



Charles Darwin University

Factors Associated with Readmission of Cardiovascular Patients

A Cross-sectional Study in Iran

Salimi, Marzie; Bastani, Peivand; Nasiri, Mahdi; Karajizadeh, Mehrdad; Ravangard, Ramin

Published in:
Open Public Health Journal

DOI:
[10.2174/0118749445245440230925051347](https://doi.org/10.2174/0118749445245440230925051347)

Published: 01/01/2023

Document Version
Publisher's PDF, also known as Version of record

[Link to publication](#)

Citation for published version (APA):

Salimi, M., Bastani, P., Nasiri, M., Karajizadeh, M., & Ravangard, R. (2023). Factors Associated with Readmission of Cardiovascular Patients: A Cross-sectional Study in Iran. *Open Public Health Journal*, 16, [e187494452308280]. <https://doi.org/10.2174/0118749445245440230925051347>

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

Take down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Declaration of Helsinki, as revised in 2013.

CONSENT FOR PUBLICATION

Informed consent was obtained from all participants of this study.

AVAILABILITY OF DATA AND MATERIALS

The data supporting the findings of the article is available from the corresponding author [R.R] on reasonable request.

STANDARDS OF REPORTING

COREQ guidelines were followed.

FUNDING

This study was extracted from the thesis written by Marzie Salimi and was financially supported by Shiraz University of Medical Sciences grant No. 97-01-07-18833.

CONFLICT OF INTEREST

The authors declare no conflict of interest financial or otherwise.

ACKNOWLEDGEMENTS

The authors would like to thank the studied patients for their cooperation in collecting the data. Also, the authors would like to thank Shiraz University of Medical Sciences, Shiraz, Iran, and also Center for Development of Clinical Research of Nemazee Hospital for their assistance in data analysis and Dr. Nasrin Shokrpour for editorial assistance.

REFERENCES

- Lopez EO, Ballard BD, Jan A. Cardiovascular disease. StatPearls 2022.
- Cardiovascular diseases World Health Organization. 2022. Available from: [https://www.who.int/en/news-room/fact-sheets/detail/cardiovascular-diseases-\(cvds\)\(editor. 6/11/2022\)](https://www.who.int/en/news-room/fact-sheets/detail/cardiovascular-diseases-(cvds)(editor. 6/11/2022))
- Cardiovascular diseases. 2022. Available from: [https://www.emro.who.int/health-topics/cardiovascular-diseases/index.html\(editor. 19/11/2022\)](https://www.emro.who.int/health-topics/cardiovascular-diseases/index.html(editor. 19/11/2022))
- Shamsi A, Ebadi A. Risk factors of cardiovascular diseases in elderly people. Iran J Crit Care Nurs 2011; 3(4): 187-92.
- Emamian MH, Hashemi H, Fotouhi A. Predicted 10-year risk of cardiovascular disease in the Islamic Republic of Iran and the body mass index paradox. East Mediterr Health J 2020; 26(12): 1465-72. [<http://dx.doi.org/10.26719/emhj.20.012>] [PMID: 33355385]
- Sarrafzadegan N, Mohammadifard N. Cardiovascular disease in Iran in the last 40 years: Prevalence, mortality, morbidity, challenges and strategies for cardiovascular prevention. Arch Iran Med 2019; 22(4): 204-10. [PMID: 31126179]
- Heydari A, Ziaee ES, Ebrahimzade S. The frequency of rehospitalization and its contributing factors in patient with cardiovascular diseases hospitalized in selected hospitals in mashhad in 2010. Int Med Today 2011; 17(2): 65-71.
- Wang S, Zhu X. Nationwide hospital admission data statistics and disease-specific 30-day readmission prediction. Health Inf Sci Syst 2022; 10(1): 25. [<http://dx.doi.org/10.1007/s13755-022-00195-7>] [PMID: 36065327]
- Ashktorab T. Factors contributing to readmission of congestive heart failure patients admitted in internal ward of hospitals of shahid beheshti university of medical sciences in tehran. Adv Nurs Midwifery 2012; 20(72): 19-24.
- Hatam N, Askarian M, Khamzade F, Jafari P, Bastani P. Readmission risk factors in patients of general surgery wards in shiraz hospitals: Applying LACE index as a predictive indicator. Aca J Sur 2015; 2(3-4): 33-8.
- Afrash MR, Kazemi-Arpanahi H, Shanbehzadeh M, Nopour R, Mirbagheri E. Predicting hospital readmission risk in patients with COVID-19: A machine learning approach. Inform Med Unlocked 2022; 30: 100908. [<http://dx.doi.org/10.1016/j.imu.2022.100908>] [PMID: 35280933]
- Sajadi S, Hosseini M. Assessment of prevalence of readmission in admitted ward of tehran oil company's hospital in 2016. Nurs Midwifery J 2018; 16(1): 1-11.
- Ebrahimpouriyan LMM, Parazdeh S, Khorasani E, Etemadi M, Ghahremani F. Factors affecting the readmission of patients with type II diabetes to selected hospitals in kermanshah, Iran. J Health Syst Res 2016; 11(4): 747-52.
- Dakour Aridi H, Locham S, Nejim B, Malas MB. Comparison of 30-day readmission rates and risk factors between carotid artery stenting and endarterectomy. J Vasc Surg 2017; 66(5): 1432-1444.e7. [<http://dx.doi.org/10.1016/j.jvs.2017.05.097>] [PMID: 28865979]
- Feng TR, White RS, Gaber-Baylis LK, Turnbull ZA, Rong LQ. Coronary artery bypass graft readmission rates and risk factors - A retrospective cohort study. Int J Surg 2018; 54(Pt A): 7-17. [<http://dx.doi.org/10.1016/j.ijsu.2018.04.022>] [PMID: 29678620]
- Tripathi B, Yeh RW, Bavishi CP, et al. Etiologies, trends, and predictors of readmission in ST-elevation myocardial infarction patients undergoing multivessel percutaneous coronary intervention. Catheter Cardiovasc Interv 2019; 94(7): 905-14. [<http://dx.doi.org/10.1002/ccd.28344>] [PMID: 31165573]
- Mirkin KA, Enomoto LM, Caputo GM, Hollenbeak CS. Risk factors for 30-day readmission in patients with congestive heart failure. Heart Lung 2017; 46(5): 357-62. [<http://dx.doi.org/10.1016/j.hrtlng.2017.06.005>] [PMID: 28801110]
- Shah RM, Zhang Q, Chatterjee S, et al. Incidence, cost, and risk factors for readmission after coronary artery bypass grafting. Ann Thorac Surg 2019; 107(6): 1782-9. [<http://dx.doi.org/10.1016/j.athoracsur.2018.10.077>] [PMID: 30553740]
- Rubin DJ, Golden SH, McDonnell ME, Zhao H. Predicting readmission risk of patients with diabetes hospitalized for cardiovascular disease: A retrospective cohort study. J Diabetes Complications 2017; 31(8): 1332-9. [<http://dx.doi.org/10.1016/j.jdiacomp.2017.04.021>] [PMID: 28571933]
- Lu MLR, Davila CD, Shah M, et al. Marital status and living condition as predictors of mortality and readmissions among African Americans with heart failure. Int J Cardiol 2016; 222: 313-8. [<http://dx.doi.org/10.1016/j.ijcard.2016.07.185>] [PMID: 27500756]
- Benavidez OJ, He W, Lahoud-Rahme M. Readmissions following congenital heart surgery in infants and children. Pediatr Cardiol 2019; 40(5): 994-1000. [<http://dx.doi.org/10.1007/s00246-019-02104-4>] [PMID: 30976884]
- Kumar N, Simek S, Garg N, et al. Thirty-day readmissions after hospitalization for hypertensive emergency. Hypertension 2019; 73(1): 60-7. [<http://dx.doi.org/10.1161/HYPERTENSIONAHA.118.11691>] [PMID: 30571563]
- Kwok CS, Parwani PJ, Fischman DL, et al. Nonspecific chest pain and 30-Day unplanned readmissions in the united states (from the nationwide readmission database). Am J Cardiol 2019; 123(8): 1343-50. [<http://dx.doi.org/10.1016/j.amjcard.2019.01.012>] [PMID: 30709600]
- Rodriguez-Padial L, Elola FJ, Fernández-Pérez C, et al. Patterns of inpatient care for acute myocardial infarction and 30-day, 3-month and 1-year cardiac diseases readmission rates in Spain. Int J Cardiol 2017; 230: 14-20. [<http://dx.doi.org/10.1016/j.ijcard.2016.12.121>] [PMID: 28038819]
- Saito M, Negishi K, Marwick TH. Meta-analysis of risks for short-term readmission in patients with heart failure. Am J Cardiol 2016; 117(4): 626-32. [<http://dx.doi.org/10.1016/j.amjcard.2015.11.048>] [PMID: 26772444]
- Guedeney P, Huchet F, Manigold T, et al. Incidence of, risk factors for and impact of readmission for heart failure after successful transcatheter aortic valve implantation. Arch Cardiovasc Dis 2019; 112(12): 765-72. [<http://dx.doi.org/10.1016/j.acvd.2019.09.008>] [PMID: 31759916]
- Maniar HS, Bell JM, Moon MR, et al. Prospective evaluation of patients readmitted after cardiac surgery: Analysis of outcomes and identification of risk factors. J Thorac Cardiovasc Surg 2014; 147(3): 1013-20. [<http://dx.doi.org/10.1016/j.jtcvs.2013.10.066>] [PMID: 24365269]
- Aranda JM Jr, Johnson JW, Conti JB. Current trends in heart failure readmission rates: Analysis of medicare data. Clin Cardiol 2009; 32(1): 47-52. [<http://dx.doi.org/10.1002/clc.20453>] [PMID: 19143005]