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Background

The absolute number of schizophrenia cases continues to increase due to population growth and aging (1). This population faces a significantly reduced life expectancy and a higher mortality rate (2, 3, 4), with cancer as the leading natural cause (5). Given this, schizophrenia is considered one of the most severe mental disorders, playing a significant role in the overall burden of disease and economic strain worldwide (6)

Since previous studies have reported contradictory findings regarding the relationship between schizophrenia and cancer, we evaluated the association between schizophrenia and cancer diagnoses with a representative German study sample.

Methods

This study used patient data from the Disease Analyzer database (IQVIA) including demographic, diagnostic and prescription information obtained directly and in anonymous format from 1,293 German general practices from 2005 to 2022. Patients with schizophrenia were compared with those without the condition to examine the incidence of cancer. **Figure 1** shows the selection of study patients.

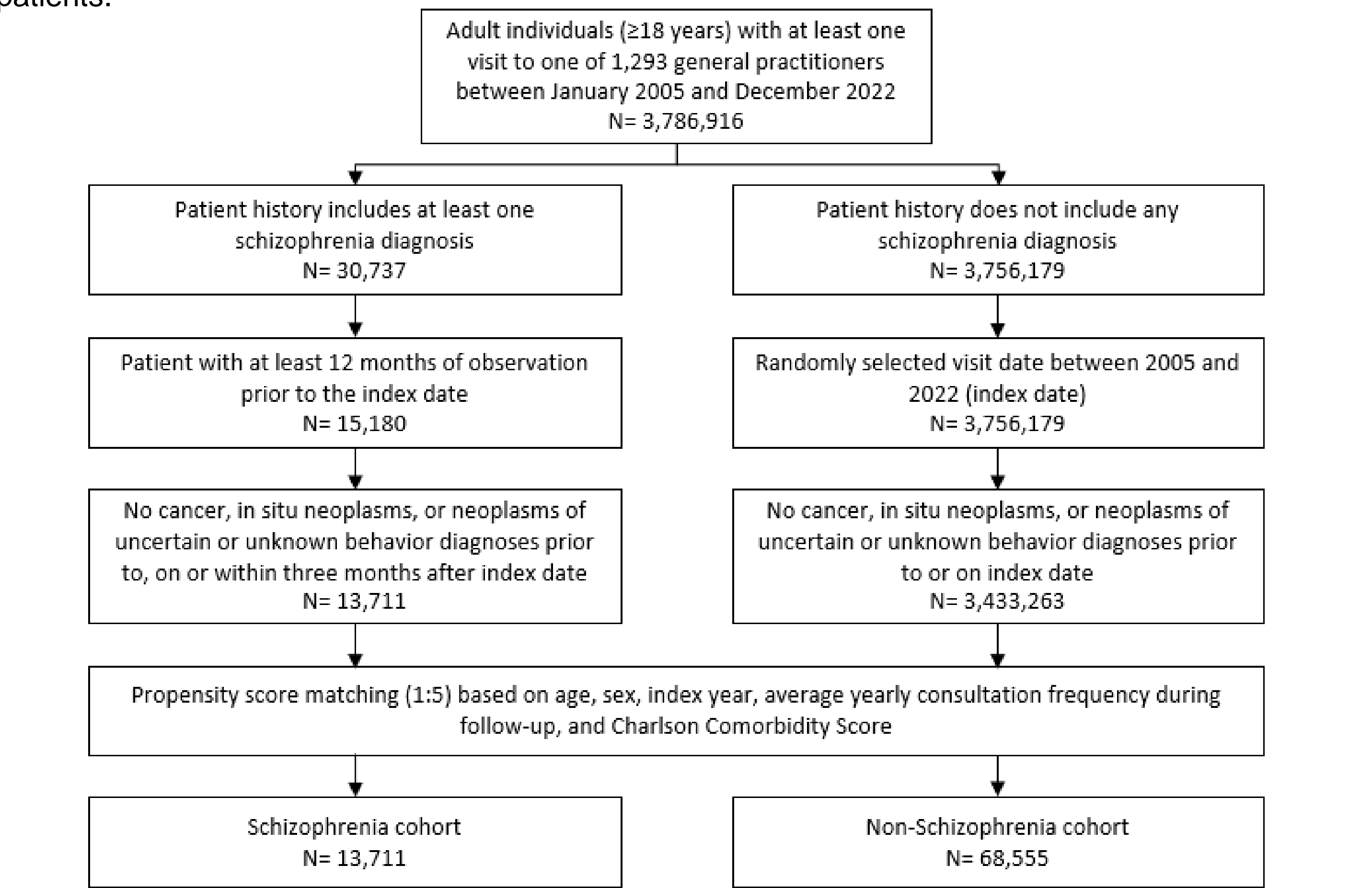


Figure 1. Selection of study patients

- Analysis of 10-year cumulative cancer incidence: Kaplan-Meier curves
- Comparison of cancer incidence: Log-Rank Test
- Association between schizophrenia and cancer in total and specific cancer types: univariable Cox regression (Hazard Ratios, with 95% confidence intervals)
- P-value of <0.001 was considered statistically significant due to multiple comparisons

Results

The present study included 13,711 patients with a schizophrenia diagnosis and 68,555 matched patients without the condition. Basic characteristics of included patients are displayed in **Table 1**.

Key Finding: There was a significant negative association between schizophrenia and subsequent cancer in patients over 18 years. After up to ten years of follow-up, 10.4% of schizophrenia and 12.5% of non-schizophrenia patients were diagnosed with cancer (p<0.001, **Figure 2**).

Sex-Specific Impact: When stratified by sex, there was a negative association in men but not in women. Specifically, there was a strong and significant negative association between schizophrenia and prostate cancer risk, and a negative but non-significant association with colorectal cancer risk in men. Women with schizophrenia did not differ from women without schizophrenia with regards to their overall cancer risk, as well as when stratified by cancer type.

Conclusion

Clinical Implications: Despite the observed lower incidence, individuals with schizophrenia remain vulnerable to cancer due to a higher mortality rate that is influenced by numerous factors such as schizophrenia-specific symptoms and comorbidities.

Study Limitations: The study's limitations include a lack of disease severity, data on lifestyle factors, family status, and mortality. Additionally, generalizability is restricted due to the limitation to outpatient setting. Tracking across different specialties is not possible.

Future Directions: Further research is required to explore the underlying reasons for the observed associations.

Results

Table 1. Baseline characteristics of the study sample, N (%) after 1:5 propensity score matching

Variable	Schizophrenia Cohort (N=13,711)	Matched Controls (N=68,555)	P-value
Age in years			
Mean (SD)	52.3 (18.0)	52.5 (17.9)	0.498
18 - 40	3,945 (28.8)	19,480 (28.4)	0.322
41 - 50	2,513 (18.3)	12,233 (17.8)	
51 - 60	2,786 (20.3)	13,933 (20.3)	
61 - 70	2,012 (14.7)	10,222 (14.9)	
> 70	2,455 (17.9)	12,687 (18.5)	
Sex			
Female	6,880 (50.2)	34,355 (50.1)	0.888
Male	6,831 (49.8)	34,200 (49.9)	
Number of physician visits per year during follow-up			
Mean (SD)	6.9 (4.7)	6.9 (4.7)	0.127
Charlson Comorbidity Index (CCI)			
Mean (SD)	1.6 (1.9)	1.5 (1.8)	0.003
CCI 0	5,267 (38.4)	26,706 (39.0)	
CCI 1	2,992 (21.8)	15,376 (22.4)	
CCI 2	2,169 (15.8)	10,995 (16.0)	
CCI >2	3,283 (24.0)	15,478 (22.6)	
Index year			
2005-2007	1,028 (7.5)	5,149 (7.5)	0.809
2008-2010	1,182 (8.6)	6,092 (8.9)	
2011-2013	1,830 (13.4)	9,053 (13.2)	
2014-2016	2,526 (18.4)	12,357 (18.0)	
2017-2019	3,395 (24.8)	17,011 (24.8)	
2020-2022	3,750 (27.3)	18,893 (27.6)	

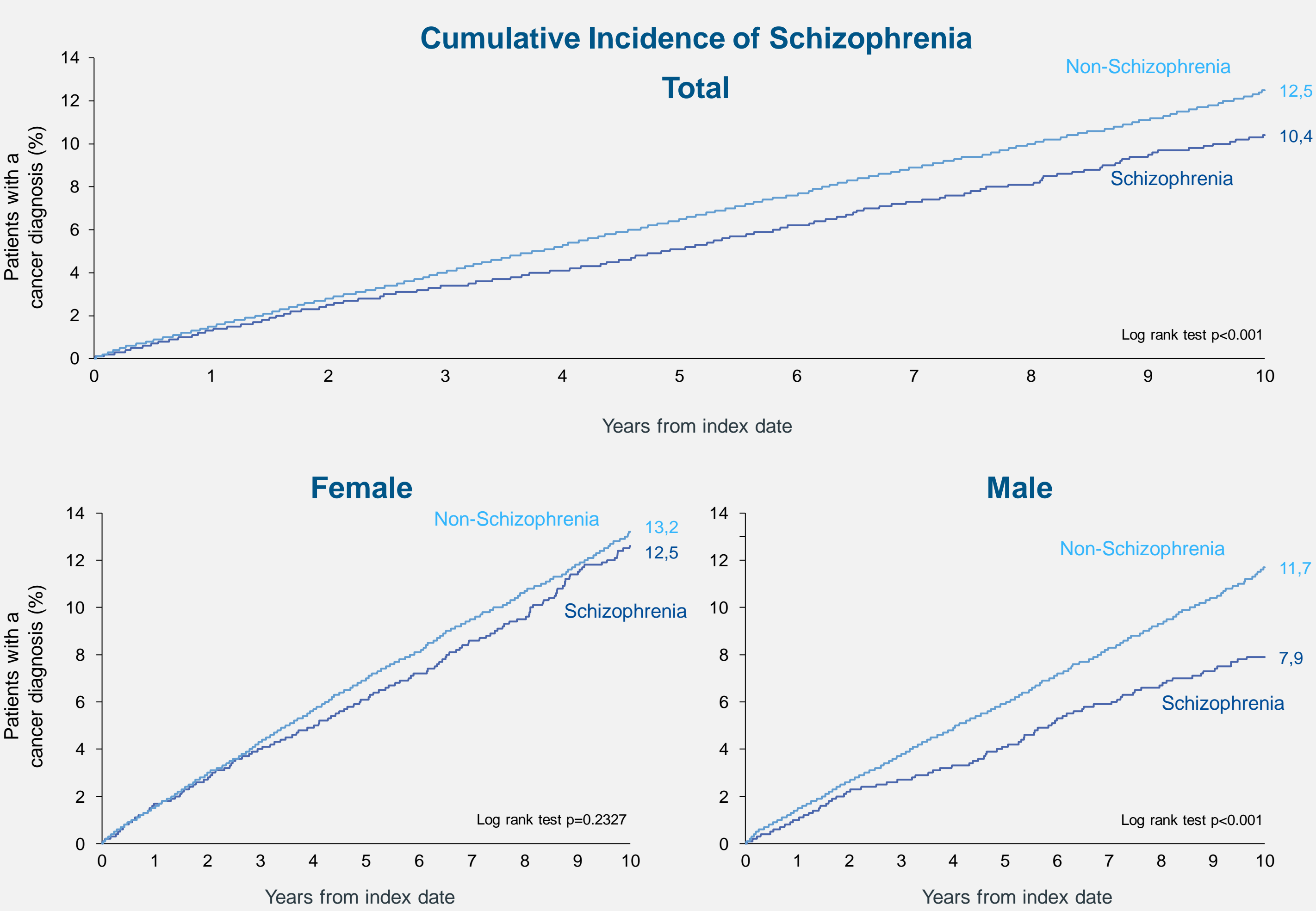


Figure 2. Cumulative incidence of schizophrenia in patients over 18 years with and without schizophrenia for the total population, and stratified by sex

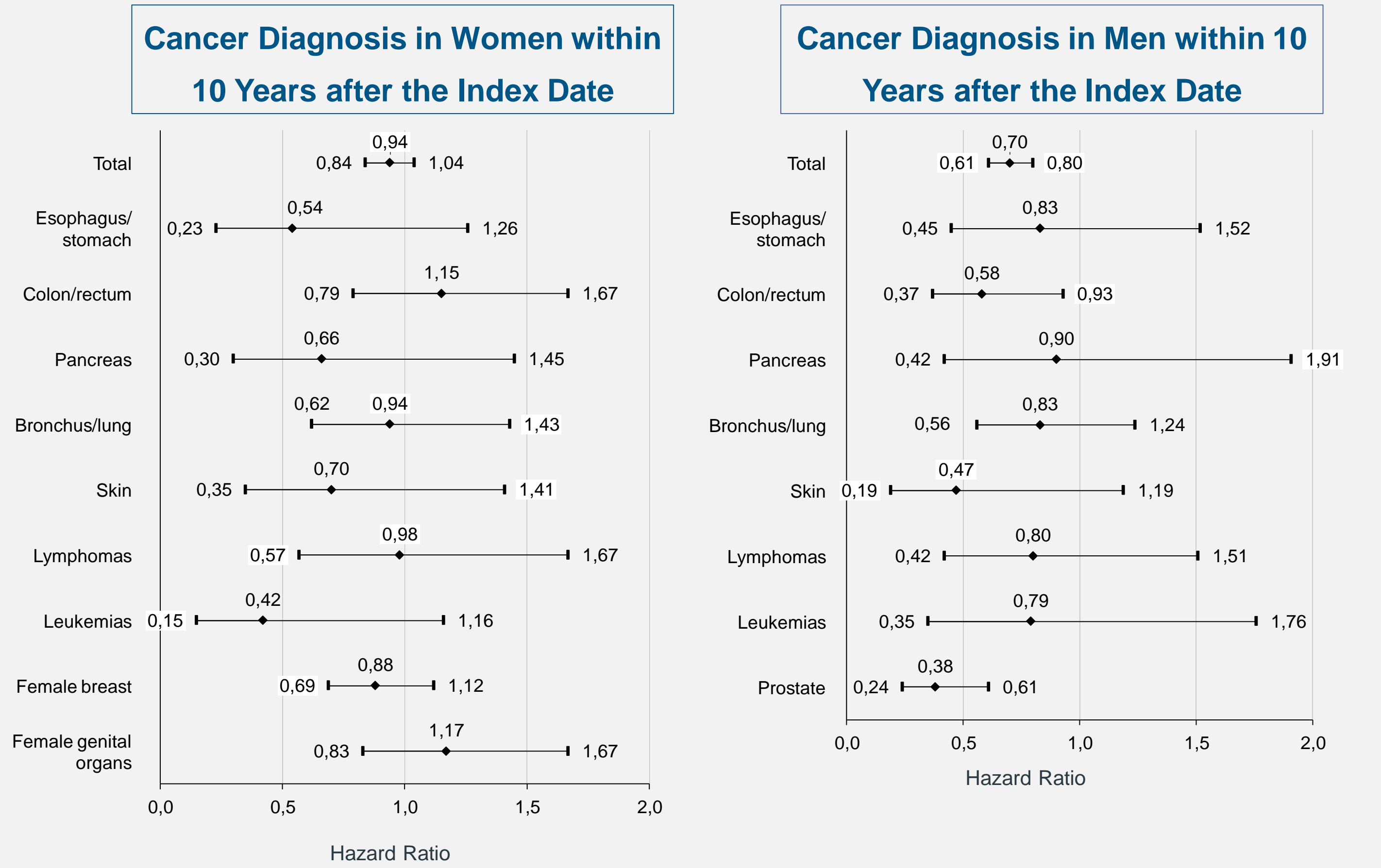


Figure 3. Association between schizophrenia and subsequent cancer diagnosis in patients followed in general practices in Germany

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