

Fall 12-14-2015

# Impact of Working Alliance on Clinical Outcomes in Veterans Enrolled in Suicide-Specific Group Therapy

Brittany N. Groh

Western Kentucky University, [brittany.groh989@topper.wku.edu](mailto:brittany.groh989@topper.wku.edu)

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IMPACT OF WORKING ALLIANCE ON CLINICAL OUTCOMES IN VETERANS  
ENROLLED IN SUICIDE-SPECIFIC GROUP THERAPY

A Capstone Experience/Thesis Project

Presented in Partial Fulfillment of the Requirements for  
the Psychological Science Degree Bachelor of Science with  
Honors College Graduate Distinction at Western Kentucky University

By

Brittany N. Groh

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Western Kentucky University  
2015

CE/T Committee:

Professor Stephen O'Connor, PhD

Professor Amy Brausch, PhD

Andrea Chaney

Approved by

---

Advisor

Department of Psychological Sciences

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## ABSTRACT

Suicide is a global issue that has led researchers to seek interventions that will have a significant impact on mental health and wellbeing. Veterans comprise the largest number of suicides annually compared to other groups. There is a higher prevalence of mental disorders due to combat related experiences that may play a role in increased rates of suicide. Examined clinical diagnoses in this study include posttraumatic stress disorder (PTSD), depression, alcohol use and substance use. This study explores how group therapy and working alliance play a role in reducing suicidality in a group therapy setting. The first hypothesis is that clinical dysfunction, as evidenced by presence of PTSD depression severity, alcohol and drug use at the baseline will negatively impact therapeutic alliance at the 1- and 3-month time points. The second hypothesis is that greater therapeutic alliance scores will be associated with more rapid improvements in clinical outcomes of interest. Results indicate that individuals with various clinical diagnoses are able to form a working alliance and suicidal ideation scores significantly decrease over time.

Keywords: Suicide, Working Alliance, Group Therapy, Posttraumatic Stress Disorder

Dedicated to my parents for their unwavering support, pushing me to always do my best,  
and making me the person I am today.

## ACKNOWLEDGEMENTS

This project would not have been possible without the support and knowledge of many individuals. I am exceptionally thankful for Dr. Stephen O'Connor for his wisdom and guidance that has encouraged me to continue working on my goals and his willingness to put forth so much of his own time to help me become a better scholar. My committee members – Dr. Amy Brausch and Andrea Chaney – have provided me with valuable insight and encouragement.

The Honors College has been a valuable resource over the past few years and has supported me through this process by providing an intellectual environment that has pushed me to achieve more than I thought I could. I am extremely grateful for the FUSE grant that has provided me with financial support to purchase necessary software to complete statistical analyses and travel to Atlanta, GA to present research at the 48<sup>th</sup> Annual American Association of Suicidology conference in 2015.

Finally, I want to thank my family and friends for their support and the confidence needed to complete my project.

## VITA

May 6, 1994 ..... Born – Middleburg Heights, Ohio

2012 ..... Eastern High School, Louisville,  
Kentucky

2014 ..... Study Abroad at Harlaxton College, UK

2014 ..... Research Assistant in the Children and  
Families Lab, Western Kentucky  
University

2015 ..... Faculty-Undergraduate Student  
Engagement (FUSE) grant recipient

2015 ..... Intern at Hope Harbor Sexual Trauma  
Recovery Center

2015 ..... Intern at Kentucky Department of  
Corrections Probation and Parole

2015 ..... Research Assistant in the Injury  
Prevention Lab, Western Kentucky  
University

## Fields of Study

Major Fields: Psychological Sciences and Criminology

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## Impact of Working Alliance on Clinical Outcomes in Veterans Enrolled in Suicide-Specific Group Therapy

Suicide is a global problem that results in hundreds of thousands of people dying globally each year. In 2013, there were over 800,000 deaths by suicide globally (Fleischmann & De Leo, 2014). This accounts for 1.4% of all deaths (Fleischmann & De Leo, 2014). Suicide was the 2<sup>nd</sup> leading cause of death among 15-29 year olds in 2012 (Fleischmann & De Leo, 2014). In 2013, there were 41,149 deaths due to suicide in the United States (Drapeau & McIntosh, 2015). As the statistics depict, suicide is a substantial problem in the United States and abroad.

One way to decrease death by suicide is to identify risks that may link certain health and economic problems to suicide. According to the Fleischmann and De Leo (2014), suicide tends to be linked to mental disorders including depression and alcohol use disorders. Recent research has noted that suicide is rarely impulsive as most suicide attempts are planned, from minutes to months before the attempt actually occurs (Anestis, Soberay, Gutierrez, Hernández, & Joiner, 2014). Other times, suicides tend to be the result of conflicts, disasters, natural and otherwise, violence, abuse, loss and sense of isolation (Fleischmann & De Leo, 2014). Also among the various risk factors, there are vulnerable groups who experience discrimination such as refugees and migrants, indigenous people, lesbian, gay, bisexual, transgender, and intersexed individuals (LGBTI), and prisoners (Fleischmann & De Leo, 2014). Those aged 70 years and older tend to have the highest risk of suicide for both men and women (Fleischmann & De Leo, 2014). In regards to gender, men are at a greater risk of suicide, whereas women are at a greater risk of suicide attempts (Fleischmann & De Leo, 2014).

Among with the various vulnerable groups in the United States, Veterans comprise about 20% of the annual suicides, which is larger than any other group (Kemp & Bossarte, 2012). In 2009 and 2010, suicide rates among active military veterans reached new records, which led to suicide being the third leading cause of death among those fighting in the War on Terror in Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (Barnes, Walter, & Chard, 2012). The current study examines veterans and the risk factors they tend to identify with and how group therapy may help lower suicide rates among this group of individuals.

### **Risk Factors of Suicide**

LeardMann and colleagues (2013) began a longitudinal US military study in 2001 to examine risk factors associated with suicide in both current and former military personnel. The difference in rate of suicide among military personnel from 2001 to 2008 increased from 10.3 per 100,000 in 2001 to 11.3 per 100,000 in 2005 and finally to 16.3 per 100,000 in 2008 (LeardMann et al., 2013). The study was concluded in 2008, but since 2009, suicide rates among active-duty military personnel stabilized at 18 per 100,000 (LeardMann et al., 2013).

In the study, a total of 145,387 participants were included in the analyses, including 78 deaths by suicide. The results of the LeardMann et al. (2013) study suggest that significant risk factors for suicide in this population include being male, having depression, manic-depressive disorder, heavy or binge drinking, and alcohol-related problems. The authors posit that a higher prevalence of mental disorders, including posttraumatic stress disorder (PTSD) and depression, and the accumulation of stress from

deployment or home-station work during war years may contribute to increased rates of suicide in the military. Mott, Barrera, Hernandez, Graham, and Teng (2014) found that nearly one-third of veterans returning from the operations in Afghanistan and Iraq have been diagnosed with a psychiatric condition including PTSD, mood disorders, and other anxiety disorders. Currently there are mental health programs that implement assessments such as the Post Deployment Health Risk Assessment to identify possible physical or behavioral health concerns (Bray et al., 2010).

### **Posttraumatic Stress Disorder (PTSD)**

PTSD has been evaluated with a variety of measures. LeardMann et al. (2013) used the PTSD Checklist-Civilian Version (PCL-C) which includes 17 items and a question that asks whether a health professional had ever diagnosed the individual with PTSD. In LeardMann et al. (2013), results indicated that it was not whether or not they had been deployed, but what they had experienced while being in the military that could play a role in heightened suicide risk. The authors stated that “those deployed to the current operations [War on Terror] with or without combat were not significantly more likely to have a suicide death than those who did not deploy” (LeardMann, et al., 2013, p. 499). The previous statement means that those who had not been in combat were as likely to have death by suicide as those who had been in combat.

When examining those who needed further PTSD evaluation in a study conducted by Bray et al. (2010), those who had been deployed needed more mental health evaluation compared to those who had not been deployed. Similarly, Bryan, Hernandez, Allison, and Clemans (2012) found that in military and veteran samples, there were

higher levels of fearlessness about death and pain tolerance. This was directly related to more combat exposure, for example acquired capability. Acquired capability is where an individual has the capacity to take one's own life (Joiner, 2009). One suggestion by Bryan et al. (2012) was that the link between combat and other risk factors for suicide may be due to increases in vulnerability based on other factors that occurred in life, such as child abuse.

The research literature suggests married Veterans benefit from a live-in spouse because they can reduce psychosocial stressors therefore preventing the onset of suicidal thoughts or behaviors (Jakupcak, Vannoy, Imel, Cook, Fontana, Rosenheck, & McFall, 2010). Being married may also bring on a sense of responsibility for others which may reduce suicidal impulses (Jakupcak et al., 2010). However, veterans may view themselves as a burden on others which can be a risk that can turn into suicidal thoughts and behaviors. This study concluded that Iraq and Afghanistan war veterans who reported greater satisfaction with their social support networks and were married, were less likely to endorse thoughts or behaviors suggestive of elevated suicide risk (Jakupcak et al., 2010). In regards to PTSD, those who were in combat were no more likely than those who had not been in combat to develop PTSD. Having a strong support system, particularly a live-in spouse, also reduced suicidal behaviors due to the spouse's ability to lower psychosocial stressors.

### **Depression**

One measure that is used to assess depression is the Patient Health Questionnaire-Depression module (PHQ-9) (Spitzer, Kroenke & Williams, 1999). The PHQ-9 is a

diagnostic screening instrument that measures the depression severity (Spitzer et al., 1999). Of the individuals who died by suicide in this study, 95% of them had a positive depression screen as a result of the 9 item depression PHQ (LeardMann, et al., 2013). A significant increase in the risk of suicide was associated with mental health problems including depression, manic-depressive disorder, and alcohol-related problems as a result of the PHQ-9 screening (LeardMann, et al., 2013).

Bryan et al (2012) stated that second to combat exposure, service members suffering from both depression and PTSD were more likely to think that they were a burden on others, thus increasing suicide risk. Depression is a mood disorder that can be lessened through social support, therapy and drugs.

### **Alcohol Use**

In the LeardMann et al. (2013) study, alcohol use was characterized as heavy weekly drinking or binge drinking. Heavy drinking was based on the consumption of more than 14 drinks per week for men or 7 drinks per week for women (LeardMann et al., 2013). One measure asked individuals to report on five problems in the last 12 months that could have included going against the advice of one's doctor in order to partake in drinking activities (LeardMann et al., 2013). Of the individuals who committed suicide in this study, 95% of them were reported as having at least one alcohol-related problem (LeardMann, et al., 2013).

As reported by Bray et al. (2010), heavy alcohol use significantly increased from 1998 (15%) to 2008 (20%). Also depicted in the article was that heavy alcohol use was higher among military individuals who had been deployed compared to those had not

been deployed (Bray et al., 2010). Similarly, if therapists are able to understand and start an intervention when servicemen come back from deployment, there may be less heavy alcohol use, which could lower this risk for suicide.

As an opposing viewpoint, Anestis, Joiner, Hanson, and Gutierrez (2014) found that most individuals who die by suicide have not consumed any alcohol prior to the suicide. In this study only about one fourth of suicide deaths had nonzero BACs at the time of death (Anestis et al., 2014). Although alcohol may play a role in some suicide deaths, it does not seem to be the primary factor in the majority of those who die by suicide (Anestis et al., 2014).

### **Substance Use**

Illicit and nonmedical use of prescription drugs has increased after a two decade long decline (Bray et al., 2010). The military has enacted drug testing programs that may have helped play a role in the reduction of illegal drug use from 1980 (28%) to 2002 (3%), but in 2008 it was shown to increase to 11% (Bray et al., 2010). In the Bray et al. (2010) article, researchers used drugs such as marijuana, cocaine, LSD, PCP, MDMA, other hallucinogens, methamphetamine, heroin, inhalants, methamphetamine, tranquilizers or muscle relaxers, sedatives or barbiturates, pain relievers, and anabolic steroids as ways to depict illegal substance use. Military personnel who have been deployed in wars other than the War on Terror had significantly higher rates of past year illicit drug use compared to those who had served in the War on Terror or those who had not been deployed (Bray et al., 2010). Bray and colleagues (2010) have been unable to

draw conclusions as to why there has been an increase in illicit drug use in past few years.

One study by Morley, Sitharthan, Haber, Tucker, and Sitharthan (2014) examined the number of individuals who had drugs and alcohol in their system during their last suicide attempt. In a sample of 185 individuals, 78% had drugs and alcohol in their system at the time of their last suicide attempt (Morley et al., 2014). As a result, this article suggested future interventions to increase engagement following the initial 3-month treatment period and be able to recognize the heterogeneity in the clinical sample (Morley et al., 2014). A good future direction for this study would include the researchers looking into other means of decreasing suicide risk, such as substance use, which could include group therapy or support groups that could be found or established for these individuals to continue working on their substance use issues.

According to Ferrari and colleagues (2014), substance use disorders are associated with an increased risk of suicide. The discussion goes on to assess that two-thirds of all suicides reportedly measured by Disability Adjusted Life Years in 2010 were caused by mental and substance use disorders. In regards to the percent of mental and substance use disorders, major depressive disorder was reported in 46.1% of cases, alcohol dependence in 13.25%, anxiety disorder in 7.4%, bipolar disorder in 5.4%, schizophrenia in 4.7%, amphetamine dependence in 2.4%, opioid dependence in 1.9%, cocaine dependence in 0.9%, and anorexia nervosa in 0.2% of cases (Ferrari et al., 2014). Even when looking at risk factors such as socio-economic factors, substance use disorder and mental disorders were significantly associated with suicide risk (Ferrari et al., 2014).

## **Group Therapy and Working Alliance**

### **Group Therapy**

In previous research, group therapy has been an effective means to decreasing symptoms in various mental health concerns. Crowe and Grenyer (2008) indicated that severity of depression improved through group therapy and revealed that group therapy is as effective as individual therapy. Additional research should be conducted that could better support how therapy can reduce symptoms in PTSD, alcohol use, and drug use in addition to depression. This was supported by a previous study by MacKenzie and Tschuschke (1993) in a long-term inpatient psychotherapy group. It reported that higher levels of personal comfort in the group (relatedness) would have greater clinical improvement than patients reporting lower levels of group work.

Frey, Motto, and Ritholz (1983) discussed that special suicide group therapy appears to support the natural healing after a suicide crisis, but the healing tends to be slow. This article does not show an overwhelming amount of support for suicide-specific group therapy and suggests that therapists must be cautious on how they conduct the sessions because some individuals in the group sessions may show some patterns of self-destructive patterns and the therapist must be cautious not to oversimplify any interpretations that they may get from working with their clients (Frey et al., 1983). Johnson, O'Connor, Kaminer, Jobes, and Gutierrez (2014), noted that an increasing number of VAMCs are now providing suicide-focused group therapy. These authors also note that it is unclear how specific mental health concerns, which are often present in suicidal Veterans, may impact therapeutic alliance in a suicide-focused group therapy.

Individuals that are often part of suicide-focused group therapy tend to have comorbid disorders which caused some researchers to be hesitant about making a group therapy composed of suicidal individuals (Johnson et al., 2014). Johnson and colleagues (2014). Additionally, the impact of therapeutic alliance on outcomes in a group therapy for suicidal Veterans is unknown.

### **Working Alliance**

Previous research indicates that a solid therapeutic alliance between patient and therapist can improve the likelihood of positive clinical outcomes in group psychotherapy (MacKenzie et al., 1993). Therapeutic alliance is a construct that reflects the extent to which the dyad match on their conceptualization of treatment tasks, goals, and bond. Working alliance is the combination of task, goal, and bond of the client and therapist (Bordin, 1979). The better the client and therapist agree on each of these factors, the better their working alliance should be (Bakali, Baldwin, & Lorentzen, 2009).

Clients and therapists view their alliance differently in terms of their task, goal, and bond with each other. Clients view themselves and their therapists as partners in this alliance and as a team effort in treatment (Bachelor, 2011). Bachelor (2011) mentions that setting goals and sharing the same views when it came to treatment appeared to aid in the clients' sense of a collaborative work relationship with their therapist. When a client constructs a good working alliance with their therapist, the clients' sense of partnership with the therapist in regards to carrying out the goals and task of therapy is highlighted (Bachelor, 2011). One of the most important characteristics in the alliance with the therapist is the helpfulness that they perceive they are receiving. A concern of

many clients is having a conflict with their therapist. If they have less conflict in their therapeutic work and goals there is a higher likelihood of having positive outcomes (Bachelor, 2011).

Clients and therapists viewed the bonds characteristic of working alliance differently in the Bachelor (2011) article. The client characterized “bond” as the “perceived consideration, liking and empathy...and sense of trust in the therapist” (Bachelor, 2011). The therapist, however, emphasized the therapists’ “commitment and confidence in the provision of help to their clients” (Bachelor, 2011). Bachelor (2011) stated that it is important to check in with the client to gauge how they are interpreting the alliance with their therapist in order to produce the confidence and trust that is needed in the alliance that they are forming.

Lee, Neimeyer, and Rice (2013) examined therapeutic alliance through therapists that were constructive epistemologists. These therapists placed more emphasis on the personal bond formed from the relationship compared to therapists that used a more rationalistic epistemological approach. These constructive epistemologists build an alliance that can be characterized as “accepting, understanding, trusting, and caring” (Lee et al., 2013). Constructivist therapists also use “exploration, silence, open questions and paraphrasing, a decreased use of approval, information and direct guidance”, more than cognitive behavioral therapists (Lee et al., 2013).

Veterans Affairs Medical Centers (VAMC) have historically provided individual, group, and peer therapy to veterans who struggle with mental health concerns such as major depressive disorder and posttraumatic stress disorder (PTSD). Group therapy is

often a preferred modality of treatment by Veterans who would rather work together on addressing specific mental health concerns. Previous research indicates that a solid therapeutic alliance between patient and therapist can improve the likelihood of positive clinical outcomes in group psychotherapy (MacKenzie et al., 1993). Therapeutic alliance is a construct that reflects the extent to which the dyad match on their conceptualization of treatment tasks, goals, and bond. The more they match, the better the clinical outcome will likely be (Bakali et al., 2009). However, the extent to which therapeutic alliance impacts clinical outcomes in a suicide-specific group therapy for veterans is unknown, largely due to the dearth of VAMCs that offer such an approach as part of their suicide prevention efforts. The current study examined the impact of working alliance on individuals enrolled in a suicide-specific group therapy for veterans at the Robley Rex VAMC in Louisville, KY. Of specific interest was whether specific clinical characteristics affected working alliance, as well as the extent to which working alliance was associated with clinical improvements across time. The main risk factors to be examined in the current study are posttraumatic stress disorder (PTSD), depression, alcohol use, and substance use.

The current study aims to 1) determine how specific mental health concerns, such as posttraumatic stress, alcohol, and substance use, impact development of working alliance in group members and 2) examine the interaction between working alliance and time to the extent that greater working alliance scores indicate more rapid changes in clinical outcomes during the course of treatment. The two hypotheses of the study are:

1. Clinical dysfunction, as evidenced by presence of PTSD, depression severity, alcohol and drug use at the baseline will negatively impact therapeutic alliance at the 1- and 3-month time points.
2. Greater therapeutic alliance scores will be associated with more rapid improvements in clinical outcomes of interest from baseline to 1-month and baseline to 3-months.

## **Methods**

### **Sample and Procedure**

Utilizing existing data from a larger investigation of group therapy for suicidal veterans at the Robley Rex VAMC in Louisville, KY, 134 participants were included in the study. Of the 134 participants, 118 were male and 16 were female ( $M = 48$ ,  $SD = 11.4$ ). Each participant included had been hospitalized due to a recent suicide attempt or current suicidal ideation. A research team member consented participants and administered a baseline assessment battery while the participant was still in the hospital. Following release, participants are randomized into one of two groups. One group had regular therapy and other group had regular therapy with an additional structured suicide risk assessment. Participants had the opportunity to attend up to 12 group therapy sessions. One-third did not attend any sessions and one-third attended all 12 sessions with the remainder attending 1-11 sessions ( $M = 4$  sessions). In each group there were 3-7 group members. At the 1- and 3-month follow ups, phone interviews were used and had a completion rate of 80-90%. All procedures were approved by the Robley Rex VAMC Institutional Review Board.

## Measures

*Working Alliance Inventory – Short Form (WAI-SF).* The Working Alliance Inventory – Short Form is a 12-item self-report measure of working alliance (WA) (Hanson et al., 2002). Within this measure are three subscales that examine the goals, tasks, and bond between the client and therapist (Hanson et al., 2002). The goals subscale measure includes the extent to which the therapist and client agree to what the outcomes should be (Hanson et al., 2002). The task subscale measures how the client and therapist plan to get to the goal and the bond subscale is the acceptance, trust, and confidence the client and therapist have in one another (Hanson et al., 2002). The internal reliability of this measure in the current study was  $\alpha = 0.99$ . This measure has been tested extensively and working alliance has been found to correlate positively with various psychotherapy outcomes, such as client change (Hanson et al., 2002).

*Alcohol Use Disorder Identification Test.* The Alcohol Use Disorder Identification Test (AUDIT) was developed to identify individuals with possible hazardous and harmful alcohol consumption (Saunders, Aasland, Babor, Fuente, & Grant, 1993). The measure includes questions that address alcohol consumption, drinking behavior, and alcohol-related problems (Saunders et al., 1993). The internal reliability in the current study was  $\alpha = 0.94$ .

*Drug Abuse Screening Test.* The Drug Abuse Screening Test (DAST) is used for clinical screening and treatment evaluation research. The internal reliability in the current study was 0.87. Skinner (1982) stated that the internal consistency reliability estimate was .92. This measure has been useful for expressing the extent of drug involvement used

by the population that is seeking help through counseling, therapy, and other areas of health psychology (Skinner, 1982).

*Interpersonal Needs Questionnaire.* The Interpersonal Needs Questionnaire (INQ) was reflects Thomas Joiner's interpersonal theory of suicidal behavior (Van Orden, Cukrowicz, Witte, & Joiner, 2012). The INQ measures thwarted belongingness and perceived burdensomeness, which are stated as causes of the desire for suicide (Van Orden et al., 2012). In the current study, thwarted belongingness and perceived burdensomeness were both examined in regards to their relationship with working alliance and the internal reliability was  $\alpha = 0.92$ .

*Outcome Questionnaire-45.2.* The Outcome Questionnaire-45.2 (OQ-45.2) is a measure of overall symptom distress (Beckstead, Hatch, Lambert, Eggett, Goates, & Vermeersch, 2003). Mental health symptoms, interpersonal problems, social role functioning, and quality of life are all measured in the OQ-45.2 (Beckstead et al., 2003). The internal reliability of this measure in the current study was  $\alpha = 0.88$ .

*Beck Scale for Suicidal Ideation-Current (SSI-C).* The SSI-C is a 19-item scale that measures current suicide ideation (Beck, Brown, & Steer, 1997). Each of the 19 items consists of three alternative statements graded in intensity from 0 to 2, where the possible score for the measure ranges from 0-38 (Beck, Brown, & Steer, 1997). This score helps to "quantify and assess suicidal intention" of the client (Vilibić, Jukić, Pandžić-Sakoman, Bilić, & Milošević, 2014, p. 522). The measure demonstrated an acceptable level of internal reliability ( $\alpha = 0.97$ ).

*Personal Information Form* Permission was obtained and the medical records were used to understand health history including prior suicide attempts, PTSD symptoms, as well as any drug and alcohol use. These records were used primarily to validate the diagnosis of PTSD in the current study.

### **Analytic Plan:**

To test Hypothesis 1, we utilized ordinary least squares regression in order to measure the association between PTSD symptom severity, the symptom distress subscale of the OQ.45, alcohol use, and drug use with 1- and 3-month working alliance scores. To test Hypothesis 2, we utilized linear mixed effects regression analyses for our normally distributed outcomes, which included perceived burdensomeness, thwarted belongingness, and OQ.45 total score. Finally, Poisson mixed effect regression analyses were utilized for the suicidal ideation outcome due to the bimodal distribution of data inherent in the SSI-C. The impact of treatment condition was controlled in all analyses for Hypothesis II, as this utilized repeated measures data for participants attending weekly group therapy sessions.

### **Results**

The impact of working alliance on changes in clinical characteristics was assessed through mixed-effects regression. The impact of baseline by 1-month showed no significant associations between working alliance and PTSD, ( $\beta = 0.08$ , Std. Err. = 0.11,  $p = 0.46$ ), depression symptoms ( $\beta = 0.10$ , Std. Err. = 0.20,  $p = 0.62$ ), alcohol use ( $\beta = -0.03$ , Std. Err. = 0.10,  $p = 0.71$ ), and drug use ( $\beta = -0.05$ , Std. Err. = 0.43,  $p = 0.90$ ), as depicted in Table 1.

Table 1

*Impact of Baseline by 1-month Clinical Correlates on Working Alliance*

	Coefficient	Standard Error	<i>p</i> value
PTSD	0.08	0.11	0.46
Depression	0.10	0.20	0.62
Alcohol Use	-0.03	0.10	0.71
Drug Use	-0.05	0.43	0.90

The impact of baseline by 3-month showed no significant associations between working alliance and PTSD, ( $\beta = -0.12$ , Std. Err. = 0.15,  $p = 0.43$ ), depression symptoms ( $\beta = -0.19$ , Std. Err. = 0.19,  $p = 0.31$ ), alcohol use ( $\beta = -0.10$ , Std. Err. = 0.13,  $p = 0.44$ ), and drug use ( $\beta = 0.07$ , Std. Err. = 0.64,  $p = 0.91$ ), as depicted in Table 2.

Table 2

*Impact of Baseline by 3-month Clinical Correlates on Working Alliance*

	Coefficient	Standard Error	<i>p</i> value
PTSD	-0.12	0.15	0.43
Depression	-0.19	0.19	0.31
Alcohol Use	-0.10	0.13	0.44
Drug Use	0.07	0.64	0.91

A linear regression analysis was conducted on the 1-month working alliance by time interaction. Nonsignificant findings included perceived burdensomeness between baseline and 1-month ( $\beta = -0.08$ , Std. Err. = 0.16,  $p = 0.60$ ), burdensomeness between baseline and 3-months ( $\beta = -0.10$ , Std. Err. = 0.11,  $p = 0.34$ ), so as working alliance scores increased, there was a decrease in burdensomeness from baseline to 1-month and baseline to 3-months. A nonsignificant finding of thwarted belongingness from baseline to 1-month was found, so as working alliance scores increased, there was a decrease in thwarted belongingness from baseline to 1-month ( $\beta = -0.12$ , Std. Err. = 0.10,  $p = 0.24$ ). A trending but nonsignificant finding included a greater reduction in thwarted belongingness from baseline to 3-months as working alliance scores increased ( $\beta = -0.20$ , Std. Err. = 0.10,  $p = 0.06$ ). Nonsignificant findings also included the overall level of functioning from baseline to 1-month ( $\beta = -0.07$ , Std. Err. = 0.16,  $p = 0.65$ ) and baseline to 3-months ( $\beta = -0.23$ , Std. Err. = 0.16,  $p = 0.14$ ). Nonsignificant findings also included SSI-C totals from baseline to 1-month ( $\beta = 0.00$ , Std. Err. = 0.00,  $p = 0.91$ ) and from baseline to 3-months ( $\beta = 0.00$ , Std. Err. = 0.00,  $p = 0.17$ ), as depicted in Table 3.

Table 3

*1-Month Working Alliance by Time Interaction using Linear Regression*

	Coefficient	Robust Standard Error	<i>p</i> Value
Perceived Burdensomeness (Bx1)	-0.08	0.16	0.60
Perceived Burdensomeness (Bx3)	-0.10	0.11	0.34
Thwarted Belongingness (Bx1)	-0.12	0.10	0.24
Thwarted Belongingness (Bx3)	-0.20	0.10	0.06
Overall Level of Functioning (Bx1)	-0.07	0.16	0.65
Overall Level of Functioning (Bx3)	-0.23	0.16	0.14
SSI-C Total (Bx1)	0.00	0.00	0.91
SSI-C Total (Bx3)	0.00	0.00	0.17

A linear regression analysis was conducted on the 3-month working alliance by time interaction. Nonsignificant findings included perceived burdensomeness between 1-month and 3-months ( $\beta = -0.25$ , Std. Err. = 0.16,  $p = 0.11$ ), thwarted belongingness between 1-month and 3-months ( $\beta = -0.05$ , Std. Err. = 0.07,  $p = 0.43$ ), and overall level of functioning between 1-month and 3-months ( $\beta = 0.05$ , Std. Err. = 0.11,  $p = 0.62$ ). One significant finding was found in SSI-C total between 1-month and 3-months ( $\beta = 0.00$ , Std. Err. = 0.00,  $p = 0.04$ ), as depicted in Table 4.

Table 4

*3-Month Working Alliance by Time Interaction using Linear Regression*

	Coefficient	Robust Standard Error	<i>p</i> Value
Perceived Burdensomeness (Bx3)	-0.25	0.16	0.11
Thwarted Belongingness (Bx3)	-0.05	0.07	0.43
Overall Level of Functioning (Bx3)	0.05	0.11	0.62
SSI-C Total (Bx3)	0.00	0.00	.04*

*Note.* \* $p < .05$ .

**Discussion**

The present study examined the relationship between working alliance and clinical outcomes including PTSD, depression symptoms, alcohol use, and drug use as well as the impact of working alliance on changes in perceived burdensomeness, thwarted belongingness, overall level of functioning, and the Beck Scale for Suicidal Ideation-Current across time. Participants in the study were interviewed at baseline, 1-month and 3-months. There were two hypotheses in the current study. First, clinical dysfunction, as evidenced by presence of PTSD, depression severity, alcohol and drug use at the baseline will negatively impact therapeutic alliance at the 1- and 3-month time

points. Second, greater therapeutic alliance scores will be associated with more rapid improvements in clinical outcomes of interest.

In regards to the first hypothesis, the results suggested that working alliance is not significantly impacted by the presence of specific clinical issues including PTSD, depression, alcohol use, or drug use. Although there were no significant results in this section, it is important to note that this suggests that individuals with these clinical diagnoses all have the potential to create and keep a working alliance with their therapist, which may inform future dissemination efforts of the group therapy to clinical sites within and beyond the VA.

Veterans tend to have higher rates of mental health issues including PTSD, depression, alcohol use, and drug use. Considering the importance of helping individuals with these mental health issues, therapies need to be conducive to working with complex clients. Comorbidity of mental health issues may also be present within individuals including personality disorders, such as antisocial personality disorder. Previous research has indicated that severity of various mental health issues, specifically depression, can be improved through group therapy (Crowe & Grenyer, 2008). Working alliance is also important to reduce symptoms of mental health issues such as the interaction between therapist and client in regards to task, goal, and bond. The more these factors match, the better the working alliance should be (Bakali et al., 2009).

The second hypothesis takes therapeutic alliance scores into account and as a result, working alliance appears to play a significant role in determining rates of clinical improvement over time, specifically 3-month SSI-C total scores. This suggests that

higher working alliance scores at 3-months were associated with greater reductions in suicidal ideation at 3-months which is ultimately what the treatment is designed to do. Although there were not any significant results in regards to perceived burdensomeness and overall level of functioning, there was a trend towards significance in terms of thwarted belongingness decreasing at a greater rate from baseline to 3-months as working alliance scores increased.

Limitations include not examining other clinical issues that could negatively impact working alliance, such as antisocial personality disorder, readiness to change, and history of suicide attempts. This is a limitation because the study did not demonstrate it could work for everyone, it only demonstrated that the intervention worked for those with PTSD, depression, alcohol use, and drug use. The second limitation is that group cohesion was not taken into account. Group cohesion is conceptualized as the relationship between the individual and other members of their group. The current study only considered the working alliance between the therapist and client. Future research should include examining other mental health issues and how group cohesion plays a role in reducing suicidality in group therapy.

In conclusion, there is support that working alliance can be established in a suicide-specific group therapy by individuals with PTSD, depression symptoms, alcohol use, and drug use concerns. As time increases from baseline to 3-months, greater working alliance is correlated with greater reductions in suicidal ideation and to a lesser extent, thwarted belongingness. Thus, working alliance appears to be an important contributor to positive outcomes in Veterans enrolled in a suicide-specific group therapy.

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