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Reductions in Symptomatology at a Residential Treatment Center for Substance Use Disorders

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ABSTRACT

The authors hypothesized that their Integrated Addiction Model, a trauma-focused treatment approach at a residential treatment center for substance use disorders, would result in a reduction of depression, anxiety, posttraumatic stress, and dissociative symptoms from admission to discharge. The Beck Depression Inventory (BDI), Beck Anxiety Inventory, PTSD Checklist-Civilian Version, and Dissociative Experiences Scale were administered at admission and discharge to a sample of 100 participants at a residential treatment center for substance abuse disorders; the average length of stay of the participants was 42.1 days. Statistically significant score reductions were observed on all four measures. This included an average score reduction of 72.7% on the BDI: 89% of participants were responders, with a responder defined as someone who experienced a score reduction of 50% or greater on the BDI. This Integrated Addiction Model at a residential treatment center for substance use disorders resulted in a significant reduction in symptoms across a range of symptomatology. Future research will be conducted to observe abstinence patterns for the treatment center at 6 and 12 months post-discharge.

Introduction

The primary treatment outcome measure at residential treatment centers for substance use disorders is post-discharge abstinence (Greenfield et al., 2004; McKay, Knepper, Deneke, O'Reilly, & DuPont, 2016, Schmidt et al., 2018). This is usually expressed either as the percentage of patients remaining fully abstinent, or the average percentage of days abstinent during 6 or 12 months of follow-up. In addition to the essential criterion of abstinence, however, assessment of recovery can also include life satisfaction, personal and social function, employment, and other criteria. One of these additional criteria could be the severity of mental health symptomatology. The authors were unable to identify any studies conducted at residential treatment centers in which psychiatric symptoms were assessed at admission and discharge using reliable and valid measures, including in a review of the literature (McCarty et al., 2014).

At their residential treatment center, the authors' treatment approach was based on the Trauma Model (Ross, 2007) and Trauma Model Therapy (Ross, Goode, & Schroeder, 2018; Ross & Halpern, 2009); The Spectrum of Emotions, a treatment technique developed by Melissa Caldwell Engle (2002), and Emotional Transformation Therapy: an interactive ecological psychotherapy, developed by Steven R. Vazquez (2014). Several scientifically testable assumptions underlie this treatment model: (a) psychological trauma is a substantial risk factor for substance use disorders; (b) one primary motive for substance use is avoidance and medicating unresolved feelings and conflicts arising from traumatic/adverse experiences; (c) an Integrated Addiction Model that addresses unresolved trauma will reduce the levels of a wide range of symptoms; and (d) this reduction in symptoms, combined with newly acquired skills such as grounding, shame reduction, affect desensitization, and having a life purpose, will increase the likelihood of attaining longer periods of abstinence at post-discharge follow-up.

In order to test one of these hypotheses (item (c)), the authors administered a set of measures at admission and discharge that encompassed a range of symptomatology including depression, anxiety, dissociation, and posttraumatic stress disorder (PTSD) symptoms using reliable and valid measures. They hypothesized that a statistically significant reduction in symptoms across these four domains would be observed in response to a trauma-focused treatment approach.

The treatment model

Treatment at the residential treatment center is based on a model that integrates substance use, and process addictions such as gambling, pornography, gaming, and shopping with the co-occurring mental health symptoms and diagnoses such as depression, anxiety, PTSD, and dissociative disorders. Within this model, all symptoms are viewed as serving the same purpose—to manage emotional pain by avoiding, numbing and/or medicating it. A perfect storm of unresolved pain and/or trauma, in addition to low self-esteem and poor coping skills, creates a desperate need for escape into many addictive patterns. The program provides four different types of groups totaling 52 hr a week, including educational therapy groups, experiential groups, process groups, and support groups. Educational therapy groups include trauma education; Dialectical Behavior Therapy (DBT), a group that introduces clients to DBT (Linehan, 1993); The Daring Way™ (Brown, 2015); the 12-Steps approach to recovery; education about continuing care; and groups about leadership and life purpose and gratitude. The experiential groups include anger management, art therapy, psychodrama, equine therapy, music therapy, yoga, and mindfulness meditation. Support groups include AA, Celebrate Recovery, and SMART Recovery.

All individual therapists are masters-level clinicians and all have a minimum certification in both Trauma Model Therapy (Ross & Halpern, 2009) and Emotional Transformation Therapy (Vazquez, 2014). Each client receives 1 hr, three times a week of individual psychotherapy. Each client also completes a battery of standardized tests and questionnaires at admission and again at discharge. In addition to couples counseling and family therapy, the facility offers a 3-day family intensive every month for clients and their families. This intensive provides a combination of educational, experiential, and family therapy with clients and their families. The program is a tobacco-free facility and provides farm to table, primarily organic, clean eating with very little sugar, caffeine, and processed foods.

Method

Participants

Data were based on 100 individuals consecutively admitted to the treatment center from February 2017 to February 2018: 98 individuals were admitted once, one twice, and one three times, for an overall readmission rate of 3% during the period of data collection. There were 55 men and 45 women with an average age of 37.8 years (SD = 13.1) and a range of 18–68 years. The average length of stay was 42.1 days (SD = 23.6) with a range of 14–151 days. All participants provided written informed consent and all had a primary diagnosis of substance use disorder. All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation [Healing Springs Ranch] and with the Helsinki Declaration of 1975, as revised in 2000.

Measures

The research measures administered at admission and discharge included the Beck Depression Inventory (BDI), the Beck Anxiety Inventory (BAI), the Dissociative Experiences Scale (DES), and the PTSD Checklist—Civilian Version (PCL-C). The PCL-C is a 17-item self-report measure scored on a Likert-type scale with responses ranging from zero to five (Weathers et al., 2013; Wortmann et al., 2016). The PCL-C has good convergent and discriminant validity and has an internal consistency of $\alpha = .96$ and a test–retest reliability of $r = .84$. A cutoff score of 33 is used for making a diagnosis of PTSD.

The DES is a 28-item self-report measure that yields a total score ranging from 0 to 100 (Bernstein & Putnam, 1986). The DES has good reliability and validity and has been used in over 2500 different studies (Lyssenko et al., 2018). The DES has an internal consistency of $\alpha = .93$

(Van IJzendoorn & Schuengel, 1996). The BDI (Beck, Steer, & Brown, 1996) is a widely used 21-item self-report measure of depression with good reliability and validity, and an internal consistency of $\alpha = .89$ (Lee, Jee, Hwang, Hong, & Kim, 2017). A score of 20 on the BDI is commonly used as a cutoff for a diagnosis of major depressive episode. The BAI (Beck, Epstein, Brown, & Steer, 1988) is a widely used 21-item self-report measure with an internal consistency of $\alpha = .92$ and a 1-week test–retest reliability of $r = .75$.

Measures completed only at admission were the Drug Abuse Screening Test (DAST) (Gavin, Ross, & Skinner, 1989; Skinner, 1982) and the Adverse Childhood Experiences (ACE) Questionnaire. The DAST is a 28-item self-report measure with an internal reliability of $\alpha = .92$; a cutoff score of 6 or higher is recommended for the detection of a significant drug use disorder. The ACE is a 10-item self-report measure. In a sample of 658 respondents, the ACE had a test–retest reliability of kappa = 0.64 (Dube, Williamson, Thompson, Felitti, & Anda, 2004). Higher scores on the ACE predict a wide range of negative health outcomes.

Results

ACE and DAST Scores

The average ACE score was 3.3 (SD = 2.5) with a range of 0–10. The average DAST score was 12.1 (SD = 8.3) with a range of 0–28. On the DAST, 65 participants had scores of 6 or higher, which is the recommended cutoff score for significant drug abuse (Gavin et al., 1989; Skinner, 1982). Five participants did not complete the ACE and the DAST; for the other measures, all 100 participants completed the questionnaires.

Treatment outcome measures

The results of the treatment outcome measures are shown in Table 1. On the PCL-C, 72 participants met or exceeded the recommended cutoff score of 33 for a diagnosis of PTSD on admission. A score reduction of at least 5–10 points on the PCL-C is recommended as an indicator of a significant score reduction (Bovin et al., 2016); the average score reduction was 15.6 and 75 participants had a score reduction of 5 or higher. On the BDI, 47 participants had scores of 20 or higher on admission, the recommended cutoff for a diagnosis of major depressive episode. Out of the 100 participants, 89 had score reductions of 50% or greater on the BDI, which is the recommended criterion for a treatment responder in antidepressant medication trials (Fountoulakis, McIntyre, & Cavallo, 2015; Khan & Brown, 2015). The average score reduction on the BDI was 72.7%.

Table 1. Admission and discharge scores on four measures in a residential treatment center for substance use disorders.

Measure	Admission	Discharge	t	p
		Average score (SD)		
BDI	20.5 (11.4)	5.6 (6.8)	11.2850	.0001
BAI	23.4 (14.5)	8.4 (8.9)	8.7888	.0001
PCL-C	42.3 (15.3)	27.7 (10.7)	7.7845	.0001
DES	12.6 (14.7)	7.2 (9.9)	2.8649	.005

BDI = Beck Depression Inventory; BAI = Beck Anxiety Inventory; DES = Dissociative Experiences Scale; PCL-C = PTSD Checklist-Civilian Version.

Discussion

All four measures showed a significant reduction in scores over a broad range of symptomatology: PTSD; anxiety; depression, and dissociation. It appears that the trauma-focused, Integrated Addiction Model employed at this residential treatment center is effective across a range of symptomatology. On the PCL-C, 75% of participants experienced a clinically significant reduction in PTSD symptoms. The percentage of responders on the BDI (89%) was substantially larger than the average response rate in meta-analyses of antidepressant trials (50%) (Khan & Brown, 2015). It is unlikely that the score reductions on the BDI can be accounted for by placebo response, selection bias, regression to the mean, spontaneous remission or other such mechanisms because all of these should be operating to the same extent in antidepressant trials, including in the placebo groups. We see no reason why such mechanisms should apply to the other three measures any more than they do to the BDI.

We were unable to locate any previous studies conducted at residential treatment centers for substance use disorders in which validated measures of symptomatology were used at admission and discharge; therefore, we were not able to compare our findings to previous research. In the residential treatment center treatment outcome studies that have been conducted, the primary measure is abstinence post-discharge, usually for a period of 6 or 12 months. This is expressed as either total abstinence or percentage of days abstinent (Greenfield et al., 2004; McKay et al., 2016). We are tracking our sample of 100 participants post-discharge to determine their degree of abstinence, but data collection is ongoing and we have nothing to report at this time.

One relevant comparison for our data is the reductions in depression scores observed in trials of antidepressants for depression, which generally last 8–12 weeks, a time period comparable to our average length of stay of 42 days. In meta-analyses of antidepressant trials, the overall reduction in scores is 57.7% for medication compared to 44.6% for placebo (Khan & Brown, 2015). Our average score reduction on the BDI was 72.7%. When

a responder is defined as a person whose depression score drops by 50% or more, meta-analyses of antidepressant trials find a response rate of 50% to medication and 30% to placebo. Our response rate was 89%.

We believe that addressing the underlying psychological trauma and the resulting comorbidity of the substance use disorder, in a non-regressive treatment model should increase the rate of abstinence post-discharge but as of yet, this is an untested hypothesis. Our findings do confirm one step in the four-step hypothesis stated in the "Introduction" section: (c) providing a trauma-focused integrated treatment model for the comorbidity will reduce the levels of symptomatology. The strengths of the study are as follows: the adequate sample size ($N = 100$); the range of measures used; the real-world, clinical sample with no participants excluded; and the statistical and clinical significance of the findings. The limitations of the study are as follows: the sample is from a single residential treatment center; the lack of a post-discharge follow-up; and the consequent lack of measures of post-discharge abstinence, life satisfaction and occupational and social function; and lack of a control or comparison group. The lack of post-discharge follow-up will be addressed in future research. It is difficult to envision how we could ethically create a meaningful control group in a randomized design because that would involve randomizing paying clients to a treatment we do not offer at our residential treatment center. We were unable to identify a directly comparable comparison group in the literature because we could not find a study in which valid and reliable symptom measures were administered at admission and discharge.

Disclosure of interest

On behalf of all of the authors, the corresponding author states that there is no conflict of interest.

Ethical standards and informed consent

All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation [institutional and national] and with the Helsinki Declaration of 1975, as revised in 2000. Informed consent was obtained from all patients for being included in the study.

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