Supplementary Materials

Table S1. Databases searched, search terms and number of records retrieved

Database	Search period	Records retrieved
PubMed	15 February - 29 June 2025	63
Cochrane Library (CENTRAL)	15 February - 29 June 2025	27
MEDLINE (Ovid)	15 February - 29 June 2025	42
Scopus	15 February - 29 June 2025	54
Web of Science Core Collection	15 February - 29 June 2025	60
CINAHL (EBSCOhost)	15 February - 29 June 2025	41
Total		287

Search terms: Population: 'Coronary bypass surgery', 'Coronary artery bypass grafting (CABG)'. Intervention: 'Psychoeducation', 'Psychological intervention', 'Psychosocial intervention', 'Mental health support', 'Intervention', 'Preoperative care', 'Postoperative care'. Outcomes: 'Anxiety', 'Depression', 'Quality of life (QoL)'. Terms within each concept were combined with OR, and the concepts were combined with AND.

Limits: Studies published in English from 1 January 2015 onwards; eligibility for randomized controlled trials was assessed during screening.

Note: The exact database-specific search strings, including field tags and syntax, were not saved at the time of searching. The table therefore reports the search terms, their Boolean combination, the search period and the number of records retrieved from each database, as imported into Covidence.

Table S2. Data extracted for the meta-analyses

Trial (report)	Outcome; scale	Time point	I: n, mean (SD)	C: n, mean (SD)	Method / notes	Hedges' g (SE)	Use
Akhlaghi et al., 2021	Anxiety; STAI-S (20-80)	Immediately after the preoperative intervention	32, 37.66 (8.28)	32, 43.75 (9.53)	Post-intervention means and SDs (Table 4)	−0.67 (0.25)	Primary
Akhlaghi et al., 2021	Anxiety; STAI-S (20-80)	Hospital discharge	32, 36.46 (8.60)	32, 42.69 (9.36)	As above; alternative time point, not pooled	−0.69 (0.25)	Not pooled
Heilmann et al., 2016	Anxiety; STOA-S affective and cognitive subscales	T1, after the intervention (day before surgery)	132; affective 8.99 (3.35); cognitive 9.08 (3.21)	105; affective 10.17 (3.43); cognitive 10.53 (3.44)	g calculated for each subscale (−0.35 and −0.44) and averaged, assuming r = 1 (Table 3)	−0.39 (0.13)	Primary
Højskov et al., 2019	Anxiety; HADS-A (0-21)	4 weeks after surgery (end of intervention)	152, 3.5 (3.4)	158, 4.3 (3.7)	Means and SDs (Table III)	−0.22 (0.11)	Primary
Højskov et al., 2019	Depression; HADS-D (0-21)	4 weeks after surgery (end of intervention)	152, 3.7 (3.2)	158, 4.3 (3.7)	Means and SDs (Table III)	−0.17 (0.11)	Primary
Li et al., 2024	Anxiety; HADS-A (0-21)	12 months (end of intervention)	87 (ITT)	87 (ITT)	Scores shown only in figures (means and SDs not reported); no effect size could be calculated	—	Not pooled (narrative only)
Li et al., 2024	Depression; HADS-D (0-21)	12 months (end of intervention)	87 (ITT)	87 (ITT)	Scores shown only in figures (means and SDs not reported); no effect size could be calculated	—	Not pooled (narrative only)

PSY-HEART (Rief et al., 2017)	Anxiety; HADS-A (0-21)	6 months after surgery (primary follow-up)	66 (SUPPORT 31 + EXPECT 35), 3.10 (3.49)	42, 3.24 (2.62)	Observed means with 95% CIs (Table 2): SMC 3.24 (2.42-4.05), SUPPORT 2.52 (1.52-3.51), EXPECT 3.61 (2.22-4.99); SDs derived from CIs; active arms combined; n = completers at 6 months (Fig. 1)	−0.04 (0.20)	Primary
PSY-HEART (Rief et al., 2017)	Depression; HADS-D (0-21)	6 months after surgery (primary follow-up)	66, 2.25 (2.45)	42, 3.68 (3.42)	SMC 3.68 (2.62-4.75), SUPPORT 1.88 (1.20-2.57), EXPECT 2.58 (1.60-3.56); method as above	−0.50 (0.20)	Primary
PSY-HEART (Horn et al., 2022)	Anxiety; HADS-A (0-21)	6 months after surgery	69 (SUPPORT 33 + EXPECT 36)	39	Model-estimated means (Table 2): SMC 3.36, SUPPORT 2.57, EXPECT 3.23; values in parentheses (0.43-0.47) are labelled SD but are consistent with SEs and were converted (SD = SE × √n); arms combined; full randomized sample	−0.16 (0.20)	Sensitivity
PSY-HEART (Horn et al., 2022)	Depression; HADS-D (0-21)	6 months after surgery	68 (SUPPORT 32 + EXPECT 36)	39	SMC 3.65, SUPPORT 2.12, EXPECT 2.48 (parenthetical values 0.78-0.83, treated as SEs); method as above	−0.28 (0.20)	Sensitivity

Negative Hedges' g values favor the intervention. I, intervention; C, control; SE, standard error; ITT, intention-to-treat.

Table S3. Risk-of-bias judgements (RoB 2)

Trial	Randomization process	Deviations from intended interventions	Missing outcome data	Measurement of the outcome	Selection of the reported result	Overall
Akhlaghi et al., 2021	Some concerns: allocation by participants drawing shuffled cards in envelopes; concealment procedures not fully described	Some concerns: participants and nurse providers aware of allocation (single-blind design); no information on deviations	Low: 64 of 70 randomized participants analysed (91%), with similar losses in both groups	Some concerns: self-reported STAI-S completed by participants who knew their allocation	Low: outcome and time points match the registered trial (IRCT2018011603897N1)	Some concerns
Heilmann et al., 2016	Some concerns: computer-generated allocation by e-mail; marked imbalance in group sizes (139 vs. 114) without blocking	Some concerns: patients and attending staff not blinded; complete-case (listwise) analysis	Low: 237 of 253 analysed at the primary endpoint (94%)	Some concerns: self-reported anxiety measures completed by unblinded patients	Low: primary endpoint and measures as pre-registered (DRKS)	Some concerns
Højskov et al., 2019	Low: computer-generated sequence with variable block sizes; central web-based allocation concealed from investigators	Some concerns: blinding of participants and clinicians not possible; low adherence to the exercise programme	Low: 310 of 326 analysed, with multiple imputation for missing data	Some concerns: HADS is self-reported, so participants, who were aware of their allocation, acted as outcome assessors; blinding of staff applied only to staff-assessed outcomes	Low: registered protocol (NCT02290262) and published design paper	Some concerns
Li et al., 2024	Some concerns: participants "randomly divided"; sequence generation and allocation concealment not described	Low: ITT analysis; no evidence of deviations affecting the outcome	Low: ITT analysis with imputation of missing data	Some concerns: self-reported HADS completed by participants aware of allocation	Low: registered trial (ISRCTN13653455) and published protocol	Some concerns
PSY-HEART (Rief et al., 2017; Horn et al., 2022)	Low: stratified permuted block randomization; staff assessing outcomes blinded	Some concerns: psychologists and participants aware of the intervention received; analyses excluded multivariate outliers (n = 9)	Low: 108 of 124 completed the 6-month follow-up (87%); mixed models used all available data	Some concerns: HADS is self-reported by participants who were aware of the intervention received; blinding of staff does not	Low: outcomes as specified in the published protocol	Some concerns

				apply to self-reported outcomes		