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ORIGINAL PAPER

Group-Based Acceptance and Commitment Therapy for PTSD in a HMO Psychiatry Clinic: An Open Trial

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Abstract

Mindfulness and acceptance-based approaches have shown promise as alternative interventions to trauma-focused therapies for PTSD. This open trial examined the potential effectiveness of an 8-session Acceptance and Commitment Therapy (ACT) group in reducing psychiatric symptoms and improving quality of life in outpatient adults ($N = 86$, 79% female) receiving treatment for PTSD in a health maintenance organization (HMO) psychiatry clinic. The group therapy was an adjunct to usual care and utilized the six core processes of ACT: acceptance, cognitive defusion, mindfulness, self-as-context, values, and committed action. Participants completed self-report measures of PTSD symptoms, depression, anxiety and quality of life; and self-report ACT-specific process measures of acceptance, cognitive defusion and mindfulness at pretreatment, posttreatment and 3-month follow-up. Repeated measures analyses of variance conducted with a completer sample ($n = 55$) demonstrated significant improvements on all variables with medium to large effect sizes at posttreatment and follow-up. The study findings support further investigation in a randomized controlled trial.

Keywords Acceptance and commitment therapy · Group therapy · Posttraumatic stress disorder · Depression · Quality of life · Experiential avoidance

Posttraumatic stress disorder (PTSD) is a serious and potentially chronic mental health condition (Morina et al., 2014). The lifetime prevalence rate for adults in the US has been estimated at 4% for men and 8% for women (Goldstein et al., 2016). Psychiatric comorbidity is high among individuals with PTSD and a majority will meet criteria for a co-occurring substance use, mood, anxiety or personality disorder (Goldstein et al., 2016). PTSD has been associated with impairments in social roles and relationships (Scoglio et al., 2022) and diminished quality of life (Monson et al., 2017).

Trauma-focused cognitive behavioral therapies, such as prolonged exposure, cognitive processing therapy, and cognitive therapy for PTSD have been recognized as first-line interventions (Hamblen et al., 2019). The core feature of PTSD is avoidance therefore the mechanisms of change involve activating trauma-related stimuli to facilitate habituation and extinction of the fear response, and modifying maladaptive beliefs. Despite the efficacy of these treatments, studies have demonstrated notable dropout rates (Lewis et al., 2020) and persistent residual symptoms (Larsen et al., 2019).

As not all individuals may respond to or prefer trauma-focused therapies, there is a need to consider a range of strategies. Acceptance and mindfulness-based approaches have been identified as promising alternative interventions (Borhus et al., 2020; Polusny et al., 2015). One such approach is acceptance and commitment therapy (ACT), a transdiagnostic behavioral treatment that has been applied to a variety of mental and physical health conditions (A-Tjak et al., 2015; Hayes et al., 2006). ACT focuses on the problematic function of thoughts, feelings, bodily sensations, and memories rather than on their form or frequency, and holds that processes of verbal behavior and cognition are the source of human suffering (Hayes et al., 1996).

The primary cause of psychopathology in ACT is *experiential avoidance*, described as an unwillingness to remain in contact with painful internal experiences combined with

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attempts to alter the contexts in which they occur (Hayes et al., 1996). Escaping aversive private events temporarily reduces discomfort but intensifies distress over the long-term, resulting in disengagement from meaningful life activities. Research has shown that experiential avoidance is a common factor underlying a number of clinical disorders and contributes to posttraumatic stress symptomatology (Akbari et al., 2022; Meyer et al., 2019).

A key aim of ACT is to replace avoidance and control strategies with psychologically flexible responding by targeting six core processes: acceptance, cognitive defusion, mindfulness, self-as-context, values and committed action (Hayes et al., 2006). ACT helps the individual to attend to the present moment without judgment, accept (rather than fight or resist) immediate experience, gain distance from thoughts and evaluations, develop a constant sense of self beyond transient thoughts and emotions, and pursue life goals in alignment with personal values. In contrast to established evidence-based therapies for PTSD, ACT does not focus on the retelling of the trauma narrative as a principal treatment technique. Exposure within ACT occurs as the individual embraces behaviors that promote psychological flexibility, which in turn enhances life satisfaction and well-being (Meyer et al., 2018a).

Two open trials have examined ACT for PTSD in the veteran population. Meyer and colleagues (2018b) conducted a pilot study of 12 sessions of individual ACT treatment with veterans dually diagnosed with PTSD and an alcohol use disorder. At posttreatment and 3-month follow-up, participants demonstrated reductions in PTSD symptoms, depression and suicidal ideation, and improvements in alcohol-related outcomes, quality of life and functional disability with medium to large effect sizes. Wharton et al. (2019) assessed the effectiveness of 12 sessions of individual ACT and 12 sessions of group ACT in two pilot studies of male veterans. Participants in both studies showed significant decreases in PTSD symptoms at posttreatment with medium to large effect sizes.

In a randomized controlled trial of primarily women receiving services in a community outreach center for violence and abuse, Boals and Murrell (2016) compared a four session ACT group protocol focusing on self-as-context combined with treatment-as-usual to four sessions of treatment-as-usual alone. Participants who received the ACT group therapy reported reductions in event centrality, PTSD symptoms and depression with medium effect sizes at posttreatment relative to control participants. At 6-week follow up, only depressive symptoms were still significantly lower with a small effect size in ACT versus control group participants. A VA multi-site randomized controlled trial (Lang et al., 2017) of veterans diagnosed with an anxiety or depressive disorder (including 82% with PTSD) compared ACT to present-centered therapy in 12 sessions of individual treatment. Both groups showed improvements in distress, social functioning and quality of life with small to medium effect sizes but did not respond differentially to the two treatments.

The purpose of this uncontrolled trial was to evaluate the effectiveness of an 8-week ACT group as an adjunct to usual care for individuals with PTSD and comorbid conditions in a health maintenance organization (HMO) psychiatry clinic. We hypothesized that the group therapy would be associated with decreases in symptoms of posttraumatic stress, depression and anxiety and increases in quality of life; and that treatment gains would be maintained at 3 months. We further hypothesized that the therapeutic targets in ACT, namely acceptance, cognitive defusion, and mindfulness would show improvements at posttreatment and 3-month follow-up.

Methods

Participants

Adult outpatients were recruited from a Kaiser Permanente psychiatry clinic in Northern California between October of 2011 and January of 2013. Participants were referred by their psychiatrist or therapist if they carried a Diagnostic and Statistical Manual (4th ed., text rev., [DSM-IV-TR], American Psychiatric Association, 2000) diagnosis of PTSD in the medical record. Exclusionary criteria included psychosis, acute mania, active suicidal intent, or current substance dependence. Of the 149 individuals referred, 19 did not meet study criteria, 11 did not respond to a telephone invitation, 18 declined to participate, and 15 did not attend the initial treatment session. Eight-six participants ranging in age from 18 to 73 were enrolled in the study. Table 1 presents the demographic and clinical characteristics of the sample.

Procedure

The study protocol was approved by the Institutional Review Board of the Kaiser Foundation Research Institute. Written informed consent was obtained at the beginning of the first group meeting. Self-report outcome and psychotherapy process measures were administered after the consent form was signed, at the end of the last group meeting and at 3-month follow up. Group attendance was compensated by grocery store gift cards at the rate of $5 per session for a maximum of $40. Three-month follow-up measures were mailed to participants and completion was compensated by $20 in gift cards.

Table 1 Demographic and clinical characteristics of the sample ($N = 86$)

Variable	Mean (SD)	*n* (%)
Age (years)	44.53 (13.17)	
Education (years)	13.56 (2.0)	
Women		68 (79.1)
Race/ethnicity		
Caucasian		53 (61.6)
African American		14 (16.3)
Hispanic/Latinx		13 (15.1)
Asian American		2 (2.3)
Other		4 (4.7)
Married/partnered		48 (55.8)
Employed full or part-time		45 (52.3)
Unemployed		11 (12.8)
Disabled/receiving government benefits		15 (17.4)
Retired/homemaker/student		15 (17.4)
PTSD diagnosis assessed using the PDS		83 (96.5)
Index traumas identified on the PDS		
Childhood sexual abuse by someone >5 years older		23 (26.7)
Sexual assault by someone known		14 (16.3)
Sexual assault by stranger		2 (2.3)
Non-sexual assault by someone known		22 (25.6)
Non-sexual assault by stranger		9 (10.5)
Military combat		4 (4.7)
Motor vehicle accident or fire		10 (11.6)
Life threatening illness		2 (2.3)
Index trauma >5 years ago		60 (69.8)
>1 lifetime traumatic event		76 (88.4)
Any comorbid Axis I diagnosis		58 (67.4)
Any depressive disorder		40 (46.5)
Any bipolar/mood disorder		11 (12.8)
Any anxiety disorder		12 (14.0)
Any eating disorder		9 (10.5)
Other		3 (3.5)

PDS Posttraumatic Stress Diagnostic Scale

Measures

Posttraumatic Stress Diagnostic Scale (PDS)

The PDS (Foa, 1995) is a 49-item self-report questionnaire that assesses trauma history, symptom severity, and DSM-IV criteria for PTSD. Symptom frequency of the index event is rated on a scale of 0 (*not at all*) to 3 (*almost always*). Individual items are summed to yield a global score ranging from 0 to 51 with symptoms classified as *mild* (1–10), *moderate* (11–20), *moderate-to-severe* (21–35), and *severe* (>36). The PDS has high internal consistency ($\alpha = 0.92$), and good test–retest reliability both for a diagnosis of PTSD ($\kappa = 0.74$) and for symptom severity scores ($r = 0.83$). Satisfactory agreement has been found between PTSD diagnoses derived from the PDS and a standardized diagnostic interview. Cronbach's α in the current sample was 0.80 at pretreatment, 0.87 at posttreatment, and 0.94 at follow-up.

Beck Depression Inventory II (BDI-II)

The BDI-II (Beck et al., 1996) is a 21-item self-report questionnaire that assesses depression severity on a scale of 0 to 3. Total scores range from 0 to 63 with depression classified as *minimal* (0–13), *mild* (14–19), *moderate* (20–28), and *severe* (29–63). The BDI-II has demonstrated high internal consistency ($\alpha = 0.92$–0.93), good test–retest reliability ($r = 0.93$), and satisfactory convergent and discriminant validity with other measures of depression. Cronbach's α in the current sample was 0.87 at pretreatment, 0.88 at posttreatment, and 0.94 at follow-up.

Beck Anxiety Inventory (BAI)

The BAI (Beck & Steer, 1993) is a 21-item self-report questionnaire that assesses anxiety severity on a scale of 0 to 3. Total scores range from 0 to 63 with anxiety classified as *minimal* (0–7), *mild* (8–15), *moderate* (16–25), and *severe* (26–63). The BAI has high internal consistency ($\alpha = 0.92$–0.94), good test–retest reliability ($r = 0.75$), and good construct validity. Cronbach's α in the current sample was 0.90 at pretreatment, 0.89 at posttreatment, and 0.93 at follow-up.

Quality of Life Inventory (QOLI)

The QOLI (Frisch, 1994) is a 32-item self-report questionnaire measuring well-being and life satisfaction in 16 domains: health, self-esteem, goals-and-values, money, work, play, learning, creativity, helping, love, friends, children, relatives, home, neighborhood, and community. Each domain is rated on a scale of 0 to 2 for importance, and on a scale of −3 to 3 for satisfaction. Weighted scores are calculated by multiplying the importance by the satisfaction ratings. The sum of the weighted scores divided by the 16 life domains yields a total QOLI score ranging from −6 to 6. Overall quality of life can be classified as *high* (3.6–6.0), *average* (1.6–3.5), *low* (0.9–1.5), and *very low* (−6.0 to 0.8). The QOLI has demonstrated good internal consistency ($\alpha = 0.79$), test–retest reliability ($r = 0.73$), and construct validity through correlations with other measures of well-being and satisfaction. Cronbach's α in the current sample was 0.83 at pretreatment, 0.81 at posttreatment, and 0.87 at follow-up.

Acceptance and Action Questionnaire II (AAQ-II)

The AAQ-II (Bond et al., 2011) is a 7-item unidimensional measure of experiential avoidance/acceptance. Items are rated on a scale of 1 (*never true*) to 7 (*always true*) with higher scores indicating experiential avoidance and lower scores indicating acceptance. The AAQ-II has shown satisfactory internal consistency ($\alpha = 0.78–0.88$) and 3-month ($r = 0.81$) and 12-month ($r = 0.79$) test–retest reliability. It has demonstrated good discriminant validity with lower experiential avoidance predicting better mental health and job performance. Cronbach's α in the current sample was 0.87 at pretreatment, 0.89 at posttreatment, and 0.94 at follow-up.

Believability of Anxious Feelings and Thoughts Questionnaire (BAFT)

The BAFT (Herzberg et al., 2012) is a 16-item self-report measure of cognitive fusion, the degree to which an individual believes their anxious thoughts as if they were true. Items are rated on a scale of 1 (*not at all believable*) to 7 (*completely believable*), with higher scores representing a greater degree of belief. In both a non-clinical and a highly anxious community sample, the BAFT demonstrated high internal consistency ($\alpha = 0.90–0.91$), good 12-week test–retest reliability (ICC = 0.77), and high convergent and divergent validity. Cronbach's α in the current sample was 0.85 at pretreatment, 0.89 at posttreatment, and 0.94 at follow-up.

Mindful Attention and Awareness Scale (MAAS)

The MAAS (Brown & Ryan, 2003) is a 15-item self-report measure of attention and awareness of present moment experiences. Items are rated on a scale of 1 (*almost never*) to 6 (*almost always*) with higher scores reflecting greater mindfulness. Total scores are computed as the average of the 15 items and range from 1 to 6. The MAAS has satisfactory internal consistency ($\alpha = 0.82–0.87$) and 4-week test–retest reliability ($r = 0.81$). Good convergent validity has been demonstrated by positive associations with measures of emotional well-being. Crohnbach's α in the current sample was 0.84 at pretreatment, 0.84 at posttreatment, and 0.91 at follow-up.

Intervention

The group therapy protocol was adapted from Walser and Westrup's (2007) *Acceptance & Commitment Therapy for the Treatment of Post-Traumatic Stress Disorder and Trauma-Related Problems: A Practitioner's Guide to Using Mindfulness and Acceptance Strategies*. Session exercises were drawn from additional ACT treatment and self-help guides. The closed groups met weekly in 90-min sessions over 8 consecutive weeks. There were 11 treatment cohorts in the study with group sizes ranging from 4 to 11 members. Participants continued with usual clinical care (e.g., pharmacotherapy, monthly individual therapy, weekly non-trauma-focused group therapies) while attending the ACT group.

Two psychologists, a clinical social worker, and a psychology postdoctoral resident facilitated the groups in teams of two. There were three facilitator pairings among the four clinicians. Each pair of clinicians co-led three to four groups. All group facilitators had received training in ACT through 40–50 h of continuing education workshops. During the study period, the facilitators participated in hour-long consultation sessions twice monthly with an expert ACT trainer, Robyn D. Walser PhD.

The aim of treatment was to promote psychological flexibility by helping participants to change their relationship to uncomfortable internal experiences while engaging in values-based action. Each group session began with a mindfulness exercise, followed by the presentation of a core ACT concept using didactic teaching, metaphors, and experiential exercises. Each session ended with participants committing to a behaviorally specific goal in line with their chosen values for the upcoming week.

Session 1 provided an overview of treatment, followed by an introduction to mindfulness practices and a values clarification exercise. Session 2 was devoted to the topic of "creative hopelessness." Participants were encouraged to examine how avoidance and misapplied control can compound distress. Session 3 focused on cognitive defusion and presented strategies to help participants gain distance from their thoughts as literal truths which must be acted upon. Session 4 promoted the acceptance of, and willingness to contact unwanted thoughts, feelings, bodily sensations, and memories. Session 5 centered on the concept of self-as-context and the importance of developing a consistent sense of observing self as opposed to defining oneself by changing narratives or transitory internal states. Session 6 was a review of the topics presented to date. The themes of sessions 7 and 8 were valued living and committed action. Participants explored the goal of building larger patterns of behavior consistent with their freely chosen values and addressed barriers to taking committed action.

Data Analysis

The data was analyzed using IBM SPSS Statistics Version 20.0 (IBM Corp, Armonk, NY). Means and standard deviations were computed for pretreatment, posttreatment and follow-up measures. Independent samples *t*-tests and chi-square tests were conducted to compare treatment completers (defined as participants who attended five or more

group sessions) to non-completers on demographic variables and symptom severity scores.

Changes in the outcome measures for treatment completers were analyzed using repeated measures analysis of variance (ANOVA) with time (pretreatment, posttreatment, 3-month follow-up) as the independent variable and scores on the PDS, BDI-II, BAI, QOLI and ACT process measures (AAQ-II, BAFT, MAAS) as the dependent variables. Within-subjects effect sizes were evaluated using partial eta squared; 0.01 was interpreted as a small effect size, 0.09 as a medium effect size and 0.25 as a large effect size by convention.

Results

Of the 86 enrolled participants, 74% ($n=64$) completed treatment. Greater than two-thirds (69%) of treatment completers were white vs. 41% of non-completers (Fisher's exact test, $p=0.025$). Older participants were significantly more likely to complete treatment than younger participants, t (84) = 2.17, $p=0.033$. There was a trend for participants with more years of education to complete treatment compared to those with fewer years of education, t (84) = 1.91, $p=0.059$. Non-completers had higher pretreatment symptom scores compared to completers on the PDS, t (84) = 2.46, $p=0.016$; the BDI-II, t (84) = 2.07, $p=0.042$; and the BAI, t (84) = 2.49, $p=0.015$. No significant differences were found between the two groups with regard to gender, marital status, and employment, presence of a comorbid psychiatric disorder or pretreatment QOLI scores.

The mean number of ACT group sessions attended by the total sample was 5.83 (SD = 2.33). The mean number of sessions attended by treatment completers was 7.06 (SD = 0.91). There were no differences in number of sessions attended between the three group facilitator pairings, F (2, 83) = 0.07, $p=0.93$. Over half ($n=46$, 53.5%) of participants attended individual and/or other group therapies during the ACT intervention and 50% ($n=43$) attended individual and/or other group therapies during follow-up. Individual sessions utilized psychoeducational, general cognitive behavioral and supportive counseling techniques. The non-ACT group therapies typically consisted of an anxiety or depression coping skills group. Sixty-three (73.3%) participants were taking at least one psychotropic medication during the study period.

Measures were available across the three time points for 55 of the 64 treatment completers. Repeated measures ANOVAs performed on this subsample revealed statistically significant improvements ($p=0.001$ or $p<0.001$) over time on all outcome measures. Within-group effect sizes demonstrating change over time were large for the PDS, BDI-II, BAI, AAQ-II, BAFT, and MAAS (partial $\eta^2=0.28$–0.44) and medium for the QOLI (partial $\eta^2=0.13$). Pairwise comparisons between posttreatment and 3-month follow-up measures were non-significant ($p>0.05$) indicating that treatment gains were maintained during the follow-up period. Table 2 displays the means, standard deviations, ANOVA results and effect sizes.

To assess end-state functioning in the subsample of 55 completers, average posttreatment outcome scores were compared to published clinical cut-off norms. The mean PDS score declined from the high-end to the low-end of the moderate-to-severe range (Foa, 1995) and showed a 32% score improvement; 84% ($n=46$) of completers were classified as having clinical range PTSD symptoms (PDS > 10). The mean BDI-II score declined from the severe range to the mild range (Beck et al., 1996) and showed a 42% score improvement; 56% ($n=31$) of completers were classified as having clinical range depression symptoms (BDI-II > 13). The mean BAI score declined from the severe range to the low-end of the moderate range (Beck & Steer, 1993) and showed a 33% score improvement; 81% of completers were classified as having clinical range anxiety symptoms

Table 2 Means and standard deviations, ANOVA results, and effect sizes for completers ($n=55$)

Variable	(1) Pretreatment *M* (SD)	(2) Posttreatment *M* (SD)	(3) 3-months follow-up *M* (SD)	*F* (2, 108)	*p*	Partial η^2	Post hoc comparisons
PDS	32.09 (9.68)	21.80 (11.87)	22.02 (12.46)	34.29	<0.001	0.39	1 > 2, 3
BDI-II	30.69 (9.87)	17.29 (11.43)	19.33 (12.46)	41.56	<0.001	0.44	1 > 2, 3
BAI	25.73 (11.39)	17.29 (11.29)	16.87 (11.58)	23.91	<0.001	0.31	1 > 2, 3
QOLI	0.02 (1.82)	0.82 (1.71)	0.87 (2.06)	7.76	0.001	0.13	1 > 2, 3
AAQ-II	36.64 (8.01)	27.91 (9.95)	27.44 (11.66)	31.33	<0.001	0.37	1 > 2, 3
BAFT	82.56 (15.89)	62.33 (19.98)	63.35 (23.70)	29.79	<0.001	0.36	1 > 2, 3
MAAS	3.06 (0.82)	3.75 (0.97)	3.84 (1.02)	21.46	<0.001	0.28	1 > 2, 3

PDS Posttraumatic Stress Diagnostic Scale, *BDI-II* Beck Depression Inventory II, *BAI* Beck Anxiety Inventory, *QOLI* Quality of Life Inventory, *AAQ-II* Acceptance and Action Questionnaire II, *BAFT* Believability of Anxious Feelings and Thoughts Questionnaire, *MAAS* Mindfulness Acceptance and Awareness Scale

(BAI > 7). These symptom reductions remained stable at 3-months. While the average QOLI score improved significantly from pre- to posttreatment, it was still rated in the very low range at both posttreatment and follow-up. Forty (73%) completers continued to meet DSM-IV PTSD criteria at posttreatment according to the PDS.

Discussion

The current open trial assessed the preliminary effectiveness of an 8-week ACT group for outpatient adults (79% female) diagnosed with PTSD and presenting with interpersonal traumas (82%). Treatment completers demonstrated statistically significant reductions in self-reported PTSD, depression and anxiety symptoms and statistically significant improvements in self-reported quality of life from pre- to posttreatment. Within-group effect sizes were large for PTSD, depression and anxiety and medium for quality of life. All treatment gains were maintained at 3-month follow-up. These findings corroborate the results of veteran studies implementing ACT as a treatment for PTSD and co-occurring conditions (Lang et al., 2017; Meyer et al., 2018b), and expand the research base in civilian outpatient populations.

Statistically significant improvements and large within-group effect sizes were also found for self-reported acceptance, cognitive defusion, and mindfulness at posttreatment and follow-up consistent with the ACT model. Participants were better able to accept rather than avoid or suppress distressing trauma-related thoughts and feelings, view their thoughts as passing mental events and be nonjudgmental observers of their internal states. Fostering psychological flexibility may have contributed to lessened symptoms and greater life satisfaction however more research is needed to understand how core ACT processes function as mechanisms of change. Future studies would benefit from measuring the ACT processes of values and committed action and assessing their effects on outcomes.

To evaluate end-state functioning, posttreatment scores of completers who had provided measures at all three time points ($n = 55$) were compared to standard clinical cut-off norms. Over 80% of these participants were classified with clinical range PTSD and anxiety symptoms; and over 50% were classified with clinical range depressive symptoms. Quality of life was rated very low prior to, and after treatment. In contrast, a review of 51 randomized controlled trials of trauma-focused cognitive behavioral therapies by Larsen et al. (2019) reported on average that 31% of participants experienced PTSD symptoms, 55% experienced anxiety symptoms, 19% experienced depressive symptoms, and 36% experienced quality of life impairments in the clinical range at posttreatment. A longer duration of therapy may have resulted in greater recovery in our sample.

Regarding treatment adherence, we considered participants who attended five of the eight group sessions to have received an adequate dose of the therapy. Of the 86 individuals enrolled, 36% did not complete treatment. There is variation in how treatment completion rates are defined in the empirical literature and our definition may have been more liberal than that of other investigators. A meta-analysis of PTSD treatment dropout rates (Lewis et al., 2020) found that the mean rate for nine trauma-focused cognitive behavioral group therapy studies was 24% (95% CI: 16–33%). Considering our study's definition of completion and the moderate rate of attrition, our ACT intervention was associated with a higher drop-out rate compared to the average rate for group-based trauma-focused therapies.

Treatment non-completers were more likely to be younger and non-white. There was a trend for non-completers to have had fewer years of education. Non-completers also had significantly higher levels of PTSD, depression and anxiety symptoms at study enrollment. Greater attention in future should be paid to understanding and overcoming potential barriers to retaining younger and more diverse populations and those with higher baseline symptoms in treatment.

The strengths of our study were broad inclusion criteria and that it was conducted in a routine outpatient setting increasing ecological validity. The study also had several limitations. The lack of a control group and random assignment to conditions does not allow us to attribute change in the outcome variables to the intervention. Factors such as group cohesion/social support, the therapeutic alliance, regression to the mean, and the passage of time cannot be ruled out as reasons for improvement. Half of the participants attended concurrent therapies and three-fourths were taking one or more psychotropic medications during the study period which may have influenced outcomes. Because we did not have the resources to administer a clinician-rated interview, psychiatric diagnoses were obtained from the medical record. Finally, while the group therapy was delivered following a written protocol, we were not able to formally evaluate treatment fidelity.

In summary, this study provides initial support for the use of group-based ACT as an addition to usual care in decreasing psychiatric symptoms and improving quality of life in outpatient adults with PTSD. Although participants who completed the intervention demonstrated substantial gains, most did not achieve symptom remission nor recover fully from quality of life impairments. The 8-session group may not have been intensive enough given the severity and chronicity of symptoms in our patient sample. Alternately, ACT might be more effective when integrated with an established trauma-focused therapy to enhance treatment engagement and outcomes (Ramirez et al., 2021). A randomized controlled trial comparing group-based ACT to a wait list or

active treatment control group is recommended to further validate these findings.

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Declarations

Conflict of interest All authors declare that they have no relevant financial or non-financial interests to disclose.

Ethical Approval Ethical approval for the study was obtained from the Institutional Review Board for the Protection of Human Subjects, Kaiser Foundation Research Institute. All procedures used in this study involving human participants were in accordance with of the standards of the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards.

Informed Consent Written informed consent was obtained from all participants included in the study.

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