

METHODS

Study Design

➤ A retrospective, non-interventional cohort study between 1st January 2015 and 31st December 2022

Data Source

➤ **InGef**, an anonymized longitudinal claims data from approximately 8.8 million statutory health insurance members that covers insurers from all federal states in Germany.⁴

➤ A statistically representative sample (in terms of age and sex) of 4.8 million insurance members was available for research.

Inclusion & Exclusion Criteria

➤ ≥2 schizophrenia diagnoses* within 12 months;

➤ Aged ≥12 years at the second diagnosis (index date);

➤ ≥90 days of data available prior to the index event;

➤ Patients with cognitive impairment-related disorders were excluded.

90-day lookback period used to assess treatment exposure

*F20.0, F20.1, F20.2, F20.3, F20.5, F20.8, F20.9

Statistical Analysis

➤ Demographic and clinical characteristics were described for the total population and stratified by age groups.

➤ Statistical comparisons across age groups were performed using Kruskal-Wallis tests for continuous variables and Chi-squared or Fisher's exact tests for categorical, as appropriate.

RESULTS

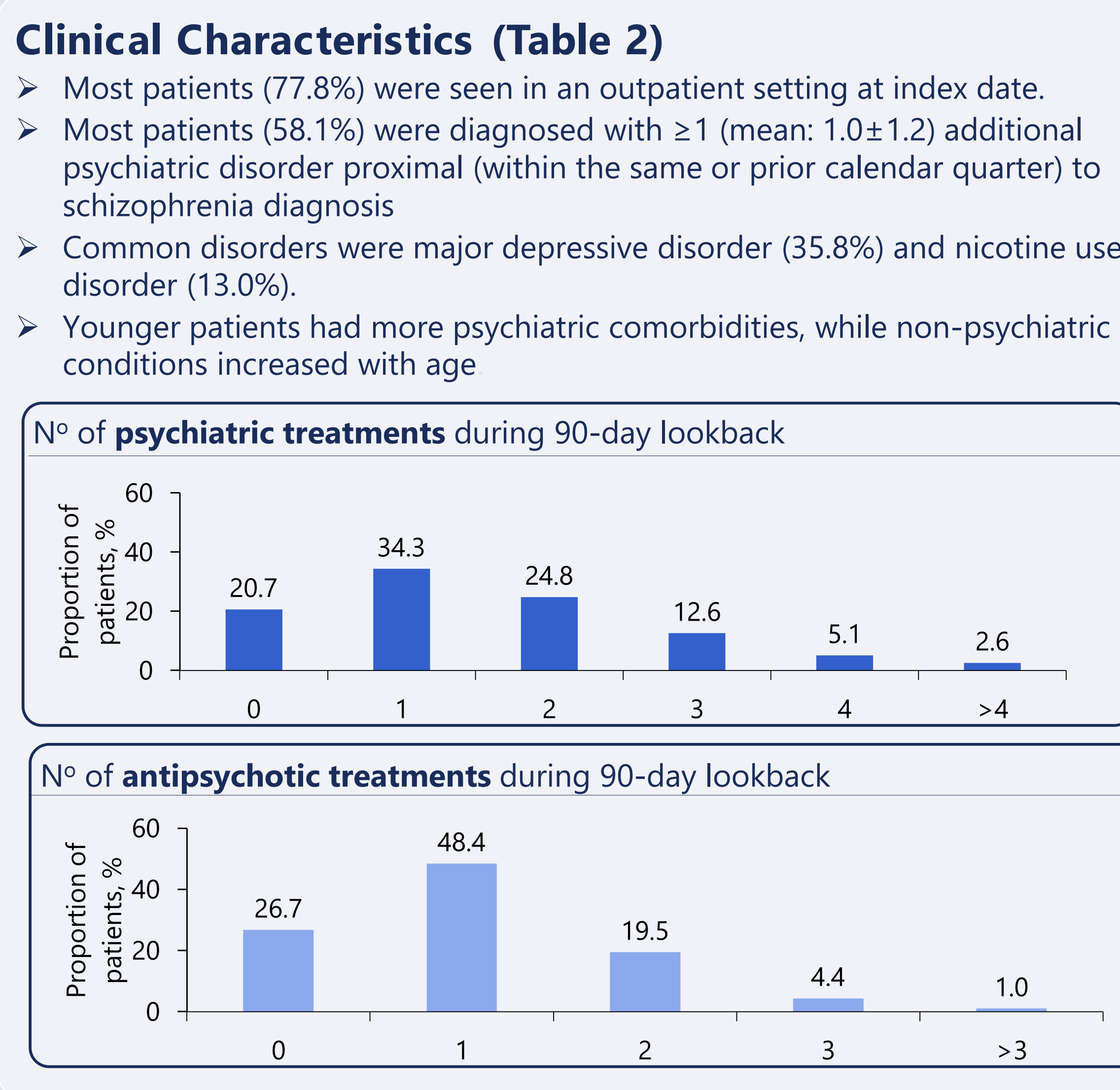
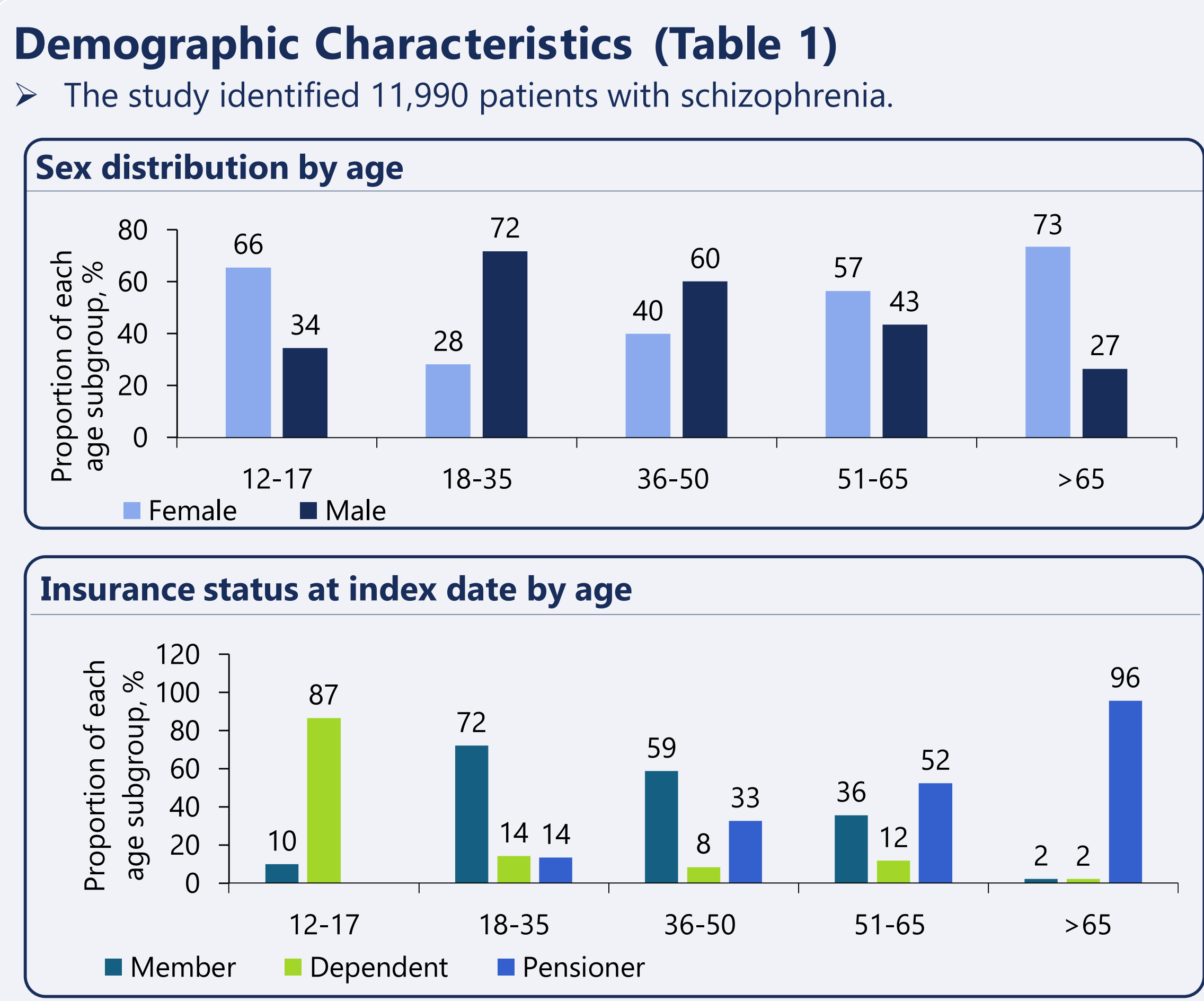


Table 1. Demographic characteristics of patients diagnosed with schizophrenia in Germany during the years 2015–2022.

Demographic characteristic	All Patients N=11,900	12–17 years N = 90	18–35 years N = 2,738	Age group 36–50 years N = 3,344	51–65 years N = 3,386	>65 years N = 2,432	p-value
Age at index date (years)							
Mean (SD)	50.25 (17.43)	15.83 (1.34)	28.58 (4.77)	43.22 (4.46)	57.29 (4.36)	75.8 (7.45)	<0.001
Median (IQR)	50 (27)	16 (2)	29 (8)	43 (8)	57 (8)	75 (11)	
Sex at baseline, n (%)							
Female	5866 (48.92)	59 (65.56)	771 (28.16)	1335 (39.92)	1914 (56.53)	1787 (73.48)	<0.001
Male	6124 (51.08)	31 (34.44)	1967 (71.84)	2009 (60.08)	1472 (43.47)	645 (26.52)	<0.001
Location at baseline, n (%)							
Urban	8894 (74.18)	51 (56.67)	1955 (71.4)	2519 (75.33)	2515 (74.28)	1854 (76.23)	0.073
Rural	2571 (21.44)	34 (37.78)	612 (22.35)	684 (20.45)	761 (22.47)	480 (19.74)	<0.001
Unknown	525 (4.38)	5 (5.56)	171 (6.25)	141 (4.22)	110 (3.25)	98 (4.03)	<0.001
Insurance status at index date, n (%)							
Member	5215 (43.49)	9 (10)	1976 (72.17)	1967 (58.82)	1209 (35.71)	54 (2.22)	<0.001
Pensioner	5568 (46.44)	<5 (-)	370 (13.51)	1093 (32.69)	1775 (52.42)	2327 (95.68)	-
Dependent	1205 (10.05)	78 (86.67)	391 (14.28)	284 (8.49)	401 (11.84)	51 (2.1)	<0.001
Unknown	<5 (-)	0 (0)	<5 (-)	0 (0)	<5 (-)	0 (0)	-
Highest level of education at baseline, n (%)							
Low	967 (8.07)	<5 (-)	235 (8.58)	402 (12.02)	328 (9.69)	0 (0)	-
Medium	921 (7.68)	<5 (-)	349 (12.75)	367 (10.97)	203 (6)	<5 (-)	-
High	212 (1.77)	0 (0)	57 (2.08)	104 (3.11)	51 (1.51)	0 (0)	<0.001
Unknown	9890 (82.49)	87 (96.67)	2097 (76.59)	2471 (73.89)	2804 (82.81)	2431 (99.96)	<0.001

Abbreviations: IQR, interquartile range; SD, standard deviation.

Table 2. Clinical characteristics of patients diagnosed with schizophrenia in Germany during the years 2015–2022.

Characteristic	All Patients N = 11,900	12–17 years N = 90	18–35 years N = 2,738	Age group 36–50 years N = 3,344	51–65 years N = 3,386	>65 years N = 2,432	p-value
Clinical setting at index date, n (%)							
Outpatient	9322 (77.75)	48 (53.33)	1748 (63.84)	2542 (76.02)	2823 (83.37)	2161 (88.86)	<0.001
Inpatient	2068 (17.25)	28 (31.11)	760 (27.76)	648 (19.38)	457 (13.5)	175 (7.2)	<0.001
Emergency department	600 (5)	14 (15.56)	230 (8.4)	154 (4.61)	106 (3.13)	96 (3.95)	<0.001
Medication class of psychiatric treatment¹, n (%)							
Antipsychotics (NA)	8785 (73.27)	54 (60)	1939 (70.82)	2566 (76.73)	2503 (73.92)	1723 (70.85)	0.017
Antidepressants (N06A)	2868 (23.92)	13 (14.44)	536 (19.58)	792 (23.68)	921 (27.2)	606 (24.92)	<0.001
Anticholinergics (NA)	1182 (9.86)	7 (7.78)	281 (10.26)	318 (9.51)	355 (10.48)	221 (9.09)	0.396
Antiepileptic (N03A)	943 (7.86)	<5 (-)	142 (5.19)	252 (7.54)	300 (8.86)	248 (10.2)	-
Number of prescribed psychiatric treatments^{1,2}							
Mean (SD) - only patients with medication	2.09 (1.24)	1.88 (1.16)	2.05 (1.23)	2.1 (1.25)	2.17 (1.28)	2.01 (1.15)	<0.001
Mean (SD)	1.67 (1.39)	1.23 (1.3)	1.55 (1.39)	1.73 (1.39)	1.75 (1.43)	1.62 (1.31)	<0.001
Number of prescribed antipsychotic treatments¹							
Mean (SD) - only patients with medication	1.43 (0.68)	1.43 (0.72)	1.5 (0.73)	1.45 (0.69)	1.4 (0.67)	1.34 (0.59)	<0.001
Mean (SD)	1.05 (0.86)	0.86 (0.89)	1.06 (0.91)	1.12 (0.86)	1.04 (0.84)	0.95 (0.79)	<0.001
Number of patients with ≥1 recorded non-pharmacological treatment¹, n (%)							
Psychotherapy	1129 (9.42)	28 (31.11)	335 (12.24)	418 (12.5)	286 (8.45)	62 (2.55)	<0.001
Psychosocial treatments	871 (7.26)	19 (21.11)	159 (5.81)	214 (6.4)	215 (6.35)	264 (10.86)	<0.001
Antipsychotic Type, n (%)							
Any antipsychotic	8785 (73.27)	54 (60)	1939 (70.82)	2566 (76.73)	2503 (73.92)	1723 (70.85)	0.017
Any Oral	8198 (68.37)	53 (58.89)	1814 (66.25)	2410 (72.07)	2320 (68.52)	1601 (65.83)	0.018
Any LAI	1139 (9.5)	<5 (-)	267 (9.75)	304 (9.09)	368 (10.87)	199 (8.18)	-
Oral + LAI	552 (4.6)	0 (0)	142 (5.19)	148 (4.43)	185 (5.46)	77 (3.17)	<0.001
Psychiatric diagnostic groups, n (%)							
Major depressive disorder	4289 (35.77)	28 (31.11)	807 (29.47)	1158 (34.63)	1381 (40.79)	915 (37.62)	<0.001
Nicotine use disorder	1553 (12.95)	6 (6.67)	348 (12.71)	493 (14.74)	533 (15.74)	173 (7.11)	<0.001
Adjustment disorders	738 (6.16)	16 (17.78)	205 (7.49)	244 (7.3)	199 (5.88)	74 (3.04)	<0.001
Attention deficit hyperactivity disorder	135 (1.13)	15 (16.67)	92 (3.36)	15 (0.45)	11 (0.32)	<5 (-)	-
Mean number of psychiatric diagnoses (SD)	1 (1.18)	1.33 (1.38)	1.18 (1.34)	1.05 (1.26)	0.99 (1.09)	0.73 (0.89)	<0.001

Notes: ¹During 90 day baseline period, including the index date; ²Including the number of antipsychotics prescribed and psychiatric comedications.

Abbreviations: IQR, interquartile range; LAI, long-acting injectable; SD, standard deviation.

DISCUSSION

➤ The study's cohort broadly reflect the general schizophrenia population, with a higher proportion of males in younger age groups and females in older groups (except for adolescents).

➤ A high proportion of patients who are middle-aged and receiving a pension may reflect increased burden of illness and a potential impact on healthcare costs, due to early schizophrenia-related retirement.

➤ Psychiatric medication use was extensive, supporting findings which suggest that antipsychotics are the mainstay of treatment for schizophrenia and aligning with guideline recommendations.⁵

➤ Fewer than 20% of patients with schizophrenia in Germany were prescribed LAIs, a finding consistent with other Western countries where these medications are infrequently used^{6,7}.

➤ There was a high comorbidity burden, with MDD the most frequently reported, consistent with earlier research⁸.

➤ There was age-related differences in presentation and treatment of comorbid psychiatric illness, highlighting the importance of personalized treatment among patients with schizophrenia.

Limitations

➤ InGef database:

- Outpatient diagnoses (to capture some comorbidities) only recorded on a quarterly basis.
- Lacked data on the specific indication for which medications are prescribed.

➤ The restricted period of the data and the absence of patients' medical history preclude distinguishing between incident and prevalent cases.

➤ Could not determine whether patients receiving non-pharmacological treatment had only a few sessions or were continuously treated.

➤ The schizophrenia population included in the study was slightly younger than the total InGef population, which may introduce age-related biases.

➤ Not all currently available LAIs were on the market during the study period, limiting the generalizability of the findings to newer LAI options.

➤ The low number of adolescent patients diagnosed with schizophrenia in the dataset suggests clinicians may delay issuing a diagnosis for younger individuals due to stigma, but this requires further investigation.