ABSTRACT

Objectives: Japanese medical academia continues to depend on quantitative indicators, contrary to the general trend in research evaluation. To understand this situation better and facilitate discussion, this study aimed to examine how Japanese medical researchers perceive quantitative indicators and qualitative factors of research evaluation and their differences by the researchers' characteristics.

Design: We employed a web-based cross-sectional survey and distributed the self-administered questionnaire to academic society members via the Japanese Association of Medical Sciences.

Participants: We received 3139 valid responses representing Japanese medical researchers in any medical research field (basic, clinical and social medicine).

Outcomes: The subjective importance of quantitative indicators and qualitative factors in evaluating researchers (eg, the journal impact factor (IF) or the originality of the research topic) was assessed on a four-point scale, with 1 indicating 'especially important' and 4 indicating 'not important'. The attitude towards various opinions in quantitative and qualitative research evaluation (eg, the possibility of research misconduct or susceptibility to unconscious bias) was also evaluated on a four-point scale, ranging from 1, 'strongly agree', to 4, 'completely disagree'.

Results: Notably, 67.4% of the medical researchers, particularly men, younger and basic medicine researchers, responded that the journal IF was important in researcher evaluation. Most researchers (88.8%) agreed that some important studies do not get properly evaluated in research evaluation using quantitative indicators. The respondents perceived quantitative indicators as possibly leading to misconduct, especially in basic medicine (strongly agree-basic, 22.7%; clinical, 11.7%; and social, 16.1%). According to the research fields, researchers consider different qualitative factors, such as the originality of the research topic (especially important-basic, 46.2%; social, 39.1%; and clinical, 32.0%) and the contribution to solving clinical and social problems (especially important-basic, 30.4%; clinical, 41.0%; and social, 52.0%), as important. Older researchers tended to believe that qualitative research evaluation was unaffected by unconscious bias.

Conclusion: Despite recommendations from the Declaration on Research Assessment and the Leiden Manifesto to de-emphasise quantitative indicators, this study found that Japanese medical researchers have actually tended to prioritise the journal IF and other quantitative indicators based on English-language publications in their research evaluation. Therefore, constantly reviewing the research evaluation methods while respecting the viewpoints of researchers from different research fields, generations and genders is crucial.

Keywords: General Medicine (See Internal Medicine); Health Policy; Medical Education & Training.

ABSTRACT

Numerous studies have demonstrated a robust correlation between metabolic syndrome (MetS) and colorectal cancer (CRC). Nonetheless, no systematic analysis or visualization of relevant publications has been conducted via bibliometrics. This research, centred on 616 publications obtainable through the Web of Science Core Collection (WoSCC), employed CiteSpace software and VOSviewer software for correlation analyses of authors, journals, institutions, countries, keywords, and citations. The findings indicate that the Public Library of Science had the highest number of publications, while the United States, China, and South Korea were the most contributory nations. Recent years have seen the mechanisms linking Metabolic Syndrome with Colorectal Cancer, including diet, obesity, insulin resistance, and intestinal flora, remain a burgeoning research area. Furthermore, bariatric surgery appears to be a promising new area of study. This paper presents the initial bibliometric and visualization analysis of research literature concerning CRC and MetS which examines research trends and hotspots.

ABSTRACT

Research integrity is guided by a set of principles to ensure research reliability and rigor. It serves as a pillar to uphold society's trust in science and foster scientific progress. However, over the past 2 decades, a surge in research integrity concerns, including fraudulent research, reproducibility challenges, and questionable practices, has raised critical questions about the reliability of scientific outputs, particularly in biomedical research. In the biomedical sciences, any breaches in research integrity could potentially lead to a domino effect impacting patient care, medical interventions, and the broader implementation of healthcare policies. Addressing these breaches requires measures such as rigorous research methods, transparent reporting, and changing the research culture. Institutional

support through clear guidelines, robust training, and mentorship is crucial to fostering a culture of research integrity. However, structural and institutional factors, including research incentives and recognition systems, play an important role in research behavior. Therefore, promoting research integrity demands a collective effort from all stakeholders to maintain public trust in the scientific community and ensure the reliability of science. Here we discuss some definitions and principles, the implications for biomedical sciences, and propose actionable steps to foster research integrity.

4. *van Oijen JCF, van Dongen-Leunis A, Postma J, van Leeuwen T, Bal R. Achieving research impact in medical research through collaboration across organizational boundaries: Insights from a mixed methods study in the Netherlands. Health Res Policy Syst. 2024 Jun 25;22(1):72. doi: 10.1186/s12961-024-01157-z.*

ABSTRACT

Background: In the Netherlands, university medical centres (UMCs) bear primary responsibility for conducting medical research and delivering highly specialized care. The TopCare program was a policy experiment lasting 4 years in which three non-academic hospitals received funding from the Dutch Ministry of Health to also conduct medical research and deliver highly specialized care in specific domains. This study investigates research collaboration outcomes for all Dutch UMCs and non-academic hospitals in general and, more specifically, for the domains in the non-academic hospitals participating in the TopCare program. Additionally, it explores the organizational boundary work employed by these hospitals to foster productive research collaborations.

Methods: A mixed method research design was employed combining quantitative bibliometric analysis of publications and citations across all Dutch UMCs and non-academic hospitals and the TopCare domains with geographical distances, document analysis and ethnographic interviews with actors in the TopCare program.

Results: Quantitative analysis shows that, over the period of study, international collaboration increased among all hospitals while national collaboration and single institution research declined slightly. Collaborative efforts correlated with higher impact scores, and international collaboration scored higher than national collaboration. A total of 60% of all non-academic hospitals' publications were produced in collaboration with UMCs, whereas almost 30% of the UMCs' publications were the result of such collaboration. Non-academic hospitals showed a higher rate of collaboration with the UMC that was nearest geographically, whereas TopCare hospitals prioritized expertise over geographical proximity within their specialized domains. Boundary work mechanisms adopted by TopCare hospitals included aligning research activities with organizational mindset (identity), bolstering research infrastructure (competence) and finding and mobilizing strategic partnerships with academic partners (power). These efforts aimed to establish credibility and attractiveness as collaboration partners.

Conclusions: Research collaboration between non-academic hospitals and UMCs, particularly where this also involves international collaboration, pays off in terms of publications and impact. The TopCare hospitals used the program's resources to perform boundary work aimed at becoming an attractive and credible collaboration partner for academia. Local factors such as research history, strategic domain focus, in-house expertise, patient flows, infrastructure and network relationships influenced collaboration dynamics within TopCare hospitals and between them and UMCs.

5. *Scurt FG, Bose K, Mertens PR, Chatzikyrkou C, Herzog C. Cardiac Surgery-Associated Acute Kidney Injury. Kidney360. 2024 Jun 1;5(6):909-926. doi: 10.34067/KID.0000000000000466. Epub 2024 May 1.*

ABSTRACT

AKI is a common and serious complication of cardiac surgery that has a significant impact on patient morbidity and mortality. The Kidney Disease Improving Global Outcomes definition of AKI is widely used to classify and identify AKI associated with cardiac surgery (cardiac surgery-associated AKI [CSA-AKI]) on the basis of changes in serum creatinine and/or urine output. There are various preoperative, intraoperative, and postoperative risk factors for the development of CSA-AKI which should be recognized and addressed as early as possible to expedite its diagnosis, reduce its occurrence, and prevent or ameliorate its devastating complications. Crucial issues are the inaccuracy of serum creatinine as a surrogate parameter of kidney function in the perioperative setting of cardiothoracic surgery and the necessity to discover more representative markers of the pathophysiology of AKI. However, except for the tissue inhibitor of metalloproteinase-2 and insulin-like growth factor binding protein 7 ratio, other diagnostic biomarkers with an acceptable sensitivity and specificity are still lacking. This article provides a comprehensive review of various aspects of CSA-AKI, including pathogenesis, risk factors, diagnosis, biomarkers, classification, prevention, and treatment management.

6. *Grant MC, Crisafi C, Alvarez A, Arora RC, Brindle ME, Chatterjee S, et al. Perioperative Care in Cardiac Surgery: A Joint Consensus Statement by the Enhanced Recovery After Surgery (ERAS) Cardiac Society, ERAS International Society, and The Society of Thoracic Surgeons (STS). Ann Thorac Surg 2024 Apr;117(4):669-*

ABSTRACT

Enhanced Recovery After Surgery (ERAS) programs have been shown to lessen surgical insult, promote recovery, and improve postoperative clinical outcomes across a number of specialty operations. A core tenet of ERAS involves the provision of protocolized evidence-based perioperative interventions. Given both the growing enthusiasm for applying ERAS principles to cardiac surgery and the broad scope of relevant interventions, an international, multidisciplinary expert panel was assembled to derive a list of potential program elements, review the literature, and provide a statement regarding clinical practice for each topic area. This article summarizes those consensus statements and their accompanying evidence. These results provide the foundation for best practice for the management of the adult patient undergoing cardiac surgery.

ABSTRACT

Background and objective: Machine learning (ML) is increasingly being utilized to provide data driven solutions to challenges in medicine. Within the field of cardiac surgery, ML methods have been employed as risk stratification tools to predict a variety of operative outcomes. However, the clinical utility of ML in this domain is unclear. The aim of this review is to provide an overview of ML in cardiac surgery, particularly with regards to its utility in predictive analytics and implications for use in clinical decision support.

Methods: We performed a narrative review of relevant articles indexed in PubMed since 2000 using the MeSH terms "Machine Learning", "Supervised Machine Learning", "Deep Learning", or "Artificial Intelligence" and "Cardiovascular Surgery" or "Thoracic Surgery".

Key content and findings: ML methods have been widely used to generate pre-operative risk profiles, consistently resulting in the accurate prediction of clinical outcomes in cardiac surgery. However, improvement in predictive performance over traditional risk metrics has proven modest and current applications in the clinical setting remain limited.

Conclusions: Studies utilizing high volume, multidimensional data such as that derived from electronic health record (EHR) data appear to best demonstrate the advantages of ML methods. Models trained on post cardiac surgery intensive care unit data demonstrate excellent predictive performance and may provide greater clinical utility if incorporated as clinical decision support tools. Further development of ML models and their integration into EHR's may result in dynamic clinical decision support strategies capable of informing clinical care and improving outcomes in cardiac surgery.

Keywords: Cardiac surgery; artificial intelligence (AI); critical care; data science; machine learning (ML).

ABSTRACT

Background: Extracorporeal blood purification has been widely used in intensive care medicine, nephrology, toxicology, and other fields. During the last decade, with the emergence of new adsorptive blood purification devices, hemoadsorption has been increasingly applied during CPB in cardiac surgery, for patients at different inflammatory risks, or for postoperative complications. Clinical evidence so far has not provided definite answers concerning this adjunctive treatment. The current systematic review aimed to critically assess the role of perioperative hemoadsorption in cardiac surgery, by summarizing the current knowledge in this clinical setting.

Methods: A literature search of PubMed, Cochrane library, and the database provided by CytoSorbents was conducted on June 1st, 2023. The search terms were chosen by applying neutral search keywords to perform a non-biased systematic search, including language variations of terms "cardiac surgery" and "hemoadsorption". The screening and selection process followed scientific principles (PRISMA statement). Abstracts were considered for inclusion if they were written in English and published within the last ten years. Publications were eligible for assessment if reporting on original data from any type of study (excluding case reports) in which a hemoadsorption device was investigated during or after cardiac surgery. Results were summarized according to sub-fields and presented in a tabular view.

Results: The search resulted in 29 publications with a total of 1,057 patients who were treated with hemoadsorption and 988 control patients. Articles were grouped and descriptively analyzed due to the remarkable variability in study designs, however, all reported exclusively on CytoSorb® therapy. A total of 62% (18/29) of the included articles reported on safety and no unanticipated adverse events have been observed. The most frequently reported clinical outcome associated with hemoadsorption was reduced vasopressor demand resulting in better hemodynamic stability.

Conclusions: The role of hemoadsorption in cardiac surgery seems to be justified in selected high-risk cases in infective endocarditis, aortic surgery, heart transplantation, and emergency surgery in patients under antithrombotic therapy, as well as in those who develop a dysregulated inflammatory response, vasoplegia, or septic shock postoperatively. Future large randomized controlled trials are needed to better define proper patient selection, dosing, and timing of the therapy.

Keywords: Aortic surgery; Blood purification; Cardiac surgery; CytoSorb; ECMO; Heart transplantation; Hemoadsorption; Hyperinflammation; Infective endocarditis.

9. *Min J-J, Cho YH, Lee SM, Lee J-H. Anesthetic management for non-cardiac surgery in patients with left ventricular assist devices. Korean J Anesthesiol. 2024 Apr;77(2):175-184. doi: 10.4097/kja.23169. Epub 2023 Mar 10.*

ABSTRACT

With the growing number of patients undergoing left ventricular assist device (LVAD) implantation and improved survival in this population, more patients with LVADs are presenting for various types of non-cardiac surgery. Therefore, anesthesiologists need to understand the physiology and adequately prepare for the perioperative management of this unique patient population. This review addresses perioperative considerations and intraoperative management for the safe and successful management of patients with an LVAD undergoing non-cardiac surgery. Understanding the basic physiology of preload dependency and afterload sensitivity in these patients is essential. The main considerations include a collaborative preoperative multidisciplinary approach, perioperative care aimed at optimizing the intravascular volume and right ventricular function, and maintaining the afterload within recommended ranges for optimal LVAD function.

Keywords: Anesthesia; General anesthesia; Heart-assist devices; Intraoperative monitoring; Surgical procedures; Ventricle-assist device.

10. *Alharbi NS. Evaluating competency-based medical education: a systematized review of current practices. BMC Med Educ. 2024 Jun 3;24(1):612. doi: 10.1186/s12909-024-05609-6.*

ABSTRACT

Background: Few published articles provide a comprehensive overview of the available evidence on the topic of evaluating competency-based medical education (CBME) curricula. The purpose of this review is therefore to synthesize the available evidence on the evaluation practices for competency-based curricula employed in schools and programs for undergraduate and postgraduate health professionals.

Method: This systematized review was conducted following the systematic reviews approach with minor modifications to synthesize the findings of published studies that examined the evaluation of CBME undergraduate and postgraduate programs for health professionals.

Results: Thirty-eight articles met the inclusion criteria and reported evaluation practices in CBME curricula from various countries and regions worldwide, such as Canada, China, Turkey, and West Africa. 57% of the evaluated programs were at the postgraduate level, and 71% were in the field of medicine. The results revealed variation in reporting evaluation practices, with numerous studies failing to clarify evaluations' objectives, approaches, tools, and standards as well as how evaluations were reported and communicated. It was noted that questionnaires were the primary tool employed for evaluating programs, often combined with interviews or focus groups. Furthermore, the utilized evaluation standards considered the well-known competencies framework, specialized association guidelines, and accreditation criteria.

Conclusion: This review calls attention to the importance of ensuring that reports of evaluation experiences include certain essential elements of evaluation to better inform theory and practice.

Keywords: Competency-based medical education; Curriculum development; Postgraduate medical education; Program evaluation; Undergraduate medical education.

11. *Loy M, Kowalsky R. Narrative Medicine: The Power of Shared Stories to Enhance Inclusive Clinical Care, Clinician Well-Being, and Medical Education.Perm J. 2024 Jun 14;28(2):93-101. doi: 10.7812/TPP/23.116. Epub 2024 Jan 16.*

ABSTRACT

The COVID-19 pandemic exacerbated the problem of secondary trauma and moral injury for health care workers. This reality, together with the epidemic of social isolation and loneliness, has brought the mental health of health care practitioners and patients to the forefront of the national conversation. Narrative medicine is an accessible, diversity-honoring, low-cost, underutilized pedagogical framework with potentially revolutionary benefits for enhancing patient care, supporting the underserved, mitigating clinician burnout, and improving team dynamics. Herein, the authors review the literature on these benefits and then discuss methods for integrating narrative medicine into clinical care and medical education at the undergraduate and graduate levels as well as continuing medical education.

Keywords: Advocacy; Communication; Medical Education; Medical Humanities; Narrative Medicine; Physician Well-being; Professionalism.