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The association between nutrients intake, diet quality and food insecurity with depression in patients with coronary artery disease

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Abstract

Aim Depression is a prevalent mental health disorder in patients with cardiovascular disease worldwide. The purpose of this observational study was to determine the association between nutrients intake, food insecurity, and diet quality with depression in patients with coronary artery diseases (CAD).

Materials and methods This cross-sectional study was conducted on 225 coronary artery patients. Nutrients intake, diet quality (by calculating Framingham Nutrition Risk Score (FNRS)), food insecurity and depression status of patients were obtained by using standard validated questionnaires. Relevant statistical analyses including logistic regression were used to analyze all data. $P\text{-value} \leq 0.05$ was considered significant.

Results The multivariate-adjusted regression model showed that a higher intake of total fat ($P=0.02$, $OR=1.031$) increases the odds of depression. However, a higher intake of PUFA and Vitamin B12 was associated with its lower odds. ($P=0.005$, $OR=0.87$ and $P=0.005$, $OR=0.73$, respectively). It also indicated food insecurity was associated with depression in CAD patients ($P<0.001$, $OR=6.92$). FNRS could not show any significant association.

Conclusion This study indicated that the dietary intake of PUFA and vitamin B12 were negatively associated with depression, while the intake of total fat from diet was directly associated with depression and might be considered as a risk factor in CAD patients. Furthermore, food insecurity was strongly and positively associated with depression in these patients. However, diet quality based on FNRS was not associated with depression among patients with CAD.

Keywords Cardiovascular disease, Coronary artery disease, Depression, Nutritional status, Nutrients intake, Food insecurity, Diet quality, Framingham nutritional risk score (FNRS)

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Ultimately, the determination of diet quality involves the consideration of multiple factors, whereas the FNRS approach relies on a limited number of factors. Other factors that may affect diet quality include food habits, food insecurity, and, particularly, food culture.

The present research has certain limitations that should be taken into consideration. It seems that determining the intake of food groups and the dietary pattern and eating habits of the participants could be the way to explain the findings related to nutrients intake in this study more precisely. Another limitation of this study is the small sample size. A study on a larger population could provide more precise results.

This investigation had some strengths; for instance, according to our knowledge for the first time in the present study, the relationship between the Framingham Nutritional Risk Score (FNRS) and depression was investigated.

It is recommended that the future studies should determine the intake of food groups, dietary pattern, and eating habits of patients as well as diet quality using other methods; this may help to clarify the relationship between nutritional status and depression in CAD patients.

Conclusion

In this study, we found that the dietary intake of PUFA and vitamin B12 was negatively associated with depression status and might be protective against depression, while the intake of total fat from diet was directly associated with depression and might be considered as a risk factor. Food insecurity was strongly and positively associated with the depression status. Diet quality based on FNRS was not associated with the depression status among patients with coronary artery disease. The results have increased awareness of the association between depression and coronary artery disease, thereby promoting further research to identify effective nutritional interventions.

Abbreviations

CVD	CardioVascular Disease
ASCVD	Atherosclerotic Cardiovascular Disease
FHS	Framingham Heart Study
FNRS	Framingham Nutritional Risk Score
CAD	Coronary Artery Disease
CABG	Coronary Artery Bypass Graft
MDD	Major Depression Disorder
BDI	Beck's Depression Inventory
BMI	Body Mass Index
PUFA	Poly-Unsaturated Fatty Acid
IPAQ-SF	International Physical Activity Questionnaire Short Form
HPA	Hypothalamic-Pituitary-Adrenal axis
BDNF	Brain-Derived Neurotrophic Factor
RNA	Ribonucleic Acid
IQR	Interquartile Range
SD	Standard Deviation

Acknowledgements

This article is the results of the MSc thesis written by M.D. The authors would like to appreciate the patients who participated in this study. The authors would like to thank Shiraz University of Medical Sciences, Shiraz, Iran and also Center for Development of Clinical Research of Nemazee Hospital and Dr. Nasrin Shokrpour for editorial assistance.

Author contributions

Najmeh Hejazi, Mohammad Dehghani, Javad Kojuri, Morteza Zare, Afsane Ahmadi and Atefe bonyadian designed the study. Najmeh Hejazi, Mohammad Dehghani, Javad Kojuri, AA and Atefe bonyadian conducted the study. Mohammad Dehghani, Morteza Zare and Atefe bonyadian performed the statistical analysis. Najmeh Hejazi, Mohammad Dehghani, Atefe bonyadian and Morteza Zare provided the first draft. All authors have read and approved the final manuscript.

Funding

This study was financially supported (grant no:25700) by the Vice Chancellery of Research and Technology in Shiraz University of Medical Sciences, Shiraz, I.R. Iran.

Data availability

No datasets were generated or analysed during the current study.

Declarations

Ethics approval and consent to participate

The moral considerations of this study was in accordance with the Declaration of Helsinki and were checked and confirmed by the ethics committee of Shiraz University of Medical Sciences, Shiraz, Iran (IR.SUMS.SCHEANUT.REC.1401.065). The participants were informed about the protocol of the study and the informed consent was obtained from them.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

Received: 21 January 2025 / Accepted: 23 May 2025

Published online: 18 June 2025

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