

Lentora Nursing Journal
e-ISSN 2776-1622
Volume 7 Issue 1, 2026, page 24–34
DOI: 10.33860/lnj.v7i1.4460
Website: https://jurnal.poltekkespalu.ac.id/index.php/LNJ
Publisher: Poltekkes Kemenkes Palu

Original Article

Depression and Quality of Life Following Mindful Breathing in Outpatients With Heart Disease

Ita Sulistiani[1], Eli Saripah[2], Aminuddin[2]
[1] Department of Midwifery, Poltekkes Kemenkes Palu, Central Sulawesi, Indonesia
[2] Department of Nursing, Poltekkes Kemenkes Palu, Central Sulawesi, Indonesia

Correspondence email: ellysdiamondsnowadeiskakl@gmail.com

ARTICLE INFO

Article History:
Received: 2026-10-13
Accepted: 2026-10-27
Published: 2026-10-28

Keywords:

Mindfulness-Based Stress Reduction; depression; quality of life; heart disease; mindful breathing

ABSTRACT

Background: Patients with heart disease may experience depressive symptoms and reduced quality of life, highlighting the need to evaluate brief psychosocial interventions in outpatient care. This study examined short-term changes in depressive symptoms and reported quality of life following a brief mindfulness-based program incorporating psychoeducation and Cardiac-Focused Breathing among cardiac outpatients at Undata Regional Hospital, Palu.

Methods: A single-group pretest–posttest study involved 15 heart disease outpatients at Undata Regional Hospital, Palu, recruited consecutively. A 60-minute session comprised psychoeducation, guided Cardiac-Focused Breathing, and reflection, followed by prescribed daily home practice for two weeks. Depression and quality of life were assessed using the BDI-II and WHOQOL-BREF. Pretest–posttest comparisons used the Wilcoxon signed-rank test.

Results: The reported mean depression score decreased from 23.93 ± 3.77 to 13.47 ± 4.07 (mean change, −10.46 points; p = 0.001). The reported quality-of-life score increased from 66.40 ± 4.60 to 80.27 ± 5.11 (mean change, +13.87 points; p = 0.001). Thirteen participants (86.7%) had directional changes in both outcomes.

Conclusion: Lower depression scores and higher reported quality-of-life scores were observed after the program. Controlled studies with longer follow-up are needed.

©2026 by the authors. Submitted for possible open-access publication under the terms and conditions of the Creative Commons Attribution (CC BY SA) license (https://creativecommons.org/licenses/by-sa/4.0/)

INTRODUCTION

Cardiovascular care requires attention to emotional health as well as physical disease. The American Heart Association identifies psychological well-being as relevant to cardiovascular assessment and management, and contemporary cardiac rehabilitation standards include psychosocial management among their core components (Levine et al., 2021; Brown et al., 2024). Depression and anxiety can complicate recovery, while patient-reported quality of life captures concerns that may be missed by physiological measurements alone (Thompson & Pedersen, 2023; Li et al., 2023).

Comprehensive rehabilitation therefore combines risk-factor management, education, exercise, and psychosocial support. European recommendations emphasize a coordinated approach to secondary prevention, while a recent synthesis of rehabilitation guidelines identifies continuing gaps in psychosocial counselling, patient education, and culturally responsive delivery (Ambrosetti et al., 2021; Cotie et al., 2024). A South-East Asian service survey also documented substantial limitations in rehabilitation capacity; those regional observations support examining accessible approaches but do not establish the availability of services at the present study hospital (Chowdhury et al., 2021).

Psychological interventions provide a rationale for addressing distress alongside routine cardiac care, although outcomes differ across intervention types and populations. Reviews of depression treatment in coronary artery disease describe possible symptom benefits alongside uncertainty about remission and cardiovascular outcomes (Tully et al., 2021; Akosile et al., 2023). A broader review of psychological interventions in cardiac populations distinguishes potential improvements in depression, anxiety, and mental health-related quality of life from less certain effects on physical quality of life and major events (Ski et al., 2024).

Mindfulness-based interventions have received particular attention as complementary approaches. A coronary heart disease review published in 2021 found preliminary benefits for depression and stress but inconclusive effects on quality of life. More recent reviews also report potential psychological benefits, while noting methodological limitations and inconsistent outcomes (Zou et al., 2021; Abdul Manan et al., 2024; W. Li et al., 2024; Kang & Luo, 2022). These findings justify further evaluation rather than assuming that every mindfulness format produces equivalent effects.

Comparator selection is especially important. The Cochrane review of meditation for cardiovascular prevention found that psychological outcomes differed according to whether mindfulness was compared with an active intervention or an inactive control. An umbrella review likewise highlights uncertainty in the wider evidence on cardiovascular risk factors (Rees et al., 2024; Zhang et al., 2024). Clinician-focused guidance recommends matching claims to the specific intervention, outcome, and strength of evidence (Lee et al., 2023).

Controlled cardiac studies have evaluated combinations of mindfulness, education, and behavioural support. The MCARE pilot assessed feasibility and acceptability, while its subsequent social media-based randomized trial evaluated psychological and health-related outcomes after acute coronary syndrome. A longitudinal mediation analysis explored mindfulness and illness perception as potential pathways (Zou et al., 2023; Zou et al., 2024; Cui et al., 2024). These findings are informative for programme design, but the interventions and follow-up periods differ from a single supervised breathing session followed by two weeks of prescribed practice.

Breathing practice may offer an accessible entry point, but it should not be equated with a complete MBSR course. A breathwork meta-analysis found potential mental health benefits, whereas a placebo-controlled coherent-breathing trial did not demonstrate superiority over a matched breathing comparison. A slow-breathing study after percutaneous coronary intervention assessed heart rate and blood pressure rather than depressive symptoms (Fincham et al., 2023a; Fincham et

al., 2023b; Zou et al., 2022). Together, these studies support careful specification of both content and intended outcomes.

At Undata Regional Hospital, Palu, the present study evaluated a brief programme combining psychoeducation, video-guided Cardiac-Focused Breathing, and reflection. Its local contribution is a description of short-term within-participant changes in depressive symptom scores and reported quality of life among 15 outpatients. The objective was to compare pretest and posttest scores following the programme.

METHODS

Study Design

This quantitative study used a single-group pretest–posttest design without a control group. The analysis examined within-participant changes following a brief mindfulness-based programme.

Study Setting and Period

The study was conducted in the outpatient service of Undata Regional Hospital, Palu, Central Sulawesi, Indonesia, during one month in July, 2026.

Participants and Eligibility Criteria

Eligible participants were aged ≥18 years, had a diagnosis of heart disease, were reported to have mild to moderate depressive symptoms, could communicate adequately, and were willing to participate. Patients with unstable clinical conditions, severe psychiatric disorders, or other intensive psychotherapy were excluded.

Sampling and Sample Size

Consecutive sampling was used to recruit patients meeting the study criteria during the recruitment period. Of the 53 patients screened for eligibility, 15 were excluded because of unstable clinical condition, leaving 38 eligible patients. Among these, 18 declined participation because they were unwilling to complete the two-week follow-up, and five did not proceed because of health-related conditions. The remaining 15 patients were enrolled, completed both baseline and follow-up assessments, and were included in the paired analysis.

Intervention

The intervention was a brief mindfulness-based programme adapted from MBSR principles rather than a complete standard MBSR course. The intervention was facilitated by the researcher and delivered individually to the 15 participants in the outpatient setting at Undata Regional Hospital, Palu. Psychoeducation and guided practice were conducted in Indonesian.

The supervised session lasted approximately 60 minutes and comprised psychoeducation (25 minutes), video-guided breathing practice (25 minutes), and reflection (10 minutes). Participants were subsequently instructed to practise independently for 10–15 minutes daily for two weeks.

Outcome Measures

Depressive symptoms were assessed using the Beck Depression Inventory-II (BDI-II), and quality of life was assessed using the WHOQOL-BREF.

Data Collection and Follow-up

Pretest and posttest measurements were obtained using the same outcome instruments. The posttest assessment was conducted after participants completed two weeks of prescribed home practice following the supervised session.

Intervention Adherence and Safety

Participants received daily follow-up messages and reminders via WhatsApp throughout the two-week home practice period to encourage regular breathing practice and support adherence to the prescribed schedule.

Statistical Analysis

Participant characteristics were summarized using frequencies and percentages, while the supplied outcome summaries are presented as means and standard deviations. Mean change was defined as posttest minus pretest. The reported Shapiro–Wilk tests of paired differences yielded $p = 0.002$ for depression and $p < 0.001$ for the reported quality-of-life score. Pretest–posttest comparisons used two-sided Wilcoxon signed-rank tests with a significance level of 0.05. Both reported comparisons yielded $p = 0.001$.

Ethical Considerations

This study was approved by the Research Ethics Committee of Poltekkes Kemenkes Palu under approval No. 001208/KEPK POLTEKKES KEMENKES PALU/2026, dated March 9, 2026.

RESULTS

Table 1. Distribution of Respondent Characteristics of Heart Disease Patients (n=15)

Respondent Characteristics	Frequency (n)	Percentage (%)
Gender		
Male	9	60.0
Female	6	40.0
Total	15	100.0
Marital status		
Married	15	100.0
Total	15	100.0
Occupation		
Self-employed	11	73.3
Civil servant	3	20.0
Retired	1	6.7
Total	15	100.0
Highest educational attainment		
Senior high school	12	80.0
Bachelor's degree	2	13.3
Master's degree	1	6.7
Total	15	100.0

Most respondents were male (60.0%), self-employed (73.3%), and had a high school education (80.0%). All respondents were married.

Table 2. Changes in Depression Scores and Quality of Life Before and After Intervention

Outcome (n = 15)	Pretest mean ± SD	Posttest mean ± SD	Mean change	p-value
Depression (BDI-II)	23.93 ± 3.77	13.47 ± 4.07	−10.46	0.001
Quality of life (WHOQOL-BREF)	66.40 ± 4.60	80.27 ± 5.11	+13.87	0.001

The reported mean depression score decreased from 23.93 ± 3.77 to 13.47 ± 4.07, while the reported WHOQOL-BREF summary score increased from 66.40 ± 4.60 to 80.27 ± 5.11. Mean changes (posttest minus pretest) were −10.46 and +13.87 points, respectively. Both Wilcoxon comparisons yielded p = 0.001.

Table 3. Depression Categories Before and After Intervention

Category	Pretest, n (%)	Posttest, n (%)
Normal	0 (0.0)	11 (73.3)
Mild depression	14 (93.3)	4 (26.7)
Moderate depression	1 (6.7)	0 (0.0)
Severe depression	0 (0.0)	0 (0.0)

The category frequencies in Table 3 remain provisional pending reconciliation with individual BDI-II scores and validated thresholds. Thirteen participants (86.7%) reportedly had both lower depression scores and higher quality-of-life scores at follow-up.

DISCUSSION

Principal Findings

The reported mean depression score decreased by 10.46 points and the reported quality-of-life score increased by 13.87 points; both paired comparisons yielded p = 0.001. These observations describe changes after a combined programme, not a controlled estimate of its effectiveness. The direction of the depression finding is consistent with several coronary mindfulness reviews, but the magnitude cannot be compared directly with pooled standardized between-group effects (Zou et al., 2021; Abdul Manan et al., 2024; W. Li et al., 2024).

Comparison With Mindfulness Research in Cardiac Populations

Controlled evidence provides a more informative comparison than repeated uncontrolled pretest–posttest results. In chronic heart failure, Cavalcante and colleagues evaluated an eight-week programme and reported improvements in perceived stress and several patient-reported outcomes. Wu and colleagues evaluated MBSR alongside early rehabilitation in patients with acute myocardial infarction requiring intra-aortic balloon-pump support (Cavalcante et al., 2023; Wu et al., 2023). Neither clinical setting nor intervention dose closely matches the present outpatient programme; their findings should therefore be used as contextual evidence rather than direct confirmation.

The MCARE randomized trial tested an intervention integrating mindfulness with education and lifestyle modification in acute coronary syndrome, building on a pilot that examined feasibility and acceptability (Zou et al., 2023; Zou et al., 2024). Gu and colleagues also reported associations with psychological and health-related outcomes after myocardial infarction, but their study was retrospective (Gu et al., 2023). The current study adds a local short-format evaluation, while its uncontrolled design offers a weaker basis for attributing observed changes to intervention exposure.

Not every apparently acceptable programme improves every outcome. The MENTOR trial examined integration of meditation into cardiac rehabilitation, whereas the phone-delivered Mind Your Heart study established feasibility but did not report improved depression or medication adherence (Rao et al., 2023; Salmoirago-Blotcher et al., 2022). A brief app-supported study in pretransplant heart failure patients described changes in stress, anxiety, and resilience (Vandenbogaart et al., 2023). This variation argues against using feasibility, satisfaction, symptom improvement, and adherence interchangeably.

Possible Mechanisms and Interpretation of Breathing Practice

Psychoeducation may alter how patients understand illness, while mindful attention may influence their relationship with distressing thoughts and sensations. The MCARE mediation analysis identified potential roles for mindfulness and illness perception, and a clinician-focused review describes several candidate cognitive, behavioural, and autonomic mechanisms (Cui et al., 2024; Lee et al., 2023). These pathways were not measured here, so they remain explanations to test rather than mechanisms demonstrated by the present data.

Breathwork research also illustrates the importance of appropriate controls. Although a meta-analysis found potential reductions in stress and depressive symptoms, Fincham and colleagues' coherent-breathing trial found no superiority over a matched attention-placebo breathing condition (Fincham et al., 2023a; Fincham et al., 2023b). Birdee and colleagues found no significant differential benefit of extending exhalation relative to equal breathing phases, while a post-PCI trial reported an office heart-rate benefit without a corresponding between-group blood-pressure benefit (Birdee et al., 2023; Zou et al., 2022). Thus, slowed breathing, expectancy, attention, and repeated contact may contribute differently across protocols.

Physiological benefits cannot be inferred from psychological score changes. The MB-BP randomized trial examined a specifically adapted programme for elevated blood pressure over six months, while broader reviews of mindfulness and cardiovascular risk factors report heterogeneous outcomes (Loucks et al., 2023; Kang & Luo, 2022; Zhang et al., 2024). The current study did not measure autonomic function, blood pressure effects, inflammatory markers, cardiac function, or cardiovascular events and therefore cannot substantiate claims about cardioprotection.

Depressive Symptom Scores and Clinical Interpretation

The reduction in the BDI-II score is a potentially relevant patient-reported observation, but the categorical findings require correction before interpretation. The baseline mean of 23.93 and the source distribution of 14 mild and one moderate case are inconsistent under conventional BDI-II thresholds. Individual scores, category thresholds, and questionnaire coding should be reconciled. Broader depression-treatment reviews also distinguish symptom improvement from remission and from cardiovascular outcomes (Tully et al., 2021; Akosile et al., 2023; Li et al., 2023). The 13 participants with directional changes in both outcomes should therefore not be described as a verified clinical-response rate.

Quality of Life and Self-management

Quality of life requires separate interpretation from depressive symptoms. The 2024 coronary mindfulness meta-analysis did not find a significant pooled quality-of-life effect, while the Cochrane review of psychological interventions distinguished mental from physical health-related quality of life (W. Li et al., 2024; Ski et al., 2024). Consequently, an increase in an undocumented WHOQOL-BREF summary score cannot establish improvement across all domains. The scoring algorithm, any transformations, and domain-level results are needed before determining the breadth or clinical importance of change.

Observational research links mindfulness with psychological symptoms and quality of life in people with an implantable cardioverter-defibrillator, but cross-sectional associations do not establish treatment effects (Dörner et al., 2024). Similarly, studies examining mindfulness, perceived health competence, health behaviours, and symptom perception in acute coronary syndrome or heart failure suggest possible self-management pathways rather than proof that a brief breathing session improves medication adherence (A. Li et al., 2024; Rababah et al., 2022). These distinctions matter because adherence and self-care were not assessed as outcomes here.

Implications for Nursing Practice and Service Development

For nursing practice, the findings support further evaluation of a clearly defined adjunct within a wider psychosocial-care pathway. Contemporary assessment recommendations and psychosocial-management guidance emphasize identifying patients whose needs require more thorough evaluation or specialist treatment (Thompson & Pedersen, 2023; Hughes et al., 2022). Evidence from broader psychological-intervention reviews should not be treated as specific validation of this brief programme, because the therapies, providers, and clinical endpoints differ (Magán et al., 2022).

Technology may improve reach, but delivery should reflect patient needs and local resources. An mHealth feasibility study assessed mindfulness and positive strengthening for emotional well-being and self-efficacy, while qualitative work with acute coronary syndrome patients identified needs and preferences for remotely delivered mindfulness-based cognitive therapy (Tabernero et al., 2022; Luberto et al., 2024). A regional rehabilitation survey and a guideline synthesis highlight capacity and implementation challenges (Chowdhury et al., 2021; Cotie et al., 2024). Neither source establishes local feasibility; actual attendance, access to video materials, comprehension, and home-practice adherence must be measured.

Other psychological approaches provide useful benchmarks for future controlled research. The PATHWAY trial and a subsequent home-based metacognitive therapy trial evaluated structured interventions alongside rehabilitation, with controlled outcomes and follow-up beyond the immediate session (Wells et al., 2021; Wells et al., 2023). These trials do not validate the present breathing intervention, but they illustrate why intervention specificity, comparator quality, transparent reporting, and longer follow-up are needed. Current rehabilitation standards support integrating psychosocial care into comprehensive secondary prevention rather than presenting a brief programme as a substitute (Brown et al., 2024; Ambrosetti et al., 2021).

Limitations and Future Research

The study is limited by a single-center consecutive sample of 15 participants, no control group, short-term assessment, and incomplete documentation of outcome scoring. Regression to the mean, concurrent treatment, clinical changes, repeated assessment, and nonspecific attention could contribute to the reported differences.

Future research should prospectively specify the intervention, recruitment target, primary outcome, assessment schedule, scoring algorithm, and analysis plan. An adequately justified controlled design should record relevant concurrent treatment, actual home practice, withdrawals, safety events, and outcomes over a longer period. Verified domain-based quality-of-life outcomes and clinically interpretable depressive symptom changes would improve comparison with contemporary psychological-intervention evidence (Ski et al., 2024; Tully et al., 2021).

CONCLUSION

Lower depression scores and higher reported quality-of-life scores were observed after a brief mindfulness-based program incorporating psychoeducation and Cardiac-Focused Breathing. The small uncontrolled study does not establish effectiveness, clinical response, or sustained benefit.

Controlled studies with larger samples, verified domain-based quality-of-life measures, and longer follow-up are needed before routine implementation can be recommended.

Author's Contribution Statement: IS: Investigation, data curation, formal analysis, and writing—original draft. ES: Conceptualization, methodology, supervision, and writing—review and editing. A: Methodology, supervision, and writing—review and editing.

Conflicts of Interest: The authors declare no conflicts of interest.

Source of Funding Statements: This study was funded through the authors' personal resources. No external funding was received.

Acknowledgments: The authors thank Poltekkes Kemenkes Palu for institutional support and the leadership and staff of Undata Regional Hospital, Palu, for facilitating the research. Appreciation is also extended to the healthcare workers who assisted with study activities and to all participating patients.

Declaration of Artificial Intelligence (AI) Use: ChatGPT (OpenAI) assisted with language editing, manuscript restructuring, literature retrieval and synthesis, and reference formatting. Reported numerical results were retained from the supplied manuscript.

REFERENCES

Abdul Manan, H., Mir, I. A., Humayra, S., Tee, R. Y., & Vasu, D. T. (2024). Effect of mindfulness-based interventions on anxiety, depression, and stress in patients with coronary artery disease: a systematic review and meta-analysis of randomized controlled trials. Frontiers in psychology, 15, 1435243. https://doi.org/10.3389/fpsyg.2024.1435243

Akosile, W., Tiyatiye, B., Colquhoun, D., & Young, R. (2023). Management of depression in patients with coronary artery disease: A systematic review. Asian journal of psychiatry, 83, 103534. https://doi.org/10.1016/j.ajp.2023.103534

Ambrosetti, M., Abreu, A., Corrà, U., Davos, C. H., Hansen, D., Frederix, I., … Zwisler, A. O. (2021). Secondary prevention through comprehensive cardiovascular rehabilitation: From knowledge to implementation. 2020 update. A position paper from the Secondary Prevention and Rehabilitation Section of the European Association of Preventive Cardiology. European journal of preventive cardiology, 28(5), 460-495. https://doi.org/10.1177/2047487320913379

Birdee, G., Nelson, K., Wallston, K., Nian, H., Diedrich, A., Paranjape, S., … Gamboa, A. (2023). Slow breathing for reducing stress: The effect of extending exhale. Complementary therapies in medicine, 73, 102937. https://doi.org/10.1016/j.ctim.2023.102937

Brown, T. M., Pack, Q. R., Aberegg, E., Brewer, L. C., Ford, Y. R., Forman, D. E., … Thomas, R. J. (2024). Core Components of Cardiac Rehabilitation Programs: 2024 Update: A Scientific Statement From the American Heart Association and the American Association of Cardiovascular and Pulmonary Rehabilitation. Circulation, 150(18), e328-e347. https://doi.org/10.1161/cir.0000000000001289

Cavalcante, V. N., Mesquita, E. T., Cavalcanti, A. C. D., Miranda, J. S. D. S., Jardim, P. P., Bandeira, G. M. D. S., … Vieira, G. C. A. (2023). Impact of a Stress Reduction, Meditation, and Mindfulness Program in Patients with Chronic Heart Failure: A Randomized Controlled Trial. Arquivos brasileiros de cardiologia, 120(10), e20220768. https://doi.org/10.36660/abc.20220768

Chowdhury, M., Heald, F. A., Turk-Adawi, K., Supervia, M., Babu, A. S., Radi, B., & Grace, S. L. (2021). Availability and delivery of cardiac rehabilitation in South-East Asia: How does it compare globally?. WHO South-East Asia journal of public health, 10(2), 57-65. https://doi.org/10.4103/who-seajph.who-seajph_62_21

Cotie, L. M., Vanzella, L. M., Pakosh, M., & Ghisi, G. L. M. (2024). A Systematic Review of Clinical Practice Guidelines and Consensus Statements for Cardiac Rehabilitation Delivery: Consensus, Divergence, and Important Knowledge Gaps. The Canadian journal of cardiology, 40(3), 330-346. https://doi.org/10.1016/j.cjca.2023.10.016

Cui, J., Zhang, G., Xianyu, Y., Zhang, X., Cheng, Y. X., Liu, Y. J., … Zou, H. (2024). Mechanisms of a mindfulness psyCho-behAvioRal intErvention (MCARE) on depression and anxiety symptoms in patients with acute coronary syndrome: A longitudinal mediation analysis. Journal of psychosomatic research, 187, 111913. https://doi.org/10.1016/j.jpsychores.2024.111913

Dörner, M., von Känel, R., König, N., Pazhenkottil, A. P., Altwegg, R., Nager, L., … Princip, M. (2024). Mindfulness Is Associated with Lower Depression, Anxiety, and Post-Traumatic Stress Disorder Symptoms and Higher Quality of Life in Patients with an Implantable Cardioverter-Defibrillator-A Cross-Sectional Study. Healthcare (Basel, Switzerland), 12(11), 1118. https://doi.org/10.3390/healthcare12111118

Fincham, G. W., Strauss, C., Montero-Marin, J., & Cavanagh, K. (2023a). Effect of breathwork on stress and mental health: A meta-analysis of randomised-controlled trials. Scientific reports, 13(1), 432. https://doi.org/10.1038/s41598-022-27247-y

Fincham, G. W., Strauss, C., & Cavanagh, K. (2023b). Effect of coherent breathing on mental health and wellbeing: a randomised placebo-controlled trial. Scientific reports, 13(1), 22141. https://doi.org/10.1038/s41598-023-49279-8

Gu, J. J., Tong, X. S., Meng, S. S., Xu, S. H., & Huang, J. Y. (2023). Effect of mindfulness-based stress reduction in patients with acute myocardial infarction after successful primary percutaneous coronary intervention: a retrospective study. BMC cardiovascular disorders, 23(1), 315. https://doi.org/10.1186/s12872-023-03346-0

Hughes, J. W., Serber, E. R., & Kuhn, T. (2022). Psychosocial management in cardiac rehabilitation: Current practices, recommendations, and opportunities. Progress in cardiovascular diseases, 73, 76-83. https://doi.org/10.1016/j.pcad.2021.12.006

Kang, Q., & Luo, A. (2022). The efficacy of mindfulness-based intervention for heart diseases: A meta-analysis of randomized controlled trials. Medicine, 101(39), e29649. https://doi.org/10.1097/md.0000000000029649

Lee, S. Y., Gathright, E. C., Wu, W. C., & Salmoirago-Blotcher, E. (2023). Mindfulness-Based Interventions for Patients with Cardiovascular Disease: A Focused Review for Practicing Clinicians. Current cardiology reports, 25(4), 185-191. https://doi.org/10.1007/s11886-023-01846-1

Levine, G. N., Cohen, B. E., Commodore-Mensah, Y., Fleury, J., Huffman, J. C., Khalid, U., … Kubzansky, L. D. (2021). Psychological Health, Well-Being, and the Mind-Heart-Body Connection: A Scientific Statement From the American Heart Association. Circulation, 143(10), e763-e783. https://doi.org/10.1161/cir.0000000000000947

Li, X., Zhou, J., Wang, M., Yang, C., & Sun, G. (2023). Cardiovascular disease and depression: a narrative review. Frontiers in cardiovascular medicine, 10, 1274595. https://doi.org/10.3389/fcvm.2023.1274595

Li, A., Nie, Y., Chi, M., Wang, N., Ji, S., Zhu, Z., … Hou, Y. (2024). Mediating Effect of Perceived Health Competence on the Association Between Mindfulness and Adherence to Health Behaviors in Patients with Acute Coronary Syndrome: A Cross-Sectional Study. Patient preference and adherence, 18, 2203-2215. https://doi.org/10.2147/ppa.s487100

Li, W., Liao, X., Geng, D., Yang, J., Chen, H., Hu, S., & Dai, M. (2024). Mindfulness therapy for patients with coronary heart disease: A systematic review and meta-analysis. International journal of nursing practice, 30(6), e13276. https://doi.org/10.1111/ijn.13276

Loucks, E. B., Schuman-Olivier, Z., Saadeh, F. B., Scarpaci, M. M., Nardi, W. R., Proulx, J. A., … Kronish, I. M. (2023). Effect of Adapted Mindfulness Training in Participants With Elevated Office Blood Pressure: The MB-BP Study: A Randomized Clinical Trial. Journal of the American Heart Association, 12(11), e028712. https://doi.org/10.1161/jaha.122.028712

Luberto, C. M., Crute, S., Wang, A., Li, R., Yeh, G. Y., Huffman, J. C., … Park, E. R. (2024). Needs and Preferences for Remote-Delivered Mindfulness-Based Cognitive Therapy in Patients After Acute Coronary Syndrome: A Qualitative Study. Global advances in integrative medicine and health, 13, 27536130241288213. https://doi.org/10.1177/27536130241288213

Magán, I., Jurado-Barba, R., Casado, L., Barnum, H., Jeon, A., Hernandez, A. V., & Bueno, H. (2022). Efficacy of psychological interventions on clinical outcomes of coronary artery disease: Systematic review and meta-analysis. Journal of psychosomatic research, 153, 110710. https://doi.org/10.1016/j.jpsychores.2021.110710

Rababah, J. A., Al-Hammouri, M. M., Tawalbeh, L., Alhawatmeh, H., & Hasan, M. (2022). Self-care among persons with heart failure: Examining the impact of mindfulness and impulsivity using conditional process analysis. Nursing forum, 57(4), 558-567. https://doi.org/10.1111/nuf.12719

Rao, A., Zecchin, R., Newton, P. J., Read, S. A., Phillips, J. L., DiGiacomo, M., … Hickman, L. D. (2023). Feasibility of Integrating MEditatioN inTO heaRt Disease (the MENTOR Study): A Phase II Randomized Controlled Trial. The Journal of cardiovascular nursing, 38(5), 492-510. https://doi.org/10.1097/jcn.0000000000000997

Rees, K., Takeda, A., Court, R., Kudrna, L., Hartley, L., & Ernst, E. (2024). Meditation for the primary and secondary prevention of cardiovascular disease. The Cochrane database of systematic reviews, 2, CD013358. https://doi.org/10.1002/14651858.cd013358.pub2

Salmoirago-Blotcher, E., Walaska, K., Trivedi, D., Dunsiger, S., Breault, C., Levine, D., … Cohen, R. (2022). Mind Your Heart: Exploring Feasibility, Acceptability, and Preliminary Effects of Phone-Delivered Mindfulness Training on Medication Adherence in Outpatients With Chronic Heart Failure. The Journal of cardiovascular nursing, 37(6), 595-602. https://doi.org/10.1097/jcn.0000000000000891

Ski, C. F., Taylor, R. S., McGuigan, K., Long, L., Lambert, J. D., Richards, S. H., & Thompson, D. R. (2024). Psychological interventions for depression and anxiety in patients with coronary heart disease, heart failure or atrial fibrillation. The Cochrane database of systematic reviews, 4, CD013508. https://doi.org/10.1002/14651858.cd013508.pub3

Tabernero, C., Gutiérrez-Domingo, T., Steca, P., Castillo-Mayén, R., Cuadrado, E., Rubio, S. J., … Luque, B. (2022). Effectiveness of Mindfulness and Positive Strengthening mHealth Interventions for the Promotion of Subjective Emotional Wellbeing and Management of Self-Efficacy for Chronic Cardiac Diseases. Journal of personalized medicine, 12(12), 1953. https://doi.org/10.3390/jpm12121953

Thompson, D. R., & Pedersen, S. S. (2023). Psychosocial assessment and psychological interventions following a cardiac event. Heart (British Cardiac Society), 109(5), 405-410. https://doi.org/10.1136/heartjnl-2022-321607

Tully, P. J., Ang, S. Y., Lee, E. J., Bendig, E., Bauereiß, N., Bengel, J., & Baumeister, H. (2021). Psychological and pharmacological interventions for depression in patients with coronary artery disease. The Cochrane database of systematic reviews, 12, CD008012. https://doi.org/10.1002/14651858.cd008012.pub4

Vandenbogaart, E., Gawlinski, A., Grimley, K. A., Lewis, M. A., & Pavlish, C. (2023). App-Based Mindfulness Intervention to Improve Psychological Outcomes in Pretransplant Patients With Heart Failure. Critical care nurse, 43(2), 15-25. https://doi.org/10.4037/ccn2023411

Wells, A., Reeves, D., Capobianco, L., Heal, C., Davies, L., Heagerty, A., … Fisher, P. (2021). Improving the Effectiveness of Psychological Interventions for Depression and Anxiety in Cardiac Rehabilitation: PATHWAY-A Single-Blind, Parallel, Randomized, Controlled Trial of Group Metacognitive Therapy. Circulation, 144(1), 23-33. https://doi.org/10.1161/circulationaha.120.052428

Wells, A., Reeves, D., Heal, C., Fisher, P., Doherty, P., Davies, L., … Capobianco, L. (2023). Metacognitive therapy home-based self-help for anxiety and depression in cardiovascular disease patients in the UK: A single-blind randomised controlled trial. PLoS medicine, 20(1), e1004161. https://doi.org/10.1371/journal.pmed.1004161

Wu, K., Wan, M., Zhou, H., Li, C., Zhou, X., Li, E., … Liu, L. (2023). Mindfulness-based stress reduction combined with early cardiac rehabilitation improves negative mood states and cardiac function in patients with acute myocardial infarction assisted with an intra-aortic balloon pump: a randomized controlled trial. Frontiers in cardiovascular medicine, 10, 1166157. https://doi.org/10.3389/fcvm.2023.1166157

Zhang, X. F., Li, R. N., Deng, J. L., Chen, X. L., Zhou, Q. L., Qi, Y., … Fan, J. M. (2024). Effects of mindfulness-based interventions on cardiovascular risk factors: An umbrella review of systematic reviews and meta-analyses. Journal of psychosomatic research, 177, 111586. https://doi.org/10.1016/j.jpsychores.2023.111586

Zou, H., Cao, X., & Chair, S. Y. (2021). A systematic review and meta-analysis of mindfulness-based interventions for patients with coronary heart disease. Journal of advanced nursing, 77(5), 2197-2213. https://doi.org/10.1111/jan.14738

Zou, Y., Wu, Q., Liu, T., Wang, J. Y., Liu, L., & Wang, X. H. (2022). The effect of slow breathing exercise on heart rate and blood pressure in patients undergoing percutaneous coronary intervention: a randomized controlled trial. European journal of cardiovascular nursing, 21(3), 271-279. https://doi.org/10.1093/eurjcn/zvab066

Zou, H., Chair, S. Y., Luo, D., Liu, Q., Wang, X. Q., & Yang, B. X. (2023). A mindfulness-oriented psycho-behavioral intervention for patients with acute coronary syndrome: A pilot study. Heart & lung : the journal of critical care, 62, 240-248. https://doi.org/10.1016/j.hrtlng.2023.08.009

Zou, H., Chair, S. Y., Feng, B., Liu, Q., Liu, Y. J., Cheng, Y. X., … Yang, B. X. (2024). A Social Media-Based Mindfulness Psycho-Behavioral Intervention (MCARE) for Patients With Acute Coronary Syndrome: Randomized Controlled Trial. Journal of medical Internet research, 26, e48557. https://doi.org/10.2196/48557