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## Retention in the NIDA Clinical Trials Network Women and Trauma Study: Implications for Post-Trial Implementation

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### Abstract

This study aimed to identify factors that influenced retention in the NIDA-funded Women and Trauma Study, conducted within the Clinical Trials Network (CTN). Women ( $N=346$ ) were recruited from and received treatment in 6 CTN-affiliated sites. Log-linear and logistic models were used to explore factors associated with retention. The mean number of treatment sessions attended was 6.8 ( $SD = 3.9$ ). Women with more education, higher attendance at 12-step meetings, and strong therapeutic alliance between facilitator and participant had better retention rates. Significant site differences were found; the site with the highest retention rate provided child care and had the lowest average monthly intake. To retain women with histories of trauma and substance abuse in “real world” psychiatric settings, emphasis on regulating individual-level and site-related modifiable variables are crucial.

### Keywords

women; randomized clinical trials; trauma; substance abuse; community-based treatment; retention

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Previous research suggests that retention in clinical trials of racial and ethnic minority women is lower than retention of Caucasian females and males (Killien et al., 2000; U.S. Department of Health and Human Services [DHHS], 1999). Attrition hampers researchers' ability to address health disparities and prevents generalizable conclusions about the efficacy of tested interventions and their usefulness to populations at risk. Despite efforts to include women in clinical trials, retention continues to be a challenge (DHHS, 2008). Substance-dependent women with histories of trauma have been particularly underrepresented in clinical trials, even though research has shown that a high percentage of women seeking treatment for drug-related problems have histories of sexual or physical abuse or both (Fullilove et al., 1993; Hien & Scheier, 1996). It is therefore critical to identify specific factors that facilitate retention among substance-dependent women in clinical trials, as such factors can be used by researchers to enhance retention in future clinical trials as well as by practitioners to retain women in treatment outside of clinical trials (i.e., in community settings).

Some factors have already been shown to influence women's retention in both trials and treatment programs. For example, women with higher incomes and education have been shown to have higher rates of retention (Ariail, Watts, & Bowen, 2006; Bowen et al., 1999; Gifford et al., 2002; Kinga, & Canadab, 2004). Additionally, increasing age has been shown to predict greater retention (Semba et al., 2007). There is also evidence to suggest that, particularly among racial and ethnic minority women, higher levels of drug use (Semba et al., 2007) and trauma (Wyatt, Carmona, Loeb, & Williams, 2005; Young, & Boyd, 2000) are associated with attending more substance abuse programs. Women's retention rates have also been shown to increase when strong therapeutic alliances exist between clients and clinicians in treatment programs for alcoholism (Connors, Carroll, DiClemente, Longabaugh, Donovan, 1997) and cocaine use (Barber et al., 2001). Finally, an association has been found between attendance at 12-step meetings and retention in treatment programs (Laudet, Magura, Cleland, Vogel, & Knight, 2003). Research is needed, however, to identify factors influencing the retention of women affected simultaneously by trauma and substance abuse.

More research is also needed on the association between women's retention rates and the sites from which they are recruited and in which they receive treatment. It is known, for example, that a "one-stop shopping" approach, characterized by multiple services under the same roof, appears to encourage the use of health services (Pinto, Melendez, & Spector, 2008; Russell, Maraj, Wilson, Shedd-Steele, & Champion, 2008). Most studies designed to examine retention have focused exclusively on participant-level factors and thus have used a random effect approach to data analysis. This approach neglects differences in retention that may result, at least in part, from differences in treatment sites. Research is needed to identify the role of the treatment site in the implementation of tested interventions in substance abuse programs after trials (Roman & Johnson, 2002). Because the sites involved in the WTS varied in terms of rates of monthly intake, provision of child care, and trauma-informed treatment, we used a fixed effect approach in an effort to determine if site differences impacted retention rates.

We sought to explore the impact of participant- and site-related factors on retention rates of women with histories of both trauma and substance abuse using data from the WTS, which was conducted within the National Institute of Drug Abuse (NIDA) Clinical Trials Network (CTN). Women were recruited from diverse CTN-affiliated sites, thus providing an opportunity to explore site differences. Specifically, this study explored the contribution of demographic variables, trauma, substance use, 12-step meetings attendance, and therapeutic alliance to retention. Our study helps to close the gap between research and practice by providing researchers and mental health providers with factors that influence retention during a randomized controlled trial in community-based psychiatric settings.

## Method

### Participants

Data for the current study were drawn from the WTS. WTS used a randomized, controlled, repeated measures design to assess the effectiveness of the Seeking Safety treatment compared to Women's Health Education, a control treatment (interventions are described in more detail in the next section; see Hien et al., 2009, for more detail).

Recruitment occurred over a 21-month period in 2004 and 2005. WTS recruited women from six community-based substance abuse treatment sites in different regions of the United States (a seventh WTS site [ $n=7$ ] was not included in the current analysis due to recruitment difficulties). The number of participants randomized at each site ranged from 34 to 106. The sites represented urban ( $n=4$ ) and suburban ( $n=2$ ) settings located in the West ( $n=1$ ),

Midwest ( $n=1$ ), Northeast ( $n=1$ ), and Southeast ( $n=3$ ). All sites offered a combination of outpatient individual and group treatment components. The participating sites received protocol approval from their respective Institutional Review Boards. Informed consent was obtained at screening and at baseline.

To be eligible, participants were required to have had at least one traumatic event in their lifetime and to meet DSM-IV criteria for either full- or sub-threshold (i.e., avoidance of trauma reminders *or* hyperarousal) posttraumatic stress disorder (PTSD). Women were required to be between 18 and 65 years old, to have used alcohol or an illicit substance within the past 6 months, and to have a current diagnosis of drug or alcohol abuse or dependence. Women were excluded if they had impaired mental cognition or suicidal/homicidal intent or behavior.

Women who were enrolled at treatment programs in one of the target sites completed a brief screen to ascertain likely eligibility, followed by an in-person screening assessment to confirm eligibility. A third interview (baseline) was completed to further assess substance use, PTSD, and social characteristics. Independent assessors who remained blind to randomization assignment performed all baseline and post-treatment assessments. After completion of the baseline, eligible participants were randomized to receive the experimental (i.e., SS) or the control (i.e., WHE) treatment. Participants continued to participate in their treatment programs during the intervention phase. Participants were assessed weekly during treatment, and at 1 week and at 3, 6, and 12 months post-treatment.

Treatment groups operated on an open, rolling admission. All clinicians and supervisors were recruited from the community-based programs in which the trials operated. This way, once the trial was completed, expert clinicians and potential trainers remained on site. Participants had an initial individual session with the clinician to disclose treatment assignment, describe the intervention format, and review group rules. Both the SS and WHE consisted of 12 sessions that lasted approximately 75 to 90 minutes each. Women were scheduled to attend two sessions per week for approximately 6 weeks. However, at least two women needed to be present to comprise a group session; thus, many groups had to be rescheduled, and this resulted in many women needing longer than 6 weeks to complete the treatment phase.

The WTS illustrates an application of a hybrid model study (Carroll & Rounsaville, 2003). Following women's recommendations for best research-related practices (Pinto, McKay, & Escobar, 2008), and with an eye toward after-trial transportability (Pinto & McKay, 2006a, 2006b), WTS was implemented under conditions that resembled as much as possible the ways in which treatments are provided in community settings to diverse client populations. In addition to open, rolling admission and training community clinicians, the study's inclusion criteria were broadened to allow women with co-morbid disorders to participate, including an expanded definition of PTSD to include sub-threshold diagnoses, different types of substances, and varying trauma histories (i.e., not limited to childhood abuse). Participants could receive any additional forms of treatment during the study. The goal was to adhere to conditions that resembled "real world" practice so that the results would be relevant to current and future treatment of women in diverse settings.

### The Control and Experimental Treatments

**Seeking Safety (SS)**—SS is a group-delivered, structured cognitive-behavioral treatment with safety and trauma and substance use components integrated into each session (Najavits, 2002). All sessions have the same structure: check in, including reports of "unsafe" behaviors and use of coping skills; session quotation, a point of inspiration to affectively engage participants and link to the session topic; session content, in which handouts are used

to facilitate discussion and structured skill practice; and check-out, including a commitment to specific between-session skills practice. Each session covers a different topic, including: Safety, PTSD, Taking Back Your Power, When Substances Control You, Setting Boundaries in Relationships, Compassion, Healing from Anger, Creating Meaning, Taking Good Care of Yourself, and Detaching from Emotional Pain (Grounding).

**Women's Health Education (WHE)**—WHE is also a group-delivered, psychoeducational, manualized treatment. It focuses on topics related to the female body, human sexual behavior, sexually transmitted diseases, HIV/AIDS, diabetes, and hypertension. Similar to SS, WHE was designed to provide therapeutic attention and expectancy of benefit, and has an issue-oriented focus; however, WHE lacks the theory-driven techniques and the explicit focus on substance abuse and trauma found in SS. All WHE sessions followed a structured format: introduction of topic; review of group rules and between-session assignment; topic presentation, video, storytelling or text readings or both; topic exercises in a variety of formats to facilitate group discussion and application of session materials; and setting between-session goals (see Miller, Pagan, & Tross, 1998, for further description).

### Study Variables

The current study sought to identify factors that influenced retention in the WTS and to identify a relationship between retention and the sites from which participants were recruited and received treatment. This section describes each of the variables used.

**Retention**—Retention was conceptualized as number of sessions attended (range: 0–12). Based on research and practice experience, a team of investigators defined six out of 12 sessions as the minimum exposure participants would need to understand key concepts of the intervention and to enjoy the benefits of its content. Thus, minimum exposure was measured as attendance in at least six treatment sessions.

**Treatment**—To ascertain if there were significant differences between the women who were randomized into the control or into the experimental conditions, we used a nominal variable – treatment condition.

**Demographics**—Several demographic variables were included: (a) age, measured in years at baseline; (b) race or ethnicity, which included Caucasian, African-American, Latina, and multiracial (i.e., individuals who chose two or more categories); (c) monthly income, created by adding legal employment, unemployment compensation, or both, welfare, pensions, benefits, and social security; and (d) education, measured in years of formal education.

**Alcohol and substance use**—Alcohol and substance use data were collected for the 30 days prior to baseline using the Addiction Severity Index Lite (McLellan, Alterman, Cacciola, Metzger, & O'Brien, 1992). A single, continuous substance use variable was created using the maximum number of days of use for five frequently used substances (i.e., alcohol, heroin, other opiates, cocaine, and amphetamines) by individuals who seek treatment.

**Trauma severity**—Trauma severity was measured by asking participants about the frequency with which they experience the 17 symptoms (e.g., upsetting thoughts, trouble sleeping, etc.) in the Post-Traumatic Stress Disorder Symptom Scale-Self Report (Foa, Riggs, Dancu, & Rothbaum, 1993) during the 7 days prior to baseline. Frequency for each item was measured on a 6-point rating scale with values ranging from 0 to 5+ *times per week*.

**Attendance at 12-step meetings**—Attendance at 12-step meetings was a continuous variable measuring the number of 12-step meetings attended in the 3 months prior to baseline.

**Therapeutic alliance**—Therapeutic alliance was measured using the revised Helping Alliance Questionnaire (Luborsky et al., 1996). A 6-point Likert-type scale ranging from *strongly disagree* to *strongly agree* was used to measure agreement on goals and tasks and to measure development of bonds between facilitators and participants. Relationship to facilitator was measured as the average response to 19 statements (e.g., “I feel I can depend upon my counselor,” and “I believe the counselor likes me as a person.”).

**Recruitment and treatment sites**—A nominal variable (e.g., A, B, F) was used to identify the sites from which the women were recruited and at which they received treatment.

## Analytic Approach

**Multiple imputations**—For both the Poisson log-linear and logistic models described in this section, the first step in the analysis was a multiple imputation approach (Little, & Rubin, 1987) to replace missing values and to calculate accurate estimates of standard errors. The average values were used to approximate missing data by using the expectation-maximization algorithm technique. For each model, a set of regression parameters was generated by PROC MI (SAS Institute, 1999) for each of 20 datasets. Subsequently, PROC MIANALYZE in SAS averaged all the values to one stable set of parameters and reduced sample specific effects. After each imputation, the averaged values reflected the best estimates of a full dataset. (For accuracy, the means and standard deviations presented in this paper are non-imputed values.)

## Data Analysis

Because the WTS accounted for contextual issues that may have hampered retention, we expected that all the women would have similar retention rates, regardless of study condition or demographic characteristics. Thus, we first used *t*-tests to examine differences in age, race or ethnicity, income, substance use, levels of trauma, attendance in 12-step meetings, therapeutic alliance, and study condition. Second, the imputed values were used in a log-linear regression model of retention (range: 0 to 12), and in a logistic regression of minimum exposure ( $\geq 6$  sessions). The log-linear regression used 10 predictors to determine the relative contribution of participant factors toward women’s retention and site differences. The logistic regression was used to model the likelihood of women receiving minimum exposure to treatment, using the same set of predictors.

## Results

### Sample Characteristics

This study included 346 women who were recruited from six different CTN-affiliated sites. The average age was 39 years. Forty-six percent were Caucasian, 34% African American, 14% Multiracial and 7% Latina. The women’s monthly average income was \$508, and the average number of years of education was 12. Of the five selected substances (i.e., alcohol, heroin, other opiates, cocaine, and amphetamines), cocaine ( $M = 4.27$ ,  $SD = 8.11$ ) and alcohol ( $M = 4.22$ ,  $SD = 7.67$ ) were most frequently used, and heroin ( $M = 0.19$ ,  $SD = 1.70$ ) the least used. In the week prior to baseline, women reported the frequency of experiencing 17 types of trauma symptoms on a 4-point scale from 1 (*not at all*) to 4 (*five or more times per week*). On average, the mean frequency of symptoms was 2.3 ( $SD = 0.63$ ), which corresponds to experiencing symptoms 1 to 4 times per week. The women reported having

good relationships with their treatment facilitators ( $M = 4.1$ ,  $SD = 1.1$ ), and attending an average of 16 ( $SD = 13$ ) 12-step meetings in the 3 months prior to baseline. We found no significant differences between women in the control and experimental groups. Likewise, we found no significant differences in rates of attendance and minimum exposure between control and experimental groups.

### Retention in Treatment

The mean number of sessions attended was 6.8 ( $SD = 3.9$ ) for the control group and 7.5 ( $SD = 3.8$ ) for the experimental group (see Table 1). There was no significant difference between the number of sessions attended by participants in the control and experimental groups. More than half of the women ( $n = 201$ ; 58%) attended at least six sessions and were thus considered to have received the minimum exposure to treatment. Nineteen percent ( $n = 69$ ) of the women attended all 12 sessions.

### Site Characteristics and Retention by Site

The total monthly intake in the six participating sites ranged from 19 to 228. Half of all sites provided child care and other trauma-specific treatments. The mean number of sessions the women attended in each site ranged from five to eight. Women recruited from and treated in site E attended the most sessions ( $M = 8.57$ ,  $SD = 4.5$ ) and thus was selected as the reference for all subsequent analyses. The lowest mean number of sessions in any site was five ( $M = 4.9$ ,  $SD = 3.9$ ). At least 46% of women were minimally exposed ( $\geq 6$  sessions) to treatment in each site. Of all the women, 62 (18%) dropped out of the study before they attended a session (see Table 2).

### Impact of Participant Factors

Using log-linear regression, we found that being in the experimental or control group was not significantly associated with retention (see Table 3). We also found that each additional 10 years of age was significantly associated with attendance at one more treatment session (Adjusted Relative Risk [RR] = 1.06,  $p < .05$ , 95% CI [1.01, 1.12]). Compared to Caucasian women, Latinas had marginally higher rates of attendance (RR = 1.23,  $p = .05$ , 95% CI [0.99, 1.52]). Each additional year of education was significantly associated with attendance at an additional session (RR = 1.02,  $p < .05$ , 95% CI [1.00, 1.04]). Both attendance at 12-step meetings (RR = 1.02,  $p < .001$ , 95% CI [1.01, 1.02]) and therapeutic alliance (RR = 1.21,  $p < .05$ , 95% CI [1.02, 1.44]) were significantly associated with greater rates of attendance. Income, drug use, and trauma were not associated with retention. The logistic regression showed that attendance in 12-step meetings was significantly associated with retention only among those women who were minimally exposed to treatment ( $\geq 6$  sessions).

### Site Differences

Compared to site E, women in sites B (RR = 0.7,  $p < .001$ , 95% CI [0.57, 0.86]), C (RR = 6.4,  $p < .001$ , 95% CI [0.54, 0.77]), D (RR = 0.62,  $p < .001$ , 95% CI [0.53, 0.73]), and F (RR = 8.5,  $p < .05$ , 95% CI [0.73, 0.99]) had significantly poorer rates of attendance. No significant difference was found between A and E. We detected no association between recruitment site and minimal exposure to treatment.

### Discussion

The aim of this study was to explore factors influencing retention in the WTS. A secondary aim was to determine dissemination implications for transferring this treatment to other



psychiatric community settings serving women with backgrounds similar to the women in the WTS.

### Participant Factors

Given that we found no significant demographic or retention rate differences between women in the control and experimental groups, we suggest that the identified factors in this study similarly influenced all WTS participants. In spite of variability in symptom severity (i.e., frequency of substance use and of trauma symptoms), all study participants had similar retention rates. We thus suggest that a moderate to high level of retention can be achieved with women who have histories of both trauma and substance use. This is a unique finding, as previous studies have not focused on retention of women in treatments that simultaneously address trauma and substance abuse. To our knowledge, this is the only study focusing on retention in a trial addressing both of these issues in a sample of racially and ethnically diverse women. Further research is needed to better understand how women affected by multiple psychosocial issues address factors that may discourage adherence to treatment; in-depth interviews are recommended as a method for uncovering specific strategies.

As in other studies, we found that education was positively associated with retention. Women with more years of formal education had higher rates of retention. However, in contrast to other studies in which retention rates were higher among Caucasian participants (see Gifford et al., 2002), in this study, Latinas had marginally higher retention rates. Although demographic variables cannot be modified to achieve greater retention, further research is needed to gauge the contribution of demographic variables compared to other, modifiable factors associated with retention.

Additionally, we found that therapeutic alliance was positively associated with retention. The literature shows that, in strong therapeutic relationships, mental health providers demonstrate empathy, warmth, acceptance, and authenticity (MacLauren, 2008) and provide informational support to clients (Brown, Fouad, Basen-Engquist, & Tortolero-Luna, 2000). Though we found significance between retention and a measure of overall therapeutic alliance, further research is needed to identify how specific constructs within the therapeutic alliance can be modified to attain higher retention rates.

We also found that attendance at 12-step meetings was positively associated with higher rates of retention. Indeed, the logistic regression showed that attendance in 12-step meetings helped predict attendance at six or more treatment sessions. A source of social support, 12-step programs may help women stay the course of substance abuse treatment programs. Likewise, treatment programs may encourage women to attend more 12-step meetings (Laudet et al., 2003). The mutual impact of these sources of social support is not entirely clear and warrants further research. We recommend in-depth interviews with both consumers and service providers to contextualize the positive relationship between these variables.

### Site Differences

Perhaps more crucial for post-trial implementation of effective treatments were the differences found in retention by treatment sites. Site-specific characteristics that helped retention cannot be identified with the data that were collected for the original study; however, some characteristics of these sites can be suggested as variables that need further exploration. The reference site, E, had the lowest average monthly intake, offered child care, and was offering trauma-informed substance abuse treatments for the first time. In contrast, site D, which had the lowest mean number of attended sessions, had an average monthly

intake 2 times that of site E and had been offering trauma-informed treatments for some time. Although child care may have been a key factor in retention rates, we did not have access to any data to test for a causal relationship between child care and retention. Because child care is a key characteristic of gender-responsive treatments, we suggest further research in this area.

The previously unmet need (trauma-informed treatment) addressed by the introduction of WTS in site E may have contributed to the increase in retention. Moreover, smaller programs may offer more personal treatment environments, preferable to women with trauma histories. Given that rates of retention varied across diverse treatment sites, we suggest that future research focus on the modifiable variables described in this section to enhance retention of women who have experienced trauma and are seeking substance abuse treatments.

### Limitations

Many factors not assessed by this study could have influenced women's retention in the WTS. For example, as opposed to previous studies, we found that Latina women had marginally better retention rates than Caucasian women. However, this may be due to the small number of Latinas (7%) participating in this study. Variables such as emotional support, legal and family pressures, and others may also have played an important role in retention of Latinas and should be examined in future studies. Additionally, although we found that attendance at 12-step meetings helped with women's retention, our data did not allow us to establish differences across types of 12-step programs (e.g., Alcoholics and Narcotics Anonymous). Moreover, our analysis did not detect how constructs (e.g., empathy, warmth, and acceptance) within the therapeutic alliance might have differentially impacted retention. These variables should be examined in future studies, perhaps using an alternative instrument. Despite these limitations, participant factors identified here add important information to the scarce literature on retention of women with histories of substance abuse and trauma.

We were also limited in our analysis of site-related variables by the small number of sites and a request by the sites to preserve anonymity. Thus, we cannot say how specific characteristics of each program might have influenced retention. Though this is a limitation of our study, the findings provide insight into issues related to organizational capacity (e.g., monthly intake, child care, types of treatments) which may be important factors associated with retention. These factors should be examined in future studies using larger numbers of organizations.

### Implications for Post-Trial Implementation

Using the CTN platform of multisite trials involving diverse community treatment settings, the WTS offered a unique opportunity to examine important transportability questions. In the absence of post-trial implementation data, this study advances our understanding of factors that may facilitate the implementation of the WTS and other similar interventions. In particular, we identified site-related factors that may influence retention: It seems that when organizations have limited programming (i.e., site E did not provide trauma-informed treatment prior to the WTS), a model that addresses women's trauma may be most readily accepted. This information is useful to policymakers in funding decisions about programs in community settings. Additionally, mental health providers and administrators trying to implement this treatment may regulate modifiable factors (e.g., therapeutic alliance) to enhance retention in community-based treatment settings. Training mental health providers in the skills necessary to establish strong therapeutic alliances and encourage clients to attend 12-step meetings may also help increase retention.



During the trial, the women were supported in their efforts to cope with life stressors and meet day-to-day needs that otherwise might have discouraged them from adhering to treatment. For example, women were offered monetary incentives for participation and flexibility in scheduling and attending group sessions. In thinking about future efforts to implement this treatment, community settings need to be creative in identifying resources that can help women with multiple psychosocial issues and address concrete needs that help women adhere to treatment. Such innovations could include child care exchanges, whereby child care could be provided during treatment by other women at the same site who, in turn, are paid for their service. This paid work may replace the monetary incentive offered by clinical trials. Monetary incentives might also be replaced by helping women find paid work or linking them to sources of assistance, such as job training and food pantries. Women's concrete needs can also be addressed through the development of caring networks and buddy systems in which women help one another with domestic chores while developing social relationships that could encourage further informational and emotional support.

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**Table 1**

## Sample Characteristics (N=346)

<b>Demographics</b>	
Age ( <i>M, SD</i> )	39 (8)
Race (%)	
Caucasian	46
African-American	34
Multiracial	14
Latina	7
Monthly Income (average)	\$508
Education ( <i>M, SD</i> )	12 (4)
<b>Predictors</b>	
	<i>M (SD)</i>
Substances used	
Cocaine	4.27 (8.11)
Alcohol	4.22 (7.67)
Heroin	0.19 (1.70)
Trauma symptoms	2.3 (0.63)
Therapeutic alliance	4.1 (1.1)
12-step attendance	16 (13)

**Table 2**

## Retention in the Women and Trauma Study

<b>Number of Sessions</b>	<b>Experimental Participants (n=173)</b>	<b>Control Participants (n=173)</b>	<b>Total Participants (N=346)</b>
0	33 (19.1%)	27 (15.6%)	60 (17.3%)
1-5	37 (21.4%)	48 (27.8%)	85 (24.6%)
6-12	103 (59.5%)	98 (56.7%)	201 (58.1%)

**Table 3**

Site Characteristics and Retention by Site

Characteristic	Site					
	A	B	C	D	E	F
Total monthly intake	36	60	21	43	19	228
Child care offered	No	No	Yes	Yes	Yes	No
Trauma-informed treatment	Yes	Yes	No	Yes	No	No
Treatment Retention						
Number of participants, <i>n</i> (%)	34 (10)	35 (10)	44 (12)	61 (17)	66 (19)	106 (30)
Sessions completed, <i>M</i> ( <i>SD</i> )	6.9 (4.2)	5.6 (5.4)	5.5 (4.5)	4.9 (3.9)	8.6 (4.5)	6.4 (4.4)
Minimum exposure, <i>n</i> (%)	23 (68)	16 (46)	22 (50)	30 (49)	49 (74)	60 (57)

*Note* Total monthly intake refers to the mean number of women seeking services monthly. Minimum Exposure is defined as attending ≥ 6 sessions.



**Table 4**

Log-linear Model: Retention in Treatment (Range: 0 to 12)

Variables	RR	95% CI	
		LL	UL
Participant Factors			
Treatment condition (SS vs. WHE)	1.03	0.93	1.14
Age (10 yrs.)	1.06*	1.01	1.12
Race/Ethnicity			
White (reference)	-		
Latina	1.23 <sup>†</sup>	0.99	1.52
African-American	0.95	0.84	1.08
Multi-Racial	1.02	0.86	1.20
Income (\$100)	1.04	1.00	1.08
Education	1.02*	1.00	1.04
Substance use	1.00	0.99	1.00
Trauma severity	1.00	1.00	1.01
12-Step meetings	1.02**	1.01	1.02
Therapeutic Alliance	1.21*	1.02	1.44
Site			
A	0.88	0.72	1.07
B	0.7**	0.57	0.86
C	0.64**	0.54	0.77
D	0.62**	0.53	0.73
E (reference)	-	-	-
F	0.85*	0.73	.99

Note. ARR = Adjusted Relative Risk; CI = Confidence Interval; SS = Seeking Safety; WHE = Women's Health Education.

\* p < .05.

\*\* p < .001.

<sup>†</sup> p = .05.