HHS Public Access

Author manuscript

Am J Addict. Author manuscript; available in PMC 2017 October 01.

Published in final edited form as:

Am J Addict. 2016 October ; 25(7): 573–580. doi:10.1111/ajad.12443.

Measuring affiliation in group therapy for substance use disorders in the Women's Recovery Group Study: Does it matter whether the group is all-women or mixed-gender?

Dawn E. Sugarman, PhD[1,2], **Sara B. Wigderson, BA**[3], **Brittany R. Iles, BS**[1], **Julia S. Kaufman, MA**[4], **Garrett M. Fitzmaurice, ScD**[1,2], **E. Yvette Hilario, BS**[5], **Michael S. Robbins, PhD**[6], and **Shelly F. Greenfield, MD, MPH**[1,2]

[1]McLean Hospital, Division of Alcohol and Drug Abuse, Belmont, MA 02452

[2]Harvard Medical School, Department of Psychiatry, Boston, MA 02115

[3]University of Miami, Department of Psychology, Coral Gables, FL 33124

[4]Miami University, Department of Psychology, Oxford, OH 45056

[5]The University of Texas at Austin, School of Nursing, Austin, TX 78701

[6]Oregon Research Institute, Eugene, OR 97403

Abstract

Background and Objectives—A Stage II, two-site randomized clinical trial compared the manualized, single-gender Women's Recovery Group (WRG) to mixed-gender group therapy (Group Drug Counseling; GDC) and demonstrated efficacy. Enhanced affiliation and support in the WRG is a hypothesized mechanism of efficacy. This study sought to extend results of the previous small Stage I trial that showed the rate of supportive affiliative statements occurred more frequently in WRG than GDC.

Methods—Participants (N=158; 100 women, 58 men) were 18 years or older, substance dependent, and had used substances within the past 60 days. Women were randomized to WRG (n=52) or GDC (n=48). Group therapy videos were coded by two independent raters; Rater 1 coded 20% of videos (n=74); Rater 2 coded 25% of videos coded by Rater 1 (n=19).

Results—The number of affiliative statements made in WRG was 66% higher than in GDC. Three of eight affiliative statement categories occurred more frequently in WRG than GDC: supportive, shared experience, and strategy statements.

Corresponding author: Shelly F. Greenfield, MD, MPH, McLean Hospital, 115 Mill Street, Belmont, Massachusetts 02478, Phone: 617-855-2241, Fax: 617-855-2699, sgreenfield@mclean.harvard.edu.

The findings from the study were presented in part as a poster at the annual meeting of the Research Society on Alcoholism in San Antonio TX, June 2015. An abstract for this poster presentation was published in *Alcoholism: Clinical and Experimental Research,* Volume 39, Issue Supplement S1 in June, 2015.

ClinicalTrials.gov Identifier: NCT01318538

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

Discussion and Conclusions—This larger Stage II trial provided a greater number of group therapy tapes available for analysis. Results extended our previous findings, demonstrating both greater frequency of all affiliative statements, as well as specific categories of statements, made in single-gender WRG than mixed-gender GDC.

Scientific Significance—Greater frequency of affiliative statements among group members may be one mechanism of enhanced support and efficacy in women-only WRG compared with standard mixed-gender group therapy for SUDs.

Group therapy has been associated with positive treatment outcomes for individuals with substance use disorders (SUDs),[1] can be equally as effective as individual therapy,[2,3] and continues to be the most common form of treatment for individuals with SUDs.[1,3] In the United States, the majority of individuals receive treatment for SUDs in mixed-gender settings.[4] However, gender differences in SUDs suggest a need for gender-specific treatment,[5–7] especially for women who often cite preference for women-only treatment because they perceive it as more comfortable, open,[8] honest and intimate.[9] Few randomized trials have compared mixed-gender with single-gender SUD treatment for women.[10] One study found that changing only the gender composition of a SUD residential treatment program from mixed-gender to single-gender did not result in improved treatment outcomes[11] However, a number of studies [12–14] and one systematic review[15] demonstrated that single-gender SUD treatment for women that focused on women's specific needs (e.g. co-occurring psychiatric disorders, trauma histories, services for pregnancy or parenting women), had higher rates of treatment completion and improved outcomes.

The Women's Recovery Group (WRG)[16–18] was developed for women heterogeneous with respect to demographic and clinical characteristics, substance of use, and stage of life in order to reflect the diverse characteristics of treatment-seeking women with SUDs. The WRG is an efficacious manualized, weekly, 12-session, relapse-prevention group therapy that uses a cognitive behavioral approach and includes gender-specific content and single-gender group composition.[16–18] The all-women group composition of the WRG was hypothesized to enhance comfort and support for participants, facilitating group cohesion, while the women-focused content provided education specific to women with SUDs. These two components were hypothesized to synergize to enhance outcomes compared with a standard, mixed-gender recovery group. The WRG was compared to mixed-gender Group Drug Counseling (GDC) in a Stage I study[17] and a larger Stage II trial.[16] In both the Stage I and Stage II trials, women in the WRG and GDC demonstrated clinically relevant reductions in substance use after 12-weeks of group treatment.[16,17] However, women in the WRG Stage I trial continued reductions in substance use at 6-months post treatment whereas GDC women did not.[17] The Stage I trial was limited by its single site, small sample, and semi-open group format. The larger, two-site Stage II trial compared WRG to GDC in an open enrollment (rolling admissions) group format, using a larger, more diverse sample. Results showed that the WRG was equally as effective as GDC[16] in this format, demonstrating that WRG is an effective gender-specific group therapy for women with SUDs heterogeneous with respect to substance of use, co-occurring psychiatric disorders and stage of life. In addition, the WRG can be delivered effectively in an open enrollment format typical of community practice.

Several attributes and mechanisms have been identified that may contribute to the effectiveness of group therapies, including duration and content of sessions[19,20]; however, newer research focuses on evaluating in-session factors.[21,22] Yalom[23] identified 11 factors in the in-session group therapy process that may contribute to group treatment efficacy, one of which is group cohesion. Cohesion is defined as "the feeling that one belongs and fits in with the group,"[23] and is considered an essential therapeutic factor[24] due to the positive association between group cohesion and therapeutic outcome among a variety of clinical populations.[25–29] Cohesion can enhance the opportunity in the group setting for connection as well as support of empathic peers.[30] This may be particularly important for individuals with SUDs who often need to repair social networks and may need assistance in establishing and maintaining attachments. [31] Moreover, group cohesion has been shown to be influenced by the gender of group members, such that cohesion ratings are higher when the percentage of women in the group increases.[32] Furthermore, all-women groups have higher average ratings of cohesion compared to all-men groups.[33] High cohesion ratings in all-women groups are associated with increased group attendance[34,35] and improved psychiatric and health outcomes.[34–36]

There is significant complexity in operationalizing and measuring cohesion within a group.[27] Past studies have examined group size,[37] setting,[28] participant attendance,[38] and relied on self-report questionnaires.[29] Despite the usefulness of these measures, researchers have highlighted the need to identify in-session factors that can be used to assess group cohesion.[39] In the Stage I WRG study, we developed a coding manual to examine observable, in-session group cohesion by measuring the frequency of affiliative statements made by group members in each treatment condition (i.e., WRG and GDC).[40] Affiliative statements were defined as supportive, positive, or empathic comments among members of the group and categorized into five types: (1) agreement statements, (2) supportive statements, (3) positive statements about the group, (4) therapeutic statements, and (5) completing another member's thought. We hypothesized that affiliative statements would occur more frequently in WRG compared to GDC as a result of the supportive and cohesive experience of an all-women's group, which is considered an essential therapeutic component of WRG. Due to the high correlations among three statement categories (completing a thought, agreement, and supportive statements), these were combined into one composite affiliative scale. Examination of this composite scale demonstrated that a greater number of affiliative statements were made in the single-gender WRG compared to mixed-gender GDC with a large effect size, although these frequencies were not significantly different. There were no statistically significant differences or effects for the other two categories (therapeutic response and positive statement). In the mixed-gender GDC group, women were significantly more likely to offer an affiliative statement to a male participant than any other combination (female to female, male to female, male to male).[40] This was the first study to measure and compare cohesion in single-gender and mixed-gender group therapies for SUDs by examining observable, in-session elements.

Although the Stage I results provide some insight into in-session processes in group therapy for SUDs and suggest a possible mechanism of action for the WRG, there were a number of limitations to the Stage I study. First, the study included a small sample ($n = 45$ total coded videos, 17 of which were mixed-gender groups), which may have limited the statistical

power. Second, the quality of the coded audio was poor, eliminating some portions of the tapes from coding. Additionally, some categories were overly inclusive of distinctly different statements which may have accounted for lack of differences in individual categories. In order to investigate further the in-session processes that occur during group sessions and gain insight into potentially effective components of the WRG, we sought both to replicate and extend these preliminary results by examining in-session affiliation in the larger, Stage II trial. The current study aimed to (1) revise the coding manual to improve discrimination between types of affiliative statements, (2) assess the frequency and type of affiliative statements made by participants in WRG compared to GDC, and (3) examine gender differences in the frequency and directionality of statements in GDC. Based on the results of the Stage I study,[40] we hypothesized that: (1) the frequency of the total number of affiliative statements would be higher in WRG compared to GDC; (2) in GDC, women would more often be the provider of an affiliative statement compared to men; and (3) in GDC, the direction of female to male affiliative statements would be more frequent than any other direction (male to male; male to female; female to female).

Methods

Group Treatments

Group sessions for GDC and WRG comprise 12 weekly 90-minute sessions (see Greenfield et al., 2007[17] and Greenfield et al. 2014[16] for detailed information). Groups were led by eight female therapists with the requirements of master's level training in psychopathology, two years' experience in SUD treatment, and at least one year of experience leading group therapy sessions. In order to examine group process and therapist adherence to the treatment manual, groups were both audio and videotaped. Participants signed consent for audio and videotaping of sessions and to ensure confidentiality and privacy of participants, only therapists were visible in videotaped recordings.

Participants

After obtaining study approval from the McLean Hospital Institutional Review Board, written informed consent was obtained from all study participants. Participants were eligible if they were 18 years or older, met DSM-IV criteria for substance dependence for at least one substance besides nicotine, and used substances in the 60 days prior to enrollment. One hundred and fifty-eight participants were enrolled (100 women, 58 men). Women were randomized to WRG (n = 52) or GDC (n = 48) and men were assigned to GDC. Baseline characteristics of the women were previously reported in Greenfield et al. 2014.[16] The most common SUD diagnoses were alcohol (89%), cocaine (18%), and opioids (17%). Participants were predominately white (94%), non-Hispanic (99%), with a mean age of 47 years (SD = 12.1; range of 23 – 79 years).

Coding Manual

A coding manual was developed for the Stage I study to identify affiliative statements.[9] In consultation with a group process expert (MSR), we revised the coding manual for the Stage II study to include additional categories that more fully represent and discriminate the

content of participants' statements. The number of affiliative statement categories increased from five to eight (see Table 1).

Agreement statements were further categorized into two separate types of statements: *shared experience* and *agreement statements*. Therapeutic responses were re-conceptualized as three discrete statement types. Questions or statements that focused on a member's recovery or provided insight were coded as *therapeutic statements*, statements that provided helpful strategies were coded as *strategy statements*, and statements that included general questions demonstrating interest in another participant were coded as *engaging questions*. Three categories were retained from the previous coding taxonomy: *supportive statements, completing another member's thought,* and *positive statements about the group*. In order to meet criteria as an affiliative statement, statements needed to be positive in nature, made *by* a participant in the group, and made *to* other participants in the group. A statement could be coded in more than one category if it contained separate phrases that independently met the criteria for each category.

Coding Process

Two research assistants (RAs; SBW, EYH) received extensive training from a doctoral-level researcher with experience in coding (DES) and the developer of the WRG who supervised the Stage I coding process (SFG). The RAs initially coded four tapes and discussed all coding questions with the trainers. Next, they coded eight tapes to establish inter-rater reliability (measured by achieving a Cohen's kappa of at least .70 on five consecutive videos). The group sessions were coded using Noldus Observer XT,[41] a professional software package for coding and analyzing observational data in real time. There were a total of 446 sessions throughout the study. Group videos were excluded if they only included one participant ($n = 58$), and GDC groups that included only men or only women ($n = 26$) were also excluded. This left 362 eligible videos, and one in five (20%; $n = 74$) of these were included in the analyses; 37 of these videos were WRG sessions and 37 were GDC sessions. Twenty-five percent of the 74 videos ($n = 19$) were coded by a second rater. The proportion of tapes chosen for Raters 1 and 2 to code was determined in consultation with our group process expert (MSR) and based on his previous work in this area.[42] In order to obtain a representative set of videos, videos were randomly ordered based on therapist, and approximately the same number of videos from each of the eight therapists was coded. The designated first rater and second rater were randomly assigned. The detailed coding procedure is described in Table 2.

Data Analysis

Interrater reliability was assessed with a kappa coefficient using Noldus XT to measure the agreement in coding between the two raters. Comparisons of the rates of affiliative statements (per hour) between the two treatment groups (WRG versus GDC) were made using generalized linear mixed effect models (GLMMs). Specifically, counts of the number of statements for each category were analyzed using loglinear (negative binomial) regression models, via maximum likelihood estimation by adaptive Gaussian quadrature. The loglinear regression models included the effect of treatment group and an offset for the log of the length of the therapy session; the models also adjusted for number of participants in the

group and included a random therapist effect. The models appropriately accounted for the correlation among counts of statements from the multiple sessions within a specific group and also adjusted for potential overdispersion of the counts. Results of the loglinear regression analyses, when exponentiated, are presented in terms of relative rate ratios (RR) and their 99% confidence intervals (CI). In analyses restricted to those in the GDC group, a similar analytic approach was used to compare rates of affiliative statements made by women compared to men. These loglinear (negative binomial) regression models included the effect of gender and an offset for the log of the length of the therapy session; the models also adjusted for the number of participants in the group, the ratio of men to women in the group, and the effect of therapist (i.e., potential individual differences among therapists). The loglinear (negative binomial) regression models were fit to the data using PROC GLIMMIX in SAS 9.4.[43] Finally, due to the number of statement categories analyzed, we chose to use a more conservative significance level of $\alpha = 0.01$ for determining statistical significance and reporting confidence intervals.

Results

Interrater Reliability

The average kappa coefficient across the 19 dually coded videos was .80, suggesting moderate to high interrater reliability. Eighteen kappa coefficients were between .72 and .94, with one outlier value of .52.

Frequency of Statements

As shown in Table 3, there was a higher frequency of total number of affiliative statements in WRG compared to GDC (66% higher, $p = .0038$). In addition, three out of eight statement categories occurred significantly more frequently in WRG compared to GDC: shared experience statements (64% higher, $p = .0010$), supportive statements (more than twice as high, $p = .0004$), and strategy statements (more than twice as high, $p = .0015$). There was a higher frequency of affiliative statements in WRG in the other five categories, although differences between groups did not reach statistical significance.

Gender Differences in Affiliative Statements in GDC groups

As demonstrated in Table 4, the overall rate of total statements made by women was not significantly greater than for men in GDC (adjusted rate ratio = 1.18, 99% CI: 0.76, 1.83; $p = .3282$). For seven of eight categories, women made more statements than men; however, these differences were not statistically significant.

Directionality of Affiliative Statements in GDC groups

Out of the 37 total coded GDC videos, 9 videos (24.3%) met criteria for all four directions of statements (i.e., woman to man; man to man; man to woman; woman to woman) and were included in analyses of directionality. These videos included at least 2 men and 2 women. The other 28 videos were excluded for the following reasons: 7 videos (18.9%) had only one woman and one man; 13 videos (35.1%) had one woman and two or more men; and 8 videos (21.6%) had one man and two or more women.

Analyses of the directionality of statements revealed significant results for total number of statements made ($F(3,28) = 7.52$, $p = 0.0008$) as well as a single statement category: therapeutic statements ($F(3,28) = 5.74$, $p = 0.0034$). For total number of statements, the frequency of statements made by a woman to a man occurred significantly more than man to man (adjusted rate ratio = 4.16, 99% CI: 1.70, 10.16; $p = .0001$), but not more frequently than woman to woman (adjusted rate ratio = 1.11, 99% CI: 0.49, 2.56; $p = .72$) or man to woman (adjusted rate ratio = 1.67, 99% CI: 0.73, 3.82; $p = .096$). A similar pattern emerged for therapeutic statements, where the direction of woman to man occurred significantly more frequently than man to man (with adjusted rate ratio = 6.53, 99% CI: 1.78, 23.92; $p = .0004$), but not more frequently than the woman to woman (adjusted rate ratio = 1.63, 99% CI: 0.58, 4.61; $p = 0.206$) or man to woman (adjusted rate ratio = 2.46, 99% CI: 0.84, 7.21; $p = 0.029$) directions.

Discussion

This study demonstrated that there was significantly greater frequency of total affiliative statements made by participants in the women-only WRG compared with mixed-gender GDC. More specifically, supportive, shared experience, and strategy statements occurred significantly more frequently in WRG than in GDC. The high frequency of affiliative statements made by women in the all-women's WRG group, including statements that provide encouragement and potential problem-solving strategies, represents an in-session mechanism by which women derive enhanced support from the WRG. In combination with findings from the Stage I trial, these results provide evidence that verbal affiliation among women participants in the WRG may be a key component of the WRG and may comprise a critical therapeutic element in its effectiveness as a group treatment for women with SUDs. Qualitative analyses of exit interviews of participants in the Stage I trial showed that when compared with women in the GDC, women in WRG expressed appreciation for both educational content relevant to women with SUDs as well as a sense of enhanced comfort, support, and intimacy.[9] Other group therapy studies have demonstrated that psychoeducation is a powerful intervention even when compared with cognitive behavioral group therapy.[44] Thus, the gender-specific education women receive in the WRG is likely one effective component of the group. However, in development of the WRG, both the educational component and enhanced affiliation of the all-women's group composition were postulated to be key, synergistic effective components of the WRG. The results of the current study provide detailed observational data of in-session verbal affiliation among women in the WRG that demonstrates a group process by which women in the WRG can experience enhanced comfort and support. In previous studies, women have often endorsed preferences for women-only groups as they perceive them as more supportive and comforting.[8,9] This is the first observational study of in-session group process analyzing verbal affiliation as a mechanism of group cohesion and comparing this affiliative mechanism between all-women's and mixed-gender group therapy.

Group affiliation and cohesion are important elements of group treatment and are highly correlated with positive therapeutic and health outcomes[25–28] and this is particularly true for women.[34–36] The findings from this study demonstrate further support for higher ratings of cohesion in all-women's group therapy. Moreover, the types of affiliative statements that

occur more frequently in WRG show that women are likely experiencing this support through sharing similar experiences, and by offering advice, guidance, and support. Open enrollment groups are the most frequent format of group therapy for SUDs in community practice, but may also have diminished inter-participant support due to instability of group member attendance. It is, therefore, noteworthy that in spite of the open enrollment format of the Stage II trial, whereby participants were less likely to have a consistent cohort of group members, there were still significantly more affiliative statements in WRG compared to GDC.[16,45] It is, therefore, possible that the single-gender format of the WRG may be an especially critical element of open-enrollment groups in providing enhanced affiliation and support.

The results of this study also extend the literature by using in-session observable phenomena to measure group cohesion. Prior studies have measured cohesion by administering self-report questionnaires to participants[29,46] or therapists[29] thereby relying on therapist or participants' *perceptions* of cohesion, and in some studies only at a single time point.[46] To our knowledge, this is the first study to use in-session observational data to measure one critical aspect of group cohesion, verbal affiliation among group members. The present study refined the taxonomy of affiliative statements that was developed for the Stage I trial. The revised coding manual enabled us to more distinctly discriminate among eight types of affiliative statements. In the present study, we were also able to examine an equivalent and larger number of group sessions for both WRG and GDC than were available in the Stage I trial, providing greater confidence in these data.

Based on results of the Stage I trial, we hypothesized that women were more likely to provide affiliative statements than men, and these would be more frequently directed to men. Results only partially supported this hypothesis. Although women in GDC provided affiliative statements more frequently than men, the differences were not statistically discernible. Similar to the findings of the Stage I trial the rate of all affiliative statements, and one category of statements (therapeutic), occurred more frequently in the direction of woman to man than man to man. However, due to the limited number of tapes available to analyze directionality of statements (i.e., only those GDC sessions with at least two men and two women), we may have had reduced statistical power to detect other differences in statement directionality.

While the study sample was heterogeneous with respect to clinical characteristics, this study was limited by the homogeneity of race and ethnicity (predominately white and non-Hispanic), as well as educational attainment (predominantly high school and college educated), thus potentially limiting the generalizability. All group therapists were women and it is, therefore, not possible to know from this study whether group process and cohesion would differ with a male therapist.

This study is the first to use in-session group process ratings to assess group cohesion in all-women versus mixed-gender group therapy for any psychiatric disorder including SUDs. The study extends previous research in non-clinical groups that show higher ratings of cohesion for all-women groups.[33] In developing the WRG, it was hypothesized that the gender-specific topics would provide education and the all-women composition would

increase comfort, support, and openness among members, and that both of these components would be critical for the effectiveness of the WRG. The results of this study support this hypothesis and suggest that the single-gender WRG may enhance cohesion through greater frequency of affiliative statements of support and strategy among participants. Verbal affiliative support in group treatment may be especially important for women in increasing comfort and satisfaction and enhancing support. More broadly, this study highlights the importance of affiliation and connection between members of any group treatment, as originally stated by Yalom.[23] The relationship of group members' affiliation with longer-term clinical and functional outcomes is another critical area for future treatment efficacy research. The findings, as well as the novel, in-session methods used to measure cohesion, can be extended and utilized in future research on group process and cohesion, including both single-gender and mixed-gender group treatments.

Acknowledgments

Support for this study was provided by the National Institute on Drug Abuse (Rockville, MD) R01 DA015434 (Shelly Greenfield) and K24 DA019855 (Shelly Greenfield).

References

1. Center for Substance Abuse Treatment. Substance Abuse Treatment: Group Therapy. Rockville MD: 2005.
2. Sobell LC, Sobell MB, Agrawal S. Randomized controlled trial of a cognitive–behavioral motivational intervention in a group versus individual format for substance use disorders. Psychology of Addictive Behaviors. 2009; 23:672–83. [PubMed: 20025373]
3. Weiss RD, Jaffee WB, de Menil VP, Cogley CB. Group therapy for substance use disorders: What do we know? Harv Rev Psychiatry. 2004; 12:339–50. [PubMed: 15764469]
4. Grella CE, Greenwell L. Substance abuse treatment for women: changes in the settings where women received treatment and types of services provided, 1987–1998. J Behav Health Serv Res. 2004; 31:367–83. [PubMed: 15602139]
5. Grella CE, Stein JA, Greenwell L. Associations Among Childhood Trauma, Adolescent Problem Behaviors, and Adverse Adult Outcomes in Substance-Abusing Women Offenders. Psychology of Addictive Behaviors. 2005; 19:43–53. [PubMed: 15783277]
6. Messina N, Burdon W, Hagopian G, Prendergast M. Predictors of prison-based treatment outcomes: A comparison of men and women participants. The American Journal of Drug and Alcohol Abuse. 2006; 32:7–28. [PubMed: 16450640]
7. Earleywine, M. Substance use problems. Ashland, OH, US: Hogrefe & Huber Publishers; 2009.
8. Kauffman E, Dore MM, Nelson-Zlupko L. The role of women's therapy groups in the treatment of chemical dependence. Am J Orthopsychiatry. 1995; 65:355–63. [PubMed: 7485421]
9. Greenfield SF, Cummings AM, Kuper LE, Wigderson SB, Koro-Ljungberg M. A qualitative analysis of women's experiences in single-gender versus mixed-gender substance abuse group therapy. Subst Use Misuse. 2013; 48:772–82.
10. Greenfield SF, Brooks AJ, Gordon SM, et al. Substance abuse treatment entry, retention, and outcome in women: a review of the literature. Drug Alcohol Depend. 2007; 86:1–21. [PubMed: 16759822]
11. Bride BE. Single-gender treatment of substance abuse: Effect on treatment retention and completion. Soc Work Res. 2001; 25:223–32.
12. Claus RE, Orwin RG, Kissin W, Krupski A, Campbell K, Stark K. Does gender-specific substance abuse treatment for women promote continuity of care? J Subst Abuse Treat. 2007; 32:27–39. [PubMed: 17175396]

13. Orwin, RG.; Francisco, L.; Bernichon, T. Center for Substance Abuse Treatment. Arlington, Virginia: SAMHSA; 2001. Effectiveness of women's substance abuse treatment programs: A meta-analysis.
14. Smith BD, Marsh JC. Client-service matching in substance abuse treatment for women with children. J Subst Abuse Treat. 2002; 22:161–8. [PubMed: 12039620]
15. Grella CE. From generic to gender-responsive treatment: changes in social policies, treatment services, and outcomes of women in substance abuse treatment. J Psychoactive Drugs. 2008; (Suppl 5):327–43. [PubMed: 19256044]
16. Greenfield SF, Sugarman DE, Freid CM, et al. Group therapy for women with substance use disorders: Results from the women's recovery group study. Drug Alcohol Depend. 2014
17. Greenfield SF, Trucco EM, McHugh RK, Lincoln MF, Gallop R. The Women's Recovery Group Study: A Stage I trial of women-focused group therapy for substance use disorders versus mixed-gender group drug counseling. Drug Alcohol Depend. 2007; 90:39–47. [PubMed: 17446014]
18. Greenfield, SF. Treating Women with Substance Use Disorders: The Women's Recovery Group Manual. New York: Guilford Press; 2016.
19. Sandler IN, West SG, Baca L, Pillow DR. Linking empirically based theory and evaluation: The Family Bereavement Program. Am J Community Psychol. 1992; 20:491–521. [PubMed: 1481786]
20. Wolchik SA, West SG, Westover S, Sandler IN. The children of divorce parenting intervention: Outcome evaluation of an empirically based program. Am J Community Psychol. 1993; 21:293–331. [PubMed: 8311029]
21. Marmarosh CL. Emphasizing the complexity of the relationship: The next decade of attachment-based psychotherapy research. Psychotherapy. 2015; 52:12–8. [PubMed: 25751115]
22. Joyce AS, Piper WE, Ogrodniczuk JS. Therapeutic alliance and cohesion variables as predictors of outcome in short-term group psychotherapy. Int J Group Psychother. 2007; 57:269–96. [PubMed: 17661544]
23. Yalom, ID. The theory and practice of group psychotherapy. 4. New York, NY US: Basic Books; 1995.
24. Restek-Petrović B, Bogović A, Orešković-Krezler N, Grah M, Mihanović M, Ivezić E. The perceived importance of Yalom's therapeutic factors in psychodynamic group psychotherapy for patients with psychosis. Group Analysis. 2014; 47:456–71.
25. Taube-Schiff M, Suvak MK, Antony MM, Bieling PJ, McCabe RE. Group cohesion in cognitive-behavioral group therapy for social phobia. Behav Res Ther. 2007; 45:687–98. [PubMed: 16928359]
26. Tschuschke V, Dies RR. Intensive analysis of therapeutic factors and outcome in long-term inpatient groups. Int J Group Psychother. 1994; 44:185–208. [PubMed: 8005718]
27. Burlingame GM, McClendon DT, Alonso J. Cohesion in group therapy. Psychotherapy. 2011; 48:34–42. [PubMed: 21401272]
28. Alonso, JT. Cohesion's relationship to outcome in group psychotherapy: A meta-analytic review of empirical research. US: ProQuest Information & Learning; 2012.
29. Lecomte T, Leclerc C, Wykes T, Nicole L, Abdel Baki A. Understanding process in group cognitive behaviour therapy for psychosis. Psychology and Psychotherapy: Theory, Research and Practice. 2015; 88:163–77.
30. Brook, DW.; Galanter, M.; Kleber, HD. The American Psychiatric Publishing textbook of substance abuse treatment. 4. Arlington, VA US: American Psychiatric Publishing, Inc; 2008. Group therapy; p. 413-27.
31. Flores PJ. Addiction as an attachment disorder: Implications for group therapy. Int J Group Psychother. 2001; 51:63–81. [PubMed: 11191596]
32. Curşeu PL, Pluut H, Boroş S, Meslec N. The magic of collective emotional intelligence in learning groups: No guys needed for the spell! Br J Psychol. 2015; 106:217–34. [PubMed: 24905387]
33. Martin E, Good J. Strategy, team cohesion and team member satisfaction: The effects of gender and group composition. Computers in Human Behavior. 2015; 53:536–43.
34. Smith-Ray RL, Mama S, Reese-Smith JY, Estabrooks PA, Lee RE. Improving participation rates for women of color in health research: The role of group cohesion. Prevention Science. 2012; 13:27–35. [PubMed: 21826476]

35. Crino N, Djokvucic I. Cohesion to the group and its association with attendance and early treatment response in an adult day-hospital program for eating disorders: A preliminary clinical investigation. Clinical Psychologist. 2010; 14:54–61.

36. Gallagher ME, Tasca GA, Ritchie K, Balfour L, Bissada H. Attachment anxiety moderates the relationship between growth in group cohesion and treatment outcomes in Group Psychodynamic Interpersonal Psychotherapy for women with binge eating disorder. Group Dynamics: Theory, Research, and Practice. 2014; 18:38–52.

37. Lo Coco G, Gullo S, Lo Verso G, Kivlighan DM Jr. Sex composition and group climate: A group actor–partner interdependence analysis. Group Dynamics: Theory, Research, and Practice. 2013; 17:270–80.

38. Piper WE. Pregroup interactions and bonding in small groups. Small Group Behavior. 1984; 15:51–62.

39. Hornsey MJ, Dwyer L, Oei TPS. Beyond cohesiveness: Reconceptualizing the link between group processes and outcomes in group psychotherapy. Small Group Research. 2007; 38:567–92.

40. Greenfield SF, Kuper LE, Cummings AM, Robbins MS, Gallop RJ. Group Process in the single-gender Women's Recovery Group compared with mixed-gender Group Drug Counseling. Journal of groups in addiction & recovery. 2013; 8:270–93.

41. Noldus LPJJ, Trienes RJH, Hendriksen AHM, Jansen H, Jansen RG. The Observer Video-Pro: New software for the collection, management, and presentation of time-structured data from videotapes and digital media files. Behavior Research Methods, Instruments & Computers. 2000; 32:197–206.

42. Robbins MS, Mayorga CC, Mitrani VB, Szapocznik J, Turner CW, Alexander JF. Adolescent and parent alliances with therapists in brief strategic family therapy™ with drug-using Hispanic adolescents. J Marital Fam Ther. 2008; 34:316–28. [PubMed: 18717922]

43. SAS Institute Inc. Version 9.4 of the SAS System. Cary, NC: 2013.

44. Hien DA, Wells EA, Jiang H, et al. Multisite randomized trial of behavioral interventions for women with co-occurring PTSD and substance use disorders. J Consult Clin Psychol. 2009; 77:607–19. [PubMed: 19634955]

45. Greenfield SF, Crisafulli MA, Kaufman JS, et al. Implementing substance abuse group therapy clinical trials in real-world settings: Challenges and strategies for participant recruitment and therapist training in the Women's Recovery Group Study. The American Journal on Addictions. 2014; 23:197–204. [PubMed: 24724875]

46. Kelly PJ, Deane FP, Baker AL. Group cohesion and between session homework activities predict self-reported cognitive–behavioral skill use amongst participants of SMART recovery groups. J Subst Abuse Treat. 2015; 51:53–8. [PubMed: 25535099]

Table 1

Summary of Affiliative Statement Categories

Statement Category	Description	Examples
1. Shared Experience	Statements that demonstrate that the participant can relate to the other member through a similar experience, thought, feeling, etc. by referencing the self.	• "I also get anxious when I have too much time on my hands." • "I do that too." • "That's exactly how I feel." • "I can relate to that."
2. Agreement	Must follow or be connected to a statement made by another group member, and expresses an agreement with what another group member is saying.	• "That's true, it isn't easy." • "You're right." • "Exactly." • "That must be hard."
3. Therapeutic	Statements or questions that are aimed at gathering more information about someone's recovery or are an attempt to help another group member gain insight.	• "How do you plan to stay sober when you go away on vacation?" • "One day at a time." • "Does your family understand the disease?" • "Do you feel guilty?"
4. Strategy	Must provide advice or guidance concerning the issue presented by the other group member. This may involve sharing of strategies that a group member found helpful under similar circumstances, or providing a new way of approaching/ thinking about a situation.	• "You can try taking your walks somewhere else." • "You know what I do, speaking of that, I leave the situation." • "Just remember to say, this too shall pass."
5. Engaging question	Questions asked of another participant that demonstrate interest in the other participant and social connectedness responsive to an active discussion.	• "Where are you going on vacation?" • "Who is going to be at the dinner?"
6. Supportive	Provide encouragement or positive feedback to a group member or the group as a whole.	• "That's great, congratulations!" • "That's a good strategy." • "That's huge." • "Good for you!"
7. Completing another member's thought	An interruption which completes another person's thought/sentence. Typically demonstrates that the group member is on the same page as the other group member and is following along with what he/she is saying.	Participant A: *"I'm getting old, my body…"* Participant B: *"… doesn't tolerate it anymore."*
8. Positive statements regarding the group	Must reference the group as a whole, rather than individual members or a subset of members. Must be related to the information presented, the group process, or the group support.	• "This group is very safe and I can say anything." • "I've found this group very helpful." • "This program is very encouraging." • "I missed you guys last week."

Table 2

Coding Procedure for Affiliative Statements

Step #	Procedure
1	• Rater 1 coded the video first. • Affiliative statements were coded at the time at which they were heard in the video. • The gender of the speaker and recipient of affiliative statements was also coded for GDC videos. – When an affiliative statement was directed at two or more recipients, only the gender of the speaker was coded. • Additionally, Rater 1 coded 10 non-affiliative statements that did not meet criteria for an affiliative statement at random times throughout the video. – Non-affiliative statements were coded to demonstrate that the raters could discriminate between affiliative and non-affiliative statements.
2	• Rater 1 printed a timesheet that indicated the times when she coded a statement. – No other information was included on the timesheet.
3	• Rater 2 then coded the same video using the timesheet provided by Rater 1. • Rater 2 listened to the entire video and coded statements based on the times at which Rater 1 had coded statements. • Rater 2 also coded any additional affiliative statements missed by Rater 1, but did not add any non-affiliative statements.
4	• If Rater 2 identified any additional affiliative statements, Rater 1 revisited the video and listened to the statements made during the times when Rater 2 coded the extra statements. • Rater 1 coded these statements if she agreed that the statements met criteria for an affiliative statement.
5	• The raters discussed any disagreements in coding until they reached 100% agreement on appropriate coding of statements.

Table 3

Comparison of the rates of affiliative statements in WRG versus GDC

Type of Statement	Rate/hour WRG, mean (SD)	Rate/hour GDC, mean (SD)	Adjusted Relative Rate of statements occurring in WRG versus GDC (95% C.I.)	t-value	p-value
Total Statements **	37.42 (17.53)	26.38 (18.91)	1.66 (1.19, 2.32)	−3.01	.0038
Shared Experience **	5.42 (2.59)	3.32 (2.30)	1.64 (1.23, 2.17)	−3.46	.0010
Agreement	10.82 (6.31)	7.69 (6.57)	1.70 (1.05, 2.74)	−2.21	.0305
Supportive ***	2.63 (2.41)	1.41 (1.61)	2.33 (1.48, 3.67)	−3.73	.0004
Completing a thought	3.50 (3.56)	2.50 (2.36)	1.53 (0.79, 2.96)	−1.29	.2027
Strategy **	2.29 (2.03)	1.36 (1.62)	2.21 (1.37, 3.58)	−3.30	.0015
Therapeutic	9.91 (6.11)	7.86 (6.55)	1.45 (1.04, 2.03)	−2.21	.0309
Positive statement about the group	0.49 (0.70)	0.26 (0.67)	2.40 (1.00, 5.76)	−1.99	.0508
Engaging Question	2.34 (2.09)	1.85 (2.28)	1.45 (0.70, 3.00)	−1.01	.3148

** $p < .01$,

*** $p < .001$

Note: The Rate/hour summary data for WRG and GDC are based on unadjusted means. The Adjusted Relative Rate of statements controls for the number of participants in group and the therapist.

Table 4

Gender comparison of the rates of statements made in GDC

Type of Statement	Adjusted Relative Rate of statements made by Females vs. Males (99% C.I.)	t-value	p-value
Total Statements	1.18 (0.76, 1.83)	0.99	.3282
Shared Experience	1.07 (0.66, 1.75)	0.39	.6959
Agreement	1.12 (0.70, 1.81)	0.65	.5201
Supportive	1.11 (0.51, 2.43)	0.36	.7166
Completing a thought	1.31 (0.61, 2.81)	0.94	.3484
Strategy	1.22 (0.59, 2.52)	0.73	.4700
Therapeutic	1.17 (0.66, 2.08)	0.72	.4717
Positive statement about the group	0.90 (0.21, 3.83)	−0.20	.8437
Engaging Question	2.26 (0.90, 5.68)	2.34	.0224

Note: The Adjusted Relative Rate of statements control for the number of participants in the group, the ratio of males to females, and the therapist.