ESC European Journal of Cardiovascular Nursing (2026) **00**, 1–2
https://doi.org/10.1093/eurjcn/zvag145

INVITED COMMENTARY

Reflexology as a nurse-led strategy in coronary angiography

Şirin Özkan [1]*, Yeşim Yaman Aktaş [2], and Sevilay Şenol Çelik [3]

[1]Department of Public Health and Primary Care, Geriatrics & Gerontology, KU Leuven, UZ Herestraat 49, box 7003, Belgium; [2]Department of Surgical Nursing, Faculty of Health Sciences, Giresun University, Giresun 28200, Türkiye; and [3]School of Nursing, Koc University, Istanbul 34010, Türkiye

Received 12 June 2026; accepted 15 June 2026; published 14 July 2026

This invited commentary refers to 'Reflexology for pain and anxiety in patients undergoing coronary angiography: a systematic review and meta-analysis' by C. Kanat *et al.* https://doi.org/10.1093/eurjcn/zvag132.

Coronary angiography (CAG) is currently one of the gold-standard invasive procedures for the diagnosis and treatment of coronary artery disease (CAD). However, the CAG process may induce significant psychological problems, such as fear and anxiety, as well as physical symptoms including pain and bleeding in patients.[1] Anxiety and pain can activate the sympathetic nervous system, leading to increased heart rate and blood pressure, disruption of haemodynamic stability, and reduced patient comfort.[2] Furthermore, pain and discomfort experienced during or after CAG may negatively affect patient experiences, recovery processes, and satisfaction with care.[3] Consequently, growing attention has been directed towards non-pharmacological and nurse-led interventions aimed at improving patient experiences, reducing anxiety, and supporting symptom management.[4]

In this context, the study entitled 'Reflexology for pain and anxiety in patients undergoing coronary angiography: a systematic review and meta-analysis' provides important and timely contributions to the literature.[5] By synthesizing findings from 10 studies involving a total of 913 patients, the authors demonstrated that reflexology significantly reduced anxiety levels immediately after the CAG procedure and 30 min following the intervention. In addition, the synthesis suggested that reflexology may contribute to reducing post-procedural pain levels. This study is noteworthy because it presents reflexology not only as a complementary therapy but also as a feasible nursing intervention that may be incorporated into holistic cardiovascular care.

The findings are consistent with the existing literature demonstrating the beneficial effects of reflexology in cardiovascular and perioperative settings. Chandrababu *et al.*[6] reported that reflexology significantly reduced anxiety during cardiovascular procedures. Similarly, Wang *et al.*[7] demonstrated positive effects of foot reflexology on anxiety and sleep quality among adults. More recent randomized controlled trials conducted in cardiac surgery patients have also shown that reflexology can effectively reduce post-operative pain and anxiety as a complementary intervention.[8,9] Therefore, this systematic review and meta-analysis contributes to the growing body of evidence suggesting that touch-based complementary therapies may positively influence both psychological and physiological stress responses associated with invasive procedures. Nevertheless, the concentration of evidence in a limited number of countries is consistent with bibliometric findings demonstrating the geographically restricted distribution of the reflexology literature and highlights the need to validate these findings across diverse clinical settings.[10]

Although the reviewed study demonstrates several methodological strengths, its findings should be interpreted with caution. The very high heterogeneity reported for anxiety outcomes (I^2 > 90%) indicates substantial variability among the included studies. As highlighted by the authors, differences in reflexology protocols, duration of intervention, timing of application (before or after the procedure), practitioner expertise, and measurement instruments likely contributed to this heterogeneity. Such methodological diversity underscores a persistent challenge in complementary therapy research: the lack of standardized intervention protocols.

Additional methodological limitations should also be considered. Although some studies were judged to have a low risk of bias, others demonstrated a high risk of bias, particularly regarding blinding procedures and deviations from intended interventions.[5] Insufficient blinding in studies evaluating subjective outcomes and the inclusion of quasi-experimental designs may have increased the risk of selection bias and confounding. Consequently, the authors' characterization of the overall certainty of evidence as 'low to moderate' rather than 'high' appears appropriate.[5] Future studies employing standardized reflexology protocols and high-quality randomized controlled designs would strengthen the existing evidence base.

Despite these limitations, the study provides valuable insights for cardiovascular nursing practice. Contemporary cardiovascular care increasingly emphasizes not only technical success but also patient experience and holistic well-being. Reflexology is particularly attractive in this context because it is non-invasive, relatively inexpensive, and does not carry the adverse effects commonly associated with pharmacological therapies.[5] Nevertheless, current evidence indicates that reflexology

* Corresponding author. Email: sirin.oezkan@kuleuven.be
© The Author(s) 2026. Published by Oxford University Press on behalf of the European Society of Cardiology. All rights reserved. For commercial re-use, please contact reprints@oup.com for reprints and translation rights for reprints. All other permissions can be obtained through our RightsLink service via the Permissions link on the article page on our site—for further information please contact journals.permissions@oup.com.

Downloaded from academic.oup.com/eurjcn/advance-article/doi/10.1093/eurjcn/zvag145/8733675 by guest on 04 September 2026

should be considered a complementary intervention rather than an alternative to standard medical treatment.[11] From a nursing perspective, the most appropriate approach is not the routine application of reflexology to all patients but rather its integration into evidence-based care pathways when clinically appropriate. Such integration should include comprehensive symptom assessment, patient education, informed consent, safety monitoring, and appropriate documentation.

Rising healthcare expenditures and increasing public interest in complementary and integrative health practices have further encouraged the institutionalization of such approaches within healthcare systems. The World Health Organization's Traditional Medicine Strategy (2014–2023) has encouraged member states to support the safe, effective, and evidence-based integration of complementary therapies into healthcare services.[12] However, the value of reflexology within healthcare systems should not be evaluated solely based on clinical effectiveness. Consideration should also be given to factors such as implementation feasibility, regulatory frameworks, cost-effectiveness, workforce requirements, and the capacity to generate measurable patient outcomes.[13]

The heterogeneity and methodological limitations of the current evidence continue to present significant barriers to the routine integration of reflexology into healthcare services. Therefore, future research should move beyond the question of whether reflexology 'works' and instead address more clinically relevant questions, such as in which patient populations, under what circumstances, at what cost, and for which clinical outcomes does reflexology provide meaningful benefits? Future investigations would benefit from the use of standardized intervention protocols, detailed reporting of practitioner training, and multicentre randomized controlled trial designs. Such studies could provide more robust evidence to support informed clinical decision-making and healthcare policy development.

In conclusion, this systematic review and meta-analysis offers valuable contributions to the field of non-pharmacological symptom management in cardiovascular nursing. Although reflexology cannot yet be considered a definitive component of evidence-based standard care for patients undergoing CAG, current findings suggest that it possesses clinically meaningful potential for the management of anxiety and pain. As cardiovascular nursing continues to evolve towards a more holistic and patient-centred model of care, reflexology may represent a promising complementary approach for addressing the often-overlooked psychological and symptomatic dimensions of invasive cardiac procedures. Nevertheless, the translation of this potential into routine clinical practice will depend upon the accumulation of stronger evidence generated through methodologically rigorous research.

Author contributions

Sirin Özkan (Conceptualization, Writing—original draft, Writing—review & editing [equal]), Yesim Yaman Aktas (Conceptualization, Writing—original draft, Writing—review & editing [equal]), and Sevilay Senol Çelik (Conceptualization, Writing—original draft, Writing—review & editing [equal])

Funding

None declared.

Conflict of interest: none declared.

Data availability

This commentary does not contain new data.

References

1. Palandacic AK, Ucman S, Kovacic D, Sarotar BN, Lainscak M. Anxiety in patients referred for elective coronary angiography: a prospective cohort study. *BMC Cardiovasc Disord* 2025;**26**:96.
2. Cho SG, Kim HY, Bom HS. Anxiety as a risk factor in coronary artery disease among young women. *J Nucl Cardiol* 2021;**28**:2593–2596.
3. Soysal GE, Erbas SD. Factors influencing pain, anxiety, and comfort in patients undergoing coronary angiography: a prospective observational study. *Saudi Med J* 2025;**46**:679.
4. Abedi Z, Parizad N, Ahangarzadeh M. Non-pharmacological interventions for managing pre-angiography anxiety: a systematic review. *Int Cardiovasc Res J* 2025;**19**:e159851.
5. Kanat C, Avci A, Çavuşoğlu E. Reflexology for pain and anxiety in patients undergoing coronary angiography: a systematic review and meta-analysis. *Eur J Cardiovasc Nurs* 2026. doi:10.1093/eurjcn/zvag132.
6. Chandrababu R, Rathinasamy EL, Suresh C, Ramesh J. Effectiveness of reflexology on anxiety of patients undergoing cardiovascular interventional procedures: a systematic review and meta-analysis of randomized controlled trials. *J Adv Nurs* 2019;**75**:43–53.
7. Wang WL, Hung HY, Chen YR, Chen KH, Yang SN, Chu CM, *et al.* Effect of foot reflexology intervention on depression, anxiety, and sleep quality in adults: a meta-analysis and metaregression of randomized controlled trials. *Evid Based Complement Alternat Med* 2020;**2020**:2654353.
8. Gunes K, Gezginci E, Tok M. The effect of reflexology on pain, anxiety, fatigue, and sleep in patients undergoing coronary artery bypass graft surgery: a randomized controlled trial. *Eur J Integr Med* 2024;**66**:102342.
9. Göktuna G, Dağcan N, Arslan GG. The effect of hand reflexology massage on pain and anxiety after coronary artery bypass graft surgery: a double-blind, randomized, placebo-controlled trial. *J Cardiovasc Nurs* 2025;**40**:E57–E64.
10. Cai DC, Chen CY, Lo TY. Foot reflexology: recent research trends and prospects. *Healthcare (Basel)* 2023;**11**:9.
11. Whatley J, Perkins J, Samuel C. Reflexology: exploring the mechanism of action. *Complement Ther Clin Pract* 2022;**48**:101606.
12. World Health Organization. *WHO Traditional Medicine Strategy: 2014–2023*. Geneva, Switzerland: World Health Organization; 2013.
13. World Health Organization. *Draft Global Traditional Medicine Strategy: 2025–2034 (EB156/16)*. Geneva, Switzerland: World Health Organization; 2024.

Downloaded from academic.oup.com/eurjcn/advance-article/doi/10.1093/eurjcn/zvag145/8733675 by guest on 04 September 2026