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Letter to the Editor

The Risk of a Recurrent Myocardial Infarction Depends not only on Sleep Quality, Inflammatory Markers, and Psychological Stress

[1] Sounira Mehri, [2] Josef Finsterer

[1] Laboratory of "Nutrition - Functional Food & Health", Faculty of Medicine, University of Monastir, Tunisia
[2] Department of Neurology, Neurology & Neurophysiology Center, Vienna, Austria

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Corresponding Author: **Josef Finsterer**

Letter to the Editor

We read with interest the article by Hirsch *et al*. on a prospective cross-sectional study investigating the relationship between sleep quality (assessed using the Pittsburgh Sleep Quality Index (PSQI)), inflammation (assessed by measuring CRP, IL-6, and TNF-alpha), psychological stress (assessed using a Likert scale question), and the recurrence of myocardial infarction (MI) [1]. The authors concluded that good sleep quality may be an effective strategy for secondary prevention and thus for reducing the risk of MI recurrence, and that this effect can be enhanced by targeted stress management interventions [1]. While the study is promising, it has some limitations that should be discussed.

First, sleep quality was assessed using the PSQI [1]. The limitations of the PSQI include: recall bias, as it relies solely on self-reports; responses are strongly influenced by patients' subjective perceptions or memories of their sleep rather than by clinical reality; it lacks objective measurements such as brain waves or eye movements, which are captured by clinical instruments such as polysomnography; it is limited to monthly intervals, as the instrument assesses a patient's sleep over a one-month period and therefore cannot be used to track daily sleep variations; the overall score often fails to capture the differentiated sleep disturbances common in certain groups, such as people with schizophrenia or heavy substance use; definitions of normal sleep hygiene are difficult to translate across cultures, and patients may suffer from social desirability bias and try to present themselves in a positive light; and it is a one-factor scoring system that does not capture multidimensional problems [2].

The second point is that measuring psychological stress using a single Likert scale has several disadvantages: it does not allow for diagnostic nuances (stress is multifaceted and includes physical, emotional, and cognitive symptoms) as a single question cannot distinguish between burnout, acute anxiety, or situational pressure; it has low statistical reliability because single items do not have the internal consistency of multi-item tests, meaning that individual measurement errors cannot be averaged out; it relies on the subjectivity of categorization and is dependent on the personal, cultural, or situational context of the respondents, which reduces the accuracy of the data; it has ordinal limitations because numerical data can sometimes lead to mathematical misinterpretations, preventing meaningful mean or variance calculations; it is susceptible to bias because respondents might downplay their stress levels due to social desirability or completely overlook underlying, unquantified stressors of which they are unaware [3].

The third point is that the risk of MI recurrence depends not only on inflammatory markers, sleep quality, and psychological stress, but also on numerous other risk factors [4]. MI recurrence is primarily caused by uncontrolled cardiovascular risk factors, the severity of the underlying disease, and poor adherence to therapy. Risk factors for MI recurrence include diabetes mellitus, arterial hypertension, dyslipidemia (especially high LDL cholesterol and triglyceride levels), tobacco use, renal insufficiency, multivessel disease, a history of heart failure, a history of stroke or previous coronary interventions, poor adherence to therapy or the inappropriate or incomplete use of guideline-recommended medications such as statins, antiplatelet agents, beta-blockers, and ACE inhibitors, lack of follow-up care and poor adherence to therapy during cardiac rehabilitation, and long travel distances to follow-up clinics [4]. Non-modifiable risk factors include older age, being female over 45, and being black [4].

Unless all confounding factors that determine the risk of recurrent MI are included in the analysis, the presented data, their discussion, and the conclusions drawn from them remain unreliable.

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