



RESEARCH ARTICLE

The effect of acceptance and commitment therapy-based anger management training on psychological flexibility and aggression in bipolar disorder: A controlled pilot study

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ABSTRACT

Objective: This study aimed to examine preliminary changes in psychological inflexibility and self-reported aggression following Acceptance and Commitment Therapy (ACT)-based anger management training in patients with bipolar disorder hospitalized in a high-security forensic psychiatric hospital (HSFPH).

Method: This controlled pilot study included 20 patients diagnosed with bipolar disorder and hospitalized in an HSFPH, with 10 patients assigned to the experimental group and 10 to the control group. The experimental group participated in an eight-session, group-based anger management program incorporating ACT principles, including anger recognition, cognitive defusion, acceptance, values-based behavior, forgiveness, and assertive communication. The Buss-Perry Aggression Questionnaire (BPAQ) and Acceptance and Action Questionnaire-II (AAQ-II) were administered to both groups at baseline and after the intervention.

Results: The experimental group showed significant reductions in BPAQ scores and self-reported aggression following the intervention ($Z=-2.8$, $p<0.05$), whereas no significant changes were observed in the control group. Psychological inflexibility, as measured by the AAQ-II, also decreased significantly in the experimental group at posttest ($Z=-1.7$, $p<0.05$), whereas no significant change was detected in the control group.

Conclusion: These preliminary findings suggest that ACT-based anger management training may help reduce self-reported aggression and psychological inflexibility in patients with bipolar disorder treated in an HSFPH. Larger studies with longer follow-up periods are needed to determine the durability of these effects and their potential impact on clinically relevant outcomes, including rehospitalization.

Keywords: Acceptance and commitment therapy, aggression, anger, forensic psychiatry, group psychoeducation, psychological flexibility, psychological rigidity

INTRODUCTION

Anger is a multidimensional emotional state involving cognitive, physiological, and behavioral components

that emerges in response to perceived provocation or injustice (1). When difficulties in emotion regulation are present, anger is more likely to be expressed through maladaptive and potentially aggressive responses (2).

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Consistent with this view, anger has been identified as a central emotional process underlying aggressive behavior, particularly when regulatory capacities are impaired (2–4). Understanding the psychological processes that influence how individuals respond to anger may therefore be important for explaining why anger leads to maladaptive or aggressive responses in some individuals. From a process-based perspective, psychological flexibility provides a useful framework for understanding patterns of dysregulated anger and maladaptive responding. Psychological flexibility, the core construct of Acceptance and Commitment Therapy (ACT), refers to the capacity to remain in contact with the present moment and to persist in or modify behavior in accordance with personally valued goals despite the presence of difficult internal experiences. In contrast, within the ACT model, psychopathology is conceptualized in terms of psychological inflexibility, defined as a pattern of responding characterized by cognitive fusion, experiential avoidance, diminished contact with the present moment, self-as-content, a lack of values clarity, and uncommitted action (5, 6).

Within the psychological flexibility framework, anger-related difficulties may arise from processes such as cognitive fusion and experiential avoidance, which constrain adaptive responding, whereas greater psychological flexibility facilitates more effective emotion regulation and reduces the likelihood of maladaptive and aggressive behaviors (2, 6, 7). These processes may be particularly relevant to psychiatric conditions in which difficulties with anger and emotion regulation are frequently observed, including bipolar disorder. Anger is a common and clinically relevant feature of bipolar disorder and is not restricted to manic episodes; elevated anger has also been reported during bipolar depression, in bipolar II disorder, and outside acute manic states (8). Consistent with this, Johnson and Carver found that anger and aggression may persist even after remission in individuals with bipolar I disorder and that emotion-relevant impulsivity was associated with anger, hostility, verbal aggression, and physical aggression (9). Longitudinal evidence further supports the persistence of these difficulties, with Ballester et al. (10) reporting consistently higher levels of self-reported anger, hostility, and verbal and physical aggression in individuals with bipolar disorder than in psychiatric and healthy controls over a four-year follow-up period. The persistence of anger and aggression in bipolar disorder may be particularly relevant in forensic psychiatric settings, where

aggressive behavior has important clinical and safety implications. In this context, a recent study of male mentally disordered offenders hospitalized in a high-security forensic psychiatric unit in Türkiye identified bipolar disorder as one of the major diagnostic groups and examined factors associated with offense severity and repeated offending within this group (11). More broadly, in forensic psychiatric populations, anger represents a key proximal risk factor for aggression, with elevated anger levels and difficulties in emotion regulation associated with increased frequency and severity of aggressive behavior (12–14). Targeting anger may therefore be particularly relevant in forensic psychiatric settings, where the management of aggression is an important component of clinical care. This highlights the need for interventions that address anger-related processes and aggression among forensic psychiatric patients. Meta-analytic findings indicate that a range of psychosocial interventions effectively reduce anger, with cognitive behavioral therapies being the most extensively studied. Although relaxation-based approaches may show slightly larger effect sizes, overall differences between treatment modalities are modest, suggesting broadly comparable effectiveness across interventions (15, 16). In offender populations, cognitive behavioral anger management interventions have also been shown to reduce both aggression and recidivism, with reported reductions of approximately 23% in general reoffending and 28% in violent reoffending (17). These interventions are thought to exert their effects by targeting key mechanisms such as anger awareness, identification of triggers, cognitive restructuring of maladaptive appraisals, and development of adaptive coping and self-regulation skills, thereby enabling individuals to modulate emotional arousal and inhibit impulsive responses (18).

Acceptance and Commitment Therapy, a contextual behavioral approach within the broader cognitive behavioral tradition, directly targets psychological flexibility as its primary mechanism of change. A growing body of empirical evidence supports the effectiveness of ACT across a range of clinical conditions. Meta-analytic findings demonstrate that ACT yields moderate effects across randomized controlled trials, with treatment outcomes consistently associated with increases in psychological flexibility (19). This is further supported by mediation studies indicating that improvements in psychological flexibility account for reductions in psychological symptoms (20). Similarly, randomized controlled trials comparing ACT and

cognitive behavioral therapy for anxiety disorders have shown that ACT is equally effective, with treatment gains closely linked to improvements in psychological flexibility (21).

Accordingly, ACT-based interventions may be particularly relevant for addressing anger-related problems by targeting underlying processes such as cognitive fusion, experiential avoidance, and behavior disconnected from personal values. Consistent with this perspective, group-based ACT interventions have demonstrated improvements in anger-related processes, including reductions in anger rumination and impulsivity (22, 23).

Despite this growing body of research, studies examining ACT-based group interventions in forensic psychiatric hospital settings remain limited. In Türkiye, ACT-based group studies are scarce, and research involving individuals with severe mental disorders, such as bipolar disorder, and those with a history of criminal behavior is virtually nonexistent. Accordingly, the present controlled pilot study aimed to examine preliminary changes in psychological inflexibility and self-reported aggression following an eight-session ACT-based group intervention among patients receiving treatment in a forensic psychiatric hospital. It was hypothesized that participants receiving the ACT-based anger management intervention would show reductions in self-reported psychological inflexibility and aggression from baseline to post-intervention.

METHODS

Study Design

This controlled pilot study was conducted between December 2021 and March 2022 at a high-security forensic psychiatry hospital. The outcome measures were administered to the experimental and control groups before and after the intervention period. Ethical approval was obtained, and written informed consent was obtained from all participants. All procedures were conducted in accordance with the Declaration of Helsinki.

Participants

Participants were recruited from patients receiving inpatient treatment at a single-center high security forensic psychiatric hospital (HSFPH) in Türkiye. An a priori sample size calculation was not conducted. The sample comprised all eligible and consenting patients available at the study site during the recruitment period. Accordingly, the study was designed as an exploratory controlled pilot investigation intended

to provide preliminary outcome estimates rather than confirmatory evidence of intervention efficacy. The inclusion criteria were: (1) a diagnosis of bipolar disorder; (2) clinical remission, as determined by the treating psychiatrist through clinical evaluation and review of medical records; (3) no current manic, depressive, or psychotic episode; (4) expected hospitalization for the duration of the eight-week intervention, based on the clinical treatment plan and available judicial or discharge information; and (5) provision of informed consent. Patients with intellectual disability or clinical symptoms that could prevent meaningful participation in the group sessions were excluded.

During the study period, 58 patients were hospitalized in the forensic psychiatry unit. Of these, 28 patients diagnosed with bipolar disorder were assessed for eligibility. Six patients were excluded because of an active manic, depressive, or psychotic episode. The remaining 22 eligible patients provided informed consent and were enrolled in the study. All participants were male and diagnosed with bipolar disorder. Participants had been involved in various criminal offenses, including assault and property-related crimes, and had been referred to the forensic psychiatric hospital following judicial evaluation. All participants had undergone forensic psychiatric assessment and were considered to have diminished or no criminal responsibility due to their psychiatric condition. Their mean age was 36.2 years (standard deviation [SD]=8.5 years). All participants received routine pharmacological treatment; however, changes in medication type or dosage during the intervention were not systematically recorded.

Baseline Acceptance and Action Questionnaire-II (AAQ-II) and Buss-Perry Aggression Questionnaire (BPAQ) assessments were completed before group allocation. Participants were ranked according to their baseline BPAQ scores and assigned alternately to the experimental and control groups based on odd- and even-numbered ranks. No composite score combining the AAQ-II and BPAQ was calculated. Because a randomly generated allocation sequence was not used, the study was classified as a controlled pilot study. One participant in the experimental group was discharged by court order during the third week and could not complete the intervention, while one participant in the control group withdrew during the fifth week. Consequently, 20 participants completed the study and were included in the final analysis (experimental group, $n=10$; control group, $n=10$).

Table 1: Summary of the group therapy content

Sessions	Session content
Week 1	Baseline questionnaires; welcome and group guidelines; participant introductions; understanding and reframing anger; myths about anger; overview of ACT; introduction to mindfulness; exercise: focusing on the breath; homework: daily mindfulness practice
Week 2	Present-moment exercise: body scan; creative hopelessness; perceived benefits of anger; assessing the costs of anger; control as the problem; homework: diary of the costs of angry behavior
Week 3	Present-moment exercise: mindful observation of thoughts; how the mind creates anger; cognitive defusion as an alternative; strategies for defusing from thoughts; action as an alternative; homework: values writing and defusion practice
Week 4	Present-moment exercise: mindful eating as an acceptance exercise; mindful acceptance in daily living tasks: willingness practice
Week 5	Present-moment exercise: the sky and the weather; self-as-context values; peak moments exercise; values card sorting; homework: values clarification
Week 6	Present-moment exercise: the facts; forgiveness; assertive communication; homework: forgiveness practice
Week 7	Present-moment exercise: leaves on a stream; committed action; homework: committed-action practice
Week 8	Present-moment exercise: taking off the armor; barriers to committed action; final awareness exercise: the swamp and the lotus flower; post-intervention questionnaires

Procedures

The study was conducted in three consecutive phases. The Acceptance and Action Questionnaire-II and Buss–Perry Aggression Questionnaire were administered to participants in the experimental group before and after the group therapy sessions. Anger was operationalized as self-reported anger and assessed using the anger subscale of the BPAQ. The same measures were administered to the control group; however, the control group received no therapeutic intervention. No follow-up assessment was conducted because continuity of access to participants could not be ensured following discharge or changes in judicial status. Before administration of the measures, participants were informed about the purpose of the study and the structure of the sessions, and informed consent was obtained. The anger management program developed by Foret and Eaton (2014) was delivered once weekly, with each session lasting 90 minutes and including a 10-minute break. Patients participating in group therapy were brought to the meeting room from three different HSFPH units accompanied by a security guard. To encourage participation, food and beverages were provided during the break. After each session, patients returned to their units accompanied by a security guard. The sessions were conducted over eight weeks within the ACT framework. The intervention was delivered by the psychiatrist responsible for the forensic psychiatry unit, assisted by a clinical social worker with five years of forensic psychiatry experience. Both had completed foundational and supervised ACT training, attended all sessions,

and followed the structured protocol presented in Table 1. Due to the security and confidentiality procedures of the forensic psychiatry unit, sessions were not audio- or video-recorded. Although the structured protocol was followed, treatment fidelity was not evaluated by an independent assessor. The primary goal of the group therapy was to enhance patients' awareness of the dynamic interplay among their thoughts, emotions, and behaviors while fostering psychological flexibility. In this context, the intervention sought to equip patients with practical, skill-based strategies to modify maladaptive reactions and respond to internal experiences in a more adaptive and values-consistent manner.

In the first session, the nature and functions of anger were discussed. Patients were then asked to imagine a situation in which they had experienced anger, and the emotions, thoughts, physical sensations, impulses, and behaviors that emerged in that situation were identified and conceptualized as five components of anger. Myths about anger were also discussed interactively, and a present-moment awareness exercise was conducted. In the second session, the costs of attempting to suppress anger were discussed, and a creative hopelessness exercise was conducted. In the third and fourth sessions, patients were taught to defuse from anger-related thoughts and make room for emotions accompanying anger through acceptance-based exercises. In the fifth session, patients' values were explored using the tombstone exercise, and followed by an interactive discussion of how anger-related behaviors could move them away from their values. In the sixth session, forgiveness and

Table 2: Pretest and posttest scores in the experimental and control groups

	Experimental group (n=10)				Control group (n=10)			
	Pretest		Posttest		Pretest		Posttest	
	X	SD	X	SD	X	SD	X	SD
AAQ-II	41.40	5.60	21.20	8.70	37.20	7.70	37.60	7.23
BPAQ	109.80	18.43	81.20	18.70	107.10	10.00	104.50	14.40

SD: Standard deviation; AAQ-II: Acceptance and Action Questionnaire-II; BPAQ: Buss-Perry Aggression Questionnaire

assertive communication skills were addressed using the “pushing against the wall” exercise. In the seventh and eighth sessions, motivational work focused on identifying behaviors consistent with participants’ values and addressing underlying emotional wounds by “removing the anger armor.” A summary of the group therapy content is provided in Table 1.

Measures

The Acceptance and Action Questionnaire-II (24) is a seven-item self-report measure of psychological inflexibility. Each item is rated on a seven-point Likert-type scale, with higher scores indicating greater psychological inflexibility (i.e., lower psychological flexibility). The scale was adapted into Turkish in 2016 (25). In the present study, the internal consistency coefficient (Cronbach’s alpha) was 0.84 at pretest and 0.86 at posttest.

The Buss-Perry Aggression Questionnaire (26) is a 29-item self-report measure used to assess individual differences in aggression. The scale comprises four subscales: physical aggression, verbal aggression, anger, and hostility. Participants rate each item on a Likert-type scale, with higher scores indicating higher levels of aggression. A Turkish version of the scale has been adapted and validated (27), and previous studies have demonstrated its validity and reliability. In the present study, Cronbach’s alpha for the total scale was 0.85 at pretest and 0.87 at posttest. Given the small sample size of this pilot study, analyses focused on the total BPAQ score to limit the number of statistical comparisons, reduce the risk of Type I error, and avoid imprecise estimates associated with separate subscale analyses.

Data Analysis

IBM Statistical Package for the Social Sciences (SPSS) version 23 was used to conduct the statistical analyses. Each group consisted of 10 participants. Given the small sample size and non-normal distributions of the variables, nonparametric tests were used. Baseline equivalence between the experimental and control groups was examined using the Mann–Whitney U

test. Within-group changes from pretest to posttest were analyzed using the Wilcoxon signed-rank test. To directly assess whether the magnitude of change differed between groups, change scores (Δ =posttest – pretest) were calculated and compared using the Mann–Whitney U test. Effect sizes were calculated as r , with values of 0.10, 0.30, and 0.50 interpreted as small, medium, and large effects, respectively. Given the small sample size, reliable 95% confidence intervals for these nonparametric effect-size estimates could not be calculated.

RESULTS

Descriptive statistics for the pretest and posttest scores of the experimental and control groups are presented in Table 2. At baseline, the mean AAQ-II score was 41.40 (SD=5.60) in the experimental group and 37.20 (SD=7.70) in the control group. Following the intervention, the mean AAQ-II score in the experimental group decreased to 21.20 (SD=8.70), whereas that of the control group remained relatively stable (M =37.60, SD =7.23). Similarly, the mean BPAQ score in the experimental group decreased from 109.80 (SD=18.43) at pretest to 81.20 (SD=18.70) at posttest. In contrast, the control group showed only a slight decrease in BPAQ scores, from 107.10 (SD=10.00) to 104.50 (SD=14.40). Changes in the mean AAQ-II and BPAQ scores of the experimental and control groups from pretest to posttest are illustrated in Figure 1. Error bars represent ± 1 standard deviation.

To determine whether the experimental and control groups differed at baseline, Mann–Whitney U tests were conducted on the pretest scores (Table 3). There were no statistically significant differences between the experimental and control groups in psychological inflexibility (AAQ-II; U =31.00, Z =–1.40, p =0.165) or aggression (BPAQ; U =38.50, Z =–0.87, p =0.393) at pretest. Thus, no statistically significant baseline differences were detected between the groups.

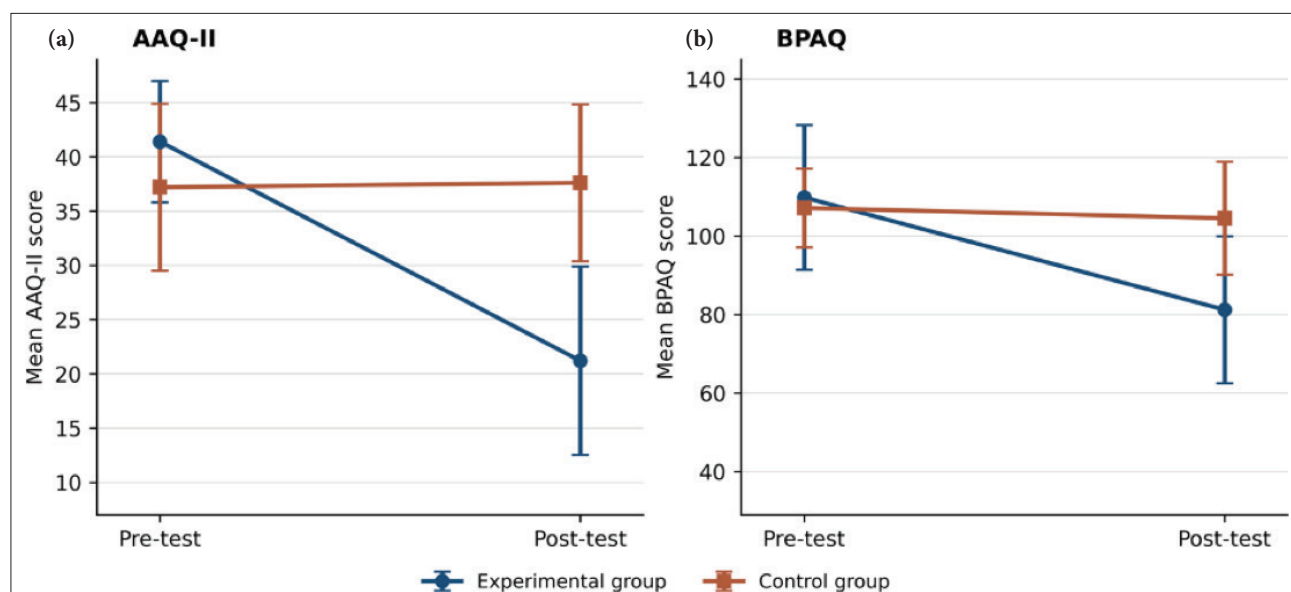


Figure 1. Changes in mean AAQ-II and BPAQ scores from pre-test to post-test in the experimental and control groups. Note. Error bars represent ± 1 standard deviation.

Table 3: Baseline comparisons between the experimental and control groups using the Mann–Whitney U test

Variables	Group	Mean rank	U	Z	p	Effect size (r)
AAQ-II	Experimental	12.40	31.00	-1.40	0.165	0.31
	Control	8.60				
BPAQ	Experimental	11.65	38.50	-0.87	0.393	0.19
	Control	9.35				

AAQ-II: Acceptance and Action Questionnaire-II; BPAQ: Buss-Perry Aggression Questionnaire. Note: Experimental group, n=10; control group, n=10.

Table 4: Within-group comparisons of pretest and posttest scores using the Wilcoxon signed-rank test

Variables	Group	Negative ranks	Positive ranks	Ties	Z	p	Effect size (r)
AAQ-II	Experimental	9	1	0	-1.70	0.044	0.54
	Control	5	4	1	-0.85	0.750	0.27
BPAQ	Experimental	10	0	0	-2.80	0.003	0.89
	Control	4	2	4	-0.53	0.590	0.17

AAQ-II: Acceptance and Action Questionnaire-II; BPAQ: Buss-Perry Aggression Questionnaire. Note: Experimental group, n=10; control group, n=10.

Within-group changes from pretest to posttest were examined using the Wilcoxon signed-rank test (Table 4). In the experimental group, a statistically significant difference was found between pretest and posttest AAQ-II scores ($Z=-1.70$, $p=0.044$), with a large effect size ($r=0.54$). Examination of the rank distributions showed that most participants in the experimental group had lower posttest than pretest scores. Lower posttest AAQ-II scores indicate lower levels of self-reported psychological inflexibility. In contrast, no statistically significant change was observed in the control group ($Z=-0.85$, $p=0.750$). For aggression measured by the BPAQ, a

statistically significant reduction was observed in the experimental group from pretest to posttest ($Z=-2.80$, $p=0.003$), with a large effect size ($r=0.89$). The rank distribution indicated that posttest aggression scores were lower than pretest scores for all participants in the experimental group. No statistically significant change was observed in the control group ($Z=-0.53$, $p=0.590$, $r=0.17$). The effect sizes observed in the control group were small for both outcomes.

Direct between-group comparisons of change scores indicated that the reduction in AAQ-II scores was significantly greater in the experimental group ($M\Delta=-20.20$, mean rank=6.00) than in the control

Table 5: Between-group comparisons of change scores (Δ ="Posttest"- "Pretest") using the Mann–Whitney U test

Variables	Group	Mean change (Δ)	Mean rank	U	Z	p	Effect size (r)
AAQ-II	Experimental	-20.20	6.00	5.00	-3.40	0.001	0.76
	Control	+0.40	15.00				
BPAQ	Experimental	-28.60	6.60	11.00	-2.95	0.003	0.66
	Control	-2.60	14.40				

AAQ-II: Acceptance and Action Questionnaire-II; BPAQ: Buss-Perry Aggression Questionnaire.

group ($M\Delta$ =+0.40, mean rank=15.00; U =5.00, Z =-3.40, p =0.001, r =0.76). Similarly, the reduction in BPAQ scores was significantly greater in the experimental group ($M\Delta$ =-28.60, mean rank=6.60) than in the control group ($M\Delta$ =-2.60, mean rank=14.40; U =11.00, Z =-2.95, p =0.003, r =0.66). Both between-group comparisons yielded large effect sizes, reflecting greater reductions in psychological inflexibility and self-reported aggression in the experimental group (Table 5).

DISCUSSION

The present controlled pilot study examined preliminary changes in aggression and psychological inflexibility following ACT-based anger management training among patients in a forensic psychiatric hospital. No statistically significant baseline differences were detected between the experimental and control groups in AAQ-II or BPAQ scores. Direct between-group comparisons of change scores indicated greater reductions in both psychological inflexibility and self-reported aggression in the experimental group, with large effect sizes. These findings provide preliminary support for the potential usefulness of ACT-based anger management training in forensic psychiatric settings. However, given the small sample size and systematic rather than random allocation, the findings should be interpreted as preliminary evidence of differential change rather than definitive evidence of intervention efficacy.

Psychological inflexibility refers to rigid responses to internal experiences that interfere with values-based actions (28). Previous studies have demonstrated associations between psychological inflexibility and psychopathology, as well as between psychological flexibility and positive treatment outcomes (29–32). Improvements in psychological flexibility following ACT group therapy have also been reported among patients diagnosed with bipolar disorder (33, 34). Polat and Asi Karakaş reported that ACT-based anger management training significantly reduced anger rumination

and impulsivity in forensic psychiatric patients (22). Consistent with these findings, the present study observed preliminary reductions in self-reported aggression and psychological inflexibility following ACT-based anger management training. However, the present study differs from previous research in its assessment of psychological inflexibility using the AAQ-II. Whereas anger rumination reflects repetitive thinking about anger-provoking experiences and is associated with difficulties in anger regulation and maladaptive behavior, psychological inflexibility represents a construct more directly related to the theoretical framework of ACT. Therefore, assessing psychological inflexibility in the present study extends previous research by examining an ACT-related process alongside changes in aggression. The ACT-based anger management training program aimed to enhance psychological flexibility among HSFPH patients through interventions targeting cognitive defusion, acceptance of emotions, self-as-context, values, committed action, and present-moment awareness. During the ACT-based group therapy sessions, patients were encouraged to observe anger-related thoughts without attempting to suppress them, increase awareness of bodily sensations associated with anger without engaging in impulsive reactions, and develop acceptance of anger rather than attempting to avoid or eliminate it.

Clinical observations suggested that anger may, in some cases, function as a secondary response to the suppression of more distressing emotions, such as guilt, inadequacy, or worthlessness (35, 36). This interpretation is consistent with emerging literature in forensic and contextual behavioral science highlighting the roles of emotional suppression, experiential avoidance, and psychological inflexibility in anger and reactive aggression (7, 36, 37). From an ACT perspective, increased willingness to experience emotions preceding anger may represent one possible explanation for the observed changes; however, these specific processes were not directly assessed in the present study. In our study, a significant difference was observed between the

pretest and posttest AAQ-II scores of participants in the experimental group. Given that the AAQ-II assesses experiential avoidance and psychological inflexibility, the lower posttest AAQ-II scores observed in the experimental group are consistent with reduced psychological inflexibility following the intervention. No significant difference was observed between the pretest and posttest AAQ-II scores in the control group. These preliminary findings suggest that the ACT-based anger management training program may be associated with reduced psychological inflexibility among participants in the experimental group.

Future studies with longer-term follow-up are needed to determine whether reductions in psychological inflexibility are maintained after discharge and whether they are associated with broader clinical outcomes, including emotion regulation, interpersonal functioning, and aggressive behavior. Taken together, these findings provide preliminary support for the potential feasibility and usefulness of ACT-based anger management training among patients in HSFPHs. To our knowledge, this is among the first studies to examine changes in psychological flexibility following ACT-based group therapy in a high-security forensic psychiatric hospital setting. However, given the pilot nature of the study, small sample size, systematic allocation procedure, and absence of follow-up assessments, these findings should be interpreted cautiously and require confirmation in larger, adequately powered randomized controlled trials. The findings highlight the potential value of further investigating psychological flexibility and anger management interventions as adjuncts to pharmacological treatment in forensic psychiatric care.

Strengths and Limitations

Several limitations should be considered when interpreting the findings. First, the small, single-center, all-male sample and systematic rather than random allocation limit the generalizability and causal interpretation of the results. Although change-score comparisons directly assessed whether the magnitude of change differed between groups, this approach did not constitute an integrated group-by-time model or adjust for baseline variation. Therefore, the findings should be interpreted as preliminary rather than definitive evidence of intervention efficacy. Second, long-term follow-up assessments could not be conducted because access to participants could not be maintained after

discharge. Although all participants received routine pharmacological treatment, changes in medication type or dosage during the intervention were not systematically recorded, and detailed forensic and clinical characteristics could not be reported because of institutional and ethical restrictions. Participants also could not be assessed under real-life provocative conditions during hospitalization. In addition, the use of self-report measures may have introduced response-related biases, including difficulties in understanding questionnaire items or inaccuracies in self-reporting. Furthermore, because some assessments were administered by therapists involved in delivering the intervention, the possibility of assessor-related bias cannot be excluded.

Despite these limitations, the findings provide preliminary evidence regarding the potential usefulness of ACT-based interventions in forensic psychiatric settings. A major strength of the study is its focus on a forensic psychiatric population that remains underrepresented in psychotherapy research.

CONCLUSION

This controlled pilot study provides preliminary evidence regarding the potential usefulness of ACT-based anger management training for reducing self-reported aggression and psychological inflexibility among patients treated in HSFPH settings. Broader implementation of ACT-based interventions may contribute to improvements in psychological flexibility and emotional regulation, which could potentially support patients' quality of life and interpersonal functioning. In addition, increasing ACT training opportunities for experienced mental health professionals working in HSFPH settings may facilitate the development of group-based interventions. Future studies with larger samples and more comprehensive assessment methods may help further clarify the effectiveness of ACT-based group therapy interventions in forensic psychiatric hospitals.

Ethical Approval: This study was approved by the Ethics Committee of Kayseri City Hospital, (Decision no. 56, Dated 11.11.2021).

Informed Consent: Written informed consent was obtained from all participants.

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Contribution Categories		Author Initials
Category 1	Concept/Design	T.K., H.K.
	Data acquisition	T.K., H.K.
	Data analysis/Interpretation	T.K., H.K.
	Case Follow-up (if applicable)	T.K., H.K.
Category 2	Drafting manuscript	T.K., H.K.
	Critical revision of manuscript	T.K., H.K.
Category 3	Final approval and accountability	T.K., H.K.

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