

Methodological Considerations in “Associated Factors for Erectile Dysfunction in Patients with Coronary Artery Disease”: Letter to the Editor

Dear Editor

I recently have read with great interest an article by Ali Hamidi Madani and colleagues, entitled “Associated Factors for Erectile Dysfunction Occurrence in Patients with Coronary Artery Disease: A Cross-sectional Study”, which was published in your esteemed journal (IJMS Vol 50, No. 1, January 2025).¹ The authors provided valuable insights into the relationship between erectile dysfunction (ED) and coronary artery disease (CAD) severity. However, I would like to highlight several methodological concerns that might limit the conclusions of the study.

First, the study considered “being married” as an inclusion criterion, which prompted a selection bias by excluding unmarried men with CAD who might also be at risk. According to 2017 data, approximately 11% of Iranian men over 30 were unmarried, and this figure has likely increased in recent years.² Excluding this population might overlook key demographic variations, potentially skewing the results.


Second, several confounding factors were not adequately addressed. While the study excluded numerous comorbidities, it failed to account for hypertension, a well-documented contributor to ED.³ Additionally, neurologic disorders (e.g., Parkinson’s disease, lumbar disc herniation), which have reported ED prevalence rates of 68% and 77%, respectively,^{4,5} were not explicitly considered in patient selection. Furthermore, although the study excluded patients taking beta-blockers and diuretics, it failed to mention other commonly used anti-hypertensive drugs, such as calcium channel blockers, angiotensin receptor blockers (ARBs), and angiotensin-converting enzyme (ACE) inhibitors, which might influence ED.³ Adjusting for or excluding these confounders could strengthen the validity of the findings.

Lastly, the study relied solely on self-reported data (International Index of Erectile Function [IIEF-15] questionnaire), which is susceptible to recall bias and fails to differentiate between vasculogenic and psycho-neurogenic causes of ED. The authors suggested that ED should prompt cardiovascular risk assessment. However, this assumed the reported ED prevalence was primarily due to vascular dysfunction rather than neuropsychological factors. Penile duplex Doppler ultrasonography (PDDU) offers a minimally invasive approach to evaluate both arterial insufficiency and veno-occlusive dysfunction, while dual-energy CT arteriography provides a non-invasive alternative for assessing the penile arterial system and shows high sensitivity and specificity in the diagnosis of arterial ED diagnosis.⁶ Incorporation of these robust diagnostic approaches could significantly enhance diagnostic certainty and provide a more definitive pathophysiological characterization of ED in CAD patients.

In conclusion, while the study contributed meaningfully to the CAD-ED literature, the aforementioned limitations warrant caution in interpreting the results. Future research should incorporate broader confounding factors and objective tools for ED assessments. I appreciate the authors’ work and hope this letter aids both researchers and readers in refining future studies.

Conflict of Interest: None declared.

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The Authors' Reply

Dear Editor

Here is a detailed explanation of why certain factors or methodologies were not included in the study, addressing the questions raised in the letter to the editor:

1. Rationale for Using “Being Married” as an Inclusion Criterion

The inclusion criterion of “being married” was implemented to ensure that participants were in stable relationships where sexual activity was likely to occur. This criterion allowed the study to assess erectile dysfunction (ED) within a real-life context, where its impact on quality of life and interpersonal relationships could be meaningfully evaluated. Including unmarried men might have introduced significant variability, as their sexual activity patterns could differ significantly due to individual circumstances, potentially confounding the results. Additionally, cultural and societal norms in Iran influenced the decision, as discussions on sexual health are more commonly framed within marital relationships.

While this design choice enhanced the reliability of participants' self-reports, we recognized it might limit generalizability to unmarried populations. Future studies should develop culturally adapted methodologies to include unmarried participants.

2. Justification for Excluding Unmarried Men

Unmarried men were excluded primarily due to cultural considerations in Iran, where sexual health discourse predominantly centers on marital relationships. Their inclusion might have introduced variability in sexual activity patterns, complicating data interpretation. Additionally, assessing ED in unmarried men might require tailored questionnaires or methodologies, to account for their distinct sociosexual contexts, which was beyond the scope of this study.

3. Omission of Hypertension and Neurological Disorders

Although hypertension is a known risk factor for ED, the study specifically focused on coronary artery disease (CAD) as the primary condition influencing ED. Incorporating hypertension would have necessitated a larger sample size and additional adjustments, potentially overcomplicating the analysis. However, it is acknowledged that future studies should consider hypertension to provide a more comprehensive understanding of ED risk factors.

Patients with significant neurological disorders were likely excluded during initial screening, as these conditions were considered established independent causes of ED. The study aimed to isolate vascular causes of ED related to CAD, minimizing confounding variables such as neurological diseases.

4. Exclusion of Other Antihypertensive Medications

The study excluded patients taking beta-blockers and diuretics due to their well-documented association with ED. Other antihypertensive medications (e.g., calcium channel blockers, angiotensin receptor blockers) were not explicitly analyzed, as their effects on erectile function vary—some might even improve it. Logistical constraints, such as the difficulty of collecting detailed medication histories and analyzing their diverse effects, precluded their inclusion. Future research should incorporate a more detailed analysis of medication use.

5. Reliance on Self-Reported Data (IIEF-15) over Objective Diagnostic Tools

The International Index of Erectile Function (IIEF-15) questionnaire was selected for several reasons:

1. It is a validated, widely accepted tool for assessing ED.
2. It is non-invasive, cost-effective, and scalable for large studies.
3. It captures the subjective patient's perspective on sexual function.

Objective diagnostic tools, such as penile duplex Doppler ultrasonography (PDDU) or Dual-energy CT arteriography, were not used due to practical limitations:

- High costs and resource intensity
- Specialized equipment and personnel requirements (often unavailable in routine clinical settings)
- Increased study complexity and budgetary constraints

The use of IIEF-15 ensured feasibility, broader participation, and alignment with the study's logistical framework.

In conclusion, the design of the study was based on practical, cultural, and methodological considerations, prioritizing feasibility while maintaining focus on the primary objective: examining the relationship between CAD severity and ED. Although this approach had some limitations, it provided useful insights for future research to address these factors more comprehensively.

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