Publication Trends of Network Meta-analyses in Europe and Asia: A Focus on Cardiovascular Disease

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OBJECTIVES

- To compare trends in publications of network meta-analyses in cardiovascular diseases in Asia-Pacific (China, Japan, Singapore, South Korea, Thailand) and Europe (United Kingdom, Germany, France, Spain, Italy), with a focus on volume, author collaborations and methods.

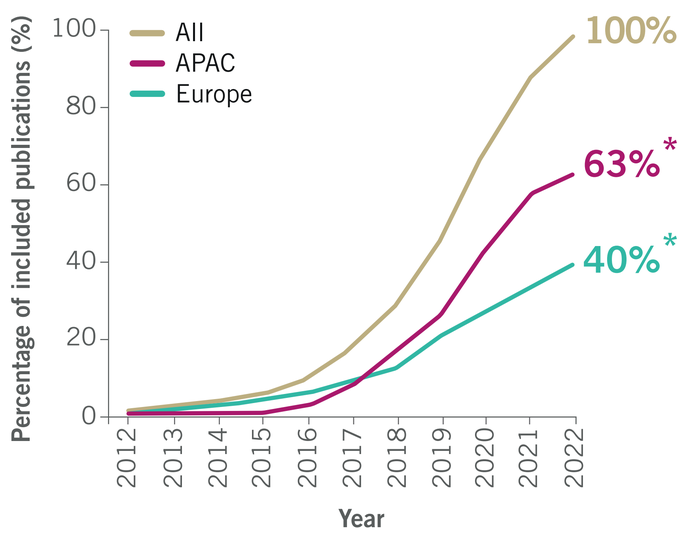
BACKGROUND

- Cardiovascular disease (CVD) is the leading cause of death globally, accounting for 35% and 46% of total deaths in Asia Pacific (APAC) and Europe respectively.[1,2]
- The increased understanding of risk factors associated with CVD has led to the advent of numerous therapies, necessitating the need for comparative data.
- Network meta-analyses (NMA) comparing CVD therapies are therefore essential tools for comparing the risks and benefits of therapies, to inform healthcare decision-making.
- Given the high burden of CVD but currently relatively different healthcare decision-making landscapes in Europe and Asia, a comparison of NMA publication trends in these regions was conducted.

METHODS

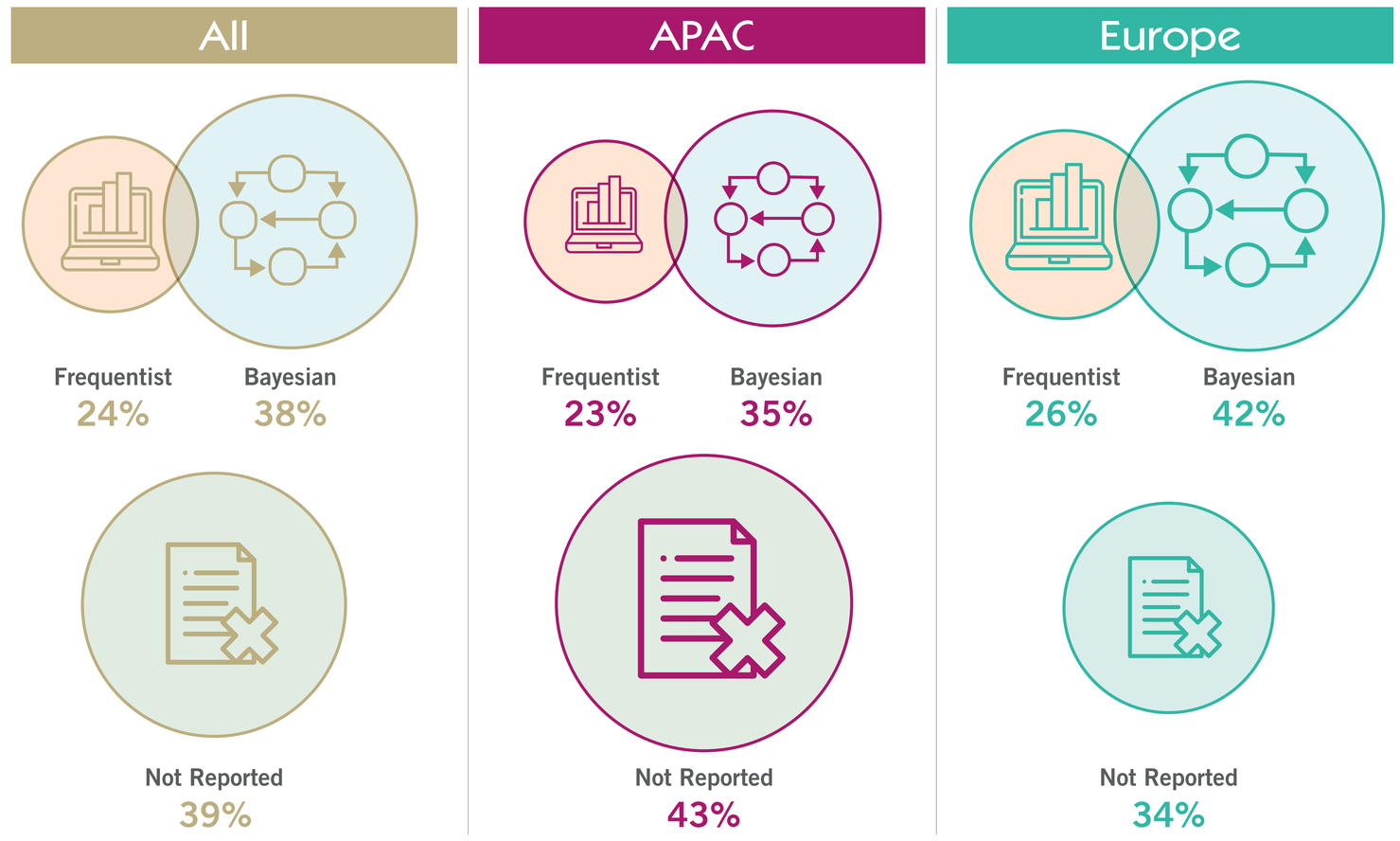
- MEDLINE and Embase were searched on 25 May 2022 for NMA publications published from 2012 to the present.
- Abstract and full-text screening was undertaken by a single reviewer to identify publications on NMAs assessing pharmacological or surgical interventions for CVD, in terms of mortality or major adverse cardiovascular events, by authors affiliated with institutions in target countries.
- Publications were included if they reported all of the following either in the abstract or freely available full-text: type of CVD (which was subsequently categorised using the International Classification of Diseases Tenth Edition [ICD-10]); type of intervention (pharmacological or surgical); frequency of publications; countries of author affiliations and NMA frameworks used.

1 Cumulative percentage of publications by geography



*Publications with affiliations from both APAC and Europe were included in both regions.
Abbreviation: APAC: Asia Pacific.

3 NMA framework reported



Abbreviations: APAC: Asia Pacific; NMA: network meta-analysis.

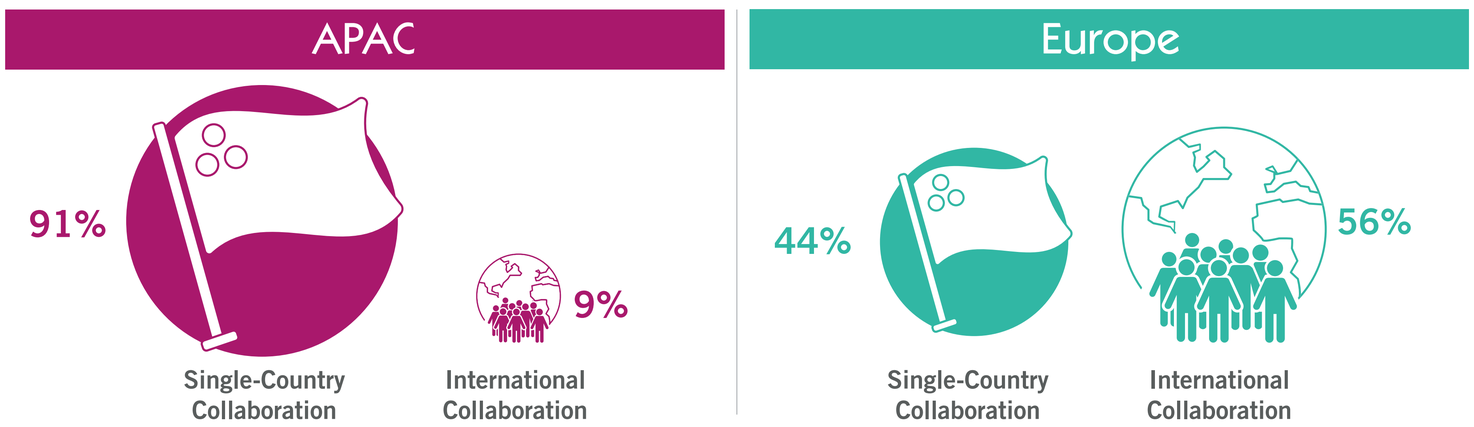
RESULTS

- Across the 193 publications identified, heart diseases such as atrial fibrillation, aortic stenosis and heart failure (ICD-10 I30–I52) were the most common indications reported (38%).
- A greater volume of publications involved authors from APAC (63%) than those from Europe (40%), with authors most commonly affiliated with institutions in China (50%), the UK (20%) and Italy (20%).
- Cumulative numbers of publications from APAC surpassed those from Europe from 2018 onwards (**Figure 1**).
- 145 publications had an authorship affiliated with institutions in a single country; publications from APAC had fewer international collaborations than those in Europe (**Figure 2**).
- 39% of the included publications did not specify whether a frequentist or Bayesian NMA framework was used; a higher proportion of publications from APAC did not specify the framework used, compared to Europe (**Figure 3**).
- Among those that reported the framework, Bayesian was more commonly used, particularly in Europe with the majority of European publications reporting its use (**Figure 3**); this pattern was similar irrespective of whether pharmacological or surgical interventions were compared.

CONCLUSIONS

- Whilst there has been a growing trend in NMA publication counts, the rate of increase in APAC was higher than in Europe. However, international collaborations were more common in Europe than APAC. This could reflect a greater belief in the generalisability of evidence across different European countries than Asian countries, but there could be many other explanations.
- Many publications did not report the NMA framework used, particularly in Asia, despite requirements for this in reporting guidelines such as PRISMA.[3] This lack of transparency in reporting of methods used may impact the value of the published evidence, which could have implications for its use in healthcare decision-making.
- However, where reported, the Bayesian framework was more common, perhaps due to its ability to handle between-study heterogeneity and reflecting advocacy for this approach by several health technology assessment (HTA) bodies in both Europe and APAC.[4-6]
- One limitation of this study is that records were excluded if they did not report the pre-specified data in the abstract or freely available full-text. Some information from paywalled full-texts was therefore excluded, however this was a very small proportion of screened records so may not have impacted the results.
- Overall, whilst APAC had a higher rate of increase in NMA publications, there were fewer international collaborations and poorer reporting of NMA frameworks used compared to those from Europe. As HTA continues to develop in Asia, increased quality of reporting and potentially international collaboration may both be expected to improve.

2 Author collaborations



Abbreviation: APAC: Asia Pacific.

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