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Treatment Outcomes of a Combined Cognitive Behavior Therapy and Pharmacotherapy for a Sample of Women with and without Substance Abuse Histories on an Acute Psychiatric Unit: Do Therapeutic Alliance and Motivation Matter?

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Abstract

Background and Objectives: Women with comorbid psychiatric and substance abuse problems (PwSA) experience more consequences from their use and typically have the poorest prognosis and outcome, compared to those with psychiatric problems but without substance abuse problems (PwoSA). The present study examined outcomes of a combined intensive inpatient cognitive behavior therapy (CBT) and pharmacotherapy program for women with PwSA and PwoSA.

Methods: Sample consisted of 117 women on a women-only acute inpatient unit (PwSA = 50, PwoSA = 67).

Results: Women in both groups made significant improvements in psychological functioning. High motivation at admission and therapeutic alliance at discharge were associated with improved psychological functioning at discharge for both groups.

Conclusions and Scientific Significance: Findings provide preliminary support for the efficacy of a combined CBT and pharmacotherapy program for women with psychiatric diagnoses on a women-only acute inpatient unit, and for pre-treatment motivation and therapeutic alliance as important correlates of better treatment outcomes.

INTRODUCTION

About half of the 4 million adults in the United States with comorbid psychiatric and substance abuse illnesses are women.¹ These women experience more severe psychiatric symptoms, suicidality, health problems, unemployment, and stigma, compared to men with comorbid substance abuse or women with acute psychiatric disorders without a substance

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Declaration of Interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this paper.

use problem.² Furthermore, retention rates for these women who enter treatment are typically low. Many treatment programs are mixed-gendered, and these women may feel unsafe in such a setting because of their high rates of victimization by male perpetrators.^{2,3} This may be one reason why traditionally mixed-gendered treatment programs have been unsuccessful in attracting, retaining, and treating women with comorbid disorders.³

Efficacy studies of combined cognitive behavior therapy (CBT) and pharmacotherapy on inpatient settings have yielded encouraging results for patients with schizophrenia, depression, and eating disorders.⁴ However, there have been no evaluation studies, to our knowledge, of patients with comorbid psychiatric and substance use disorders receiving combined CBT and pharmacotherapy treatments. In addition, studies of women-only versus mixed-gendered substance abuse treatment settings have reported mixed results.³ Some studies found that women treated in a women-only setting showed greater decreases in alcohol consumption and psychiatric symptoms than women treated in a mixed-gendered setting.⁵ Other studies found no significant differences.⁶

Whether CBT combined with pharmacotherapy works for women with comorbid disorders is an important empirical question that needs to be addressed because these women tend to utilize emergency and inpatient facilities more often than comorbid men or women with acute psychiatric disorders but without substance abuse, resulting in a greater burden on the economy.¹ This study will assess whether a combined CBT and pharmacotherapy treatment approach is efficacious in improving overall psychological functioning (eg, reduced psychiatric symptom distress) for women with and without a substance abuse history within an acute psychiatric women-only unit and examine potential mechanisms of change. Although the presence of comorbidity could complicate the course of treatment and delay recovery, research has found that the presence of comorbidity does not necessarily lessen treatment efficacy and that treating two or more acute psychiatric disorders simultaneously with medication and under close supervision of trained staff personnel can improve substance abuse and psychiatric outcomes.⁷ Therefore, it is hypothesized that after a short-term acute psychiatric hospital stay, both groups will experience similar significant gains.

Therapeutic Alliance

Evaluations of CBT inpatient programs have not examined mechanisms of change, such as therapeutic alliance. Therapeutic alliance predicts treatment retention, completion, abstinence, and psychological stability for outpatients with moderate-to-severe psychiatric symptoms,⁸ drug and alcohol dependence,⁹ and bulimia nervosa.¹⁰ However, this association has not been explored with women with comorbid substance abuse on acute inpatient units.

CBT can facilitate a strong therapeutic alliance because of its focus on psychoeducation, skill development, collaboration, and the goal of immediate symptom relief.¹¹ Klein et al.¹² found that patients receiving CBT and medication endorsed stronger alliance with their therapist compared to patients who received CBT alone. When treating women with psychiatric and substance abuse problems (PwSA), there is a unique emphasis on the therapeutic alliance, primarily because their substance abuse is intertwined with their psychiatric symptoms and interpersonal relationships. For example, women with substance

abuse disorders are likely to have unhealthy interpersonal relationships that can lead to low self-esteem, depression, and anxiety, which ultimately perpetuates a cycle of continued use to relieve negative affect and to cope with interpersonal conflict.² Thus, having a positive relationship that builds on improving self-esteem, self-efficacy, and autonomy can be the first step to promoting more productive interpersonal relationships with others.

Motivation

Another important mechanism of change may be greater motivation for recovery. There exists substantial evidence that motivation represents a critical part of the recovery process for patients, irrespective of presenting problem, gender, and treatment setting.¹³ High levels of motivation can lead to treatment entry, retention, and improved psychological functioning for patients with psychiatric disorders across inpatient and outpatient settings.¹³⁻¹⁵ However, findings have been inconsistent for comorbid psychiatric and substance abuse samples, primarily because motivation to change fluctuates constantly over time, especially for patients with numerous concomitant psychological disorders.^{16,17} It also is possible that aggregate samples of men and women mask subtle gender differences when examining the relationship between motivation and outcome.

It is plausible that the effect of motivation on treatment outcome has a more unique and important effect for women with comorbid substance abuse than those without. One explanation for the greater effect of motivation for this group could be because women with, compared to without, comorbid disorders struggle more with the desire to change. Drugs and alcohol may temporarily relieve anxiety and depression but may also cause significant negative consequences.^{18,19} Therefore, this group may require higher levels of motivation to improve outcomes compared to women without comorbid substance abuse. A better understanding of the relationship between motivation and treatment outcome could inform the development of more effective interventions for women with comorbidity.

Current Study

This study utilized a non-randomized, clinical design and examined women with acute PwSA and women with acute psychiatric disorders without substance abuse (PwoSA) in a naturalistic treatment setting. We predicted that: (1) both groups would make significant improvements in overall psychological functioning from admission to discharge, (2) therapeutic alliance at discharge would be related to improved psychological functioning at discharge for both groups, but the relationship would be stronger for PwSA than PwoSA, and (3) high levels of motivation at admission would be related to improved psychological functioning at discharge but the relationship would be stronger for PwSA than PwoSA.

METHODS

Participants

The sample consisted of 139 English speaking adult women admitted to a women-only acute psychiatric unit located in a northeastern metropolitan area. Participants with severe psychotic symptoms and/or severe to moderate mental retardation were excluded. Of the 139

eligible participants who originally provided informed consent, 117 were included in this study (see Fig. 1 for participant flowchart).

Of the 117 participants, 50 met criteria for having a substance abuse problem using the TWEAK²⁰ and Drug Abuse Screening Test²¹ assessed at baseline (see the Measures Section). These participants were categorized as PwSA (coded 1), while the non-substance abuse group was categorized as PwoSA (coded 0). These groups did not differ statistically on baseline demographic characteristics, baseline clinical diagnosis (except substance abuse), or length of stay in treatment (see Table 1). However, the PwSA group was slightly more likely to report receiving government assistance in the form of SSI and public assistance compared to PwoSA ($p = .05$).

Procedures and Interventions

Patients who agreed to participate in the research met with trained research assistants to review and sign informed consent forms that were approved by the university and the hospital Institutional Review Boards. During their hospitalization, participants were given a self-report assessment battery within 72 hours of admission and again 24 hours before discharge. At admission, patients were assigned to a treatment team consisting of a psychiatrist, social worker, nurse, and mental health worker. The patients were given a CBT treatment manual, comprised of simple and practical psychoeducation materials and worksheets. The core CBT program was not adapted specifically for women, other than using female-specific examples when teaching a skill.

Treatment on the unit was multifaceted. The women attended at least four CBT groups per day. The manualized CBT program started daily with a problem identification and goal setting group, followed by the core CBT group, then a self-help group, where the skills taught in the core CBT group were reinforced, and lastly a wrap-up group at the end of the day to evaluate accomplishment of goals. CBT groups focused on cognitive restructuring and behavior modification. A Mentally Ill Chemical Abuse (MICA) specialist facilitated two substance abuse groups per week, the first for PwSA only and the second open to all. Optional groups addressed interpersonal relationships, autonomy, and relapse prevention. All patients also received individual therapy, morning rounds with the treatment team, and an individualized daily medication regimen based on their diagnosis. At times, medications and/or doses were altered depending on symptom improvement or worsening.

All groups were facilitated by licensed clinical social workers and psychology doctoral trainees. All the staff received specialized training in CBT. Each clinician received weekly, individual, hour-long supervision by a licensed Clinical Psychologist who specializes in CBT. Supervision mainly targeted case conceptualization and treatment and the delivery of the manualized treatment protocol.

Measures

Therapeutic Alliance—Therapeutic alliance was assessed at discharge using the Inpatient Treatment Alliance Scale (I-TAS).²² The I-TAS is a brief 10-item self-administered scale that measures the patients' perception of the alliance towards their entire treatment team

rather than an individual therapist. Responses were on a 7-point Likert scale ranging from 0 = *false* to 6 = *completely true* and were summed, with higher scores indicating greater alliance ($\alpha = .96$).

Motivation—The University of Rhode Island Change Assessment (URICA²³), a 32-item self-administered questionnaire, was used to assess attitudes associated with changing a target behavior at admission. A motivation composite score (Readiness to Change) was calculated for each patient, ranging from -16 to 112, with higher scores indicating greater motivation for change ($\alpha = .68$).

Alcohol and Drug Abuse—The TWEAK is a brief 5-item self-report questionnaire that was used at admission to screen for hazardous drinking and dependence within the past year²⁰ ($\alpha = .73$). A cut-off score of three or more was used for this study because at this score, sensitivity ranged from 84% to 94% and specificity ranged from 81% to 89%.²⁴

The Drug Abuse Screening Test (DAST-10) is a brief 10-item self-administered questionnaire that was used at admission to screen for drug problems during the past 12 months²¹ ($\alpha = .89$). This study used a cut-off score of three or more to identify patients who were struggling with drug problems. The PwSA group met the cut-off criteria for the DAST and/or TWEAK.

Treatment Outcome—The Outcome Questionnaire (OQ-45) is a 45-item self-report instrument assessed at admission and discharge that measures the participants' psychological functioning within the past week.²⁵ The OQ-45 is sensitive to subtle changes in psychological functioning and has sound psychometric properties.^{26,27} The OQ-45 is divided into three subscales: symptom distress ($\alpha = .75$), interpersonal relationships ($\alpha = .78$), and social role performance ($\alpha = .70$). The total score ($\alpha = .85$) and subscales were used, with higher scores indicating greater symptom distress.

Covariates—The demographic questionnaire included information about ethnicity, age, marital status, years of education, employment status, and income. Length of stay was measured as the total number of days the patient remained on the unit. Length of stay was included as a covariate because acute psychiatric symptoms can abate quickly, especially in the absence of drug and alcohol use.²⁸ Marital status was also included in all analyses as a covariate because married patients may have an advantage in terms of their motivation levels at admission due to being in a stable relationship.²⁹

Analyses

As indicated in Figure 1, one case was identified using the Mahalanobis distance as a multivariate outlier with $p < .01$ and omitted from subsequent analyses. For the remaining data, Little's ³⁰ chi-square test of Missing Completely At Random (MCAR) was conducted, resulting in a non-significant chi-square ($\chi^2(40) = 34.44, p > .05$). Thus, the pattern of missing values was considered to be random in nature and the expectation maximization (EM) algorithm for maximum likelihood (ML) was used to impute missing values using IBM SPSS.

Repeated measures analysis of variance (ANOVA) was conducted to compare mean differences in change in psychological functioning from admission to discharge between the PwSA and PwoSA groups. Multiple regression analyses were performed to examine whether treatment alliance and motivation are related to the efficacy of the combined CBT and pharmacotherapy treatment. In accordance with Cohen's³¹ recommendation, partial eta squared (η_p^2) was adopted as a measure of effect size (small effect > .02, medium effect > .13, large effect > .26). We included covariates (length of stay in treatment, psychological functioning at admission, and marital status) to adjust for their effects when examining the associations between treatment group, therapeutic alliance or motivation, and treatment outcomes. A main effects only model was tested in the first step (Model 1) and the interaction term between treatment group and alliance or between treatment group and motivation was tested in the second step (Model 2). In all analyses, motivation and therapeutic alliance variables were centered and interaction terms were created using these centered variables.

RESULTS

Psychological Functioning

As expected, participants made significant improvements in overall psychological functioning from admission to discharge (Wilks' $\lambda = .45$, $F(1, 115) = 143.06$, $p = .00$, $\eta_p^2 = .55$) (Fig. 2) with no between group differences in the magnitude of change. *T*-tests revealed that there were significant between group differences on the OQ-45 at admission, with the PwSA group endorsing greater psychological distress compared to the PwoSA group, $t(115) = -3.05$, $p = .003$. These differences were not evident at discharge, $t(115) = -1.32$, $p = .19$. All three subscales of the OQ-45 showed significant decreases from admission to discharge: distress related to symptoms (Wilks' $\lambda = .42$, $F(1, 115) = 157.66$, $p = .00$, $\eta_p^2 = .58$); interpersonal relations (Wilks' $\lambda = .52$, $F(1, 115) = 104.98$, $p = .00$, $\eta_p^2 = .48$); and social role performance (Wilks' $\lambda = .71$, $F(1, 115) = 47.67$, $p = .00$, $\eta_p^2 = .29$). The results indicated strong effect sizes for change, and the two groups did not differ in the magnitude of change.

Therapeutic Alliance

A multiple regression analysis was conducted to assess the relationship between alliance at discharge and psychological functioning at discharge (Table 2, top half). Model 1, which included all covariates and therapeutic alliance at discharge, was significant, $F(5, 111) = 8.72$, $p < .001$, accounting for 28% of the outcome variance. Stronger therapeutic alliance at discharge was associated with better psychological functioning at discharge, $\beta = -.27$, $t(116) = -3.36$, $p = .01$ but there was no significant between group differences in outcome. The interaction of alliance by group did not significantly add to the overall model (see Model 2). Thus, alliance at discharge operated similarly for women with or without substance abuse.

Motivation

Multiple regression analyses were performed to examine whether motivation at admission was associated with better psychological functioning at discharge (Table 2, bottom half). The main-effect-only model (Model 1) was significant, $F(5, 111) = 7.08, p = .00$, accounting for 24% of the variance in psychological functioning at discharge. Psychological functioning at discharge was predicted by high levels of motivation at admission, $\beta = -.19, t(116) = -2.19, p = .03$. There were no significant group differences in psychological functioning at discharge. The interaction term was not significant, suggesting that the role of motivation for treatment improvement at discharge did not differ for the two groups (see Model 2).

DISCUSSION

This study revealed that significant gains can be obtained from a daily, intensive and structured CBT and pharmacotherapy program for women with and without substance abuse problems admitted to an acute psychiatric inpatient unit. Other factors related to psychological improvement at discharge included high levels of motivation at admission and high levels of therapeutic alliance at discharge. The fact that both groups significantly improved in terms of psychological functioning after treatment provides compelling evidence that a manualized, non-gender-specific CBT protocol combined with concurrent pharmacotherapy can substantially decrease acute psychiatric symptoms in a relatively brief period of time (ie, 10–11 days). The results revealed robust effect sizes with regard to improvement in psychological functioning (overall scale and subscales) from admission to discharge. It is possible that the camaraderie and support developed among inpatients combined with the daily, high dose of CBT and medication were sufficient to retain and facilitate change in women with acute psychiatric problems regardless of a substance abuse history.³² With the growing cost of health care coupled with the demand for cost reduction, these results are promising for policy makers and program providers because both treatments used in this combined treatment approach are cost-effective and efficacious, and reduce the length of hospital stays.³³

This study also provides preliminary support that although women with comorbid substance abuse problems, compared to those without, endorsed greater psychological distress at admission, the former improved similarly to the latter. Therefore, women with comorbid substance use disorders experiencing acute psychological distress seem to benefit from an intensive, supportive, and structured CBT and pharmacotherapy inpatient program just as much as their counterparts. One possible explanation may be the 24-hour access to staff who promotes treatment compliance with regards to medication and group therapy attendance, thereby ensuring intensive exposure to treatment. This is unlike an outpatient setting where the rates of treatment adherence are lower for patients with comorbid substance use than those without, resulting in higher relapse rates of psychiatric and substance abuse symptoms. Although these findings should be replicated, the present study provides encouraging evidence that a combined CBT and pharmacotherapy program can effectively treat and retain women with single and comorbid psychiatric and substance abuse diagnoses who typically drop out of treatment early or are non-compliant with the treatment regimen.

We also found that, for both groups, patients who improved at discharge had a stronger therapeutic alliance at discharge. These results suggest that it is possible for patients, with or without a substance abuse history, to develop a strong therapeutic relationship with their treatment team even during a short-term acute psychiatric hospital stay. It is possible that no group differences were found because on an inpatient unit, patients have many service providers with whom they can form a strong therapeutic alliance. Also, both groups received the same type of CBT treatment, which emphasized psychoeducation, empowerment, and active involvement in treatment planning, each of which facilitates a strong therapeutic alliance.

Among women with acute psychiatric disorders with and without substance abuse, high levels of motivation at admission were significantly related to better psychological functioning at discharge. It is possible that at treatment entry, women experiencing severe and acute crises requiring around the clock and comprehensive care may endorse higher levels of motivation. Such high levels of motivation can lead to increased engagement and compliance with treatment and thereby lead to greater improvement in psychological functioning. Therefore, pre-treatment motivation may play an important role in determining outcomes for women with and without comorbid substance abuse on acute psychiatric units.

Several methodological shortcomings should be considered when gauging the implications of these findings. Firstly, this study was uncontrolled and naturalistic. Future researchers may want to use a randomized study to determine the efficacy of the CBT and pharmacotherapy treatment for women with and without comorbid psychiatric and substance abuse on an acute psychiatric unit. Secondly, although all patients received the same type of treatment (CBT), each patient's medication regimen differed based on her diagnoses. Thirdly, there was a lack of information about prior treatment experiences, which could have influenced outcomes. Fourthly, while this study showed that CBT and medication improved the functioning of these women, the lack of comparison with a mixed-gendered group prevents ascertaining whether or not such gains can be made in the presence of male patients.^{2,3} Finally, the relationship between discharge alliance and outcome may have been confounded by treatment gains; that is, the more patients improved, the more the therapeutic alliance increased. To address this issue, future studies should measure alliance and outcome more frequently to examine whether changes in alliance predict changes in outcome.

Despite these limitations, this study gives credence to the efficacy of an intensive and structured inpatient CBT and pharmacotherapy program for improving psychological functioning, especially in women with high levels of motivation at admission and therapeutic alliance at discharge. This study represents a major advancement in treatment for a population who is in great need of treatment and who generally drops out of treatment early and consequently cycles through psychiatric and substance abuse services.³

This study has several training implications for service providers in hospital settings. For instance, women with or without a substance abuse may benefit from clinicians learning specific techniques that can foster building an alliance and capitalizing on high levels of motivation at admission, especially given that these factors are significantly related to positive outcome. Overall, the results from this study suggest that an intensive, structured,

inpatient CBT and pharmacotherapy program can make a positive impact on women's lives, and thus researchers and clinicians should utilize these results to inform the delivery of psychiatric interventions during acute hospital admission. This is an important study, which could be extended further to improve short- and long-term outcomes for women with acute psychiatric and comorbid substance abuse diagnoses who have been mostly neglected in the literature.

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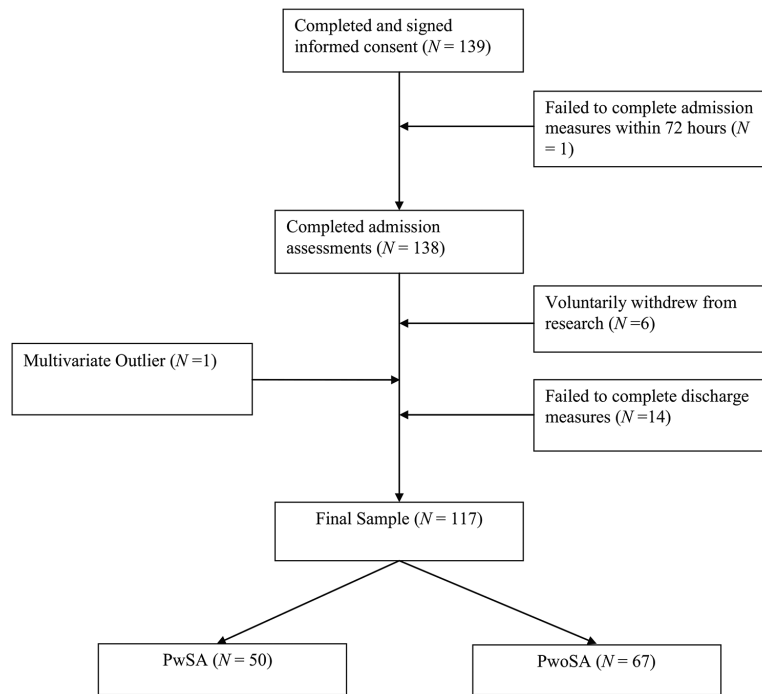


FIGURE 1.
A flowchart of recruitment and participation rates.

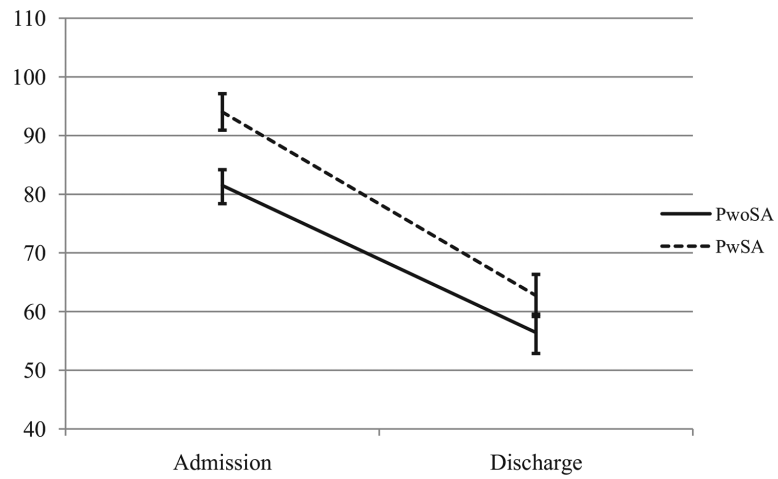


FIGURE 2. Between group mean differences in psychological functioning from admission to discharge. Significant between group mean differences at admission, $t(115) = -3.05, p = .003$, but not at discharge.

TABLE 1

Baseline participant characteristics

Characteristics	PwSA (N = 50)	PwoSA (N = 67)	p-Value
Age (in years)	32.5 (SD = 11.3)	35.6 (SD = 10)	.11
Ethnicity			.99
Caucasian	68%	70%	
African American	2%	3%	
Hispanic	18%	17.9%	
Asian	2%	1.5%	
Mixed	8%	1.5%	
Marital status			.07
Never married	64%	49.3%	
Married	22%	25.4%	
Separated	10%	3.0%	
Divorced	4%	22.4%	
Widowed	2%	—	
Level of education			.06
8th grade or less	2%	—	
Some high school	6%	—	
High school or GED equivalent	12%	10.4%	
Some college	44%	41.8%	
College graduate	28%	34.3%	
Graduate degree (Masters, PhD)	8%	11.9%	
Source of income			.05
Employment	36%	41.8%	
Spouse/partner	6%	6.4%	
Family/friends	20%	11.9%	
SSI/disability	22%	6.9%	
Public assistance	16%	1.5%	
	10 (SD = 6.8)	11 (SD = 9)	
Mean length of stay (in days)			.50
Diagnosis			.17
Depression	50%	55.2%	
Bipolar	24%	16.4%	
Schizophrenia	10%	7.5%	
Anxiety	2%	1.5%	
Eating disorder	12%	17.9%	

TABLE 2

Therapeutic alliance at discharge and motivation at admission were associated with psychological functioning at discharge

Variables	Model 1		Model 2	
	B (SE)	β	B (SE)	β
Length of stay	4.64 (9.83)	.04	4.98 (9.84)	.04
Psychological functioning at admission	.46 (.10)	.41 ***	.46 (.10)	.41 ***
Marital status [†]				
Never married	-.06 (5.03)	-.03	-.06 (5.01)	-.02
Others	-.74 (5.92)	-.01	-.73 (5.86)	-.01
Alliance at discharge [‡]	-.51 (.15)	-.27 **	-.48 (.15)	-.26 **
Treatment group (1 = PwSA)	.68 (2.22)	.03	.67 (2.22)	.03
Alliance at discharge × treatment group			.12 (.15)	.07
$R^2 = .29, F(6, 110) = 7.35, p = .000; F(1, 110) = .67, p = .42, R^2 = .004, ns$				
Length of stay	3.84 (10.10)	.03	3.86 (10.13)	.03
Psychological functioning at admission	.56 (.11)	.50 ***	.56 (.11)	.50 ***
Marital status [†]				
Never married	-.26 (5.23)	-.01	-.30 (-5.36)	-.01
Others	-1.12 (6.32)	-.02	-1.24 (6.35)	-.02
Motivation at admission [‡]	-3.42 (1.56)	-.19 *	-3.26 (1.61)	-.18 *
Treatment group (1 = PwSA)	.17 (2.27)	.01	.17 (2.28)	.01
Motivation at admission × treatment group			.66 (1.57)	.04
$R^2 = .24, F(6, 110) = 5.82, p = .000; F(1, 110) = .18, R^2 = .001, p = .67, ns$				

* $p < .05$

** $p < .01$

*** $p < .001$

[†] Never married and others groups were compared to the referent group married

[‡] Refers to therapeutic alliance assessed at discharge, higher scores indicated stronger alliance to the treatment team.