Poster# **EPH111**

Samprati Avasthi | samprati.avasthi@novartis.com

Epidemiology of Polymyalgia Rheumatica: A Targeted Literature Review

Sarah Jane McKenna,[1]
Samprati Avasthi,[2] Ramakrishna GS,[2]
Jessica Commane,[1]

[1]Novartis Ireland Limited, Dublin, Ireland;
[2]Novartis Healthcare Pvt Ltd, Hyderabad, India

KEY FINDINGS & CONCLUSIONS

- Rates of PMR are higher in those with Northern European descent
- Variation in incidence and prevalence reported can be affected by diagnostic protocols and healthcare systems[4]
- **Evidence gaps** identified from literature review:
  - More recent estimates of prevalence and incidence may be warranted given dates of published studies
  - Ability to compare and generalize may be limited by study design and diagnostic considerations
- To gain additional insights into the incidence and prevalence of PMR, further up to date studies with large sample sizes from varied geographies would be required

Scan to obtain:
- Poster

To download a copy of this poster, visit the web at: http://novartis.medicalcongressposters.com/Default.aspx?doc=b1920

This study is sponsored by Novartis Pharma AG.

Poster presented at the ISPOR 2025, Tuesday, May 13th – Friday, May 16th | Montreal, QC, Canada.

INTRODUCTION

- Polymyalgia rheumatica (PMR) is an inflammatory disease resulting in muscle pain and stiffness in the neck, shoulders, and pelvic girdle[1,2,3]
- Glucocorticoids are the standard treatment, but nearly half of patients may relapse within a year (20-55%), highlighting the need for glucocorticoid-sparing treatments that maintain remission and offer a favorable safety profile[3]
- As the population ages, PMR will likely increase in burden[4]
- Understanding the changing epidemiology of PMR is crucial for better management and early detection of at-risk patients

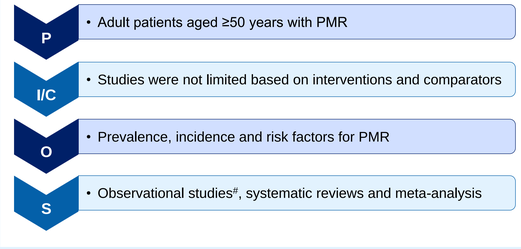
OBJECTIVES

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

METHODS

- A targeted literature review was performed using predefined PICOS criteria in February 2024 (**Figure 1**)
- Strategies were applied across various databases, including Embase®, Medline®, Medline® In-Process, 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 undertaken by one reviewer, while a second independent reviewer discussed uncertainties and performed quality checks
- Study selection, data extraction and summary of findings adhered to best practice
- Only studies published in English language were considered for inclusion

Figure 1. PICOS Criteria*

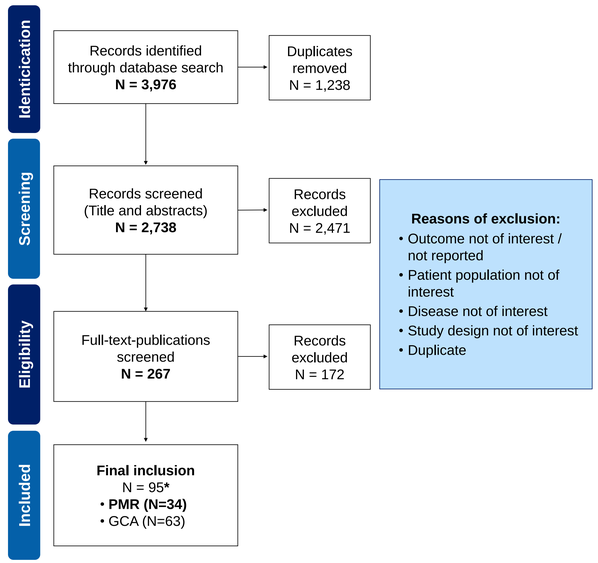


#Prospective, retrospective, cohort, cross-sectional, case-control, claims database, registry studies.
C: Comparators; PMR: Polymyalgia Rheumatica; I: Intervention; O: Outcomes; PMR: Polymyalgia Rheumatica; P: Patient population; S: Study design
*Methley et al. BMC Health Services Research (2014) 14:579

RESULTS

- A total of 3,976 records were identified, of which 95 were included and 34 specifically related to PMR (**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 SA12 for further details on studies relating to GCA

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

Prevalence

- No pooled estimates were identified
- Variability was observed across country-specific studies, with women showing higher prevalence rates (**Table 1**)
- Lower prevalence of PMR was reported in South Korea in a retrospective database study, indicative of lower rates in Asian populations (**Table 1**)
- Disease classification, diagnostic criteria, geographical and genetic factors may impact the variation in reported epidemiological data[5]

Table 1. Prevalence of PMR reported across key geographies

Country (Region)	Prevalence per 100,000 (95% CI) (aged ≥50 years)			
	Type	Overall	Male	Female
USA[5] (Olmsted County, Minnesota)	Point	**701** (651-750)	**508** (426-589)	**870** (787-957)
*Germany[6]	Period	**129.8** (136.2-141.5)	**86.3** (84.1-88.6)	**166.3** (163.5-169.1)
**UK[7] (Norfolk)	Cumulative	**2270** (1860-2670)#	**1750** (1230- 2270)#	**2740** (21120-3350)#
***South Korea[8]	Period	**4.1** (NR)	NR	NR
****Italy[9] (Marche)	Period	**370** (290-440)	NR	NR

*Among those aged ≥40 years; **Converted per 100,000 population and among those aged ≥55 years General Physician Diagnosed; ***No age range specified; ****Converted per 100,000 and among general adult population; #Data is presented as published for this entry.
CI: Confidence Interval; PMR: Polymyalgia Rheumatica; NR: Not Reported

Incidence

- No pooled estimates of incidence were identified
- Country-specific studies have shown variable incidence rates, with higher incidence in reported females (**Table 2**)
- Lower incidence of PMR is reported in South Korea and Turkey, reflecting that PMR is less common in these populations

Table 2. Incidence of PMR reported across key countries

Country (Region)	Incidence per 100,000 (95% CI) (aged ≥50 years)		
	Overall	Male	Female
USA[10] (Olmsted County, Minnesota)	**63.9** (57.4-70.4)	**55.6** (43.6-61.6)	**72.7** (63.5-81.9)
*Germany[6]	**17.7** (17.0-18.4)	**12.8** (11.9-13.6)	**21.8** (22.1-24.2)
**UK[11] (Norfolk)	**62·5** (NR)	NR	NR
Italy[12] (Campobasso)	**27.43** (NR)	**15.48** (NR)	**36.96** (NR)
***South Korea[13]	**2.06** (NR)	**1.45** (NR)	**2.59** (NR)
Turkey[14]	**3.15** (NR)	**1.72** (NR)	**4.48** (NR)

*Among those aged ≥40 years; **No age range specified; ***>50 years
CI: Confidence Interval; PMR: Polymyalgia Rheumatica; NR: Not Reported

Risk Factors

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

Figure 3. Non-modifiable risk factors

Age

Increased risk with **age**[10,11,12,15]**:**
- **Rare** in people **<50 years**
- **Most common in people 70-80 years**

Geography

PMR most common among **white individuals with Scandinavian or northern European ancestry**[5,7,10,12]

Female Gender

Women 2-3 times more affected by PMR than men[10-12, 16]

GCA Presence

Point-prevalence of PMR at GCA diagnosis ranges from **16%-65%**[17]

Genetics

Significant association of **T-786C SNP** of the **NOS3 gene** with isolated PMR[18]

GCA: Giant Cell Arteritis; NOS3: Nitric Oxide Synthase Gene; PMR: Polymyalgia Rheumatica; SNP: Single Nucleotide Polymorphism

Figure 4. Modifiable risk factors

Smoking
- Higher risk in women smoking ≥20 pack-years*[19]
- PMR risk increased by 9% per 10 pack-years in women[19]

Blood Pressure
- **Raised diastolic BP (>90 mmHg)** at baseline has been linked to higher PMR risk (HR: 1.35, 95% CI: 1.01-1.80)[20]

Infections

Positive association identified between **infections and PMR risk**
- **Hospitalized infections** (OR: 1.35, 95% CI: 1.27-1.44, p<0.00001)[21]

A pack –year is a measure to quantify the amount of smoking over a period, with one pack-year being equivalent to one pack of cigarettes smoked daily for one year[22]
BP: Blood Pressure; OR: Odds ratio; PMR: Polymyalgia Rheumatica

References

1. Lundberg IE. J Intern Med. 2022 Nov;292(5):717-732. **2.** Salvarani C. Nat Rev Rheumatol. 2012 Sep;8(9):509-21. **3.** González-Gay MA. Lancet. 2017 Oct 7;390(10103):1700-1712. **4.** Sharma A. Semin Arthritis Rheum. 2020 Oct;50(5):1040-1048. **5.** Crowson CS. Semin Arthritis Rheum. 2017 Oct;47(2):253-256. **6.** Colombo MG. Dtsch Arztebl Int. 2022 Jun 17;119(24):411-417. **7.** Yates M. BMC Musculoskelet Disord. 2016 Jul 15;17:285. **8.** Kim H. Annals of the Rheumatic Diseases 2018;77:1745. **9.** Salaffi F. Clin Exp Rheumatol. 2005 Nov-Dec;23(6):819-28. **10.** Raheel S. Arthritis Care Res (Hoboken). 2017 Aug;69(8):1282-1285. **11.** Conrad N. 2023 Lancet Jun 3;401(10391):1878-1890 **12.** De Socio A. Postgrad Med. 2018 Jan;130(1):137-141. **13.** Kim IY. J Rheum Dis 2014;21:297-302. **14.** Pamuk ON. Clin Exp Rheumatol. 2009 Sep-Oct;27(5):830-3. **15.** Smeeth L. Ann Rheum Dis. 2006 Aug;65(8):1093-8. **16.** Yates M. Rheumatology, Volume 57, Issue suppl_3, April 2018. **17.** Nielsen AW. Semin Arthritis Rheum. 2022 Oct; 56:152069. **18.** Löffers C. Clin Exp Rheumatol. 2015 Sep-Oct;33(5):726-30. Epub 2015 Aug 27. **19.** Kang J. Arthritis Rheumatol. 2022; 74 (suppl 9). **20.** Yates M. Rheumatology (Oxford). 2020 Feb 1;59(2):319-323. **21.** Pacoureau L. RMD Open. 2023 Nov;9(4):e003493. doi: 10.1136/rmdopen-2023-003493. **22.** National Cancer Institute. https://www.cancer.gov/publications/dictionaries/cancer-terms/def/pack-year. Assessed on 2 April 2025

Acknowledgements

The authors wish to acknowledge the assistance of Madhavi Kanithi in poster designing

Disclosures

The authors wish to disclose the following: Sarah Jane McKenna and Jessica Commane are current employees of Novartis Ireland Ltd. and shareholders with Novartis and Sandoz. Samprati Avasthi and Ramakrishna GS are current employees of Novartis Healthcare Pvt. Ltd., Hyderabad, India