



Mapping the burden prevalence of neural tube defects across Indian regions: a systematic review and meta-analysis

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Content

Annex 1: detail search strategy

Annex 2: summary table of included studies



PubMed	("Neural tube defects"[Mesh terms] or "Neural tube defects"[All fields] or "anencephaly"[All fields] or "encephalocele"[All fields] or "spina bifida"[All fields] or "meningocele"[All fields] or "myelomeningocele"[All fields]) and (((("epidemiology"[Mesh Subheading] or "epidemiology"[All fields] or "prevalence"[All fields] or "prevalence"[Mesh terms] or "prevalance"[All fields] or "prevalences"[All fields] or "prevalence s"[All fields] or "prevalent"[All fields] or "prevalently"[All fields] or "prevalents"[All fields]) and " or "[All fields]) and ("epidemiology"[Mesh Subheading] or "epidemiology"[All fields] or "incidence"[All fields] or "incidence"[Mesh terms] or "incidences"[All fields] or "incident"[All fields] or "incidents"[All fields])) and " or "[All fields]) and ("epidemiologies"[All fields] or "epidemiology"[Mesh Subheading] or "epidemiology"[All fields] or "epidemiology"[Mesh terms] or "epidemiology s"[All fields])) Translations prevalence: "epidemiology"[Subheading] or "epidemiology"[All fields] or "prevalence"[All fields] or "prevalence"[Mesh terms] or "prevalance"[All fields] or "prevalences"[All fields] or "prevalence's"[All fields] or "prevalent"[All fields] or "prevalently"[All fields] or "prevalents"[All fields] incidence: "epidemiology"[Subheading] or "epidemiology"[All Fields] or "incidence"[All fields] or "incidence"[Mesh terms] or "incidences"[All fields] or "incident"[All fields] or "incidents"[All fields] epidemiology: "epidemiologies"[All fields] or "epidemiology"[Subheading] or "epidemiology"[All fields] or "epidemiology"[MeSH terms] or "epidemiology's"[All fields]	2354
Embase	'neural tube defects'/exp or 'neural tube defects' or 'anencephaly'/exp or 'anencephaly' or 'encephalocele'/exp or 'encephalocele' or 'spina bifida'/exp or 'spina bifida' or 'meningocele'/exp or 'meningocele' or 'myelomeningocele'/exp or 'myelomeningocele' and 'prevalence' or 'incidence' or 'epidemiology' and 'India'	30
Google Scholar	("Neural tube defects"[Mesh] or "neural tube defects" or "anencephaly" or "encephalocele" or "spina bifida" or "meningocele" or "myelomeningocele") and (prevalence or "incidence" or "epidemiology") and "India")	500

Author (year)	Region	State	Area	Sample size (N)	No. of NTDs (n)	Prevalence per 1000	Birth outcome(n) (Live/Still birth)	Quality
Agrawal <i>et al.</i> (1991)	Central	Uttar Pradesh	Urban	9405	44	4.7	NA	High
Babu <i>et al.</i> (2013)	South	Telangana	Urban	1000	17	17	NA	High
Bhat <i>et al.</i> (1998)	South	Pondicherry	Urban	12797	51	3.99	22/29	High
Cherian <i>et al.</i> (2016)	South	Tamil Nadu	Both	36074	108	2.8	449/511	High
Doddabasappa <i>et al.</i> (2017)	South	Karnataka	Urban	2151	16	18.62%	NA	High
Grover <i>et al.</i> (2017)	North	Punjab	Urban	134	42	31.3	15/50	Moderate
Gupta G <i>et al.</i> (2001)	West	Maharashtra	Both	1950	14	7.1	NA	High
Gupta S <i>et al.</i> (2012)	West	Gujarat	Urban	4058	26	6.4	NA	High
Jaikrishan <i>et al.</i> (2012)	South	Kerala	Both	141540	72	0.51	615/141540	High
Kandasamy <i>et al.</i> (2013)	South	Tamil Nadu	Both	3220	9	2.79	0/9	High
Kant <i>et al.</i> (2016)	North	Haryana	Rural	27184	140	50.8	65/42 (33 MTP)	High
Kar <i>et al.</i> (2018)	East	Odisha	Both	10817	3	0.28	NA	High
Kaur <i>et al.</i> (2012)	North	Chandigarh	Urban	7400	62	14 (62/419)	NA	High
Kulkarni <i>et al.</i> (1989)	South	Karnataka	Both	3500	40	11.4	NA	High
Kumar <i>et al.</i> (2021)	North	Chandigarh	Both	86850	110	1.27	NA	High
Kumar <i>et al.</i> (2020)	North	Delhi	Urban	102216	401	3.9	648/42	Moderate
Laharwal <i>et al.</i> (2016)	North	Jammu and Kashmir	Both	248678	125	0.503	NA	Moderate
Mahadevan <i>et al.</i> (2005)	South	Pondicherry	Urban	54738	310	5.7	136/174	High
Mahalik <i>et al.</i> (2024)	East	Odisha	Both	49215	30	0.59	19/4 (7 MTP)	High
Marwah <i>et al.</i> (2014)	North	Punjab	Both	1554	39	52%	20/49	High
Nagar <i>et al.</i> (2021)	North	Rajasthan	Both	196	12	6.12	NA	High
Naik <i>et al.</i> (2018)	Central	Madhya Pradesh	Both	9014	27	24.55	NA	High
Pabbati <i>et al.</i> (2016)	South	Telangana	Urban	4628	43	---	177/12	High
Pagolu <i>et al.</i> (2022)	South	Adhara Pradesh	Urban	26423	8	0.83	NA	High
Rai <i>et al.</i> (2016)	Central	Uttar Pradesh	Both	2540	19	7.48	9 Stillbirth	High
Sarkar <i>et al.</i> (2013)	East	West Bengal	Urban	12896	32	2.48	286/00	High
Shivanagappa <i>et al.</i> (2019)	South	Karnataka	Urban	47	35	---	NA	Moderate
Singh A <i>et al.</i> (2009)	North	Jammu and Kashmir	Urban	9308	53	20.5	NA	High
Sood <i>et al.</i> (1991)	North	Delhi	Urban	9220	65	7	46/19	Low
Sreekala <i>et al.</i> (2016)	South	Kerala	Urban	2312	15	6.49	NA	Low
Taksande <i>et al.</i> (2010)	West	Maharashtra	Both	9386	15	0.33	NA	High
Tiwari <i>et al.</i> (2020)	North	North Indian states	Urban	14681	35	8.33	NA	High
Verma <i>et al.</i> (1978)	North	North Indian states	Both	58445	47	7.1	NA	Moderate

NA: not available; NTDs: neural tube defects