

Epidemiology of Osteoporosis: Risk Factor Distribution, Osteoporosis Prevalence and Treatment Gap in the General Population ≥50 Years of Age in Germany

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INTRODUCTION

- In Germany, an estimated 6.3–7.8 million adults ≥50 years of age have osteoporosis (OP),^{1,2} with total direct costs of approximately €5.4 billion²
- The Dachverband Osteologie (DVO; German Association of Osteologists) provides guidelines on OP diagnosis and treatment for healthcare professionals in Germany³
- New risk factors for fractures were added to the DVO guidelines in 2014 and 2017,^{3,4} however, data regarding the distribution of these risk factors in the German population is lacking

OBJECTIVE

- This study estimated the prevalence of these risk factors and the OP diagnosis treatment gap in the general German population ≥50 years of age

METHODS

- This retrospective cohort study evaluated a sample of approximately 4 million insured persons ≥50 years of age registered in an anonymized German healthcare claims database (InGef)⁵ between 01 Jan 2013 to 31 Dec 2018
- The chosen sample was representative of the age and sex demographic of the total German population
- Outcomes included prevalence of:
 - DVO-based osteoporotic fracture risk factors in the InGef population
 - OP extrapolated to the German population ≥50 years of age
 - OP diagnosis; osteoporotic fracture; OP diagnosis in persons with an osteoporotic fracture; OP-specific prescriptions in persons with an OP diagnosis and/or osteoporotic fracture
- Fractures which occurred after 50 years of age were considered osteoporotic fractures and were defined using International Classification of Diseases, 10th edition codes. OP Key Opinion Leaders (KOLs) reviewed the codes and agreed upon the type of fractures used in the analysis
- OP treatments were defined by respective Anatomical Therapeutic Chemical Classification System codes, which were reviewed by OP KOLs
- OP was identified by either the presence of OP-specific drugs, diagnosis of osteoporotic fractures, and/or a recorded OP diagnosis
- The study reports data from the year 2018, overall and stratified by sex (male, female), and age category (50–59, 60–69, 70–79, ≥80)

RESULTS

Figure 1. Characteristics of sampled population (N=1,559,299)

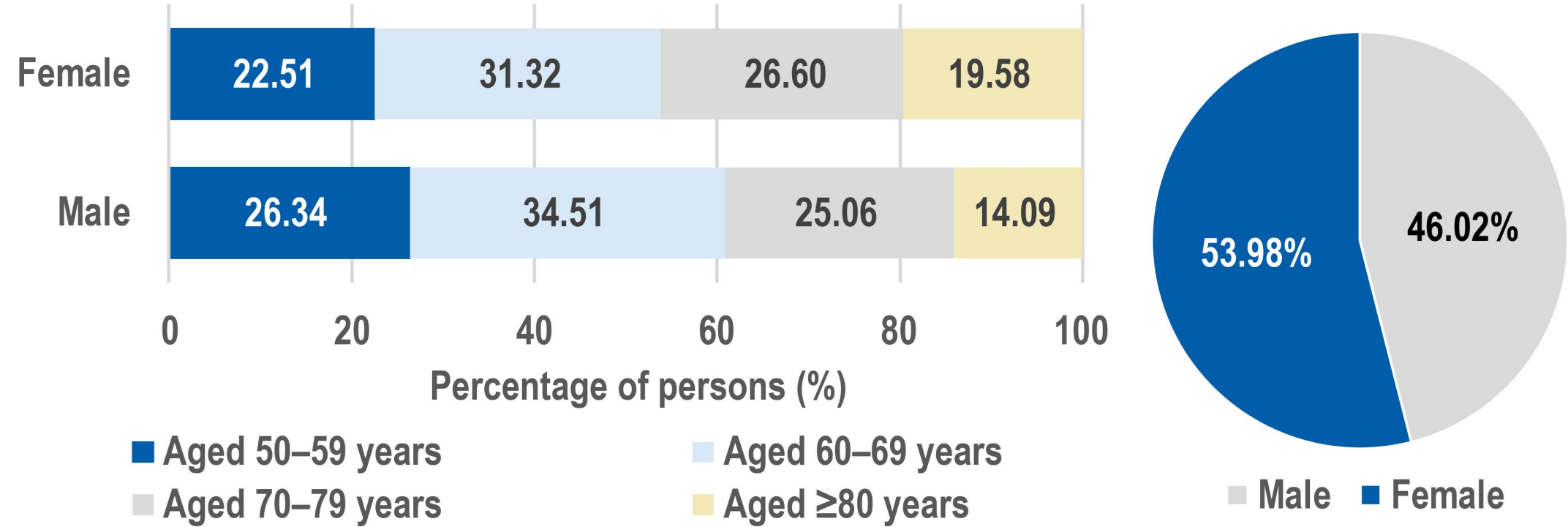
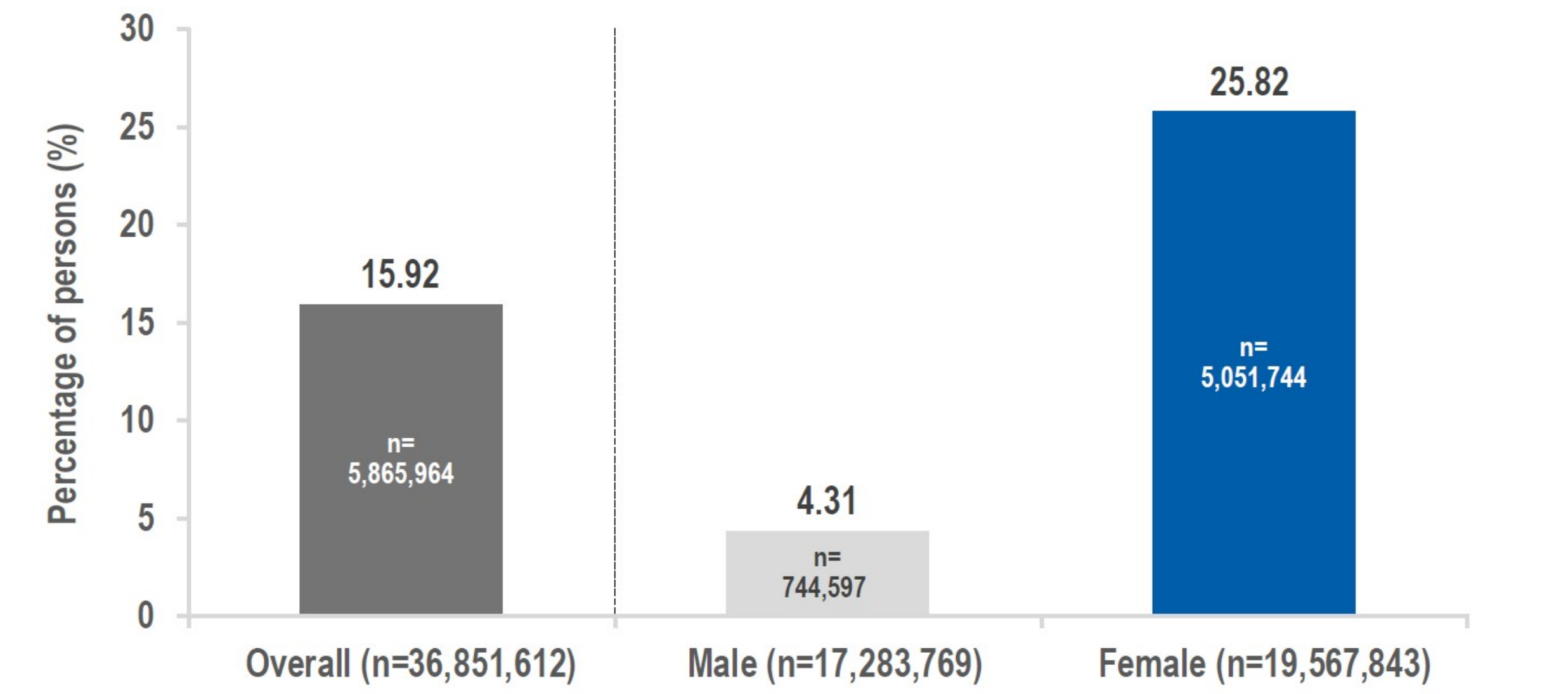


Table 1. Prevalence of selected risk factors

Risk factor	Prevalence in total sampled population, n (%)	By sex, %	By age, %				
			50–59	60–69	70–79	≥80	
Glucocorticoids	149,371 (9.58)	Male	4.00	0.89	1.30	1.14	0.68
		Female	5.57	1.12	1.72	1.62	1.12
Underweight	38,070 (2.44)	Male	0.95	0.14	0.25	0.30	0.27
		Female	1.49	0.21	0.32	0.42	0.54
Aromatase inhibitors*	8,869 (0.57)	Female	0.57	0.09	0.19	0.19	0.11
Major osteoporotic fractures**	7,097 (0.46)	Male	0.12	0.01	0.03	0.04	0.05
		Female	0.33	0.02	0.05	0.10	0.17

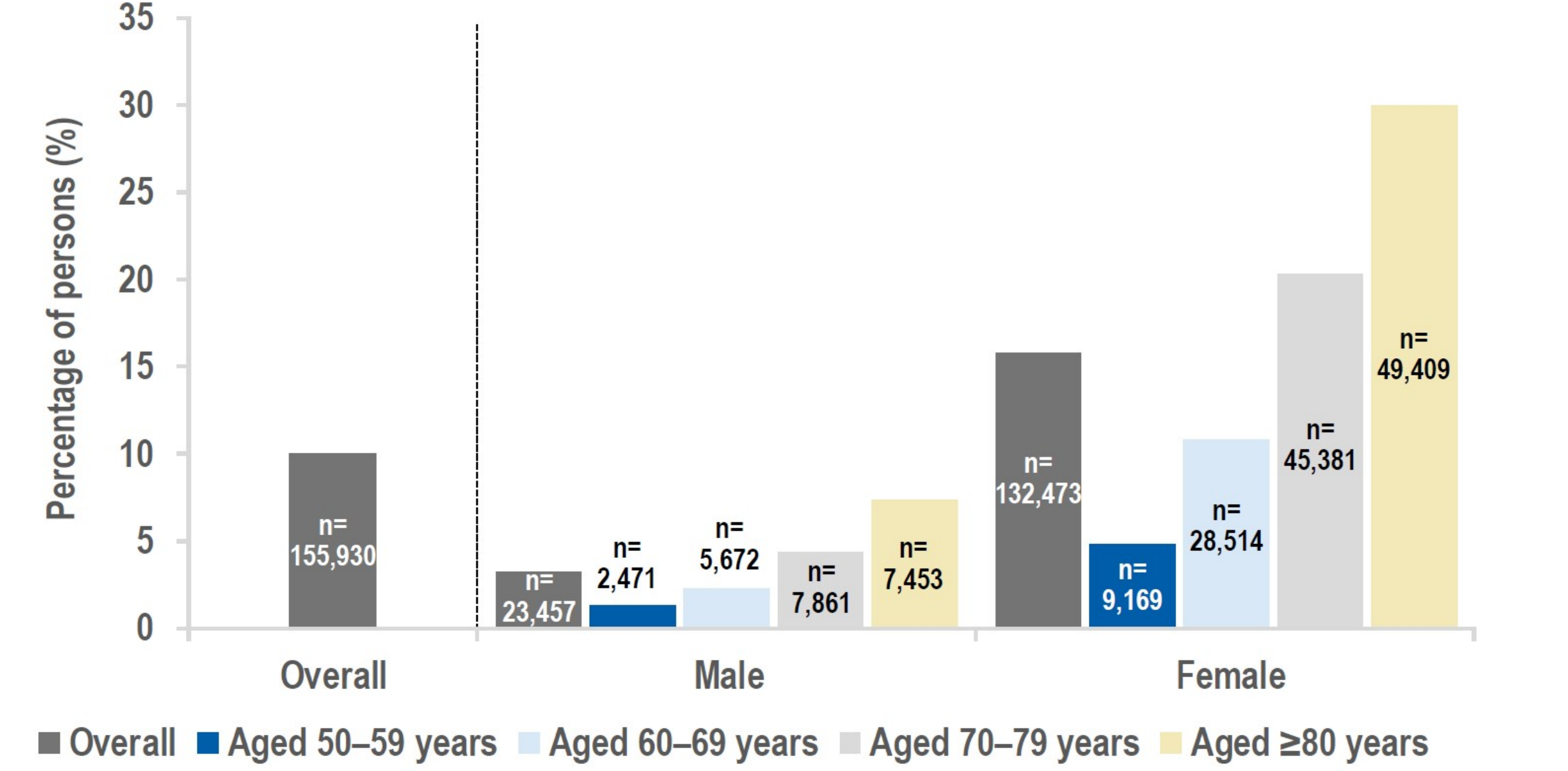
*Aromatase inhibitors were restricted to females; **Includes vertebral fractures, hip fractures, humerus fractures, pelvic fractures, femoral neck fractures, pertrochanteric fractures and forearm fractures

Figure 2. Prevalence of OP* extrapolated to German population aged ≥50 years



*Prevalence of OP defined as: number of persons with an OP-specific prescription and/or a diagnosis of osteoporotic fracture and/or diagnosis of OP

Figure 3A. Prevalence of OP diagnosis



CONCLUSIONS & KEY DATA

- Compared with males, known risk factors for fracture were more common among females (Table 1)
- Osteoporosis (OP) is common in the German population ≥50 years of age, with an estimated 5.87 million sufferers (15.92%) in 2018 and a higher prevalence in females than males (Fig. 2)
- Fewer than half (39.02%) of all individuals with an osteoporotic fracture had an OP diagnosis; this diagnosis gap decreased with age for both males and females (Fig. 4)
- Fewer than one-third (29.97%) of individuals with an OP diagnosis and/or osteoporotic fracture were prescribed anti-OP medication, compared with females, this treatment gap was approximately 1.5–2.5-fold higher in males (Fig. 5)
- Our data highlight an unmet need in the diagnosis and treatment of OP in this population, who may also have additional risk factors for osteoporotic fractures

Figure 3B. Prevalence of osteoporotic fracture

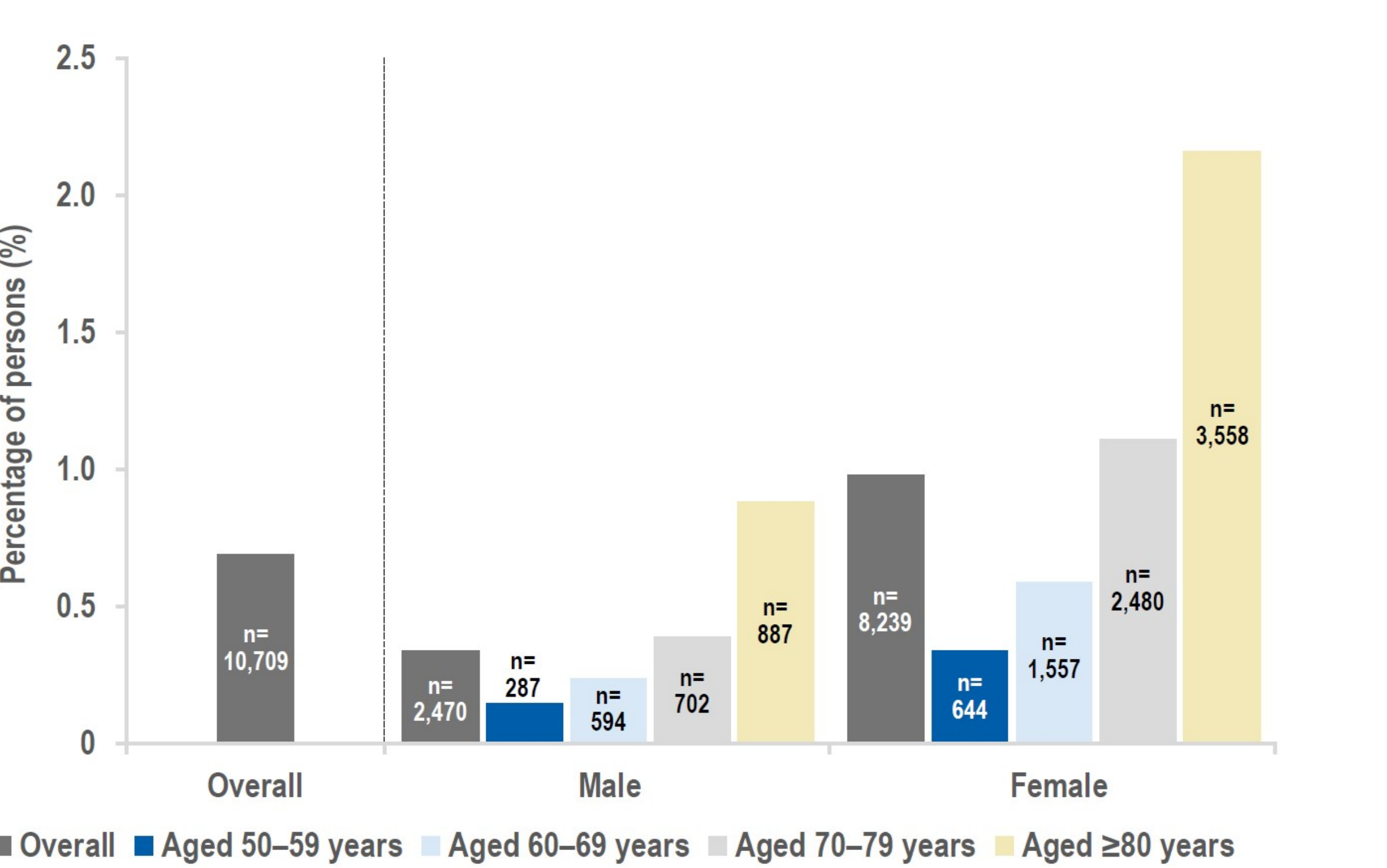


Figure 4. Prevalence of OP diagnosis among persons with an osteoporotic fracture

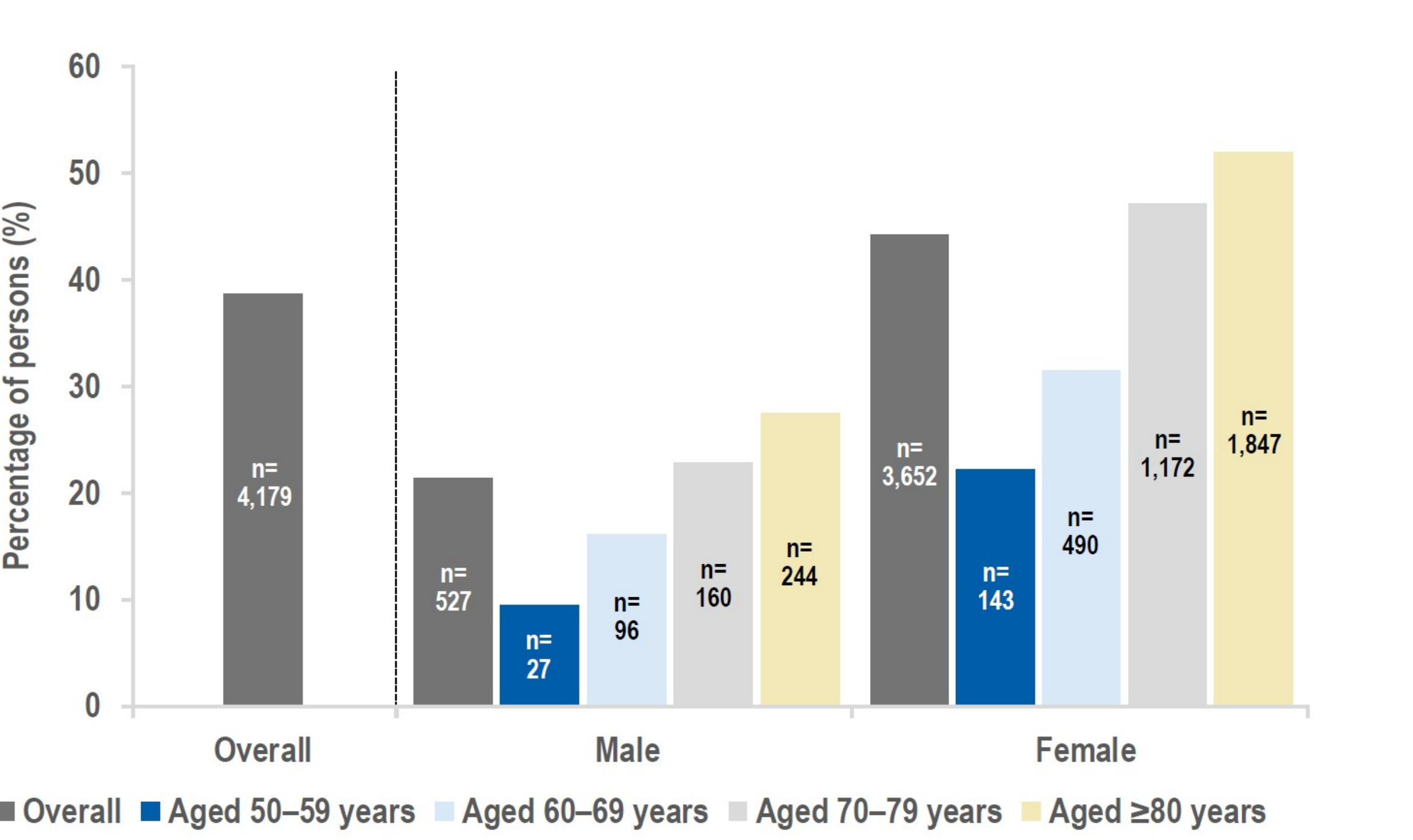
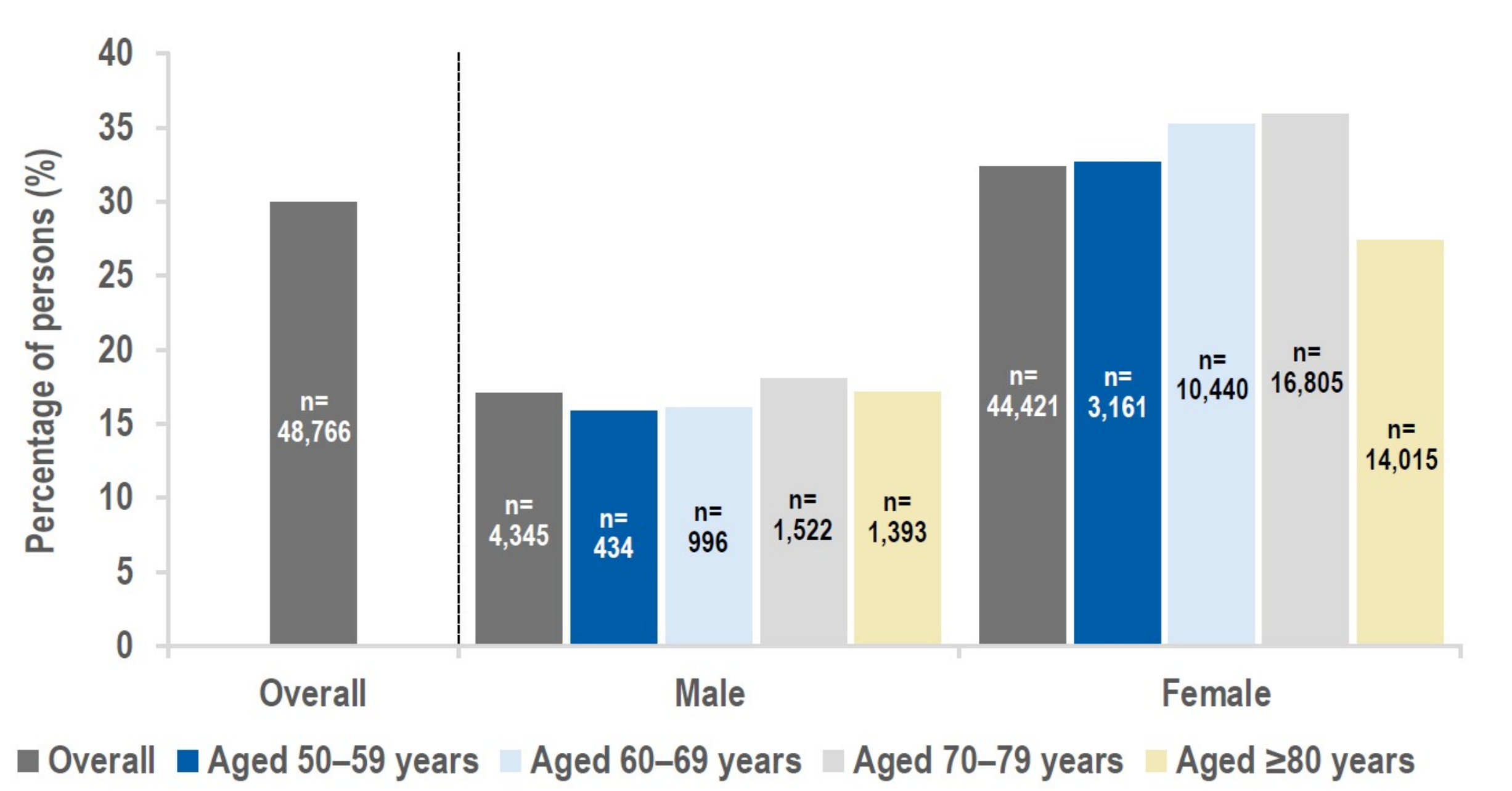


Figure 5. Prevalence of OP-specific prescription, among those with an OP diagnosis and/or osteoporotic fracture



- Overall, 30.99% of persons with an OP diagnosis received an OP-specific prescription, this proportion was 33.23% for females and 18.34% for males
- Among persons with an osteoporotic fracture, 21.69% received an OP-specific prescription, this proportion was 25.29% for females, and 9.68% for males

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