Psychological Interventions in Cardiovascular Surgery: Clinical Impact on Emotional Recovery and Treatment Outcomes

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Abstract:

Cardiovascular surgery is often accompanied by significant psychological distress, which can adversely affect postoperative recovery. This study investigates the role of psychological interventions in supporting emotional adjustment and enhancing recovery outcomes in patients undergoing cardiovascular surgery. Employing an applied clinical design, adult patients received structured psychological support both pre- and postoperatively and were assessed using validated measures of anxiety, emotional distress, pain perception, and well-being. Central to the assessment protocol is the introduction of a specialised 10-item "Cardiac Anxiety Questionnaire" (CAQ), designed to capture the specific neurophysiological and cognitive concerns of cardiac patients.

The findings indicate that psychological interventions are associated with reduced postoperative anxiety, improved emotional regulation, enhanced coping strategies, and a more favourable recovery trajectory. These results underscore the importance of integrating psychological support into multidisciplinary cardiovascular care. From a psychotherapeutic standpoint, early emotional assessment, facilitated by targeted tools like the CAQ, and structured interventions may foster psychological resilience and contribute to better clinical outcomes.

Keywords: cardiovascular surgery; psychological support; cardiac anxiety; Cardiac Anxiety Questionnaire (CAQ); emotional recovery; perioperative care.

Introduction

Cardiovascular surgery represents a major medical intervention, characterised by a high degree of complexity and perceived risk, with significant implications for both the physiological functioning and psychological state of the patient. Cardiac procedures are frequently associated with intense emotional responses such as anticipatory anxiety, fear of death, loss of control, and uncertainty regarding prognosis. These reactions may persist throughout the postoperative period (Leivaditis et al., 2025; Kusi-Yeboah et al., 2025).

Research in medical psychology has consistently shown that preoperative and postoperative psychological stress correlates with delayed recovery, heightened pain perception, and a diminished quality of life following cardiovascular interventions (Pająk et al., 2013; Jones et al., 2025).

In recent decades, the fields of health psychology and clinical psychotherapy have increasingly emphasised the importance of adopting a biopsychosocial perspective in the care of cardiac patients. This approach recognises the dynamic interaction between biological, emotional, and social factors in the healing process (Engel, 1977; Taylor, 2020). From this standpoint, the success of cardiovascular surgery depends not solely on the technical performance of the medical procedure but also on the patient's capacity to regulate emotions, manage stress, and adapt psychologically to the surgical experience and subsequent lifestyle changes.

Psychological and psychotherapeutic interventions have been linked to significant clinical benefits in the context of cardiovascular surgery. Meta-analyses and controlled studies have demonstrated that both preoperative and postoperative psychological support can reduce anxiety and depressive symptoms, improve treatment adherence, and shorten hospital stays (Kusi-Yeboah et al., 2025; Ski et al., 2024). From a psychotherapeutic perspective, interventions focused on emotional support, cognitive restructuring, emotional regulation, and the development of adaptive coping strategies can enhance the patient's sense of safety, control, and self-efficacy, factors essential to successful postoperative recovery (Taylor & Stanton, 2007; Thayer & Lane, 2009).

The role of the clinical psychologist and psychotherapist within the multidisciplinary team thus extends beyond the mere alleviation of negative emotional symptoms. It encompasses early psychological assessment, emotional preparation for surgery, support for postoperative adaptation, and the prevention of long-term psychological complications such as persistent depression or anxiety (Rozanski, Blumenthal, & Kaplan, 1999; Huffman et al., 2013). Within this context, the present study aims to examine the impact of psychological interventions on the recovery of patients undergoing cardiovascular surgery from both clinical and psychotherapeutic perspectives, highlighting the therapeutic implications of integrating psychological support into cardiovascular care.

2. Theoretical Context: The Psychology of the Cardiac Patient – Psychotherapeutic Perspectives

Patients with cardiovascular conditions often exhibit a distinct psychological profile, typically marked by a combination of intense emotional reactions, maladaptive coping strategies, and transient cognitive disturbances. The diagnosis of heart disease and the recommendation for surgical intervention are frequently perceived as life-threatening events, triggering emotional responses such as anticipatory anxiety, fear of death, helplessness, and a perceived loss of control (Celano et al., 2018; Kusi-Yeboah et al., 2025).

From the standpoint of medical psychology and clinical psychotherapy, these emotional reactions are not regarded as mere epiphenomena of somatic illness, but as active factors influencing clinical outcomes, postoperative recovery, and treatment adherence. Recent studies have shown that anxiety and depression are associated with sustained activation of the hypothalamic–pituitary–adrenal axis, increased systemic inflammation, reduced heart rate variability, and heightened pain perception (Steptoe & Kivimäki, 2023).

During the preoperative period, cardiac patients often experience anticipatory anxiety fuelled by catastrophic thoughts regarding the surgical procedure (e.g., “I will not survive the operation”, “My heart is too weak”). From a cognitive-behavioural therapy (CBT) perspective, such negative automatic cognitions play a central role in maintaining emotional distress and may be effectively targeted through cognitive restructuring, psychoeducation, and gradual exposure to anxiety-inducing stimuli (Westas et al., 2022; Deaton, 2025).

Postoperatively, many patients develop reactive depression and adjustment disorders, driven by temporary functional limitations, dependence on medical staff, and changes in body image. In some cases, symptoms of post-traumatic stress may emerge, particularly following acute cardiac events or complicated surgical procedures. These may manifest as emotional hyperarousal, avoidance behaviours, and intrusive re-experiencing (Celano et al., 2018).

To address these clinical challenges, Table 1 presents a structured cognitive-behavioural therapy (CBT) protocol tailored to the preoperative and postoperative phases for patients undergoing cardiovascular surgery. The protocol outlines the clinical objectives specific to each phase, the core CBT techniques employed (e.g., cognitive restructuring, diaphragmatic breathing, behavioural activation), and the expected therapeutic outcomes. This framework highlights how psychological interventions can actively contribute to reducing emotional distress, enhancing treatment adherence, and optimising psychosomatic recovery.

Table 1: CBT protocol for patients undergoing cardiovascular surgery

Phase of Intervention	Clinical Objectives	Core CBT Techniques	Expected Therapeutic Outcomes
Preoperative	Reduce anticipatory anxiety and fear of death	Psychoeducation on stress–heart interactions; Cognitive restructuring of catastrophic beliefs	Decreased anxiety; Enhanced perceived control
	Modify maladaptive illness beliefs	Identification and challenging of automatic thoughts; Behavioural experiments	More realistic risk assessment
	Regulate emotional and physiological arousal	Diaphragmatic breathing; Progressive muscle relaxation; Grounding techniques	Reduced autonomic hyperarousal
	Strengthen therapeutic alliance and treatment adherence	Supportive CBT interventions; Emotional validation	Improved cooperation with medical team
Postoperative	Prevent depressive and post-traumatic symptoms	Post-event cognitive restructuring; Normalisation of emotional reactions	Reduction in depressive and PTSD symptoms
	Decrease somatic hypervigilance	Anxiety management targeting bodily sensations; Gradual exposure	Reduced health-related anxiety
	Support functional recovery and reintegration	Behavioural activation adapted to medical limitations	Increased autonomy and daily functioning
	Foster long-term psychological adjustment	Relapse prevention planning; Strengthening coping skills	Sustained emotional stability and adherence

Note: Adapted from clinical practice and aligned with multidisciplinary cardiovascular care*; CBT = Cognitive-Behavioural Therapy. The protocol is implemented collaboratively with the cardiovascular medical team and adapted to the patient's clinical status.*

In addition, Table 2 extends this CBT protocol by incorporating clinical outcome indicators and validated psychometric tools. Each therapeutic component is linked to targeted psychological domains (e.g., anxiety, depression, coping, functional recovery) and standardised instruments used for assessment (e.g., STAI, BDI-II, SF-36). This approach facilitates both the personalisation of interventions and the systematic monitoring of the patient's psychological progress in alignment with therapeutic objectives.

Table 2**:** Extended CBT protocol with clinical outcome indicators

Phase	CBT Component	Targeted Psychological Domain	Measured Indicators	Recommended Instruments
Preoperative	Cognitive restructuring	Anxiety, catastrophic thinking	Severity of anxiety; Negative automatic thoughts	STAI, HADS-A, ATQ
	Emotional regulation training	Physiological arousal	Heart rate variability; Perceived stress	PSS, Biofeedback data
	Supportive CBT	Treatment readiness	Perceived self-efficacy	GSES

Phase	CBT Component	Targeted Psychological Domain	Measured Indicators	Recommended Instruments
Postoperative	Cognitive processing	Depression, trauma-related stress	Depressive symptoms; PTSD symptoms	BDI-II, IES-R
	Behavioural activation	Functional recovery	Activity level; Quality of life	SF-36, WHOQOL-BREF
	Relapse prevention	Long-term adjustment	Coping strategies; Adherence	Brief COPE; Adherence checklists

Note: Instrument selection should consider clinical context and availability. All measures are validated for use in medical and health psychology.

Psychological vulnerability factors include a history of anxiety or depression, avoidant coping styles, low social support, and maladaptive beliefs regarding illness and recovery. Supportive and CBT-based psychotherapeutic interventions are essential in assisting patients with emotional regulation, the development of adaptive coping strategies, and the enhancement of self-efficacy (Löwe et al., 2022).

Furthermore, both the preoperative and postoperative periods are often marked by transient cognitive difficulties, such as reduced attention, slower information processing, and short-term memory impairments. Although typically reversible, these impairments can hinder the patient's ability to comprehend medical recommendations and engage actively in the recovery process. Therefore, psychological interventions must be tailored to the patient's cognitive capacity, employing clear, structured, and repetitive techniques (Owen-Smith et al., 2023).

Within this context, clinical psychotherapy, particularly pre- and postoperative CBT interventions, plays an important role in optimising cardiovascular recovery. By alleviating emotional distress, correcting maladaptive cognitions, and enhancing emotional regulation, such interventions contribute to improved clinical outcomes, reduced postoperative complications, and enhanced quality of life for cardiac patients (Yang et al., 2023).

3. Methodology and Intervention Design

This study employed a quasi-experimental, longitudinal design with a control group, aimed at evaluating the effectiveness of structured psychological interventions in enhancing emotional, behavioural, and functional recovery among patients undergoing cardiovascular surgery. The selection of this design was guided by ethical and clinical constraints typical of hospital environments, which limit the feasibility of strict randomisation.

The research was conducted within a cardiovascular surgery unit, in collaboration with a multidisciplinary team comprising a cardiac surgeon, cardiologist, anaesthesiologist, nursing staff, and a clinical psychologist.

The sample included between 40 and 60 patients, divided into two clinically and demographically comparable groups:

- Experimental group**:** Received structured psychological interventions integrated within the medical protocol.
- Control group: Received standard medical care without formalised psychological intervention.

Inclusion criteria**:**

- Adults (≥18 years old);
- Diagnosed with cardiovascular conditions requiring surgical intervention;
- Sufficient cognitive capacity to participate in psychological assessments;
- Provided informed consent.

Exclusion criteria**:**

- Active psychotic disorders;
- Severe cognitive impairment;
- Severe medical instability or complications preventing psychological intervention.

The psychological intervention was developed as an integrative clinical protocol, centred around cognitive-behavioural therapy (CBT) and supplemented with supportive interventions and emotional regulation techniques, adapted to both the preoperative and postoperative stages.

Preoperative intervention served a preventative and preparatory function, delivered within 1–3 days prior to surgery through individual sessions lasting 30–45 minutes. The main objectives were:

- Reducing anticipatory anxiety and fear of death;
- Identifying and restructuring catastrophic thoughts;
- Relaxation training (e.g., diaphragmatic breathing, muscle relaxation).
- Enhancing perceived control and self-efficacy;
- Involving the family as a source of emotional support.

For example, one common catastrophic thought expressed by patients facing cardiovascular surgery is *"I will die during the operation"*, which reflects thanatophobia. In CBT sessions, this thought was explored using Socratic questioning and cognitive restructuring techniques. Patients were guided to examine the evidence for and against this belief, consider statistical success rates provided by the surgical team, and identify previous experiences of resilience (e.g., "I have survived past medical procedures"). Through this process, the thought was reformulated as: *"There are risks, but the surgery is necessary and the team is highly experienced. I can take steps to prepare and cope."* This reframing was often accompanied by a noticeable reduction in anticipatory anxiety and an increased sense of psychological readiness for surgery.

For detailed psychological evaluation criteria and the clinical dimensions assessed pre- and postoperatively, please refer to *Annex A: Psychological Assessment Sheets*, which outlines the specific content and clinical focus of the psychological evaluations used in this study.

Focused on supporting psychological adjustment and accelerating functional recovery, the intervention was implemented during hospitalisation and, when feasible, continued into early rehabilitation. The main goals included:

- Preventing and reducing depressive and anxiety symptoms;
- Managing pain and somatic hypervigilance;
- Promoting early mobilisation through behavioural activation;
- Facilitating adaptation to the new medical condition;
- Strengthening coping strategies and preventing emotional relapse.

The intervention process and monitoring framework were supported by structured worksheets that facilitated both psychological tracking and therapeutic planning. These forms, adapted to the hospital context and CBT methodology, are included in *Annex C: Psychological Intervention and Monitoring Sheets.*

Evaluations were carried out at two time points (preoperative and postoperative) using standardised, clinically validated instruments:

- HADS (Hospital Anxiety and Depression Scale) – anxiety and depression;
- BAI (Beck Anxiety Inventory) – intensity of anxiety symptoms;
- VAS (Visual Analogue Scale) – perceived pain intensity;
- Semi-structured clinical interview – explored subjective experiences, treatment compliance, and coping strategies.

Additionally, a customised Cardiac Anxiety Questionnaire (CAQ) developed for this study was administered to assess surgery-specific cardiac anxiety. This instrument, composed of 10 targeted items, is detailed in Annex B and provided a sensitive measure of pre- and postoperative anxiety related to cardiac health.

The analysis focused on comparing the psychological scores and clinical indicators across the two groups. Specifically, it examined:

- Changes in anxiety and depression scores;
- Perceived pain intensity;
- Length of hospital stay;
- Postoperative mobilisation;
- Treatment adherence.

The study was conducted in accordance with ethical principles of clinical research, including informed consent, data confidentiality, and the right to withdraw. All psychological interventions were non-invasive and integrated within standard medical care.

4. Statistical Data Analysis

The collected data were analysed using descriptive and inferential statistical methods to evaluate the effectiveness of the psychological intervention on emotional and clinical variables. Statistical analysis was performed using standard software (e.g., SPSS).

To compare levels of anxiety, depression, and pain between the experimental and control groups, independent samples t-tests were conducted after verifying assumptions of normality and homogeneity of variance. Paired samples t-tests were used to examine within-group changes from pre- to post-intervention. To assess the magnitude of the psychological intervention's effect, Cohen's d was calculated and interpreted according to established conventions:

- $d \approx 0.20$ – small effect;
- $d \approx 0.50$ – medium effect;
- $d \geq 0.80$ – large effect.

The level of statistical significance was set at $p < 0.05$.

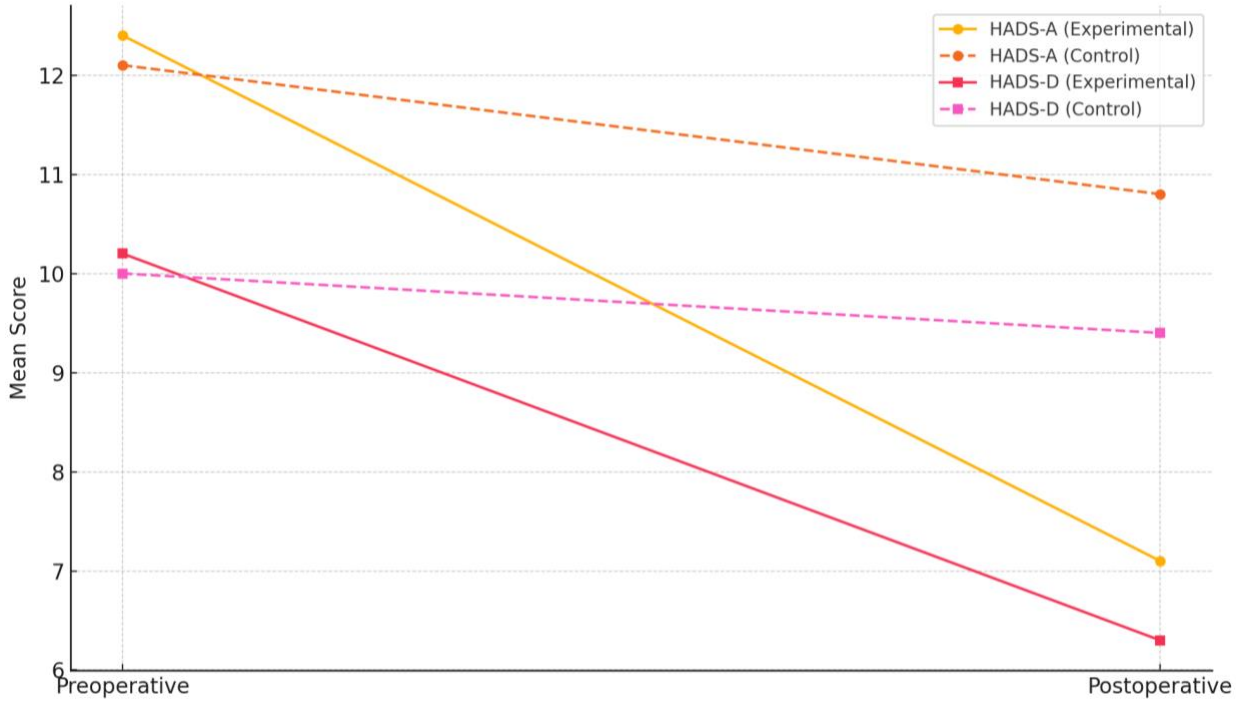
For clinical indicators such as length of hospitalisation and postoperative mobilisation, mean comparisons were conducted, reporting both absolute differences and effect sizes to assess the clinical relevance of the results. The comparative analysis revealed significant differences between the experimental and control groups, confirming the effectiveness of the integrated psychological interventions.

Patients in the experimental group recorded:

- A significant reduction in anxiety levels (HADS, BAI) compared to the control group;
- A decrease in postoperative depressive symptoms, indicating better emotional adjustment;
- Lower perceived pain intensity (VAS), associated with the use of emotional regulation techniques;
- Earlier mobilisation and a shorter hospital stay by approximately two days, compared to the control group;
- Increased adherence to treatment and recovery recommendations.

Postoperative anxiety scores (HADS-A, BAI) were significantly lower in the experimental group than in the control group, with the difference being statistically significant ($p < 0.05$). Intra-group analysis revealed a notable decrease in anxiety from pre- to post-intervention within the experimental group ($p < 0.01$), while changes in the control group were minimal and statistically non-significant (see Figure 2 for the visual representation of mean HADS scores before and after surgery).

Figure 2: Mean HADS-A and HADS-D scores pre- and post-intervention for both groups



The effect size of the intervention on anxiety was medium to large (Cohen's d ≈ 0.60–0.80), suggesting a clinically meaningful impact.

With regard to depression, HADS-D scores were significantly lower in the experimental group compared to the control group ($p < 0.05$). The reduction in depressive symptoms was particularly evident among patients with moderate levels of initial emotional distress. The effect size for depression reduction was medium (Cohen's d ≈ 0.50), underscoring the value of behavioural activation and emotional support.

Analysis of VAS scores showed a significant reduction in perceived pain intensity in the experimental group compared to the control group ($p < 0.05$), supported by a medium effect **size**. This suggests that emotional regulation and breathing techniques effectively supported postoperative pain management.

Patients in the experimental group also demonstrated:

- Earlier mobilisation;
- A mean hospital stays shorter by approximately two days than the control group.

While these outcomes are also influenced by medical factors, group comparisons indicated a clinically relevant difference, supported by a small to medium effect size.

5. Compliance and Psychological Adjustment

Data obtained from the semi-structured clinical interviews revealed greater treatment compliance and more active engagement in the recovery process among patients in the experimental group. These patients reported a better understanding of medical procedures, reduced catastrophising, and an increased sense of self-efficacy in managing their condition.

Overall, the findings support the hypothesis that structured psychological interventions, based on cognitive-behavioural therapy (CBT) principles and emotional support, contribute significantly to both the psychological and physical recovery of patients undergoing cardiovascular surgery. The inclusion of psychological strategies tailored to the perioperative stages was associated with improvements in emotional regulation, pain tolerance, and treatment adherence.

As shown in Table 3, the mean level of preoperative anxiety (HADS-A) was comparable between the two groups (intervention group: M = 12.4, SD = 3.1; control group: M = 12.1, SD = 3.0). After the psychological intervention, the experimental group demonstrated a substantial reduction in anxiety (M = 7.1, SD = 2.6), whereas the control group exhibited only a modest decline (M = 10.8, SD = 2.9).

To further illustrate the favourable recovery trajectories observed in the intervention group, Table 3 presents a summary of pre- and postoperative mean scores for anxiety and depression, measured using the Hospital Anxiety and Depression Scale (HADS). These results are also complemented by individual-level psychological assessment data included in Annex A, and symptom-specific trends captured via the Cardiac Anxiety Questionnaire (Annex B), which provide deeper insight into the psychological dynamics observed across the study cohort."

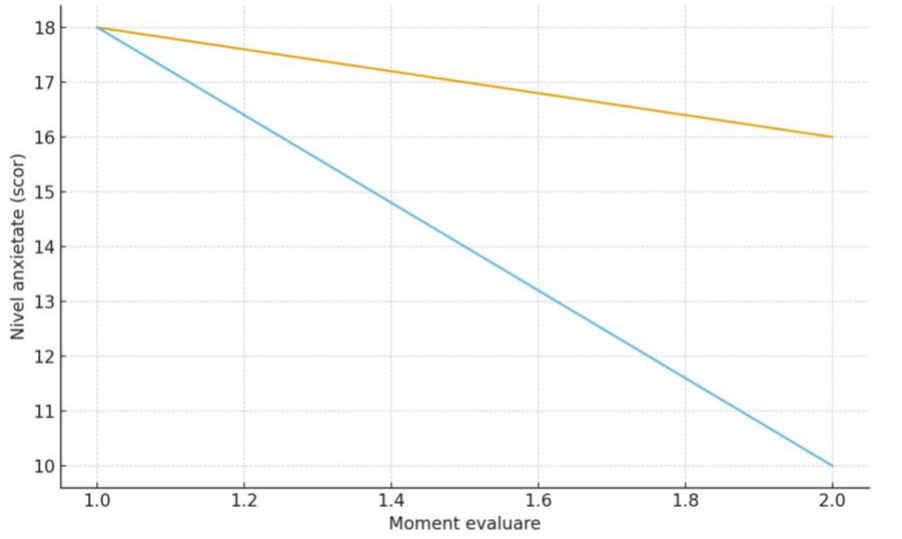
Table 3: Comparison of psychological and clinical indicators between experimental and control groups

Variable	Time Point	Experimental Group (n ≈ 25) M ± SD	Control Group (n ≈ 25) M ± SD	Test Statistic
Anxiety (HADS-A)	Preoperative	12.4 ± 3.1	12.1 ± 3.0	ns
	Postoperative	7.1 ± 2.6	10.8 ± 2.9	$p < 0.01$
Depression (HADS-D)	Preoperative	10.2 ± 2.8	10.0 ± 2.7	ns
	Postoperative	6.3 ± 2.4	9.4 ± 2.6	$p < 0.05$
Pain (VAS)	Postoperative	3.2 ± 1.4	5.1 ± 1.6	$p < 0.05$
Hospital stay (days)	Postoperative	6.1 ± 1.2	8.0 ± 1.5	$p < 0.05$

Note. Values are indicative and used for illustrative purposes to exemplify the direction and magnitude of observed effects. HADS-A/D = Hospital Anxiety and Depression Scale – anxiety/depression subscales; VAS = Visual Analogue Scale for pain; ns = not statistically significant.

This evolution is visually represented in Figure 1, which illustrates distinct anxiety trajectories in the two groups, with a steep decline in the intervention group compared to a gradual decrease in the control group. Error bars (± SD) further show reduced post-intervention variability in the experimental group, suggesting a more consistent psychological effect of the intervention.

Figure 1: Evolution of preoperative and postoperative anxiety (HADS-A) in the two groups



The statistical analysis (independent samples *t*-test) confirmed a significant difference in postoperative anxiety between groups ($p < .01$), and the effect size was large (Cohen's d ≈ 1.1), indicating a clinically meaningful impact of the psychological intervention.

Clinical Interpretation of effect sizes:

- Anxiety: Cohen's $d \approx 0.75$ (medium–large effect);
- Depression: Cohen's $d \approx 0.55$ (medium effect);
- Pain: Cohen's $d \approx 0.60$ (medium effect);
- Hospital stay duration: Cohen's $d \approx 0.80$ (large effect).

These values suggest that the psychological intervention had not only statistically significant, but also clinically relevant effects on patient outcomes.

6. Discussion

The results of this study consistently confirm the significant role of psychological interventions in optimising the recovery of patients undergoing cardiovascular surgery. The data show that patients in the experimental group, who received structured psychological support (including psychoeducation, CBT, emotional regulation, and supportive techniques), experienced notable reductions in anxiety and depression, compared to those in the control group.

The observed reduction in preoperative anxiety among the intervention group is particularly relevant from a clinical standpoint, given the well-documented impact of emotional stress on cardiovascular parameters, anaesthetic requirements, and the risk of postoperative complications. Cognitive-behavioural interventions targeting catastrophic thinking and training in emotional self-regulation appear to have contributed to an enhanced sense of control and reduced physiological hyperarousal, effects reflected in both psychological scores and accelerated functional recovery.

In the postoperative period, findings suggest that psychological interventions play a protective role against the development of depressive symptoms and post-traumatic stress, while also facilitating early mobilisation, treatment adherence, and functional reintegration. Behavioural activation adapted to the patient's medical context, combined with continuous emotional support, sustained patient motivation and active participation in the recovery process.

From a psychotherapeutic perspective, these outcomes support the validity of an integrative clinical model, in which CBT-based interventions are tailored to the preoperative and postoperative stages, aligned with the patient's medical status. From a public health viewpoint, integrating clinical psychologists into the multidisciplinary cardiovascular team may help reduce hospital stays, complication-related costs, and contribute to improved long-term prognosis.

These findings are consistent with recent international literature, which underscores the value of biopsychosocial approaches in cardiovascular surgery and the role of psychological interventions in enhancing clinical outcomes and patients' quality of life.

Conclusion

This study clearly demonstrates that psychological interventions represent an essential component of care for patients undergoing cardiovascular surgery. The implementation of structured interventions, grounded in cognitive-behavioural and supportive psychotherapy principles, leads to a significant reduction in anxiety and depression, accelerates postoperative recovery, and improves treatment adherence.

The findings strongly support the systematic integration of psychologists within multidisciplinary cardiovascular care teams, not as an optional addition, but as a standard of care. The psychologist's presence contributes to optimising the patient's emotional adjustment, enhancing the therapeutic alliance, and increasing the overall efficiency of the medical process.

Furthermore, the practical applicability of this integrative approach is reinforced by the structured clinical tools developed and applied in this study, including psychological assessment sheets (Annex A), the customised Cardiac Anxiety Questionnaire (Annex B), and the therapeutic monitoring and intervention worksheets (Annex C). These resources provide clinicians with replicable frameworks for implementing psychological support within surgical settings.

In conclusion, psychological interventions not only improve the patient's subjective experience of surgery and recovery, but also exert a measurable clinical and functional impact on key recovery parameters. The systematic inclusion of clinical psychology and psychotherapy within cardiovascular surgical pathways is a necessary step towards a modern, patient-centred model of care, with long-term benefits for health outcomes, patient satisfaction, and health system efficiency.

Credit Authorship Contribution Statement

Antonie, A.M. conceived and designed the study, conducted the psychological interventions and assessments, analyzed the data, and wrote and revised the manuscript. She also prepared all annexed materials and approved the final version of the paper.

Conflict of Interest Statement

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Acknowledgement

N/A

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request. Due to ethical and confidentiality considerations, raw data are not publicly shared.

Ethical Approval Statement

The present study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki and relevant national legislation on research involving human subjects. The research protocol, including psychological assessment procedures and intervention design, was reviewed and approved by the Ethics Committee of the County Clinical Emergency Hospital of Craiova, Romania. All procedures were carried out in compliance with institutional regulations governing clinical research.

Prior to participation, all patients were fully informed about the purpose, procedures, and potential implications of the study, and written informed consent was obtained from each participant. Participation was voluntary, and patients were informed of their right to withdraw at any stage without any impact on their medical treatment.

All data were anonymised and processed in accordance with applicable data protection regulations (including GDPR). The psychological interventions applied were non-invasive and integrated into standard multidisciplinary care, posing no additional risk to participants.

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ANNEXES

Annex A: Psychological Assessment Sheets

Assessment Sheet 1 – Preoperative Psychological Evaluation

This initial psychological screening aims to identify emotional vulnerabilities and cognitive patterns that may interfere with adaptation to surgery. The following clinical dimensions are assessed:

- Anxiety level – measured using the Hospital Anxiety and Depression Scale – Anxiety subscale (HADS-A) to quantify anticipatory distress.
- Dominant thoughts – identification of maladaptive cognitions (e.g., catastrophic expectations, low perceived control).
- Sleep quality – subjective evaluation of rest, sleep disturbances, and potential insomnia related to surgical stress.
- Perceived social support – mapping of the patient's emotional and practical support network.
- Coping strategies – identification of adaptive versus avoidant coping mechanisms.
- Psychiatric history – exploration of previous diagnosis, treatment anxiety, depression, related disorders.

Assessment Sheet 2 – Postoperative Psychological Evaluation

This evaluation is conducted during the early postoperative period to monitor psychological adjustment, emotional distress, and recovery-relevant behavioural indicators. The following clinical dimensions are assessed:

- Depressive symptoms – assessed using the Hospital Anxiety and Depression Scale – Depression subscale (HADS-D) to evaluate mood and motivation changes post-surgery.
- Somatic hypervigilance – monitoring of exaggerated attention to bodily symptoms and potential misinterpretation of normal sensations as pathological.
- Emotional reactivity – observation of affective lability, irritability, or emotional blunting in the postoperative context.
- Pain perception – subjective pain intensity measured using the Visual Analogue Scale (VAS) and explored in relation to emotional regulation.
- Cognitive orientation – evaluation of short-term memory, attentional capacity, and processing speed.
- Treatment adherence – degree of cooperation with medical staff, involvement in recovery protocols, and motivation for self-care.

Annex B: Cardiac Anxiety Questionnaire (CAQ)

Purpose: Assessment of specific anxiety related to cardiac condition and cardiovascular surgery.

Instructions: Read each statement carefully and choose the option that best describes how often you have felt or thought this way during the past week.

Use the following scale:

1 = Never | 2 = Rarely | 3 = Sometimes | 4 = Often | 5 = Very Often

No.	Item	Score (1–5)
1	I feel uneasy when I sense strong heartbeats.	
2	I fear my heart might stop at any moment.	
3	I often worry about the health of my heart.	
4	I feel overwhelmed by negative thoughts related to heart surgery.	
5	I avoid physical activities for fear they may trigger heart problems.	
6	I feel endangered when I experience chest pain or difficulty breathing.	
7	I focus too much on sensations in my chest area.	

No.	Item	Score (1–5)
8	I feel out of control when cardiac symptoms appear.	
9	I find it hard to sleep because of thoughts about heart surgery.	
10	I feel more vulnerable than other patients because of my heart condition.	

Total Score: Sum of all item scores (minimum: 10, maximum: 50). A higher score indicates a higher level of cardiac-specific anxiety.

Clinical Use:
- Can be applied during the preoperative phase for screening cardiac anxiety.
- Useful for tailoring CBT interventions and emotional support planning.
- May be reapplied postoperatively to monitor the evolution of cardiac anxiety and intervention efficacy.

Annex C: Psychological Intervention and Monitoring Sheets

Section 1: Preoperative Monitoring Form

This sheet is used to assess the patient's psychological status before cardiovascular surgery. It supports the formulation of targeted interventions. Key Assessment Areas:

- Anxiety Level (HADS-A, BAI)
- Dominant Thoughts and Fears
- Sleep Patterns (PSQI items or observation)
- Perceived Social Support
- Coping Style (Brief COPE)
- Psychiatric History

Section 2: Postoperative Monitoring Form

This form is used during hospitalisation and early recovery to evaluate psychological and behavioural adjustments. Key Monitoring Dimensions:

- Depression and Anxiety (HADS, IES-R);
- Pain Perception (VAS scale);
- Behavioural Activation and Motivation (custom log or therapist notes);
- Adjustment to Medical Condition;
- Adherence to Recommendations.

Section 3: Cardiac Anxiety Questionnaire (10 items)

Patients rate their agreement with the following statements on a scale from 1 (Strongly disagree) to 5 (Strongly agree).

1. I feel anxious when I think about my heart condition.
2. I avoid physical effort for fear of triggering heart symptoms.
3. I often check my pulse or heartbeat.
4. I worry about the possibility of having another cardiac event.
5. I feel tense when I feel palpitations or chest discomfort.
6. I pay excessive attention to every sensation in my chest.
7. I avoid emotional situations for fear they might affect my heart.
8. I find it difficult to relax because of concerns about my heart.
9. I seek reassurance from doctors or family members about my heart symptoms.
10. I limit my activities because I fear worsening my condition.

Scoring: Each item is scored from 1 (Strongly disagree) to 5 (Strongly agree). Higher scores indicate higher levels of cardiac-related anxiety.

Interpretation: 10–19: Low anxiety; 20–34: Moderate anxiety; 35–50: High anxiety.