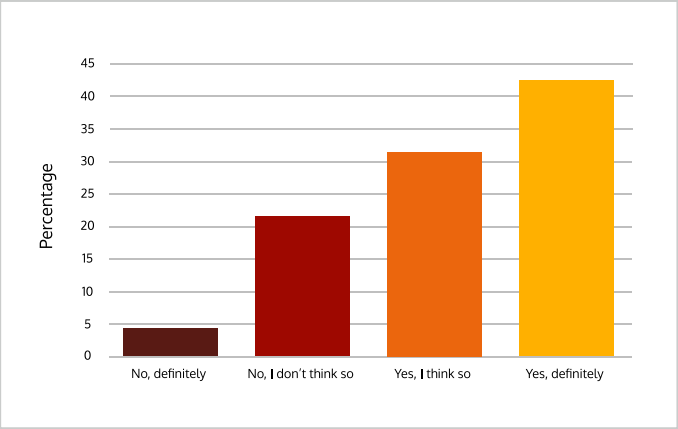


Fig. 36: If you were to seek help again, would you come back?

Summary and Conclusions

ROR and TW, in conjunction with an independent research organization – the Center for Research, Assessment, and Treatment Efficacy (CReATE; www.createnc.com) – and the University of Arkansas, launched a research initiative in 2015. The primary objectives were to explore the therapeutic effectiveness of the programs, the stability of therapeutic improvements (throughout the year following program discharge), and what factors significantly contributed to improved outcomes for participants. The study utilized a continuous enrollment approach (i.e., every client had the opportunity to participate). To date, seven hundred fifty-one (751) young adults (81% of clients admitted) have participated in the study. Phase one of the study was completed in December 2020 and phase two (12-month follow-up assessments) will continue into early 2022.

Study participants are on average 22 years old; 61% are male, 39% female, and the sample is comprised largely of white, non-Hispanic, and single individuals. They tend to be from upper-middle-class and affluent families, with some college education or the completion of a college degree. Upon admission to ROR and TW, young adults reported acute symptoms of substance use disorders, psychopathology (i.e., depression, anxiety), and post-traumatic stress (83% of the overall sample reported a history of traumatic stressors), as well as chronic social problems, sleep disruption, suicidality, and impaired school or work functioning. Upon graduation and at the three-month follow-up assessment, study participants experienced marked improvements in all symptomatic areas and domains of functioning. At graduation, 20% of participants continued to experience the cognitive aspects of addiction (e.g., persistent thoughts of substance use, distorted cognitions), although this was largely resolved by the three-month assessment. Further, 20% of the sample reported persistent symptoms of posttraumatic stress and 30% of the sample reported ongoing depressive symptoms. Results were highly consistent with the current literature in that depressive disorders and post-traumatic stress tend to co-occur with substance use disorders and often persist, even after the individual is in recovery. This highlights the critical importance of targeting addiction and mood - or stressor-related disorders in tandem.

A crucial aspect of effective SUD treatment is sustained recovery following program discharge. The term "lapse", defined as "the recurrence of an individual's alcohol or drug use" is controversial (though clearly preferred to the previously adopted term "relapse"); most professionals in the addiction field, agree that a binary, yes-or-no definition is problematic given the lack of consensus regarding what behavior constitutes a lapse (e.g., a single incident or chronic use? What quantity of substance denotes a lapse?). Current epidemiological and clinical studies suggest that SUDs follow a chronic course, with cycles of recovery and lapse similar to physical conditions such as diabetes or hypertension. In clinical studies, rates of lapse (e.g., substance use, hospitalization, incarceration, readmission to treatment) following residential treatment range from approximately 40-55% within the first year of discharge. At ROR and TW, 15.2% of participants reported a lapse to substance use at the three-month follow-up assessment, with alcohol being the substance most used during a lapse (relapse rates for the 12-month follow up will be available at study completion in 2022). Participants reported marked improvements in the symptoms of addiction and co-occurring disorders, as well as in the intensity of their urges to use substances. Further, young adults demonstrated improved functioning overall, such as returning to school or work, consistently participating in therapy, and attending recovery support meetings, often daily or weekly. Results found a number of contextual and mental health issues related to a return to substance use, including living in college housing (increased risk) and consistent participation in outpatient therapy and community-based recovery programs (decreased risk). Length of stay at ROR and TW had a significant impact on recovery in that study participants who spent 90 or more days in the program were less likely to report significant SUD symptoms at the three-month assessment, compared to clients that spent fewer days in the programs. This suggests a dose effect in that young adults receiving a greater "dose" of programmatic interventions experienced improved outcomes.

In addition to treating symptoms, another critical component of effective intervention for SUDs and co-occurring disorders is the acquisition of skills to manage negative emotions in a healthy manner. This includes the ability to tolerate distress, accept negative feelings (in order to learn from them), and regulate subsequent thoughts and affect in a productive way. Mindfulness practices are being used more often in clinical settings as research findings increasingly support their utility as an emotion regulatory strategy. Study participants demonstrated significant improvements in their awareness, acceptance, and intentional approach to self-regulation, as well as greater use of mindfulness and adaptive emotion regulatory skills throughout their treatment at ROR and TW. This suggests that young adults are expanding their repertoire of stress management skills and thus, are better equipped to successfully navigate recovery from SUDs and co-occurring disorders following program completion.

Lastly, study participants overwhelmingly reported a positive response to treatment at ROR and TW, using a standardized treatment satisfaction instrument. Given that young adults with SUDs tend to have an earlier onset of use and abuse and are the most vulnerable to co-occurring mental illness (as compared to other age groups), effective interventions for this age cohort are of critical import. Study participants demonstrated marked improvements in symptoms of SUDs and psychopathology, acquired healthier regulation strategies, and functioned in more adaptive ways following discharge and for three months following treatment termination. Further, they reported relapse rates that are considerably better than those reported in the overall addiction literature. These marked and persistent therapeutic gains likely are related to study participants' willingness to engage in the treatment process and commit to their recovery. Both are crucial aspects of positive therapeutic experiences. For young adults at ROR and TW, treatment satisfaction appears directly related to therapeutic improvements.

Learn More about Red Oak Recovery® and The Willows at Red Oak Recovery® Today

The teams at Red Oak Recovery® and The Willows at Red Oak Recovery® provide individualized treatment plans for each client who enrolls in our dual diagnosis treatment program. If you or someone you care about is struggling with substance use, mental health, or trauma-related issues, the time to reach out for professional help is now. Learn more about our co-occurring disorders program by reaching out to us online or calling (866) 490-0063.

About the Center for Research, Assessment, and Treatment Efficacy

The Center for Research, Assessment, and Treatment Efficacy (CReATE; Asheville, NC; www.createnc.com; 828.231.3297) is a clinical service and psychological research organization that is committed to the provision of data-driven assessment and evaluation, empirically-supported mental health treatment, and the interface between science and practice. The Research Division at CReATE, directed by Sarah "Salli" Lewis, Ph.D., provides research and outcome evaluation to organizations, programs, and individuals, consultation and training, and a comprehensive research immersion experience to doctoral and masters-level graduate students.