Table S1: PRISMA 2020 Checklist

Table S2: Search domain and search terms

Database	**MedLine/Pubmed**	**Embase**	**Cinahl**
	((((("Epilepsy"[Mesh] OR epilep*[title/abstract] OR "Seizures"[Mesh] OR seizure*[title/abstract])))) AND (("Glioblastoma"[Mesh] OR astrocytoma[title/abstract] OR glioblastoma[title/abstract]))) AND (("Survival Analysis"[MeSH] OR "Survivors"[MeSH] OR "Disease-Free Survival"[Mesh] OR surviv*[title/abstract])) Filters: Humans, English	('glioblastoma'/exp/mj OR astrocytoma:ab,ti OR glioblastoma:ab,ti) AND ('epilepsy'/exp/mj OR 'seizure'/exp/mj OR epilep*:ab,ti OR seizure*:ab,ti) AND ('survivor'/exp/mj OR 'survival analysis'/exp/mj OR 'disease-free survival'/exp/mj OR surviv*:ab,ti) AND [humans]/lim AND [english]/lim	(glioblastoma OR astrocytoma) AND ((MH "Epilepsy") OR (MH "Seizures") OR (TI (epilep* OR seizure*) OR AB (epilep* OR seizure*))) AND ((MH "Survivors") OR ((MH "Survival Analysis") OR (MH "Disease-Free Survival")) OR (TI surviv* OR AB surviv*)) Limiters – Human; Narrow by Language: - English
Database	**Scopus**	**Web of Science**	
	(TITLE-ABS-KEY (glioblastoma OR astrocytoma) AND TITLE-ABS-KEY (epilep* OR seizure*) AND TITLE-ABS-KEY (surviv*)) AND (LIMIT-TO (EXACTKEYWORD , "Humans"))	surviv* (All Fields) and epilep* OR seizure* (All Fields) and glioblastoma OR astrocytoma (All Fields) and English (Languages)	

	AND (LIMIT-TO (LANGUAGE , "English"))		

Table S3: Risk of Bias assessment: explanation Point by Point of Each attributed Star. Abbreviations: glioblastoma (GBM); isocitrate dehydrogenase (IDH); Karnofski Performance Status (KPS); radiotherapy (RT); chemotherapy (CT)

Study	**Selection**	**Comparability**	**Outcome**
Ozbek et al., 2004	1) The prevalence of epilepsy at onset in the selected population was lower compared to the average incidence of epilepsy at onset in GBM within the general population. 2) Patients without epilepsy were extracted from the same community as patients with epilepsy at clinical onset. ✸ 3) No definitive data indicating whether patients did not experience seizures prior to the history of GBM. 4) Outcome of interest (death) was not present at start of study. ✸	1) Correction for age in survival analysis. ✸ 2) No information about the molecular characterization of GBM and no correction for other confounding factors (performance status, extent of resection, post-surgery radio-chemotherapy, tumor location, and eventual multifocality).	1) Outcome assessed from medical records. ✸ 2) Follow-up was long enough for outcome to occur. ✸ 3) No data available regarding the number of patients lost during follow-up.
Toledo e al., 2015	1) The prevalence of epilepsy at onset in the selected population was somewhat representative of the average incidence of epilepsy at onset in GBM within the general population .✸ 2) Patients without epilepsy were extracted from the same community as patients with epilepsy at clinical onset. ✸	1) Correction for age in survival analysis. ✸ 2) No clear information about IDH 1-2 mutation status (unique distinction between de novo and secondary glioblastomas). Correction for other confounding factors (type of tumor, extent of resection, post-surgery radio-chemotherapy, tumor location).	1) Outcome assessed from medical records. ✸ 2) Follow-up was long enough for outcome to occur. ✸ 3) All patients received a complete follow-up. ✸

	3) Exclusion of patients with epilepsy secondary to other etiologies. ✸ 4) Outcome of interest (death) was not present at start of study. ✸		
Berendsen et al., 2016	1) The prevalence of epilepsy at onset in the selected population was representative of the average incidence of epilepsy at onset in GBM within the general population. ✸ 2) Patients without epilepsy were extracted from the same community as patients with epilepsy at clinical onset. ✸ 3) Selection of patients with de novo seizures. ✸ 4) Outcome of interest (death) was not present at start of study. ✸	1) Correction for age in survival analysis. ✸ 2) IDH 1-2 mutation status available only for 136/212 patients in epilepsy groups and in 224/435 patients in non-epilepsy group. Analysis of IDH mutation status was performed only with immunochemistry. Correction for type of surgery, postsurgical treatment, tumor volume, affected lobes, bilateral tumor involvement, and performance status.	1) Outcome assessed from medical records. ✸ 2) Follow-up was long enough for outcome to occur. ✸ 3) All patients received a complete follow-up.✸
Toledo et al, 2017	1) The prevalence of epilepsy at onset in the selected population was representative of the average incidence of epilepsy at onset in GBM within the general population. ✸ 2) Patients without epilepsy were extracted from the same community as patients with epilepsy at clinical onset. ✸ 3) Selection of patients with de novo seizures. ✸ 4) Outcome of interest (death) was not present at start of study. ✸	1) Correction for age in survival analysis. ✸ 2) No correction for IDH1-2 mutation status. Correction for: performance status, complete neuro-oncologic treatment (RT and CT).	1) Outcome assessed from medical records. ✸ 2) Follow-up was long enough for outcome to occur. ✸ 3) All patients received a complete follow-up. ✸
Lorimer et al., 2017	1) The prevalence of epilepsy at onset in the selected population was	1) Correction for age in survival analysis. ✸	1) Outcome assessed from medical records. ✸

	somewhat representative of the average incidence of epilepsy at onset in GBM within the general population. ✸ 2) Patients without epilepsy were extracted from the same community as patients with epilepsy at clinical onset. ✸ 3) No definitive data indicating whether patients did not experience seizures prior to the history of GBM. 4) Outcome of interest (death) was not present at start of study. ✸	2) No information about the molecular characterization of GBM. Correction for: performance status, focality, mass effect, extent of resection, adjuvant treatment.	2) Follow-up was long enough for outcome to occur. ✸ 3) No data available regarding the number of patients lost during follow-up.
Ahmadipour et al., 2021	1) The prevalence of epilepsy at onset in the selected population was somewhat representative of the average incidence of epilepsy at onset in GBM within the general population. ✸ 2) Patients without epilepsy were extracted from the same community as patients with epilepsy at clinical onset. ✸ 3) Selection of patients with de novo seizures. ✸ 4) Outcome of interest (death) was not present at start of study. ✸	1) Correction for age in survival analysis. ✸ 2) Correction for IDH1-2 mutation status, performance status, extent of resection, and postoperative chemoradiation in survival analysis. However, IDH 1-2 mutation status was not available for 311/867 (35.9%) patients.	1) Outcome assessed from medical records. ✸ 2) Follow-up was long enough for outcome to occur. ✸ 3) No data available regarding the number of patients lost during follow-up.
Flanigan et al., 2017	1) The prevalence of epilepsy at onset in the selected population was lower compared to the average incidence of epilepsy at onset in GBM within the general population. 2) Patients without epilepsy were extracted from the same community as	1) Correction for age in survival analysis. ✸ 2) No correction for IDH1-2 mutation status. Correction for performance status, extent of resection, postoperative CT/RT in survival analysis.	1) Outcome assessed from medical records. ✸ 2) Follow-up was long enough for outcome to occur. ✸ 3) All patients received a complete follow-up. ✸

	patients with epilepsy at clinical onset. ✸ 3) Selection of patients with de novo seizures. ✸ 4) Outcome of interest (death) was not present at start of study. ✸		
Rigamonti, 2017	1) The prevalence of epilepsy at onset in the selected population was somewhat representative of the average incidence of epilepsy at onset in GBM within the general population. ✸ 2) Patients without epilepsy were extracted from the same community as patients with epilepsy at clinical onset. ✸ 3) No definitive data indicating whether patients did not experience seizures prior to the history of GBM. 4) Outcome of interest (death) was not present at start of study. ✸	1) Correction for age in survival analysis. ✸ 2) IDH 1-2 mutation status available only for 36/151 cases. Correction for performance status, extent of resection, type of adjuvant therapy in survival analysis.	1) Outcome assessed from different source (death record registry). 2) Follow-up was long enough for outcome to occur. ✸ 3) All patients received a complete follow-up. ✸
Dobran et al., 2018	1) The prevalence of epilepsy at onset in the selected population was representative of the average incidence of epilepsy at onset in GBM within the general population. ✸ 2) Patients without epilepsy were extracted from the same community as patients with epilepsy at clinical onset. ✸ 3) No definitive data indicating whether patients did not experience seizures prior to the history of GBM.	1) Correction for age in survival analysis. ✸ 2) No correction for IDH1-2 mutation status. Correction for: performance status, extent of resection, postoperative CT/RT in survival analysis.	1) Outcome assessed from medical records. ✸ 2) Follow-up was not long enough for outcome to occur. 3) All patients received a complete follow-up. ✸

	4) Outcome of interest (death) was not present at start of study. ✸		
Dührsen et al., 2019	1) The prevalence of epilepsy at onset in the selected population was somewhat representative of the average incidence of epilepsy at onset in GBM within the general population. ✸ 2) Patients without epilepsy were extracted from the same community as patients with epilepsy at clinical onset. ✸ 3) No definitive data indicating whether patients did not experience seizures prior to the history of GBM. 4) Outcome of interest (death) was not present at start of study. ✸	1) Correction for age in survival analysis. ✸ 2) Correction for IDH1-2 mutation status. ✸ Correction for tumor location and type of resection (but not for performance status or type of post-surgical adjuvant therapy).	1) Outcome assessed from medical records. ✸ 2) Follow-up was long enough for outcome to occur. ✸ 3) No data available regarding the number of patients lost during follow-up.
Henker et. al, 2019	1) The prevalence of epilepsy at onset in the selected population was somewhat representative of the average incidence of epilepsy at onset in GBM within the general population. ✸ 2) Patients without epilepsy were extracted from the same community as patients with epilepsy at clinical onset. ✸ 3) Exclusion of patients with epilepsy secondary to other etiologies. ✸ 4) Outcome of interest (death) was not present at start of study. ✸	1) No correction for age in survival analysis. 2) Only patients with IDH-wild type unifocal GBM undergoing surgical resection with a residual tumor burden <2 cm^3 were included in survival analysis. All patients received radiation and concomitant chemotherapy with temozolomide. ✸	1) Outcome assessed from medical records. ✸ 2) Follow-up was long enough for outcome to occur. ✸ 3) No data available regarding the number of patients lost during follow-up.
Mrowczynski et al., 2021	1)The prevalence of epilepsy at onset in the selected population was lower compared to the average incidence of epilepsy at onset in GBM	1) No correction for age in survival analysis. 2) No information about the molecular characterization of GBM.	1) Outcome assessed from medical records. ✸ 2) Follow-up was long enough for outcome to occur. ✸

	within the general population. 2) Patients without epilepsy were extracted from the same community as patients with epilepsy at clinical onset. ✸ 3) No definitive data indicating whether patients did not experience seizures prior to the history of GBM. 4) Outcome of interest (death) was not present at start of study. ✸		3) All patients received a complete follow-up. ✸
Zhao et al., 2021	1) The prevalence of epilepsy at onset in the selected population was lower compared to the average incidence of epilepsy at onset in GBM within the general population. 2) Patients without epilepsy were extracted from the same community as patients with epilepsy at clinical onset. ✸ 3) No definitive data indicating whether patients did not experience seizures prior to the history of GBM. 4) Outcome of interest (death) was not present at start of study. ✸	1) Correction for age in survival analysis. ✸ 2) Only patients with IDH-wild type GBM, having a KPS score ≥ 70% and undergoing gross total resection, followed by concurrent chemoradiotherapy and adjuvant therapy with temozolomide, were included. Correction for tumor location in survival analysis. ✸	1) Outcome assessed from medical records. ✸ 2) Follow-up was long enough for outcome to occur. ✸ 3) No data available on the number of patients lost to follow-up for less than 20% of the examined population. ✸
Jilla et al., 2022	1) The prevalence of epilepsy at onset in the selected population was somewhat representative of the average incidence of epilepsy at onset in GBM within the general population. ✸ 2) Patients without epilepsy were extracted from the same community as patients with epilepsy at clinical onset. ✸	1) Correction for age in survival analysis. ✸ 2) No information about the molecular characterization of GBM. Correction for tumor location, performance status, extent of resection, adjuvant temozolomide therapy.	1) Outcome assessed from medical records. ✸ 2) Follow-up was long enough for outcome to occur. ✸ 3) No data available on the number of patients lost to follow-up.

	3) No definitive data indicating whether patients did not experience seizures prior to the history of GBM. 4) Outcome of interest (death) was not present at start of study. ✸		
Pesce et al., 2022	1) The prevalence of epilepsy at onset in the selected population was representative of the average incidence of epilepsy at onset in GBM within the general population. ✸ 2) Patients without epilepsy were extracted from the same community as patients with epilepsy at clinical onset. ✸ 3) No definitive data indicating whether patients did not experience seizures prior to the history of GBM. 4) Outcome of interest (death) was not present at start of study. ✸	1) No correction for age in survival analysis. 2) Only patients with IDH wild-type GBM who underwent either total or subtotal resection of the lesions, followed by radiochemotherapy according to Stupp protocol were considered. No significant differences were observed between the two groups concerning KPS, tumor volume or tumor localization. Significant differences were noted in the extent of resection of the tumor and patients' age. ✸	1) Outcome assessed from medical records. ✸ 2) Follow-up was long enough for outcome to occur. ✸ 3) No data available on the number of patients lost to follow-up.

Figure S1. Flow diagram of the study selection process

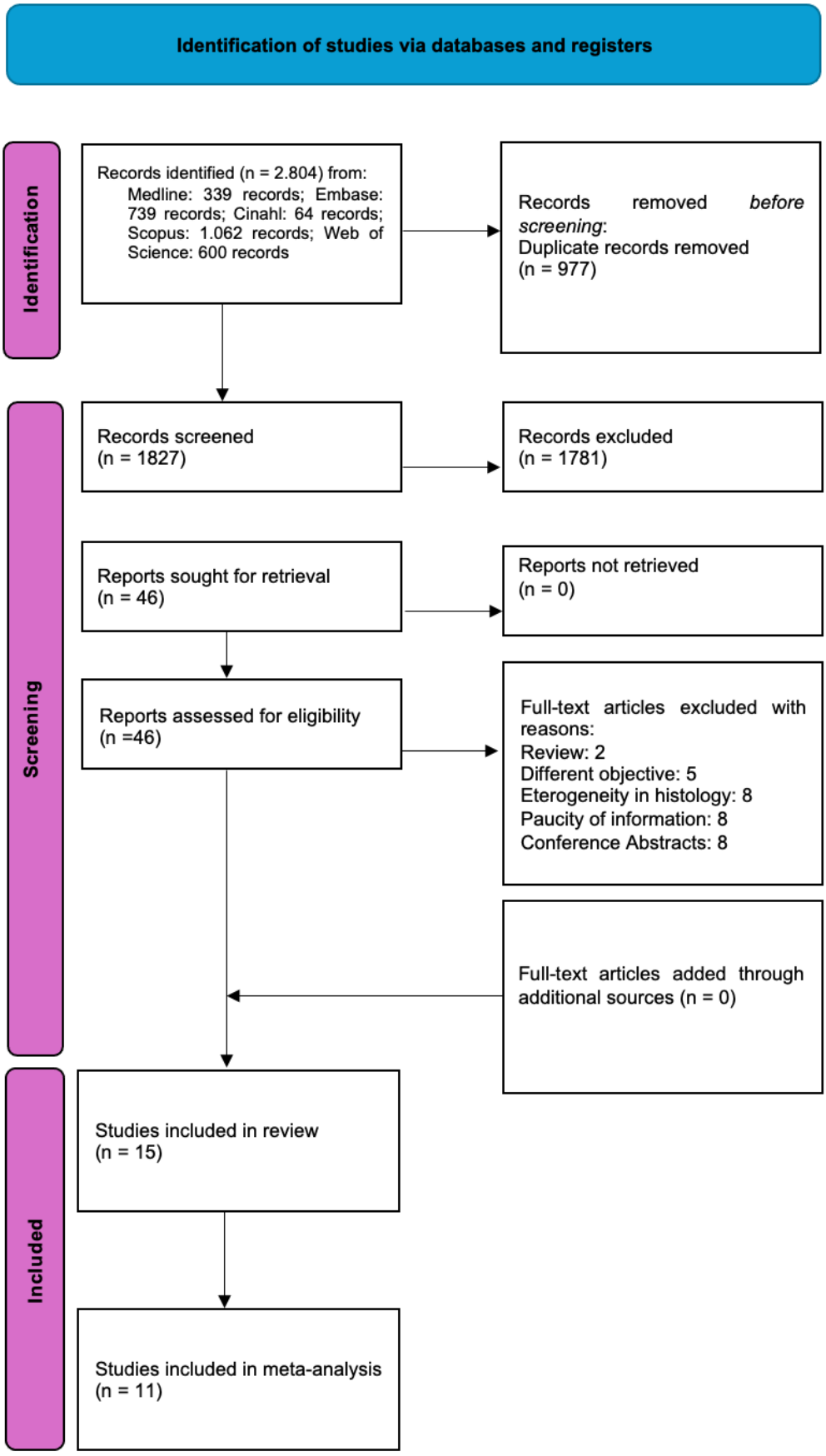

Figure S2. Funnel Plot Analysis of Studies Included in the Meta-analysis Reveals Absence of Publication Bias.

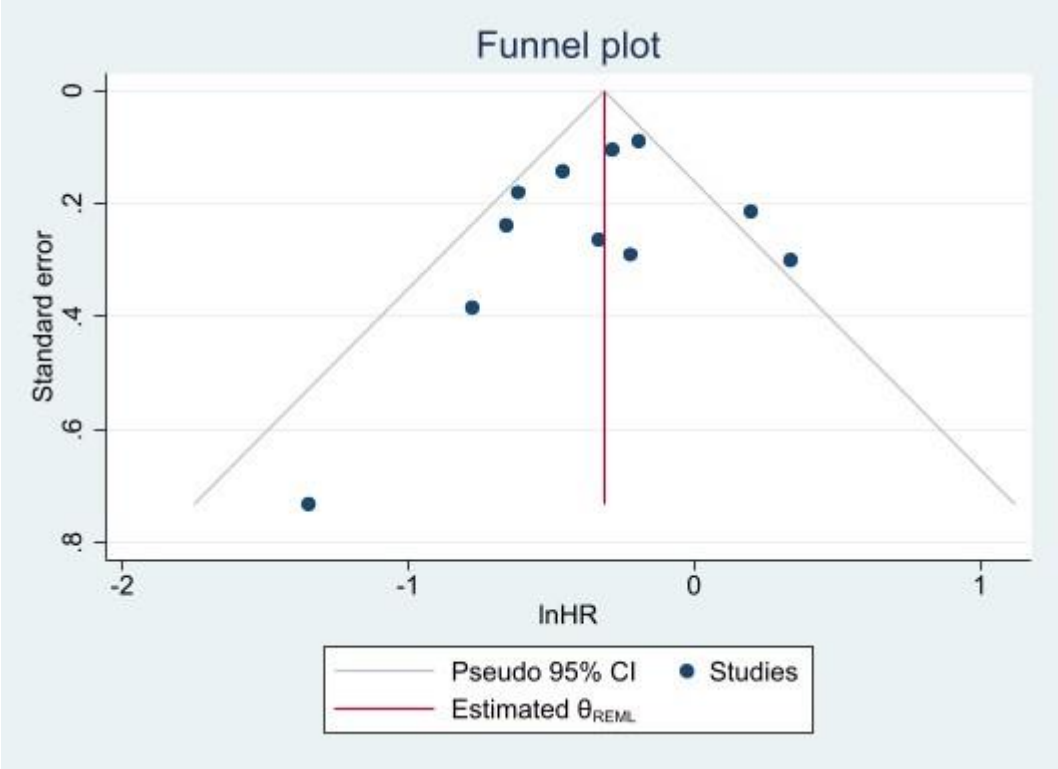

Figure S3. Forest plot of subgroup analysis according to proportion of IDH-mutated cases excluding the two studies reporting only unadjusted HR. Abbreviations: pre-operative seizure only (pso)