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The Effectiveness of Schema Therapy on Impulsivity, Sexual Variety Seeking, and Anxiety in Borderline Patients

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A B S T R A C T

Objective: Borderline Personality Disorder (BPD) is a complex disorder associated with significant prevalence, mortality, and public health costs. This study aimed to determine the effectiveness of schema therapy on impulsivity, sexual variety seeking, and anxiety in borderline patients.

Methods and Materials: This study was a clinical trial with pre-test, post-test, and follow-up along with a control group, conducted in a semi-experimental research design. The statistical population consisted of individuals with BPD who visited psychology and psychiatry clinics in Sari from April to June 2022 (N=172). The sample was selected using the convenience sampling method and included two groups of 10 participants each (experimental and control). The data collection tools were the Structured Clinical Interview for DSM-IV Axis II Personality Disorders (First, Spitzer, Gibbon, & Williams, 1997), Beck Anxiety Inventory (Beck & Steer, 1990), Barratt Impulsiveness Scale (Fossati et al., 2002), and Sexual Variety Seeking Questionnaire (Aref-Nazari et al., 2011). Data were analyzed using repeated measures ANOVA with SPSS.22 software.

Findings: The results indicated that schema therapy was effective in reducing impulsive behaviors (F=66.00, P<0.001), sexual variety seeking (F=29.82, P<0.001), and anxiety (F=3.00, P<0.001) in borderline patients.

Conclusion: It can be concluded that schema therapy is effective in reducing impulsivity, sexual variety seeking, and anxiety in borderline patients, and can be utilized to mitigate the psychological problems in these patients.

Keywords: *Schema therapy, Impulsivity, Sexual variety seeking, Anxiety, Borderline personality disorder.*

1. Introduction

Personality disorders in the DSM-5 are defined as a persistent pattern of inner experience and behavior that deviates from the expectations of the individual's culture, is pervasive and inflexible, begins in adolescence or early adulthood, is stable over time, and leads to distress or impairment (Albein-Urios et al., 2019; Alden, 2008). Compared to other personality disorders, BPD has a high

prevalence, affecting about 2% of the general population. Many of these patients do not receive treatment due to lack of insight or reduced demand for treatment (Taylor et al., 2017; Thornton et al., 2023; Trull et al., 2018). BPD is a complex disorder associated with significant prevalence, mortality, and public health costs. Prominent symptoms include suicidal behavior, self-harm, explosive anger, and emotional reactions, usually in an interpersonal context. Interpersonal problems seem to account for much of the distress experienced by these individuals in daily life. Loneliness, feelings of rejection, and disrupted relationships predict suicidal attempts (Baskin-Sommers et al., 2014; Beck et al., 2020; Benazzi, 2006). BPD patients often engage in suicidal and self-destructive behaviors (Panos et al., 2013). The term BPD is derived from the older term borderline personality organization. Kernberg (1967) placed individuals with BPD at the borderline level of personality organization. This level has three features: variable reality testing, use of primitive psychological defense mechanisms, and identity confusion (S. Kellogg & J. E. Young, 2006; Kothgassner et al., 2021).

Schema therapy is an evidence-based method aimed at deeply influencing the personality of individuals in all dimensions. This therapy significantly affects the elimination of chronic symptoms and is particularly effective in identifying and treating behavioral patterns. It addresses life challenges and identifies and shapes the individual's strengths. Schema therapy uses interviews and questionnaires to identify pervasive behaviors and mindsets, ensuring decisions are made based on reality rather than roles and schemas (Sempértegui et al., 2013; Shojaadini, 2018; Taylor et al., 2017; van Maarschalkerweerd et al., 2021).

Impulsive behavior is a symptom of BPD included in the DSM-5. In the context of sexuality, impulsivity can lead to risky sexual behavior. BPD patients often experience intense emotional reactions, especially when exposed to impulsive behaviors. Alcohol or drug use exacerbates their inability to inhibit behaviors. Intense emotions such as grief, fear, jealousy, or even positive feelings can lead to impulsive sexual behavior (Arntz et al., 2005; Benazzi, 2006; Casiano et al., 2013; Ditrich et al., 2021). Research shows that identifying the roots of variety seeking in individuals begins with childhood experiences. Children must grow up in a safe and calm environment; otherwise, neglected needs lead to constant pursuit of various emotional relationships in adulthood. Sexual and personality disorders contribute to variety seeking (Nohi & Hasani, 2017). These individuals often do not believe in monogamy. Given the research background, the effectiveness of schema therapy in BPD symptoms has not been thoroughly investigated, prompting this study.

2. Methods and Materials

2.1. Study Design and Participants

The present study was a clinical trial with pre-test, post-test, and follow-up, conducted in a semi-experimental research design. The statistical population consisted of individuals with Borderline Personality Disorder (BPD) who visited psychology and psychiatry clinics in Sari from April to June 2022. The sampling method was convenience sampling, using GPower-3 software with an effect size of 0.7, test power of 0.8, and 3 dependent variables measured twice, resulting in a sample size of 20 participants. They were interviewed by a psychiatrist and clinical psychologist using the Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID-II) to confirm BPD diagnosis and were assigned to experimental and control groups (10 participants each) based on eligibility criteria.

The inclusion criteria were: 1) meeting DSM-5 diagnostic criteria for BPD as evaluated by a psychiatrist and clinical psychologist using the SCID-II; 2) at least a high school diploma; 3) age over 18 years; 4) no drug intoxication or severe medical conditions such as liver or kidney failure. The exclusion criteria were: 1) unwillingness to continue treatment; 2) presence of any psychiatric disorder due to medical conditions.

2.2. Measures

2.2.1. Borderline Personality Disorder

This structured diagnostic interview, developed by First, Spitzer, Gibbon, and Williams (1997), assesses 10 personality disorders according to DSM-5, including passive-aggressive personality disorder. It can be used categorically or dimensionally. The interview consists of 119 questions and takes less than 20 minutes to administer, with a minimum educational level of 8th grade required. The interviewer guides the interview based on positive responses. Studies have shown high reliability for this test, with kappa coefficients ranging from 0.24 for obsessive-compulsive personality disorder to 0.74 for histrionic personality disorder, with an overall kappa of 0.53. Lower reliability was reported for non-psychiatric patients, with an overall kappa of 0.38. Sharifi et al. (2004) reported

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acceptable reliability (above 0.60) for the Persian version of the SCID-II (Sedighi Arfaee et al., 2021; Zanarini et al., 2009).

2.2.2. *Anxiety*

Beck Anxiety Inventory (BAI) is a 21-item scale where respondents select one of four options indicating the severity of their anxiety. Each item is scored on a 0-3 scale, with total scores ranging from 0 to 63, reflecting common anxiety symptoms (mental, physical, and panic symptoms). Kaviani and Mousavi (2018) confirmed the structural validity and reliability of the BAI in studies on students (Alahyari et al., 2021; Aliyari Khanshan Vatan et al., 2022).

2.2.3. *Impulsiveness*

Barratt Impulsiveness Scale (BIS-11) contains 30 items and three subscales: cognitive-attentional impulsiveness, motor impulsiveness, and non-planning impulsiveness. Responses are on a 4-point Likert scale (1 = never/rarely, 2 = sometimes, 3 = often, 4 = almost always/always), with 11 items reverse scored. Scores range from 30 to 120, with higher scores indicating greater impulsivity. The BIS-11 has acceptable validity and reliability. Fossati et al. (2002) reported a Cronbach's alpha of 0.79 and a test-retest reliability of 0.89 over two months. Someya et al. (2002) found Cronbach's alpha ranging from 0.69 to 0.79 and test-retest reliability from 0.71 to 0.84 after four months. Javid et al. (2013) confirmed the psychometric properties of the Persian version, with Cronbach's alpha and test-retest reliability of 0.77 and 0.81, respectively (Barratt, 1993; Braham et al., 2015).

2.2.4. *Sexual Variety Seeking*

Sexual Variety Seeking Questionnaire (SVS), developed by Aref-Nazari et al. (2011), is a 46-item scale that measures sexual variety seeking, moral orientation, and intimacy seeking. The SVS has high face validity, with a reported Cronbach's alpha of 0.93 (Rezaeian Bilondi et al., 2016).

2.3. *Intervention*

2.3.1. *Schema Therapy*

Schema therapy was conducted in 15 weekly 90-minute sessions over three months as follows: (Afsar et al., 2021; Pirani, 2017).

Session 1: This session involves conceptualizing the patient's problem by conducting a comprehensive diagnostic interview and gathering detailed information about the patient's issues. The therapist explores the patient's relationship with their parents or caregivers and establishes a reparative parental connection with the patient.

Session 2: This session continues the problem conceptualization process. The therapist conducts a thorough diagnostic interview, gathers additional information about the patient's problems, and delves deeper into the patient's relationship with their parents or caregivers, reinforcing the reparative parental connection established previously.

Session 3: The therapist outlines the general therapeutic goals and sets specific objectives based on the patient's expressed concerns and needs. This goal-setting process is collaborative, ensuring that the patient's priorities are central to the treatment plan.

Session 4: The therapist assesses four key factors in the patient's early childhood environment: abuse and insecurity, abandonment and emotional deprivation, lack of understanding of needs and feelings, and punitive or rejecting experiences. This assessment helps in identifying the foundational issues that contribute to the patient's current problems.

Session 5: This session focuses on discussing the developmental roots and mindsets underlying the patient's problems. The therapist introduces and reviews the online Young Schema Questionnaire using the personality trap robot to identify maladaptive schemas.

Session 6: The discussion on the developmental roots of schemas and mindsets continues. The therapist further explores the results of the Young Schema Questionnaire and the implications of these schemas on the patient's current functioning.

Session 7: The therapist educates the patient about different mindsets, their triggers, and how they were identified in childhood. The session includes exploring the adaptive value of these mindsets in childhood and the advantages and disadvantages of experiencing emotions associated with these mindsets.

Session 8: The focus is on treating the abandoned child mindset. The therapist creates a supportive environment, emphasizes the therapeutic relationship, uses imagery to nurture the abandoned child, educates the patient about natural human needs, and employs role-playing and homework assignments to reinforce learning.

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Session 9: Treatment of the abandoned child mindset continues. The therapist maintains a supportive environment, uses imagery to care for the abandoned child, educates the patient about natural human needs, and teaches assertiveness through role-playing and homework assignments.

Session 10: This session addresses the detached protector mindset. The therapist creates a safe space for the patient to experience their feelings, names the detached protector mindset, identifies its triggers, uses imagery to limit the punitive parent, and assigns homework for the patient to express their needs and feelings.

Session 11: The treatment of the detached protector mindset continues. The therapist ensures a safe environment, identifies triggers for the detached protector, uses imagery to limit the punitive parent, and assigns homework for expressing needs and feelings.

Session 12: The focus shifts to the punitive parent mindset. The therapist uses imagery to combat the punitive parent, identifies the real-life punitive parent, uses imagery to limit this parent, and assigns homework for the patient to express their needs and feelings.

Session 13: Treatment of the punitive parent mindset continues. The therapist continues to use imagery to combat and limit the punitive parent, and assigns homework for expressing needs and feelings.

Sessions 14 and 15: These sessions focus on the angry child mindset. The therapist uses imagery to help the patient release anger towards harmful individuals, educates the patient on the value of anger, replaces aggressive behaviors with assertive skills, and uses role-playing to manage anger. The sessions conclude with summarizing the therapy and emphasizing the replacement of other mindsets with the healthy adult mindset.

2.4. Data analysis

Descriptive and inferential statistics were used to analyze the data. Descriptive statistics included frequency, percentage, mean, and standard deviation. Inferential statistics included Shapiro-Wilk test for normality and repeated measures ANOVA with SPSS software.

3. Findings and Results

The mean (SD) age of the experimental group was 39.5 (8.7) years, and the control group was 38.9 (7.7) years. Table 1 presents the means and standard deviations of pre-test and post-test scores for impulsivity, sexual variety seeking, and anxiety.

Table 1

Mean and Standard Deviation of Pre-test, Post-test, and Follow-up Scores for Impulsivity, Sexual Variety Seeking, and Anxiety

Variable	Group	Pre-test Mean (SD)	Post-test Mean (SD)	Follow-up Mean (SD)
Cognitive Impulsivity	Experimental	63.35 (2.65)	82.45 (4.25)	83.14 (23.24)
	Control	85.73 (3.45)	82.05 (4.77)	75.54 (2.45)
Motor Impulsivity	Experimental	64.53 (2.72)	82.53 (4.00)	83.13 (3.44)
	Control	78.73 (3.53)	80.07 (3.77)	79.47 (2.36)
Non-planning Impulsivity	Experimental	71.68 (2.62)	85.43 (4.25)	83.19 (3.52)
	Control	75.64 (3.27)	83.54 (3.27)	81.37 (3.68)
Sexual Behavior	Experimental	19.87 (1.31)	22.93 (1.36)	23.18 (1.00)
	Control	18.40 (1.52)	18.60 (1.40)	17.99 (1.44)
Moral Orientation	Experimental	17.13 (1.71)	19.07 (1.13)	20.09 (1.13)
	Control	16.33 (1.30)	16.53 (1.91)	16.99 (1.01)
Intimacy Seeking	Experimental	14.00 (1.29)	19.67 (1.73)	20.00 (1.42)
	Control	19.00 (2.41)	19.67 (1.60)	20.07 (1.40)
Physical Symptoms	Experimental	10.00 (1.17)	14.33 (1.69)	14.90 (1.79)
	Control	10.07 (0.86)	10.20 (1.22)	10.10 (1.22)
Mental Symptoms	Experimental	6.00 (0.89)	10.67 (1.41)	11.07 (1.41)
	Control	7.27 (0.82)	7.40 (1.03)	7.49 (1.44)
Panic Symptoms	Experimental	16.00 (1.44)	25.00 (1.86)	25.97 (1.80)
	Control	17.34 (2.41)	17.60 (1.60)	17.59 (1.40)

Given the normal distribution of the research variables (impulsivity, sexual variety seeking, and anxiety) in pre-test, post-test, and follow-up, parametric analysis of covariance was used. Levene's F test for equality of variances in pre-test scores was not significant (P > 0.01), indicating equal variances across groups. Homogeneity of regression slopes

was confirmed by non-significant interaction between pre-test scores and the independent variable (P > 0.05).

Table 2

Repeated Measures ANOVA for Comparing Pre-test, Post-test, and Follow-up Scores

Scale	Source	SS	df	MS	F	Sig.	Partial Eta
Cognitive Impulsivity	Time*Group	156.800	2	78.400	15.116	0.001	0.351
	Group	56.067	1	56.067	8.162	0.008	0.226
Motor Impulsivity	Time*Group	59.267	2	29.633	12.761	0.001	0.313
	Group	35.267	1	35.267	10.891	0.003	0.280
Non-planning Impulsivity	Time*Group	70.067	2	35.033	4.262	0.001	0.132
	Group	187.267	1	187.267	10.830	0.001	0.402
Sexual Behavior	Time*Group	861.800	2	430.900	88.570	0.001	0.760
	Group	552.150	1	552.150	78.350	0.001	0.737
Moral Orientation	Time*Group	1086.467	2	543.233	63.964	0.001	0.696
	Group	464.817	1	464.817	60.347	0.001	0.683
Intimacy Seeking	Time*Group	717.800	2	358.900	41.204	0.001	0.595
	Group	440.356	1	440.356	34.899	0.001	0.555
Physical Symptoms	Time*Group	1086.467	2	287.233	29.704	0.001	0.515
	Group	928.267	1	928.267	79.614	0.001	0.740
Mental Symptoms	Time*Group	751.650	2	375.825	74.365	0.001	0.715
	Group	345.289	1	345.289	59.580	0.001	0.605
Panic Symptoms	Time*Group	641.896	2	320.948	44.589	0.001	0.470
	Group	54.777	1	54.777	27.615	0.001	0.305

Multivariate repeated measures ANOVA showed significant between-subjects (group) effects, indicating differences between at least one group in impulsivity, sexual variety seeking, and anxiety. Within-subjects (time) effects were also significant, indicating changes over time from pre-test to follow-up in at least one variable.

The results in Table 2 show significant F ratios for group effects on impulsivity, sexual variety seeking, and anxiety (P < 0.01). This indicates that schema therapy improved impulsivity, sexual variety seeking, and anxiety. A repeated measures ANOVA for the experimental group across three stages of intervention showed significant F ratios for improvements in impulsivity, sexual variety seeking, and anxiety.

Table 3

Bonferroni Post-Hoc Test Results for Experimental Group on Impulsivity, Sexual Variety Seeking, and Anxiety

Variable	Time	Mean Difference	SE	P-Value
Cognitive Impulsivity	Pre-Post	-19.54	2.51	0.001
	Pre-Follow-up	-19.61	1.10	0.001
	Post-Follow-up	0.86	0.23	0.145
Motor Impulsivity	Pre-Post	-18.28	2.39	0.001
	Pre-Follow-up	-19.78	1.13	0.001
	Post-Follow-up	0.77	1.29	0.265
Non-planning Impulsivity	Pre-Post	-14.59	2.72	0.001
	Pre-Follow-up	-12.44	1.38	0.001
	Post-Follow-up	1.12	1.35	0.132
Sexual Behavior	Pre-Post	3.30	1.15	0.014
	Pre-Follow-up	4.57	1.21	0.001
	Post-Follow-up	-1.57	0.59	0.283
Moral Orientation	Pre-Post	-2.83	0.34	0.032
	Pre-Follow-up	-3.48	0.34	0.017
	Post-Follow-up	-0.89	0.33	0.136
Intimacy Seeking	Pre-Post	5.83	0.34	0.001
	Pre-Follow-up	6.35	0.36	0.001

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	Post-Follow-up	-0.37	0.35	0.389
Physical Symptoms	Pre-Post	-4.33	0.34	0.001
	Pre-Follow-up	-4.90	0.36	0.001
	Post-Follow-up	-0.57	0.37	0.496
Mental Symptoms	Pre-Post	-4.85	0.59	0.001
	Pre-Follow-up	-5.07	0.77	0.001
	Post-Follow-up	-0.43	0.89	0.579
Panic Symptoms	Pre-Post	-9.00	0.78	0.001
	Pre-Follow-up	-9.97	0.94	0.001
	Post-Follow-up	-0.97	0.89	0.632

Table 3 shows significant changes in impulsivity, sexual variety seeking, and anxiety in the schema therapy group from pre-test to post-test ($P < 0.001$) and from pre-test to follow-up ($P < 0.001$), but not from post-test to follow-up ($P > 0.01$).

4. Discussion and Conclusion

The aim of the present study was to determine the effectiveness of schema therapy on impulsive behaviors, sexual variety seeking, and anxiety in borderline patients. The results of this study showed that schema therapy is effective on impulsive behaviors and their components in patients with borderline personality disorder. The findings indicated that schema therapy is effective in advanced stages of treatment and after the complete implementation of the treatment protocol. The results of the covariance analysis showed that schema therapy, after 15 sessions of intervention, had a significant effect in reducing the total score of impulsivity as well as the components of impulsivity (cognitive-motor and non-planning) in the experimental group, leading to a significant reduction and improvement in the severity of borderline symptoms post-intervention. This finding is consistent with the prior results (Afsar et al., 2021; Pirani, 2017). For example, Pirani (2017) described impulsive individuals as typically hasty, hot-tempered, reckless, unpredictable, or unstable. Borderline patients usually suffer from feelings of inadequacy, which manifest in unstable emotions, behaviors, and relationships. They often react quickly and argue over trivial matters and are usually unable to understand that these feelings and reactions are irrational or excessive (Pirani, 2017). A person with borderline personality disorder is less likely to consider the potential consequences and often resorts to self-destructive behaviors (such as overeating or excessive alcohol consumption) as a means of coping. The mechanisms described overlap with the interventions in schema therapy and can explain the changes in impulsivity observed in borderline patients over the course of treatment (S. H. Kellogg & J. E. Young, 2006; Köck & Walter, 2018).

The results of this study also showed that schema therapy is effective on sexual variety seeking and its components in patients with borderline personality disorder. The findings indicated that schema therapy is effective in advanced stages of treatment and after the complete implementation of the treatment protocol. The covariance analysis results showed that schema therapy, after 15 sessions of intervention, had a significant effect in reducing the total score of sexual variety seeking as well as its components (sexual behavior, moral orientation, and intimacy seeking) in the experimental group, leading to a significant reduction and improvement in the severity of borderline symptoms post-intervention. This finding is consistent with the results of prior studies (Hadiyan et al., 2023; Hasani et al., 2022; Nazari et al., 2022; Pirani, 2017; Roediger, 2020; Vos et al., 2024).

Pirani (2017) noted that sexual desires are among the most important human needs. Sexual variety seeking is a disorder that typically occurs when love in relationships diminishes and sexual satisfaction is not achieved. Various influencing factors can intensify this condition, leading to an insatiable expectation in individuals. Impulsive behavior is a symptom of borderline personality disorder included in the DSM-V. In the context of sexuality, impulsivity can lead to risky sexual behavior. Borderline patients experience intense emotional reactions when exposed to impulsive behaviors, especially under the influence of alcohol or drugs, and strong emotions such as grief, fear, jealousy, or even positive feelings can lead to impulsive sexual behavior in these individuals (Pirani, 2017).

In addition to engaging in risky or impulsive sexual relationships, there is evidence that individuals with borderline personality disorder are more inclined towards sexual promiscuity. This differs from impulsive sexual behavior in that promiscuity involves deliberately seeking multiple sexual partners, whereas impulsive sexual behavior is driven by occasional whims. The interventions in schema therapy overlap with these findings and can explain the

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changes in sexual variety seeking observed in borderline patients over the course of treatment.

The results of this study also showed that schema therapy is effective on anxiety and its components in patients with borderline personality disorder. The findings are consistent with prior studies (Arntz et al., 2005; Erfan et al., 2019; Mohamadizadeh et al., 2018; Ostadian Khani et al., 2021).

Individuals with borderline personality disorder may experience depression, anger, anxiety, irritability, panic, and hopelessness, usually in response to interpersonal stress. This emotional instability is described in the sixth criterion of borderline personality disorder. The seventh criterion describes chronic feelings of emptiness and boredom experienced by these individuals. Borderline patients exhibit unstable and unpredictable emotions, often fluctuating between extremes. Their interpersonal relationships are unstable, and they often engage in risky and chaotic sexual behaviors, form multiple unstable attachments, create stressful relationships, and experience a deep fear of loneliness and rejection. They exhibit high irritability, self-harming behaviors, and often use alcohol and drugs to manage their emotional turmoil. Their mood is as unstable and unpredictable as their behavior, frequently swinging from feelings of euphoria to depression, anxiety, and irritability. They tend to categorize people as either entirely good or entirely bad, a phenomenon known as splitting, where individuals are seen as either supportive allies or harmful enemies (Mohamadizadeh et al., 2018; Nohi & Hasani, 2017).

Schema therapists believe that the root of personality disorders lies in having multiple overlapping schemas that create enduring personal issues. Schema therapists working on personality disorders identify and modify these schemas to treat the disorder. Almost all research confirms the effectiveness of this method, especially for borderline personality disorder, by creating new behaviors and beliefs as schemas are modified (Rezaeian Bilondi et al., 2016).

5. Limitations and Suggestions

Like most studies in the field of human issues, this research has limitations. The sample was limited to borderline personality disorder patients from psychology and psychiatry clinics in Sari, cautioning against generalizing the findings to other borderline patients. The impulsive nature of borderline personality disorder made it challenging to conduct regular weekly sessions. Some patients were uncooperative in completing the lengthy questionnaires, and the researcher refrained from follow-up studies due to ethical considerations and patients' demands for continued treatment. Convenience sampling also limits generalizability.

Based on the findings of this study, it is evident that schema therapy has a significant impact on reducing impulsivity, sexual variety seeking, and anxiety in borderline patients. Future studies should replicate this with larger samples, other personality disorders, and various experimental or comparative designs. Schema therapy research is still in its early stages, necessitating randomized controlled trials and factor analysis to identify key therapeutic change factors such as therapeutic alliance, transference, therapist effects, and other variables. Comparative studies on the effectiveness of different short-term psychotherapies for borderline personality disorder should be conducted. The long-term and short-term effects of schema therapy should be assessed, and continuous clinical supervision should be maintained throughout the therapy. Schema therapy should also be applied in clinical settings.

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Declaration

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

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethics Considerations

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

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

All authors contributed equally.

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