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Research Article

Reductions in Symptomatology from Admission to Discharge at a Residential Treatment Center for Substance Use Disorders: A Replication Study

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ABSTRACT

A replication study of treatment outcomes for patients at a residential treatment center for substance use disorders was conducted. A set of measures was completed on admission and discharge by 200 patients admitted to a residential treatment center for substance use disorders. Participants in the replication sample did not differ from those in the initial sample of 100 on age, gender or average length of stay, or on baseline scores on the Adverse Childhood Experiences Questionnaire or the Drug Abuse Screening Test. Nor did they differ on admission or discharge scores on the Dissociative Experiences Scale, the Beck Anxiety Inventory, the Beck Depression Inventory or the PTSD Checklist-Civilian Version. The results show that the marked symptom reductions seen in the initial study can be replicated. This is an important step in ongoing research on treatment outcomes for substance use disorders. The treatment provided was multi-modal and trauma-informed and incorporated Twelve Step and other approaches.

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Introduction

The treatment outcome literature for substance use disorders is focused on abstinence as the key outcome consideration [1-4]. One treatment outcome study however, focused on symptom reduction from admission to discharge in a residential treatment center for substance use disorders [5]. The results of this prior study are shown in (Table 1). In the present study, the authors undertook a replication of the prior study in an effort to determine whether the results of the first study are replicable. Replication of results is an essential component of any effort to validate a treatment model. The treatment model used in the replication study is the same as that used in the prior study, and is described in detail in Ross, Engle and Baker [5]. It consists of a mix of cognitive and experiential approaches with a strong emphasis on education about addictions, and Twelve Step principles. The treatment is trauma-informed and incorporates the principles and techniques of Trauma Model Therapy [6, 7] and an Integrated Addictions Model developed at the treatment center, as well as techniques described by Brown [8].

The thinking in both the initial study and the replication is that treatment for substance abuse is likely to be more effective if psychological trauma

and comorbidities are both addressed within a trauma-informed treatment model. Additional future studies will be conducted to document the rates of abstinence post-discharge from the treatment center.

Methods

I Participants

Participants were 200 individuals receiving treatment in a residential treatment center from January 2018 to March 2020. They included 81 women and 119 men. The average age of the participants was 33.1 years (SD=11.7). The average length of stay was 35.5 days (SD=12.9). Written informed consent was obtained from each participant. All patients admitted to the residential treatment center have a primary diagnosis of substance use disorder. In the prior study (N=100) there were 55 men and 45 women, the average age was 37.8 years (SD=13.1) and the average length of stay was 42.1 days (SD=23.6). The two samples were not significantly different at $p = .05$ using a chi square test for gender and t tests for age and length of stay.

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II Research Measures

The Beck Depression Inventory (BDI), the Beck Anxiety Inventory (BAI), the Dissociative Experiences Scale (DES) and the PTSD Checklist – Civilian Version (PCL-C) were administered at both admission and discharge [9-17]. All these measures are widely used and have established reliability. The Drug Abuse Screening Test (DAST) and the Adverse Childhood Experiences (ACE) Questionnaire were administered only at admission in both the prior study and the replication study [18-20]. Additionally, in the replication study, the Michigan Alcoholism Screening Test (MAST) was administered only at admission [21]. All these measures are also widely used and have established reliability.

Results

In the original study (N=100), the average ACE score was 3.3 (SD=2.5). The average DAST score was 12.1 (SD=8.3). In the replication sample (N=200), the average ACE score was 3.0 (SD=1.5) and the average DAST score was 11.7 (SD=7.6). Scores on the ACE and the DAST did not differ between the two groups at $p = .05$ using t tests. The MAST was not included in the original sample but in the replication sample, the average score was 8.5 (SD=2.8). Scores above 6 on the MAST are considered to indicate serious alcohol abuse. Scores above 6 on the DAST are considered to indicate substantial drug abuse and scores above 10 to indicate extreme drug abuse. None of the scores reported in (Tables 1 & 2) differed from each other at $p = .05$ either at admission or at discharge using t tests. Of the four measures shown in (Tables 1 & 2) only the BDI score was significantly correlated with length of stay ($r = -.195$, $p = .005$), indicating a greater reduction in depression with longer lengths of stay.

Table 1: Admission and discharge scores on four measures in a residential treatment center for substance use disorders (N=100).

Measure	Admission	Discharge	t	p
Average Score (SD)				
BDI	20.5 (11.4)	5.6 (6.8)	11.285	0.0001
BAI	23.4 (14.5)	8.4 (8.9)	8.7888	0.0001
DES	12.6 (14.7)	7.2 (9.9)	2.8649	0.005
PCL-C	42.3 (15.3)	27.7 (10.7)	7.7845	0.0001

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

Table 2: Admission and discharge scores on four measures in a residential treatment center for substance use disorders: replication sample (N=200).

Measure	Admission	Discharge	t	p
Average Score (SD)				
BDI	21.4 (11.4)	6.7 (7.6)	15.173	0.0001
BAI	22.6 (13.8)	8.2 (9.2)	16.525	0.0001
DES	12.2 (13.3)	7.4 (10.2)	4.05	0.0001
PCL-C	44.2 (15.2)	29.4 (11.0)	11.155	0.0001

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

Discussion

The data in the present sample (N=200) replicated the findings in the prior sample (N=100). This demonstrates that the treatment benefits obtained with the model can be replicated in the population served. Additional steps in future research could include: replicating the findings at different treatment centers with staff trained in the model; demonstrating adherence to the model in staff using suitable measures; extending the treatment to other settings including outpatient treatment, psychiatric inpatient facilities and prisons; adapting the treatment model for adolescents; and adapting the model to other countries and languages.

Limitations of the replication include the fact that it was conducted at the same residential treatment center as the prior study. Whether the findings can be generalized to other settings and populations will require future research. The authors believe that symptom reduction is a meaningful treatment outcome in and of itself. However, such research should be coupled with post-discharge follow-up to document relapse rates and the extent of additional treatment required. The fact that a greater reduction in depression scores was seen with longer lengths of stay argues in favor of longer lengths of stay. Length of stay should be included in the analyses in future studies.

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