Poster# **SA12**

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Incidence, Prevalence, and Risk Factors of Giant Cell Arteritis: A Targeted Literature Review

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KEY FINDINGS & CONCLUSIONS

- GCA is more prevalent among individuals with Northern European descent compared to other ethnic groups
- Changes in healthcare policies and diagnostic coding practices may influence reported incidence and prevalence[17]
- **Evidence gaps** identified from literature review:
  - **Limited prevalence data** identified, with most results pertaining to incidence
  - **Outdated data** as a lack of more recent publications identified
  - **Heterogeneity** in study designs and diagnostic criteria: Limited ability to compare incidence and prevalence across geographies
- Further research from broad populations would be required to enhance understanding of the incidence and prevalence of GCA

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INTRODUCTION

- Giant cell arteritis (GCA) is a systemic inflammatory disorder affecting medium and large arteries, typically in individuals aged >50 years[1,2,3]
- While glucocorticoids are the standard treatment, alternatives are necessary to reduce side effects and sustain remission[4,5]
- Substantial overlap exists between GCA and polymyalgia rheumatica (PMR)[6]
- Understanding the evolving epidemiology of GCA is essential for assessing disease burden and developing effective treatments

OBJECTIVES

- To identify and summarize evidence from studies on the epidemiology of GCA focusing on prevalence, incidence, and risk factors

METHODS

- A comprehensive targeted literature review was performed with predefined PICOS criteria in February 2024 (**Figure 1**)
- Strategies were applied across various databases, including Embase®, Medline®, CDSR, CENTRAL, DARE, and HTA, along with manual searches on congress websites and bibliographic sources
- All records identified were screened during the first (title/abstract) and second (full text) stages
- Screening and data extractions were done by one reviewer, with uncertainties discussed and quality checks performed by a second independent reviewer
- Study selection, data extraction and reporting adhered to current best practices
- Only studies published in English language were considered for inclusion

Figure 1. PICOS Criteria*

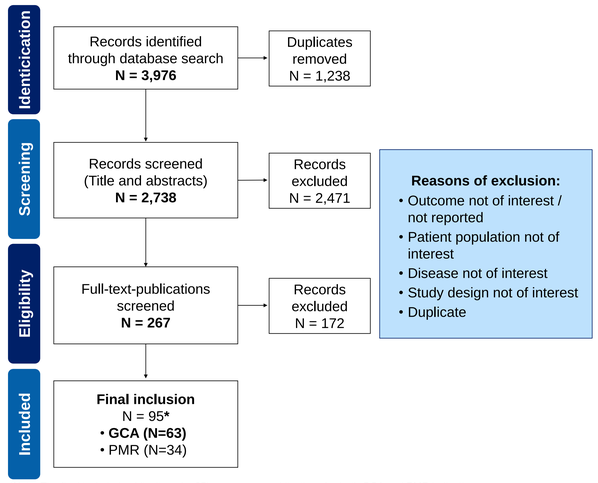
P	Adult patients aged ≥50 years with GCA
I/C	Studies were not limited based on interventions and comparators
O	Prevalence, incidence and risk factors for GCA
S	Observational studies#, systematic reviews and meta-analysis

#Prospective, retrospective, cohort, cross-sectional, case-control, claims database, registry studies.
C: Comparators; GCA: Giant Cell Arteritis; I: Intervention; O: Outcomes;. P: Patient population; S: Study design
*Methley et al. BMC Health Services Research (2014) 14:579

RESULTS

- A total of 3,976 records were identified, of which 95 were included and 63 specifically related to GCA (**Figure 2**)

Figure 2. PRISMA Flow Chart#



*Note: The final included publications (n=95) encompass publications for both GCA and PMR indications
Refer to poster EPH111 details on studies relating to PMR

GCA, Giant Cell Arteritis; PMR, Polymyalgia Rheumatica; PRISMA, Preferred Reporting Items for Systematic Reviews and Meta-Analyses; SLRs, Systematic Literature Reviews. #Page et al. BMJ 2021;372:n71 – Applied to a targeted literature review process

Table 1. Prevalence of GCA reported across key geographies

Country (Region)	Prevalence per 100,000 (95% CI) (aged ≥50 years)			
	Type	Overall	Male	Female
USA[7] (Olmsted County, Minnesota)	Point	**204** (161-254)	**91** (46-156)	**304** (229-375)
*Germany[8] (North)	Period	**44.0** (39.9-48.1)	**21.9** (19.0-24.8)	**61.2** (56.4-66.0)
*,#UK[9] (Norfolk)	Cumulative	**410** (230-580)	**290** (70-500)	**520** (250-790)
Spain[10] (Costa del Sol)	Period	**12.2** (5.6-18.9)	NR	NR
Italy[11] (Reggio Emilia)	Point	**101.3** (88.4-115.4)	**22.6** (17.2-29.1)	**60.5** (51.6-70.5)

CI: Confidence Interval; GCA: Giant Cell Arteritis; NR: Not Reported; UK: United Kingdom; USA: United States of America
*Converted to equivalent per 100,000 population; #GP diagnoses; aged ≥55 years

Prevalence

- Global pooled prevalence of GCA was estimated as **51.74/100,00 people** (95% CI: 42.04, 61.43) aged >50 years[3]
- Variability was observed across country-specific studies, with women showing ~2-3 times higher prevalence rates (**Table 1**)[7-9,11]

Incidence

- A recent systematic literature review and Network Meta-analysis estimated the pooled global (**10 (9.22-10.78) per 100,000)** and regional incidence of GCA among people aged >50 years[3]
- Pooled GCA incidence showed **nearly 3-fold variation between regions** and was reported to **be highest in Scandinavia**[3]
- The included regions from highest to lowest incidence per 100,000 persons (95% CI) aged >50 years were:[3]
  - Scandinavia: **21.57** (18.90-24.23)
  - North and South America: **10.89** (8.78-13.00)
  - Oceania: **7.85** (-1.48-17.19)
  - Europe: **7.26** (6.05-8.47)
  - Middle East: **5.73** (4.20-7.26)
  - Africa: **4.62** (0.05-9.20)
  - East Asia: **0.34** (0.12-0.56)
- Country-specific, with higher incidence in females (**Table 2**)

Table 2. Incidence of GCA reported across key countries

Country (Region)	Incidence per 100,000 (95% CI) (aged ≥50 years)		
	Overall	Male	Female
USA[12] (Olmsted County, Minnesota)	**19.8** (15.2-24.3)	**10.1** (5.0-15.3)	**27.0** (20.0-33.9)
Canada[13] (Ontario)	**4.9** (4.2–5.6)	NR	NR
UK[14] (Norfolk)	**9.8** (8.6-11.2)	**7.0** (5.6-8.7)	**12.4** (10.6-14.5)
France[15] (Paris)	**7.6** (5.9–9.8)	**5.4** (3.3–8.3)	**9.5** (6.9–12.9)
Italy[11] (Reggio Emilia)	**8.3** (7.1-9.4)	**5.3** (3.9 - 6.6)	**10.8** (9.0 - 12.6)
China[16] (Hong Kong)	**0.34** (NR)	NR	NR

CI: Confidence Interval; GCA: Giant Cell Arteritis; NR: Not Reported; UK: United Kingdom; USA: United States of America

Risk Factors

- Several risk factors associated with GCA were identified and can be broadly categorized into non-modifiable and modifiable, as summarized in **Figures 3** and **4**

Figure 3. Non-modifiable risk factors

Age

Increased risk with **age:**
- **Rare** in people **<50 years**[3,17]
- **Most common** in people **≥75 years**[12]

Geography

Incidence in **Scandinavia***[3,17]**:**
- **3 times higher** than in the **rest of Europe**
- **6 times higher** than in **East Asia**

Female Gender

GCA is **2.5-3 times** more likely **in women** than **men**[3,17]

PMR Presence

Approximately **22%** of those at the time of **PMR diagnosis have GCA symptoms**[6]

*Communities in the USA with Scandinavian ancestry are also subject to higher rates
GCA: Giant Cell Arteritis; PMR: Polymyalgia Rheumatica

Figure 4. Modifiable risk factors

Smoking

Increased risk vs. non-smokers[18]:
- **Current smokers** (OR: 1.18, 95% CI: 1.01-1.38)
- **Former smokers** (OR: 1.19, 95% CI: 1.01-1.39)

Cardiovascular Factors

Significant increased risk associated with[20]:
- **Hyperlipidemia** (SHR: 1.27; 95% CI: 1.12–1.42; p<0.01)
- **Hypertension** (SHR: 1.22; 95 CI: 1.09-1.36; p<0.05)

Infections

Increased risk with[22,23]:
- **Acute upper respiratory tract** infection (OR: 1.77, 95% CI: 1.47–2.14)
- **Influenza** and **pneumonia** infections (OR: 1.72, 95%CI: 1.35–2.19)
- **Prior herpes zoster** infections (OR: 1.20, 95% CI: 1.08-1.32)
- **Prior overall infections** (OR: 1.27, 95% CI: 1.18-1.37)

Biomarkers

Increased risk associated with **higher levels** of **biomarkers**[19]**:**
- **IFN-γ** (OR: 2.37, 95% CI: 1.14-4.92)
- **MCP3** (OR: 3.74, 95% CI: 1.26-11.07)

BMI

Statistically significant **inverse correlation:**
→ 8% **risk increase** per 1.0 kg/m² **BMI decrease**[21]

Gout

Gout associated with **>2 times higher risk** of **developing GCA** in **older adults**, independent of known GCA risk factors (HR: 2.05, 95% CI: 1.76-2.40)[24]

ARBs

Incidence higher in **initiators of ARBs** compared to **ACEis**.
Increased hazard ratio for ARB initiators (HR: 1.55; 95% CI: 1.16-2.06) [25]

ACEi: Angiotensin-Converting Enzyme Inhibitors; ARB: Angiotensin receptor blockers; BMI: Body mass index; CI: Confidence Interval; HR: Hazards Ratio; GCA: Giant Cell Arteritis; IFN-γ: Interferon Gamma; MCP3: Monocyte chemotactic protein 3; OR: Odds Ratio; PMR: Polymyalgia Rheumatica; SHR: Sub-Hazard Ratio

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