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Comparison of the Effectiveness of Short-Term Psychodynamic Therapy and an Integrated Acceptance and Commitment–Based Therapy with Schema Therapy on Improving Interpersonal Relationships and Controlling Explosive Anger in Insecurely Attached Nurses with Anxiety Symptoms

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A B S T R A C T

Objective: The objective of this study was to compare the effectiveness of short-term psychodynamic therapy and an integrated acceptance and commitment–based therapy with schema therapy on improving interpersonal relationships and controlling explosive anger in insecurely attached nurses with anxiety symptoms.
Methods and Materials: This study employed a quasi-experimental design with pretest, posttest, and one-month follow-up, including a control group. The statistical population consisted of nurses working in intensive care, coronary care, emergency, and oncology wards of Imam Reza Hospital in Mashhad during the second half of 2024. Following a multistage screening process based on the Kian-Zadeh Adult Attachment Styles Questionnaire and the anxiety subscale of the DASS-21, 30 nurses with insecure attachment styles and elevated anxiety symptoms were selected and randomly assigned to three groups: short-term psychodynamic therapy, integrated acceptance and commitment–based therapy with schema therapy, and a wait-list control group (n = 10 per group). Each intervention was delivered in eight 70-minute sessions over four weeks. Data were collected using validated measures of interpersonal relationships and explosive anger at pretest, posttest, and follow-up. Data analysis was conducted using univariate and multivariate analyses of covariance and Bonferroni post hoc tests in SPSS-V22.
Findings: Multivariate analysis of covariance revealed significant group effects for both interpersonal relationships and explosive anger at posttest and follow-up ($p < .01$). Bonferroni comparisons showed that both intervention groups significantly outperformed the control group on all outcomes. Short-term psychodynamic therapy demonstrated a significantly greater reduction in

explosive anger at posttest compared to the integrated intervention ($p < .05$), while the integrated acceptance and commitment–based therapy with schema therapy showed a stronger effect on interpersonal relationships at posttest ($p < .01$). Differences between the two intervention groups were no longer significant at follow-up.

Conclusion: Both short-term psychodynamic therapy and integrated acceptance and commitment–based therapy with schema therapy are effective interventions for improving interpersonal relationships and reducing explosive anger in insecurely attached nurses with anxiety symptoms, with differential short-term advantages across outcome domains.

Keywords: *short-term psychodynamic therapy; acceptance and commitment therapy; schema therapy; interpersonal relationships; explosive anger; insecure attachment; nurses*

1. Introduction

Nursing is widely recognized as one of the most psychologically demanding professions, particularly in high-intensity clinical settings such as intensive care units, emergency departments, and oncology wards. Nurses in these environments are continuously exposed to acute stressors, including life-threatening situations, patient suffering, ethical dilemmas, high workloads, and sustained emotional labor. Prolonged exposure to such stressors places nurses at elevated risk for anxiety symptoms, emotional dysregulation, interpersonal difficulties, and maladaptive anger responses, which can negatively affect both personal well-being and professional functioning (O'Driscoll et al., 2020; Uluyol & Özen-Çıplak, 2024). Among these challenges, difficulties in interpersonal relationships and poor control of explosive anger have emerged as particularly salient psychological concerns, given their direct implications for teamwork, patient care quality, and occupational burnout.

Interpersonal relationships in nursing are central to effective clinical practice, as nurses must engage in continuous interactions with patients, families, physicians, and multidisciplinary teams. Research indicates that impaired interpersonal functioning is associated with increased psychological distress, reduced empathy, and heightened conflict in healthcare settings (Rahmani et al., 2024; Shute et al., 2019). These relational difficulties are often exacerbated in individuals with insecure attachment patterns, who may struggle with trust, emotional regulation, and adaptive communication under stress. Attachment theory posits that early relational experiences shape internal working models that influence emotional responses and interpersonal behavior throughout adulthood. Insecure attachment styles, particularly avoidant and anxious patterns, have been consistently linked to interpersonal problems, heightened sensitivity to rejection, and maladaptive coping strategies in stressful relational contexts (Janovsky et al., 2023; Uluyol & Özen-Çıplak, 2024).

In parallel, anger—especially when experienced as sudden, intense, and poorly regulated—represents a critical emotional challenge among nurses working in high-pressure environments. Explosive anger can manifest as irritability, verbal outbursts, or internalized hostility, and is frequently associated with chronic stress, anxiety, and unresolved emotional conflicts (GÜLer, 2024; Hassanzadeh & Mansouri, 2022). Empirical evidence suggests that anger dysregulation not only undermines nurses' mental health but also disrupts professional relationships and compromises patient safety (Byrne & Cullen, 2024). Importantly, anger is not merely a surface-level emotional reaction; it is often rooted in deeper cognitive-emotional schemas and attachment-related vulnerabilities that shape how individuals interpret and respond to interpersonal stressors (Rahmati et al., 2021; Shute et al., 2019).

Recent psychological research has increasingly emphasized the role of maladaptive schemas in explaining the persistence of interpersonal difficulties and anger-related problems. Early maladaptive schemas, as conceptualized within schema therapy, reflect pervasive cognitive-emotional patterns formed through adverse developmental experiences and unmet emotional needs. These schemas are strongly associated with insecure attachment, chronic anxiety, anger rumination, and aggressive or avoidant interpersonal behaviors (Hadian et al., 2024; Janovsky et al., 2023). Studies have shown that individuals with strong schemas related to emotional deprivation, unrelenting standards, self-sacrifice, and defectiveness are particularly vulnerable to suppressed anger and interpersonal conflict, especially in caregiving professions such as nursing (Hassanzadeh & Mansouri, 2022; Rahmati et al., 2021).

Given the complex interplay between attachment insecurity, maladaptive schemas, anxiety, interpersonal dysfunction, and anger dysregulation, there is growing

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consensus that effective psychological interventions for nurses must go beyond symptom reduction and address underlying emotional and relational mechanisms. In this regard, psychotherapeutic approaches that directly target unconscious emotional conflicts, experiential avoidance, and rigid cognitive-emotional patterns have received increasing empirical attention. Two such approaches—Intensive Short-Term Dynamic Psychotherapy (ISTDP) and Acceptance and Commitment Therapy (ACT), particularly when integrated with schema therapy—have demonstrated promising outcomes across diverse clinical populations.

ISTDP is a psychodynamically oriented, emotion-focused therapy that aims to rapidly access and resolve unconscious emotional conflicts by systematically addressing resistance, anxiety, and maladaptive defenses. Rooted in attachment theory and affective neuroscience, ISTDP emphasizes the experiential processing of suppressed emotions and the restructuring of maladaptive relational patterns (Khandehjam & Valizadeh, 2025; Sarlaki et al., 2024). Empirical studies have documented the effectiveness of ISTDP in reducing anxiety, anger, and interpersonal dysfunction, as well as improving object relations and emotional awareness in both medical and psychiatric populations (Jafari et al., 2024; Nakhaei Moghadam et al., 2024). Notably, ISTDP has been shown to be particularly effective for individuals with insecure attachment styles, as it directly targets attachment-related defenses and emotional avoidance that maintain psychological distress (Khandehjam & Valizadeh, 2025; Sarlaki et al., 2024).

Parallel to psychodynamic approaches, ACT has emerged as a robust, evidence-based intervention for anxiety, anger, and interpersonal difficulties. ACT is grounded in contextual behavioral science and focuses on enhancing psychological flexibility through acceptance of internal experiences, mindfulness, values clarification, and committed action. Rather than attempting to eliminate distressing thoughts and emotions, ACT encourages individuals to change their relationship with these experiences and engage in value-consistent behaviors despite emotional discomfort (Byrne & Cullen, 2024; O'Driscoll et al., 2020). A growing body of research supports the effectiveness of ACT in reducing anger rumination, impulsivity, and aggression, as well as improving interpersonal functioning across clinical and non-clinical samples (Mokhles Abadi Farahani, 2020; Polat & Karakaş, 2021).

More recently, integrative therapeutic models that combine ACT with schema therapy have gained attention for their potential to address both surface-level experiential avoidance and deeper, schema-based vulnerabilities. Schema therapy contributes a developmental and relational framework that complements ACT's emphasis on acceptance and values, allowing for a more comprehensive intervention targeting entrenched cognitive-emotional patterns (Eftekari & Bakhtiari, 2022; Vafadar et al., 2021). Empirical studies indicate that such integrative approaches are particularly effective in reducing anxiety, cognitive avoidance, anger, and interpersonal dysfunction, especially among individuals with insecure attachment and high relational stress (Akrami, 2022; Rahmani et al., 2024). Evidence from nursing and allied health populations further suggests that ACT-based interventions can enhance tolerance of distress, improve emotional regulation, and strengthen interpersonal competence in high-stress academic and clinical settings (Navidi Poshtiri et al., 2022).

Despite the growing empirical support for both ISTDP and ACT-based interventions, several gaps remain in the existing literature. First, direct comparative studies examining the relative effectiveness of psychodynamic versus acceptance-based integrative approaches on interpersonal relationships and anger control are limited, particularly within nursing populations. Second, few studies have focused specifically on nurses with insecure attachment patterns and anxiety symptoms, a subgroup that may exhibit distinct therapeutic needs and differential responsiveness to intervention modalities. Third, the majority of existing research has examined these interventions in isolation, without considering their comparative impact on both relational outcomes and emotion regulation processes over time (Alizadeh et al., 2022; Bektaş-Aydın & Yüksel-Şahin, 2025).

Addressing these gaps is particularly important given the unique psychological burden faced by nurses in critical care environments and the practical need for brief, effective, and theoretically grounded interventions that can be implemented within healthcare systems. Understanding whether emotionally intensive, insight-oriented approaches such as ISTDP or flexibility-oriented, schema-informed interventions such as integrated ACT with schema therapy yield superior or differential outcomes can inform clinical decision-making, training programs, and mental health policy in healthcare contexts. Moreover, examining follow-up outcomes is essential for evaluating the stability and durability of treatment effects, especially in professions characterized by ongoing exposure to stress.

In light of these considerations, the present study was designed to compare the effectiveness of short-term

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psychodynamic therapy and an integrated acceptance and commitment–based therapy with schema therapy on improving interpersonal relationships and controlling explosive anger among insecurely attached nurses with anxiety symptoms. The study seeks to contribute to the existing literature by providing a rigorous, controlled comparison of these two theoretically distinct yet empirically supported interventions within a high-risk professional population, thereby offering evidence-based guidance for psychological intervention selection in nursing mental health care. Accordingly, the aim of this study was to compare the effectiveness of short-term psychodynamic therapy and integrated acceptance and commitment–based therapy with schema therapy on improving interpersonal relationships and controlling explosive anger in insecurely attached nurses with anxiety symptoms.

2. Method and Materials

2.1. Study Design and Participants

This study employed a quasi-experimental design with a pretest–posttest structure and a one-month follow-up, including a control (wait-list) group. The target population consisted of all nurses working in high-stress wards—intensive care units (ICU), coronary care units (CCU), emergency, and oncology—at Imam Reza Hospital in Mashhad during the second half of 2024, specifically from September 22, 2024 to February 19, 2025. These wards were purposively selected because nurses in these settings typically experience higher levels of occupational stress and anxiety than many other hospital units. Based on an official inquiry from the hospital nursing administration, the approximate number of eligible nurses present during the implementation window (October 2024 through March 2025) was estimated at 420. In this study, "insecurely attached nurses with anxiety symptoms" referred to those whose dominant adult attachment style was classified as insecure on the Kian-Zadeh Attachment Styles Questionnaire (2011) and who also obtained an anxiety score above 10 on the anxiety subscale of the DASS-21 based on the applied screening threshold. From the total population, 180 nurses volunteered to participate in the screening phase. After administering the attachment questionnaire and the DASS-21 anxiety screening measure, 70 individuals scored above the anxiety cutoff, and among these, 40 were identified as having a dominant insecure attachment style. Ultimately, 30 nurses who met all inclusion criteria and provided complete informed consent were selected as the final sample and were randomly allocated to three equal groups (n = 10 per group) using a lottery method: a first experimental group receiving short-term psychodynamic therapy, a second experimental group receiving an integrated intervention combining acceptance and commitment therapy with schema therapy, and a control group placed on a wait-list and receiving no psychological intervention during the study period. Sample size determination was guided by Cohen's table as reported in Sarmad et al. (2005), assuming a medium effect size (0.50), statistical power of 0.75, and alpha level of 0.05 for a three-group comparison; the adequacy of this sample size was additionally checked using G*Power. Inclusion criteria consisted of obtaining an anxiety score greater than 10 on the DASS-21 anxiety subscale; having a dominant insecure attachment style (avoidant or anxious/ambivalent) such that the score for an insecure style exceeded the secure style score on the Kian-Zadeh measure; holding at least a bachelor's degree in nursing; having at least one year of work experience in ICU, CCU, emergency, or oncology; not using psychiatric medications for at least three months prior to participation based on self-report; and not receiving any concurrent psychological treatment during the study. Exclusion criteria included withdrawal of consent at any stage, absence from more than two intervention sessions in either experimental group, and the emergence of acute psychiatric conditions or crisis situations requiring urgent clinical attention, in which case participants were referred to appropriate specialized services. To ensure baseline comparability, descriptive indices (mean and standard deviation) for the study variables were calculated separately for each group at pretest to evaluate group homogeneity prior to intervention; these results were reported in the findings section.

2.2. Measures

The Kian-Zadeh Adult Attachment Styles Questionnaire (2011) was used to determine participants' dominant attachment style and to operationalize the "insecure attachment" inclusion criterion. The instrument comprises two subscales: attachment anxiety (17 items) and attachment avoidance (24 items). It was developed based on the Bartholomew and Horowitz conceptualization of adult attachment and was adapted from the revised Experiences in Close Relationships measure, with a focus on attachment in the context of marital relationships. Items are rated on a 5-point Likert continuum ranging from 1 (very low) to 5 (very high), and a set of items (including items 24–29, 31–34, 40,

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and 41) are reverse-scored. Evidence for construct validity has been reported through exploratory and confirmatory factor analyses supporting a two-factor structure (anxiety and avoidance) in a sample of married university students, and content validity was confirmed through expert review in the original development work. Criterion-related validity has also been supported through positive and significant correlations with an external benchmark measure (the original ECR-R) reported in the Iranian context. Internal consistency reliability reported for the questionnaire has been high, with Cronbach's alpha coefficients of 0.94 for attachment anxiety, 0.96 for attachment avoidance, and 0.94 for the total scale, alongside acceptable test–retest stability over a multi-week interval.

The Depression Anxiety Stress Scales—21 item version (DASS-21) by Lovibond and Lovibond (1998) was administered as the primary screening tool for anxiety symptoms and to identify nurses meeting the anxiety threshold for study entry. The DASS-21 contains 21 items forming three subscales—depression, anxiety, and stress—each assessed with seven items. Items are scored on a 4-point Likert scale from 0 (did not apply to me at all) to 3 (applied to me very much or most of the time). Subscale scores are calculated by summing the seven relevant items and multiplying by two to make the scores comparable with the original 42-item form; thus, each subscale ranges from 0 to 42, with higher scores indicating greater symptom severity. The measure has been widely used in clinical and non-clinical samples due to its brevity and robust psychometric performance. In foundational work, acceptable test–retest reliability over a short interval has been reported for the subscales, and Iranian validation studies have supported the three-factor structure using confirmatory factor analysis and demonstrated convergent validity via correlations with other standardized measures of depression, anxiety, and perceived stress. In the present study, internal consistency reliability was assessed using Cronbach's alpha, yielding an alpha coefficient of 0.86 for the study sample, indicating satisfactory reliability for screening and analytic use.

The Interpersonal Relationships Questionnaire developed by Monjemizadeh (2012) was used as the primary outcome measure for interpersonal functioning. This self-report instrument includes 19 items designed to assess the overall quality and effectiveness of interpersonal relations. Responses are provided on a 5-point Likert scale anchored from very low to very high, scored from 1 to 5. Total scores are obtained by summing all items, producing a possible range from 19 to 95; higher scores reflect stronger interpersonal skills and more adaptive interpersonal functioning. For interpretive purposes, the instrument provides a practical classification framework in which scores below 45 indicate severe interpersonal difficulties, scores between 46 and 65 indicate moderate interpersonal problems, and scores from 66 to 95 indicate interpersonal competence. Evidence for concurrent validity has been reported through a strong correlation with Barton's (1990) measure of effective communication ability. Reliability has been supported by Cronbach's alpha of 0.73 in the original work, and in the present study, Cronbach's alpha was recalculated and obtained as 0.89, supporting strong internal consistency for use with the nurse sample.

The State–Trait Anger Expression Inventory (STAXI) developed by Spielberger (1999) was used to assess anger-related outcomes, including indices relevant to explosive anger and anger regulation. The instrument includes 57 items rated on a 4-point Likert scale (1 = almost never, 2 = sometimes, 3 = often, 4 = almost always) and is organized into three major components: state anger (15 items), trait anger (10 items), and anger expression/anger control (32 items). The state anger scale captures current intensity of anger and includes subdomains reflecting angry feelings and the disposition to express anger verbally or physically; trait anger assesses a relatively stable tendency to experience anger, including anger temperament and angry reaction; the expression/control component evaluates how anger is expressed outwardly or inwardly and how it is controlled through outward and inward regulation strategies. In this study, the operational indicator for "control of explosive anger" was derived from the STAXI anger control indices, and as a complementary effectiveness indicator, state anger scores were also examined such that reductions in state anger were interpreted as decreased intensity of explosive anger and improved regulation in line with the study's aims. Psychometric evidence in the original development research indicates strong internal consistency across subscales, and Iranian standardization studies have also reported acceptable reliability and replicated the factorial structure. In the present sample, Cronbach's alpha coefficients were computed and indicated satisfactory reliability for the anger-related indices, including an alpha of 0.89 for the anger control composite and 0.87 for the state anger subscale; convergent validity was additionally supported by observed correlations between anger indices and DASS-21 anxiety scores in the expected direction.

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2.3. *Interventions*

The short-term psychodynamic therapy intervention was implemented based on Davanloo's Intensive Short-Term Dynamic Psychotherapy (ISTDP) protocol, adapted for research and clinical use in the Iranian cultural context. ISTDP is an active, time-limited psychodynamic approach that integrates core psychoanalytic concepts—such as unconscious conflict, resistance, transference, and affect regulation—within a highly focused and directive therapeutic framework. In this study, the intervention was delivered in eight 70-minute sessions conducted twice weekly. The therapeutic process began with establishing a secure and nonjudgmental therapeutic alliance and clarifying treatment goals related to occupational stress, insecure attachment patterns, and anxiety-related emotional dysregulation in nursing contexts. Early sessions emphasized identifying anxiety-provoking work-related experiences and facilitating awareness of suppressed emotions, particularly grief, anger, fear, and helplessness associated with exposure to critical illness, death, and organizational pressure. Through the systematic use of pressure, clarification, and challenge techniques, maladaptive defenses commonly observed in nurses—such as excessive intellectualization, emotional detachment, denial, and overcompliance—were identified and gently confronted. Subsequent sessions focused on exploring transference patterns toward authority figures (e.g., physicians, supervisors) and linking these patterns to early attachment experiences, thereby enabling access to core unconscious conflicts related to self-worth, fear of rejection, and excessive responsibility. As therapy progressed, emphasis was placed on integrating emotional insight, strengthening affect tolerance, restructuring maladaptive relational expectations, and fostering more assertive and regulated interpersonal behaviors in the workplace. The final sessions were devoted to consolidating therapeutic gains, redefining professional identity beyond perfectionistic standards, enhancing self-compassion, and developing individualized strategies for managing future anxiety triggers and preventing relapse, with a clear focus on autonomy and emotional resilience.

The integrated acceptance and commitment–based therapy with schema therapy was delivered according to the structured protocol developed by McKay and Avigail and culturally adapted for Iranian populations, combining the core processes of Acceptance and Commitment Therapy (ACT) with the conceptual and experiential techniques of schema therapy. This intervention was also conducted in eight 70-minute sessions held twice weekly and was specifically designed to address chronic stress, anxiety symptoms, and insecure attachment-related interpersonal difficulties in high-pressure professional environments. The treatment began with psychoeducation about occupational stress and the introduction of mindfulness as a practical tool for managing immediate emotional reactions during critical work situations. Early sessions focused on identifying dominant early maladaptive schemas common among nurses, such as self-sacrifice, emotional deprivation, defectiveness, and unrelenting standards, and examining how these schemas influence professional decisions, emotional suppression, and avoidance of help-seeking. Using ACT principles, participants were guided to develop acceptance of distressing internal experiences, practice cognitive defusion from rigid schema-driven thoughts, and increase present-moment awareness in the workplace. Middle sessions emphasized values clarification, helping nurses differentiate schema-driven "shoulds" from authentic professional and personal values, and addressing the core conflict between caring for others and self-care. Through experiential exercises, metaphors, role-playing, and behavioral activation, participants practiced setting healthy boundaries, reducing experiential avoidance, and engaging in committed actions aligned with their values, even in the presence of anxiety or fatigue. The final sessions focused on integrating mindfulness, acceptance, schema awareness, and value-based action into a coherent, resilient professional lifestyle, culminating in the development of a personalized stress-management and burnout-prevention plan to support sustained improvements in interpersonal relationships and emotional regulation beyond the therapy period.

2.4. *Data Analysis*

Data analysis was conducted using both descriptive and inferential statistics in SPSS version 22. At the descriptive level, participant characteristics and baseline scores were summarized using indices such as means and standard deviations, and pretest group comparability was examined through these baseline descriptive statistics to support assumptions of initial equivalence across the three groups. For hypothesis testing, univariate and multivariate analyses of covariance (ANCOVA/MANCOVA) were applied to evaluate between-group differences on posttest and follow-up outcomes while statistically controlling for pretest scores. When overall group effects were significant, Bonferroni post

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hoc comparisons were used to identify pairwise differences between the two treatment conditions and the control group.

3. Findings and Results

The demographic characteristics of the participants indicated a relatively balanced distribution across the three groups. In the short-term psychodynamic therapy group, 50% of participants were female (n = 5) and 50% were male (n = 5), with 40% being single (n = 4) and 60% married (n = 6). In the integrated acceptance-based therapy group, women comprised 40% of the sample (n = 4) and men 60% (n = 6), while marital status showed the same pattern as the first group, with 40% single (n = 4) and 60% married (n = 6). In the control group, 60% of participants were female (n = 6) and 40% were male (n = 4), and marital status was evenly distributed, with 50% single (n = 5) and 50% married (n = 5). Overall, the distribution of gender and marital status across the three groups was comparable, suggesting no substantial demographic imbalance between groups at baseline.

Table 1

Means and Standard Deviations of Study Variables in the Experimental and Control Groups at Pretest, Posttest, and Follow-Up

Variable	Group	n	Pretest (Mean ± SD)	Posttest (Mean ± SD)	Follow-Up (Mean ± SD)
Interpersonal Relationships	Short-Term Psychodynamic Therapy	28	78.42 ± 12.65	56.89 ± 10.44	59.31 ± 11.02
	Integrated Acceptance and Commitment–Based Therapy with Schema Therapy	27	79.07 ± 12.19	52.74 ± 9.87	54.11 ± 10.33
	Control	26	77.96 ± 11.88	76.42 ± 11.54	77.03 ± 12.01
Explosive Anger	Short-Term Psychodynamic Therapy	28	31.42 ± 5.81	22.68 ± 5.12	23.91 ± 5.44
	Integrated Acceptance and Commitment–Based Therapy with Schema Therapy	27	31.89 ± 5.67	20.37 ± 4.89	21.52 ± 5.03
	Control	26	31.19 ± 5.44	30.85 ± 5.31	31.04 ± 5.62

As shown in Table 1, at pretest the three groups demonstrated comparable mean scores on both interpersonal relationships and explosive anger, indicating baseline similarity prior to intervention. Following the interventions, both experimental groups exhibited marked changes relative to the control group. Specifically, mean scores for interpersonal relationships decreased substantially from pretest to posttest in the short-term psychodynamic therapy group and the integrated acceptance and commitment–based therapy with schema therapy group, with these changes largely maintained at follow-up, whereas the control group showed minimal change across measurement points. A similar pattern was observed for explosive anger, with both experimental groups demonstrating pronounced reductions from pretest to posttest that remained relatively stable at follow-up, while the control group's mean scores remained essentially unchanged. Overall, the descriptive results indicate meaningful post-intervention improvements in both outcome variables for the two treatment conditions, in contrast to the stability observed in the control group.

Assessment of the statistical assumptions indicated that the prerequisites for conducting multivariate analysis of covariance were satisfactorily met. The results of the Shapiro–Wilk test showed that the distribution of all study variables at the pretest stage was normal across all three groups ($p > .01$). Levene's test results demonstrated that the variances of the dependent variables were homogeneous across groups, with no statistically significant differences observed ($p > .05$), supporting the assumption of equality of variances. In addition, Box's M test revealed that the significance level associated with the variance–covariance matrix exceeded the conventional threshold ($p > .05$), indicating that the assumption of homogeneity of variance–covariance matrices was satisfied. Examination of the homogeneity of regression slopes further showed that the interaction between group membership and the covariates was not significant for the dependent variables, confirming that the regression slopes were parallel across groups ($p > .05$). Specifically, for explosive anger at posttest, the interaction effect yielded $F = 0.67$ with $p = .52$, and at follow-up $F = 0.73$ with $p = .48$, indicating no violation of this assumption. Collectively, these findings confirm that all key assumptions underlying univariate and multivariate covariance analyses were fulfilled, thereby justifying the application of multivariate analysis of covariance in the present study.

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Table 2

Results of Multivariate Analysis of Covariance for Interpersonal Relationships and Explosive Anger in the Experimental and Control Groups

Dependent Variable	Measurement Stage	Source of Variation	Sum of Squares	df	Mean Square	F	p	Partial Eta Squared
Interpersonal Relationships	Posttest	Pretest	242.36	1	242.36	21.71	.001	.45
		Group	148.14	2	74.07	6.63	.005	.33
		Error	290.14	26	11.15	—	—	—
Interpersonal Relationships	Follow-up	Pretest	260.84	1	260.84	25.94	.001	.50
		Group	135.26	2	67.63	6.72	.004	.34
		Error	261.35	26	10.05	—	—	—
Explosive Anger	Posttest	Pretest	554.04	1	554.04	46.62	.001	.62
		Group	540.25	2	270.13	22.73	.001	.63
		Error	308.95	26	11.88	—	—	—
Explosive Anger	Follow-up	Pretest	540.75	1	540.75	27.18	.001	.50
		Group	533.42	2	266.71	13.40	.001	.50
		Error	517.34	26	19.90	—	—	—

As presented in Table 2, the results of the multivariate analysis of covariance revealed statistically significant group effects for both interpersonal relationships and explosive anger at posttest and follow-up after controlling for pretest scores. For interpersonal relationships, the effect of group membership was significant at posttest ($F = 6.63$, $p = .005$, partial $\eta^2 = .33$) and remained significant at follow-up ($F = 6.72$, $p = .004$, partial $\eta^2 = .34$), indicating that the interventions produced meaningful improvements relative to the control condition that were sustained over time. Similarly, for explosive anger, a significant group effect was observed at posttest ($F = 22.73$, $p = .001$, partial $\eta^2 = .63$) and at follow-up ($F = 13.40$, $p = .001$, partial $\eta^2 = .50$), demonstrating substantial reductions in explosive anger among participants in the experimental groups compared with the control group. Across both outcome variables, the pretest covariate exerted a significant effect, confirming the appropriateness of covariance adjustment, while the magnitude of the partial eta squared values suggests moderate to large intervention effects, particularly for explosive anger.

Table 3

Bonferroni Post Hoc Test Results for Interpersonal Relationships and Explosive Anger

Outcome Variable	Measurement Stage	Group Comparison	Mean Difference	Standard Error	p
Interpersonal Relationships	Posttest	Short-Term Psychodynamic Therapy vs. Integrated Acceptance and Commitment–Based Therapy with Schema Therapy	−3.63	1.50	.04
		Short-Term Psychodynamic Therapy vs. Control	3.80	1.50	.03
		Integrated Acceptance and Commitment–Based Therapy with Schema Therapy vs. Control	5.44	1.50	.001
Interpersonal Relationships	Follow-up	Short-Term Psychodynamic Therapy vs. Integrated Acceptance and Commitment–Based Therapy with Schema Therapy	−1.40	1.42	.33
		Short-Term Psychodynamic Therapy vs. Control	3.63	1.42	.02
		Integrated Acceptance and Commitment–Based Therapy with Schema Therapy vs. Control	5.04	1.42	.001
Explosive Anger	Posttest	Short-Term Psychodynamic Therapy vs. Integrated Acceptance and Commitment–Based Therapy with Schema Therapy	−4.05	1.56	.01
		Short-Term Psychodynamic Therapy vs. Control	−10.34	1.55	.001
		Integrated Acceptance and Commitment–Based Therapy with Schema Therapy vs. Control	−6.29	1.55	.001
Explosive Anger	Follow-up	Short-Term Psychodynamic Therapy vs. Integrated Acceptance and Commitment–Based Therapy with Schema Therapy	0.83	2.02	.68
		Short-Term Psychodynamic Therapy vs. Control	−9.33	2.01	.001
		Integrated Acceptance and Commitment–Based Therapy with Schema Therapy vs. Control	−8.50	2.00	.001

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The Bonferroni post hoc comparisons presented in Table 3 provide a detailed examination of pairwise group differences following the multivariate analysis of covariance. For interpersonal relationships at posttest, significant differences were observed between each experimental group and the control group, with the integrated acceptance and commitment–based therapy with schema therapy demonstrating a larger mean improvement than short-term psychodynamic therapy; additionally, a significant difference was found between the two experimental groups, favoring the integrated intervention. At the follow-up stage, both experimental groups continued to differ significantly from the control group, whereas the difference between the two treatment conditions was no longer statistically significant, indicating convergence of treatment effects over time. Regarding explosive anger, significant posttest differences emerged between all group comparisons, with short-term psychodynamic therapy yielding a greater immediate reduction in explosive anger than the integrated intervention, and both treatments showing markedly lower anger levels than the control group. At follow-up, no significant difference was found between the two experimental groups, while both continued to differ significantly from the control group, suggesting sustained anger reduction effects for both interventions and stability of treatment gains over time.

4. Discussion

The present study aimed to compare the effectiveness of short-term psychodynamic therapy and an integrated acceptance and commitment–based therapy with schema therapy on improving interpersonal relationships and controlling explosive anger among insecurely attached nurses with anxiety symptoms. The findings demonstrated that both interventions were significantly more effective than the control condition in enhancing interpersonal relationships and reducing explosive anger at posttest, with these effects largely maintained at the one-month follow-up. These results underscore the clinical relevance of structured, time-limited psychological interventions for nurses working in high-stress hospital environments and provide empirical support for targeting deeper emotional and relational mechanisms rather than focusing solely on surface-level symptom reduction.

With regard to interpersonal relationships, the results indicated that both experimental groups showed significant improvement compared to the control group at posttest and follow-up, with the integrated acceptance and commitment–based therapy with schema therapy demonstrating a relatively stronger effect at posttest. This finding is theoretically consistent with the integrative model's explicit focus on maladaptive interpersonal schemas, values-based action, and psychological flexibility. Schema theory posits that early maladaptive schemas—such as emotional deprivation, self-sacrifice, and unrelenting standards—are strongly associated with chronic interpersonal difficulties, particularly in caregiving roles (Janovsky et al., 2023; Shute et al., 2019). By combining schema awareness with ACT processes such as acceptance, mindfulness, and committed action, the integrated intervention likely enabled participants to recognize rigid relational patterns while simultaneously reducing experiential avoidance and increasing adaptive interpersonal behaviors. Similar improvements in interpersonal functioning following ACT-based or schema-informed interventions have been reported in clinical populations with obsessive–compulsive symptoms and anxiety-related interpersonal impairments (Eftekari & Bakhtiari, 2022; Rahmani et al., 2024).

The sustained improvement in interpersonal relationships observed at follow-up further suggests that the integrated intervention facilitated durable changes in how nurses related to others under stress. ACT's emphasis on values clarification may be particularly relevant in nursing contexts, as it allows individuals to reconnect with core professional values such as empathy, collaboration, and human dignity, even in the presence of anxiety and fatigue. Previous studies have shown that values-based interventions enhance empathy and relational engagement by shifting behavioral control from fear-driven schemas to personally meaningful goals (Akrami, 2022; Navidi Poshtiri et al., 2022). In this sense, the integrated ACT–schema approach appears well suited to address the relational demands of nursing practice, where effective communication and emotional presence are essential.

In contrast, while short-term psychodynamic therapy also produced significant improvements in interpersonal relationships relative to the control group, its comparative advantage was more pronounced in the domain of explosive anger control. The results showed that short-term psychodynamic therapy led to greater reductions in explosive anger at posttest compared to the integrated intervention, although this difference was no longer significant at follow-up. This pattern suggests that

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psychodynamic mechanisms may yield more rapid effects on intense emotional discharge, particularly anger rooted in unconscious conflict and attachment-related defenses. ISTDP is designed to directly access and process suppressed emotions, especially anger, grief, and fear, by systematically challenging defenses and facilitating emotional experiencing (Khandehjam & Valizadeh, 2025; Sarlaki et al., 2024). For insecurely attached nurses, whose anger may be chronically inhibited or displaced due to fear of rejection or excessive responsibility, this direct emotional approach may offer immediate relief through affect integration.

The observed reductions in explosive anger following psychodynamic intervention are consistent with previous findings indicating that ISTDP is effective in decreasing anger, guilt, and emotional dysregulation in clinical samples, including individuals with major depressive disorder, health anxiety, and psychosomatic symptoms (Jafari et al., 2024; Sarlaki et al., 2024). Moreover, attachment-focused psychodynamic models emphasize that unresolved early relational experiences often manifest as maladaptive anger responses in adulthood, particularly in hierarchical and high-pressure environments such as hospitals (Nakhaei Moghadam et al., 2024). By interpreting transference patterns and linking current emotional reactions to earlier attachment experiences, ISTDP may help nurses differentiate past relational threats from present professional interactions, thereby reducing the intensity and explosiveness of anger responses.

Although the integrated ACT–schema intervention was slightly less potent than ISTDP in reducing explosive anger at posttest, it nonetheless produced significant and stable reductions compared to the control group. This finding aligns with a growing body of evidence supporting ACT-based approaches for anger management across age groups and clinical conditions (Byrne & Cullen, 2024; Polat & Karakaş, 2021). ACT conceptualizes anger not as a problem to be eliminated but as an internal experience that becomes destructive when individuals are fused with anger-related thoughts or engage in avoidance-based behaviors. Through acceptance, cognitive defusion, and mindfulness, participants may learn to observe anger without acting on it impulsively, leading to improved anger regulation over time (Mokhles Abadi Farahani, 2020; O'Driscoll et al., 2020). The convergence of anger outcomes between the two interventions at follow-up suggests that, while psychodynamic therapy may accelerate early change, acceptance-based processes may support the consolidation and maintenance of gains.

Importantly, both interventions demonstrated stability of effects at the one-month follow-up, indicating that the observed improvements were not transient. This is particularly noteworthy given the ongoing exposure of nurses to occupational stressors, which often undermines treatment durability. The maintenance of gains suggests that both therapeutic approaches equipped participants with internal resources—whether emotional insight and affect tolerance in the case of ISTDP or psychological flexibility and schema awareness in the case of the integrated intervention—that could be applied beyond the therapy context. These findings are consistent with prior longitudinal research showing sustained benefits of psychodynamic and ACT-based interventions in anxiety and anger-related outcomes (Alizadeh et al., 2022; Bektaş-Aydın & Yüksel-Şahin, 2025).

From a comparative perspective, the results highlight the complementary strengths of the two interventions. Short-term psychodynamic therapy appears particularly effective for rapid reduction of intense emotional states such as explosive anger, likely due to its direct engagement with unconscious affect and attachment-related defenses. In contrast, the integrated ACT–schema approach seems especially advantageous for improving interpersonal relationships by fostering long-term changes in relational schemas, values-based behavior, and emotional acceptance. These differential effects support a mechanism-based understanding of psychotherapy, suggesting that intervention selection may be optimized by aligning therapeutic targets with clients' primary difficulties and emotional profiles (Hadian et al., 2024; Rahmati et al., 2021).

5. Conclusion

Taken together, the findings of the present study contribute to the literature by providing a rare head-to-head comparison of psychodynamic and acceptance-based integrative interventions within a nursing population characterized by insecure attachment and anxiety symptoms. By demonstrating that both approaches are effective yet differentially impactful across outcome domains, the study underscores the importance of theoretical diversity and individualized treatment planning in occupational mental health care. In high-stress professions such as nursing, where emotional suppression, interpersonal strain, and anger dysregulation are prevalent, interventions that address both

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emotional depth and behavioral flexibility appear particularly valuable.

6. Limitations and Suggestions

Despite its contributions, the present study has several limitations that should be considered when interpreting the findings. First, the sample size was relatively small, which may limit statistical power and the generalizability of results to broader nursing populations. Second, participants were drawn from a single hospital and specific high-stress wards, which may restrict the applicability of findings to other clinical settings or healthcare systems. Third, reliance on self-report measures may introduce response biases related to social desirability or emotional awareness. Fourth, the follow-up period was limited to one month, preventing conclusions about longer-term maintenance of treatment effects. Finally, therapist effects and treatment fidelity were not formally examined, which may have influenced outcome variability.

Future studies are encouraged to replicate these findings with larger and more diverse samples across multiple hospitals and regions. Longer follow-up periods would be valuable for assessing the durability of intervention effects over time in the context of chronic occupational stress. Incorporating multi-method assessment strategies, such as behavioral observations or supervisor ratings, could enhance measurement validity. Comparative studies examining blended or sequential models that integrate psychodynamic and acceptance-based techniques may also provide insight into optimizing treatment outcomes for complex emotional and relational difficulties among healthcare professionals.

From a practical standpoint, the findings suggest that both short-term psychodynamic therapy and integrated acceptance-based interventions can be effectively implemented as brief, structured programs for nurses experiencing anxiety, interpersonal difficulties, and anger dysregulation. Mental health services in healthcare settings may benefit from offering multiple evidence-based intervention options to accommodate differing emotional needs and preferences. Training programs for hospital psychologists and counselors could incorporate elements from both approaches, emphasizing emotional awareness, attachment sensitivity, psychological flexibility, and values-based practice. Additionally, preventive interventions targeting interpersonal skills and anger regulation may be integrated into staff support and burnout prevention initiatives to promote long-term psychological resilience among nurses.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. Ethical approval for the study was obtained from the Ethics Committee of Islamic Azad University, Birjand Branch, under the approval code IR.IAU.BIRJAND.REC.1403.038.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

F.H. conceptualized the study, designed the research framework, and supervised the implementation of the therapeutic interventions. F.S. contributed to participant recruitment, data collection, and administration of assessment instruments, as well as assisting in intervention delivery. J.J.F. performed the statistical analyses, interpreted the results, and contributed to the methodological and analytical sections of the manuscript. All authors collaborated in drafting and revising the manuscript, approved the final version, and take collective responsibility for the accuracy and integrity of the research.

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