

Effectiveness of Schema Therapy on Dyadic Alliance and Hostile Attribution in Women Experiencing Infidelity and Marital Betrayal

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ABSTRACT

Objective: The aim of the present study was to examine the effectiveness of schema therapy on dyadic alliance and hostile attribution in women experiencing infidelity and marital betrayal.

Methods and Materials: This research employed a quasi-experimental design with a pretest-posttest control group and follow-up. The statistical population included all married women aged 25 to 45 who referred to counseling and psychological service centers in Shahreza in 2024, and had experienced spousal infidelity. A total of 30 participants were selected using convenience sampling. Subsequently, the participants were randomly assigned to either the experimental group (n = 15) or the control group (n = 15). The data collection instruments included the Couple Relationship We-ness Questionnaire (Cruz et al., 2023) and the Hostile Attribution Questionnaire (Arntz et al., 2003). Schema therapy was implemented based on Farrell et al.'s (2018) schema therapy protocol in ten sessions. Data were analyzed using SPSS software.

Findings: The results of Bonferroni post hoc tests for time effect comparisons indicated that the mean differences in dyadic alliance and hostile attribution scores between the pretest-posttest and pretest-follow-up phases were statistically significant, while the differences between posttest and follow-up phases were not statistically significant ($p > .05$). Accordingly, schema therapy proved effective in improving dyadic alliance and reducing hostile attribution in women experiencing infidelity and marital betrayal, with its effects persisting through the follow-up period.

Conclusion: It can be concluded that schema therapy is a beneficial intervention for enhancing dyadic alliance and mitigating hostile attribution in women affected by infidelity and marital betrayal.

Keywords: *Dyadic Alliance, Hostile Attribution, Women Experiencing Infidelity and Marital Betrayal, Schema Therapy.*

1. Introduction

Marital infidelity significantly disrupts both individual and interpersonal aspects of couples' lives. In an ideal marriage, spouses experience a sense of "we-ness" and dyadic alliance (Lişman & Holman, 2023). The concept of "we" refers to a shared sense of connection and social bond, which emerges through interactions and embodied gestures within a group or couple. Dyadic alliance is characterized by a sense of shared intent and cooperation, which can strengthen relationships and enhance resilience against stressors. Within the context of dyadic relationships, experiencing dyadic alliance is critical for overcoming challenges and fostering mutual support (Peterson et al., 2021; Pilkington et al., 2022). Research has shown that nurturing a sense of dyadic alliance in relationships can lead to increased relationship satisfaction and overall well-being (Quan et al., 2022). The term "we" extends beyond mere psychological closeness and includes shared actions, movements, and experiences that contribute to the formation of collective identity (Shirvan et al., 2022; Sobhani et al., 2023). This identity reflects the interweaving of individuals' behaviors, emotions, and perceptions, fostering a sense of unity and togetherness. This collective identity is crucial in promoting mutual support, understanding, and collaboration within social groups, highlighting the importance of "we" in enhancing cohesion and solidarity (Vowels et al., 2021; Walker et al., 2023; Weiser et al., 2022).

In exploring the origins of "we-ness" and social bonding, researchers have emphasized the role of compassion, empathy, and shared experiences in fostering a sense of closeness and connection among individuals. Through shared social aspirations and other expressive activities, individuals can achieve a deeper understanding of unity, connections, and relationships, which contribute to building collective identities and group cohesion (Roth et al., 2024).

Another factor impacting women affected by marital betrayal is hostile attributions. Researchers such as Nisanci and Nisanci (2022) have identified hostile attributions as a significant reaction to infidelity in betrayed individuals, defined as the tendency to attribute hostility to others' behaviors (Nisanci & Nisanci, 2023). This tendency can result in aggression and marital conflicts (Abreu-Afonso et al., 2022). Hostile attribution bias is defined as individuals' propensity to attribute hostile motives to others' actions in interpersonal contexts. Studies have indicated that individuals with high levels of hostile attribution bias are more likely to focus on negative cues and are more

susceptible to negative psychological emotions and behavioral reactions (Ren et al., 2022; Ren et al., 2021; Roth et al., 2024). Such individuals often ruminate on the causes of distressing events in daily life, repeatedly thinking about these events in a hostile manner even after they have ended. Hostile attribution biases are associated with cognitive schemas that foster aggression, and if these biases become stable and entrenched, they may escalate into persecutory delusions (Koo et al., 2022).

Schema therapy, as an innovative therapeutic approach, focuses on maladaptive cognitive and emotional patterns formed during childhood and may be effective in improving damaged relationships (Markowitz, 2021). Schema therapy is an integrative theory and treatment method that combines elements of cognitive-behavioral, emotion-focused, attachment, and psychodynamic models (van Dijk et al., 2023). Additionally, it considers the role of temperamental traits in understanding and treating personality disorders and long-standing emotional and interpersonal problems (Sobhani et al., 2023). At the core of schema therapy are the concepts of early maladaptive schemas and schema modes. Schema therapy defines schemas more broadly, encompassing patterned affect, neurobiological responses, and implicit and explicit memory in addition to cognitions or "core beliefs." It focuses on 18 early maladaptive schemas and their relevance to psychopathology. Early maladaptive schemas are self-defeating patterns of emotional and cognitive thinking that arise early in life when children's basic emotional needs (e.g., safety and autonomy) are unmet (Peeters et al., 2021). These schemas are believed to fundamentally shape human perception and psychological experiences and play a pivotal role in development (Kiaee Rad et al., 2022).

One of the most important components of contemporary schema therapy is schema modes, which are defined as momentary mental states that govern an individual's thoughts, feelings, and actions in the moment. Dysfunctional schema modes can emerge through a combination of maladaptive schemas and coping styles. Although these modes may have served functional purposes during childhood, they often become maladaptive in adulthood (Groot et al., 2022).

In summary, the family, as the fundamental social institution, plays a critical role in individual and societal mental health. One of the serious threats to family stability is marital infidelity and betrayal, which can have profound psychological consequences for spouses, particularly women. Marital infidelity, as a breach of marital

commitment, can lead to emotional harm, reduced self-esteem, depression, anxiety, and communication problems. Among the key concepts affected by marital infidelity are "dyadic alliance" and "hostile attributions." Dyadic alliance refers to a sense of unity and emotional connection between spouses, while hostile attributions involve negative and hostile interpretations of a partner's behavior.

Schema therapy, as a novel therapeutic approach focusing on maladaptive cognitive and emotional patterns formed during childhood, has the potential to improve damaged relationships. By identifying and modifying early maladaptive schemas, schema therapy can help rebuild relational patterns and improve relationship quality. Given the increasing prevalence of marital infidelity and its devastating impact on women's mental health, there is a need for effective therapeutic interventions. Studies indicate that women who have experienced infidelity often face significant challenges in trust, intimacy, and interpersonal relationships. Despite the importance of this topic, there is limited research on the effectiveness of schema therapy in enhancing dyadic alliance and reducing hostile attributions in women affected by infidelity. The findings of this study can assist family therapists and specialists in providing more effective interventions and contribute to the advancement of knowledge in treating the psychological impact of marital infidelity.

Therefore, this study aims to investigate the effectiveness of schema therapy on dyadic alliance and hostile attributions in women experiencing marital infidelity and betrayal. The research question is: Is schema therapy effective in enhancing dyadic alliance and reducing hostile attributions in women affected by marital infidelity and betrayal?

2. Methods and Materials

2.1. Study design and Participant

This study employed a quasi-experimental design with a pretest-posttest control group and follow-up. The statistical population comprised married women aged 25–45 years who had experienced spousal infidelity and referred to counseling and psychological service centers in Shahreza in 2024. Using G*Power software, the sample size was determined to be 30 participants (15 in each group), selected through purposive sampling.

Inclusion criteria included the following: age range of 25 to 45 years, a minimum education level of a high school diploma, a minimum of 2 months since the spousal infidelity

occurred, no concurrent psychotherapy, and willingness to participate in the study.

Exclusion criteria were: severe mental disorders, substance abuse, absence from more than two therapy sessions, and unwillingness to continue participation.

After obtaining informed consent and necessary approvals from relevant authorities, participants were selected and completed the required questionnaires. They were randomly assigned to experimental and control groups. The experimental group underwent schema therapy intervention, while the control group did not receive any treatment. At the end of the intervention, participants completed the questionnaires again. A follow-up phase was conducted 3 months later, during which the participants completed the questionnaires once more.

After the research proposal was approved, visits were conducted to counseling and psychological service centers in Shahreza. Following coordination with the authorities and explanations provided to potential participants, a purposive sampling method was used to select participants meeting the inclusion criteria. Participants were randomly assigned to experimental and control groups through simple randomization (e.g., drawing lots).

Pretests were administered before the intervention. During the intervention phase, the experimental group participated in structured schema therapy sessions scheduled on separate days to avoid interactions or information exchange between groups. Posttests were conducted one week after the intervention, and a follow-up was performed 3 months later.

2.2. Measures

2.2.1. Dyadic Alliance

Developed by Cruz et al. (2023), this questionnaire comprises 47 items across four subscales: Couple Identity (25 items), Couple Bond (10 items), Relationship Orientation (9 items), and Couple Similarity (3 items). Items are scored on a 7-point Likert scale ranging from 1 ("Strongly Disagree") to 7 ("Strongly Agree"), with higher scores indicating greater levels of "we-ness" in the couple relationship. For convergent validity, the questionnaire's correlation with the Relationship Satisfaction Scale was examined, yielding coefficients of .71, .34, .23, and .27 for Couple Identity, Couple Bond, Relationship Orientation, and Couple Similarity, respectively. For divergent validity, correlations with the Relationship Instability Scale were $-.46$, $-.26$, $-.10$, and $-.10$ for the respective subscales, all

statistically significant, supporting the questionnaire's validity. Cronbach's alpha for the questionnaire's reliability was .97 for the overall scale and .96, .93, .91, and .79 for the subscales, respectively, indicating high internal consistency. In Iran, Shakerami (2024) standardized the questionnaire on 359 married individuals. Factor analysis confirmed 46 of the items, and one item was removed due to non-significant factor loading, resulting in a finalized Persian version with 46 items. Cronbach's alpha for internal consistency was .96 for the overall scale and ranged from .86 to .96 for the subscales (Zaidi et al., 2022). In the present study, Cronbach's alpha was .84.

2.2.2. Hostile Attribution

This 20-item questionnaire measures hostile attribution bias on a 5-point Likert scale ranging from "Strongly Agree" to "Strongly Disagree." To prevent response uniformity, some items are reverse-scored. Construct validity was assessed using confirmatory factor analysis. Convergent validity of hostile attribution bias was confirmed with correlations of .44 with the Buss and Perry Aggression Questionnaire and .26 with Adverse Childhood Experiences. Test-retest reliability over 3 months was .79. In the Iranian context, Khonsari et al. (2022) reported internal consistency reliability of .93 for the full scale and .95 for the subscales over a 3-month interval. Convergent validity with the Buss and Perry Aggression Questionnaire was reported as .48 by Pourmohseni Kolouri and Ranjbar (2021). Akhoondi et al. (2023) reported a Cronbach's alpha of .87 (Li, 2024). In the present study, Cronbach's alpha was .79.

2.3. Interventions

2.3.1. Schema Therapy

Session 1: Introduction and Group Rules

In the first session, participants are introduced to the group structure, rules, and objectives, fostering a sense of belonging and safety within the therapeutic environment. Participants share their primary concerns, and schema triggers and modes are actively reviewed. To establish a secure atmosphere, the "Safe Bubble" worksheet is completed, and a pretest assessment is conducted.

Session 2: Core Needs and Schema Connections

This session focuses on exploring the five core emotional needs and their relationship to schemas in therapy. Participants engage in discussions about how these needs were met in childhood, how they are being addressed

currently, and how the therapeutic environment can help fulfill unmet needs. Imagery exercises help participants visualize a specific case.

Session 3: Case Conceptualization and Schema Triggers

Participants explore their current problems through case conceptualization, identifying repeated patterns, childhood needs, early environmental factors, biological influences, and schema triggers. The session emphasizes the role of the "Healthy Adult" mode in addressing these patterns and triggers.

Session 4: Schema Modes and Activation Patterns

This session focuses on identifying situations that activate schema modes. Participants learn to recognize key symptoms, emotions, bodily sensations, thoughts, memories, schemas, and related needs. Coping styles within the therapeutic context are assessed to develop more adaptive responses.

Session 5: Parental Messages and Demanding Parent Mode

Participants identify key messages from their internalized parental figures and evaluate evidence supporting or refuting these messages. The session introduces the "Demanding Parent," "Critical Parent," "Guilt-Inducing Parent," and "Fear-Inducing Parent" modes. The impact of these modes on therapy and participants' functioning is explored.

Session 6: Strengthening the Healthy Adult Mode

This session focuses on enhancing participants' access to their "Healthy Adult" mode. Assertive behaviors, including boundary-setting, self-care, and confronting negative influences, are practiced. Participants reflect on their capacity for self-regulation and adaptive functioning.

Session 7: Connecting with the Child Modes

Participants identify schemas and needs associated with their child modes. Experiential techniques such as role-playing are used to establish a connection with these modes. Participants are assigned a writing task to create a narrative or dialogue with their child mode to deepen self-awareness.

Session 8: Vulnerable Child and Self-Compassion

Imagery exercises help participants visualize their "Lonely Child" and "Vulnerable Child" modes. They explore the thoughts, feelings, memories, bodily sensations, and unmet needs associated with these modes. Compassion-focused practices are introduced to soothe and comfort these vulnerable aspects.

Session 9: Replacing Negative Parental Messages

The session focuses on replacing messages from the "Critical," "Demanding," "Guilt-Inducing," and "Fear-Inducing" Parent modes with affirming messages from a

"Good Parent" mode. Experiential exercises facilitate these changes, emphasizing self-compassion and positive self-talk.

Session 10: Closure and Integration

The final session emphasizes fun and integration. Participants engage in playful activities and collaboratively identify "Good Parent" messages from magazines. They share these affirming messages with each other, reflecting on how schema modes influence their current lives and discussing ways to maintain progress.

2.4. Data Analysis

Data analysis included both descriptive and inferential statistics. In descriptive part, demographic characteristics of participants, means, and standard deviations of test scores in

pretest, posttest, and follow-up phases were analyzed. In inferential analysis, Levene's test was used to assess the homogeneity of variances, and the Shapiro-Wilk test was applied to verify the normal distribution of data. Repeated-measures analysis of variance (ANOVA) was conducted to determine the effectiveness of schema therapy across the three testing phases. Assumptions for Mauchly's test of sphericity were verified and reported. SPSS software version 26 (SPSS-26) was used for statistical analyses.

3. Findings and Results

Table 1 presents the frequency and percentage of participants' ages in the experimental and control groups. The mean age in the experimental group was 31.01 years, while in the control group it was 30.04 years.

Table 1

Mean and Standard Deviation of Dependent Variables Across Measurement Phases

Dependent Variable	Group	Sample Size	Pretest (M \pm SD)	Posttest (M \pm SD)	Follow-Up (M \pm SD)
Dyadic Alliance	Experimental	15	116.20 \pm 7.70	133.33 \pm 7.88	132.40 \pm 6.03
	Control	15	116.00 \pm 7.07	115.13 \pm 7.98	114.80 \pm 9.05
Hostile Attribution	Experimental	15	70.73 \pm 5.09	61.00 \pm 5.54	60.60 \pm 5.61
	Control	15	69.13 \pm 4.79	68.86 \pm 4.17	69.33 \pm 4.60

Table 1 displays the descriptive statistics for the dependent variables in the experimental and control groups across pretest, posttest, and follow-up phases. Participants in the schema therapy sessions showed improvements in both dyadic alliance and hostile attribution scores, with the effects persisting through the follow-up phase. However, no significant changes were observed in these variables for the control group across the measurement phases.

A prerequisite for using parametric tests is the assumption of normal distribution of sample scores. This assumption posits that sample distributions approximate normality, with any skewness or kurtosis arising from random sampling. The normality assumption is rejected if the probability of random deviation from normality is less than .05.

To assess the normality of score distributions, the Shapiro-Wilk test and skewness and kurtosis indices were used. Results indicated that all dependent variables had p-

values greater than .05 ($p > .05$), confirming the normality of distributions. Additionally, skewness and kurtosis values were within the acceptable range of -2 to 2 , allowing for the use of ANCOVA. It should be noted that for sample sizes fewer than 50, the Shapiro-Wilk test is recommended as the primary criterion.

Another assumption for ANCOVA is the equality of variances between groups. This assumption posits that the variances of group scores are statistically equivalent. Levene's test was used to evaluate this assumption, and the results supported variance equality across all dependent variables. Random group assignment and appropriate sample size further validated the use of ANCOVA for hypothesis testing. Additionally, since the F-test is robust to moderate variance inequalities, particularly in equal-sized samples, ANCOVA analysis was deemed appropriate.

Table 2

Repeated Measures ANOVA Results for the Effect of Independent Variable on Dependent Variables

Dependent Variable	Source of Variation	Sum of Squares	Error Sum of Squares	F Value	p Value	Effect Size	Statistical Power
Dyadic Alliance	Group	3240.000	3240.000	19.231	.001	.470	.840
	Time	1228.022	776.825	146.831	.001	.840	.870
	Time \times Group	1567.800	991.762	187.458	.001	.870	.870
Hostile Attribution	Group	562.500	562.500	8.653	.006	.236	.642
	Time	496.689	315.538	50.187	.001	.642	.640
	Time \times Group	492.867	313.110	49.400	.001	.640	.640

Table 2 demonstrates that in addition to the main effects of group and time, the interaction effect of group \times time was significant for both dyadic alliance and hostile attribution.

This indicates that the independent variable (schema therapy) significantly impacted the dependent variables.

Table 3

Bonferroni Post Hoc Test Results for Pairwise Comparisons of Dependent Variables Across Time

Dependent Variable	Phases Compared	Mean Difference	Standard Error	p Value
Dyadic Alliance	Pretest-Posttest	-8.133	0.374	.000
	Pretest-Follow-Up	-7.500	0.616	.000
	Posttest-Follow-Up	0.633	0.563	.811
Hostile Attribution	Pretest-Posttest	5.000	0.653	.000
	Pretest-Follow-Up	4.967	0.636	.000
	Posttest-Follow-Up	-0.033	0.398	1.000

Table 3 shows that the Bonferroni post hoc test results for the effect of time reveal significant differences in mean scores between pretest-posttest and pretest-follow-up phases for both dyadic alliance and hostile attribution. However, no significant differences were observed between posttest and follow-up phases ($p > .05$).

Based on the overall hypothesis testing, it was concluded that schema therapy effectively improved dyadic alliance and reduced hostile attribution in the sample population, with these effects persisting during the follow-up phase.

4. Discussion and Conclusion

The results of this study demonstrated that schema therapy is effective in improving dyadic alliance and reducing hostile attributions in women affected by marital infidelity and betrayal. These findings align with prior findings (Abbady, 2023; Ariana Kia et al., 2023; Arntz et al., 2021; Bahadori et al., 2022; Barooti, 2024; Bernstein et al., 2023; D. Edwards, 2022; D. J. A. Edwards, 2022; Groot et al., 2022; Joshua et al., 2023; Kiaee Rad et al., 2022; Louis et al., 2021; Maarschalkerweerd et al., 2021; May et al., 2022; Peeters et al., 2021; Pilkington et al., 2022; Shirvan et al., 2022; Sobhani et al., 2023; van Dijk et al., 2023; Zhang et al., 2023).

Dyadic alliance is a cornerstone of marital relationships, playing a crucial role in fostering emotional bonds and mutual support. This alliance develops when spouses function as a cohesive team with shared goals, values, and emotions, supporting each other through life's challenges. Such a relationship creates not only a shared identity of "we" but also a sense of psychological and emotional security. However, marital infidelity, one of the most profound emotional traumas, disrupts this alliance, causing emotional and psychological detachment. The injured party may feel that the shared "we" has disintegrated, replaced by separate and conflicting identities of "me" and "you." This rupture can lead to feelings of rejection, mistrust, and insecurity, fueling cycles of suspicion, doubt, and emotional distancing (D. J. A. Edwards, 2022; Groot et al., 2022).

In such circumstances, maladaptive schemas, such as "Mistrust/Abuse" and "Rejection," become highly activated. These schemas, rooted in negative childhood experiences, predispose individuals to interpret others' behaviors—particularly those of their spouse—in a pessimistic and hostile manner (Khoomas et al., 2020). The affected individual perceives others as intending harm, interpreting even neutral behaviors or words as negative and threatening. This perspective often leads to hostile attributions, which

involve interpreting others' actions in a negative, distrustful manner. Such attributions not only disrupt interpersonal relationships but also evoke emotions like anger, stress, and hopelessness. Within marital relationships, this interpretation exacerbates conflicts and hinders trust rebuilding (Joshua et al., 2023; Kiaee Rad et al., 2022).

Schema therapy, as an effective approach, aids in identifying and modifying maladaptive schemas and unhealthy cognitive and emotional patterns. This therapeutic method helps individuals understand how negative schemas from the past influence their interpretations of present events. For instance, individuals learn how their "Mistrust" schema prompts them to view their spouse's actions with suspicion, perpetuating a destructive cycle. Through therapy, they adopt a more realistic perspective, recognizing that not all behaviors are malicious or threatening (Louis et al., 2021).

A key function of schema therapy is reconstructing negative emotions triggered by infidelity, such as anger, sadness, and despair. Infidelity often evokes intense emotions in the affected individual, which, if unmanaged, negatively impact mental health and relationship quality. Through techniques such as cognitive restructuring and relaxation strategies, schema therapy enables individuals to express emotions healthily and transform them into constructive feelings. In addition to addressing emotions, schema therapy focuses on altering negative and limiting beliefs. Women who have experienced infidelity may hold beliefs like "I am unworthy of love" or "No one can be trusted." Schema therapy helps individuals identify these beliefs and replace them with more positive and realistic attitudes (Peeters et al., 2021; Sobhani et al., 2023).

Schema therapy also emphasizes improving communication skills. Therapists teach active listening, constructive expression of emotions and needs, and problem-solving skills, enabling individuals to replace defensive and emotional reactions with empathetic and constructive communication with their spouse. These skills help rebuild dyadic alliance and reestablish trust within the relationship. When individuals learn to view their spouse's actions more rationally and less pessimistically, the groundwork for rebuilding emotional bonds and enhancing marital quality is laid (Maarschalkerweerd et al., 2021).

A critical component of schema therapy involves revisiting and processing past experiences. In this phase, individuals are encouraged to evaluate negative experiences and gain deeper insight into how these experiences influence their current mindset and behaviors. This awareness helps

distinguish the past from the present, facilitating change in negative behavioral and cognitive patterns. Schema therapy also assists individuals in finding new meaning in their experience of infidelity. Therapists encourage individuals to view the experience not as a source of perpetual suffering but as an opportunity for personal growth and relationship improvement. This shift in perspective allows individuals to focus on healing and enhancing their quality of life (Ariana Kia et al., 2023).

By focusing on reconstructing emotions, modifying beliefs, and enhancing communication skills, schema therapy helps individuals mitigate hostile attributions and negative interpretations. It enables individuals to alter unhealthy cognitive and emotional patterns, adopt a more realistic perspective of others' behaviors, and develop self-awareness and self-acceptance. This process improves interpersonal relationships, facilitating the restoration of lost dyadic alliance. It not only aids in rebuilding marital relationships but also enhances mental health and overall well-being.

5. Limitations and Suggestions

The findings of this research are specific to women affected by marital infidelity in Shahreza and should be generalized cautiously to other cities and populations. Factors such as the absence of a suitable and quiet setting for completing questionnaires and participants' diverse cultural backgrounds were potential confounding variables.

It is recommended to organize workshops to introduce schema therapy concepts to women affected by infidelity, providing foundational understanding of how schemas influence perspectives and relationships. Developing educational materials explaining the fundamentals, benefits, and applications of schema therapy for addressing challenges specific to women experiencing infidelity is also suggested. Involving the partner in some therapy sessions can help improve communication, rebuild trust, and foster mutual understanding of schemas. Establishing or referring individuals to support groups can provide additional emotional support outside formal therapy. Developing or recommending digital tools, such as applications offering daily exercises, schema trigger reminders, and emotional regulation techniques, may enhance therapeutic outcomes. Further research should examine similar topics across different geographical and cultural contexts to improve the generalizability and explanatory power of findings. Methodological expansion, such as combining

questionnaires with in-depth interviews, can provide richer data. Future studies should include extended follow-up periods to evaluate the long-term efficacy of schema therapy, and adopting fully experimental designs with random sampling can strengthen the reliability and validity of findings.

Authors' Contributions

This article is derived from the doctoral dissertation of the first author, who conducted the research and wrote the manuscript. The second author supervised the study, and the third author provided consultation on the research process.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

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