

Appendix 3. Characteristics of cohort studies and registries included in the systematic review of maternal deaths associated with COVID-19 in pregnancy and postpartum

Study			Population			Exposure
Author, Year	Study Design	Country	No. of mothers with confirmed COVID	No. of maternal deaths	Inclusion and exclusion criteria	Diagnosis of COVID-19
Aabakke AJM 2021	Prospective cohort	Denmark	418	0 maternal deaths	All pregnant women identified from the Danish National Patient Register	Mothers were diagnosed with RT-PCT, antigen tests or serology.
		Europe and Central Asia	pregnant and postnatal women with confirmed COVID			
		HIC				
Agarwal N, 2021	Prospective cohort	India	52	1 maternal death	All pregnant women with confirmed Covid-19 admitted to a tertiary center of Agra in North India	Mothers were diagnosed with RT-PCR.
		South Asia	pregnant women with confirmed COVID			
		LMIC				
Agius A 2022	Retrospective Cohort	Malta	41	0 maternal death	All pregnant women with confirmed Covid-19 in the Maltese island	Method of COVID diagnosis is unknown
		Middle East and North Africa	pregnant women with confirmed COVID			
		HIC				
Ahmad Z 2022	Prospective cohort	Pakistan	106	1 maternal death	All pregnant women with confirmed Covid-19 admitted at various Secondary and Tertiary Care Hospitals of the Armed Forces, Pakistan	Mothers were diagnosed with RT-PCR.
		South Asia	pregnant women with confirmed COVID			
		LMIC				
Akbar MIA, 2021	Prospective cohort	Indonesia	62	6 maternal deaths	All pregnant women suspected of COVID-19 admitted to Universitas Airlangga Hospital	Mothers were diagnosed with RT-PCR.
		East Asia and Pacific	pregnant women with confirmed COVID	5 COVID-19 related deaths		
		LMIC		1 pregnancy-related death		
Akbarian-Rad Z 2021	Retrospective cohort	Iran	6	0 maternal deaths	All pregnant women suspected of contracting COVID-19 admitted to Ayatollah Rohani Hospital, Babol, Iran	Mothers were diagnosed with RT-PCR or radiological suspicion.
		Middle East and North Africa	pregnant and postnatal women with confirmed COVID			
		LMIC				
Al-Matary A 2021	Retrospective cohort	Saudi Arabia	288	1 maternal death	All pregnant women with confirmed Covid-19 admitted to three hospitals in Riyadh city, Saudi Arabia	Mothers were diagnosed with RT-PCR.
		Middle East and North Africa	pregnant women with confirmed COVI			
		HIC				

Al-Qassem AK 2022	Retrospective cohort Registry	Qatar Middle East and North Africa HIC	799 pregnant women with confirmed COVID	0 maternal deaths	All women aged between 18 to 49 years of age and with confirmed COVID-19 by RT-PCR	Mothers were diagnosed with RT-PCR
Álvarez Bartolomé A 2022	Prospective cohort	Spain Europe and Central Asia HIC	1,347 pregnant women with confirmed COVID	2 maternal death	All pregnant women with confirmed Covid-19 admitted in hospitals registered in the Spanish Obstetric Emergency Group	Mothers were diagnosed with RT-PCR
Amorita NA 2021	Retrospective cohort	Indonesia East Asia and Pacific LMIC	62 pregnant women with confirmed COVID	0 maternal deaths	All pregnant women with confirmed COVID-19 admitted to Kasih Ibu Hospital, Surakarta	Mothers were diagnosed with RT-PCR.
Ansari A (1) 2020	Prospective cohort	Pakistan South Asia LMIC	41 pregnant and postnatal women with confirmed COVID	0 maternal deaths	All pregnant women admitted to Obstetrics Unit of Pak Emirates Military Hospital (PEMH) and Combined Military Hospital (CMH) Rawalpindi	Mothers were diagnosed with RT-PCR.
Antolin EM 2021	Prospective cohort Registry	Spain Europe and Central Asia HIC	1704 pregnant women with confirmed COVID	2 maternal deaths	All pregnant women with confirmed Covid-19 admitted to 79 hospitals in Spain	Mothers were diagnosed with RT-PCR.
Antsaklis P 2021	Retrospective cohort	Greece Europe and Central Asia HIC	40 pregnant women with confirmed COVID	0 maternal deaths	All pregnant women with confirmed COVID-19 admitted to Alexandra maternity hospital	Mothers were diagnosed with RT-PCR.
Añez MPC 2022	Retrospective cohort	Venezuela Latin America and the Caribbean UMIC	30 pregnant women with confirmed COVID	6 maternal deaths	All pregnant women with suspected or confirmed COVID-19	Mothers were diagnosed with RT-PCR
Arakaki T, 2021	Retrospective cohort Registry	Japan East Asia and Pacific HIC	72 pregnant women with confirmed COVID	1 maternal death 1 COVID-19 related death	All pregnant women with confirmed COVID-19 admitted to 1,418 institutions in Japan	Mothers were diagnosed with RT-PCR.

Artymuk N 2021	Retrospective cohort	Russia	8485 pregnant women with confirmed COVID	12 maternal deaths	All pregnant women with confirmed Covid-19 admitted to hospitals in the Far Eastern Federal District and the Siberian Federal District of Russia	Mothers were diagnosed with RT-PCR.
	Registry	Europe and Central Asia		12 COVID- 19-related deaths		
		UMIC				
Asalkar MR 2022	Prospective cohort	India	362 pregnant women with confirmed COVID	4 maternal deaths	All women who were diagnosed to have COVID- 19 and cases delivered after 28 weeks	Mothers were diagnosed with RT-PCR or rapid antigen test
		South Asia				
		LMIC				
Aziz-Ahari S 2021	Retrospective cohort	Iran	5 pregnant and postnatal women with confirmed COVID	0 maternal deaths	All pregnant women suspected of COVID-19 admitted to Imam Sajjad Hospital	
		Middle East and North Africa				
		LMIC				
Babic I 2022	Retrospective cohort	Saudi Arabia	209 pregnant women with confirmed COVID	0 maternal deaths	All pregnant women with documented PCR COVID-19 positive tests	Mothers were diagnosed with RT-PCR
	Registry	Middle East and North Africa				
		HIC				
Bachani S 2020	Retrospective cohort	India	57 pregnant women with confirmed COVID	3 maternal deaths	All pregnant women with confirmed Covid-19 admitted to a tertiary care hospital in India	Mothers were diagnosed with RT-PCR.
		South Asia		3 COVID- 19-related deaths		
		LMIC				
BahaaEldin H 2021	Retrospective cohort	Egypt	408 pregnant women with confirmed COVID	10 maternal deaths	All pregnant women with confirmed Covid-19 admitted to designated hospitals in Egypt	Mothers were diagnosed with RT-PCR.
	Registry	Middle East and North Africa		10 COVID- 19-related deaths		
		LMIC				
Baloch PG 2022	Retrospective cohort	Pakistan	72 pregnant women with confirmed COVID	0 maternal deaths	All pregnant women with confirmed COVID-19	Mothers were diagnosed with RT-PCR
		South Asia				
		LMIC				
Belokrinitskaya TE 2022	Retrospective cohort	Russia	27210 pregnant women with confirmed COVID	81 maternal deaths	Pregnant women, women in labour and women who recently gave birth	Mothers were diagnosed with RT-PCR
	Registry	Europe and central Asia		81 COVID- 19 related deaths		
		UMIC				
Benlghazi A 2021	Retrospective cohort	Morocco	16 pregnant and postnatal women with confirmed COVID	0 maternal deaths	All pregnant women admitted to the COVID-19 military field hospital of Benslimane, Morocco	Mothers were diagnosed with RT-PCR.
		Middle East and North Africa				
		LMIC				
Bhomia C 2022	Retrospective Cohort	India	53 pregnant women with confirmed COVID	0 maternal death	All pregnant women with confirmed Covid-19 admitted to D. Y. Patil Hospital, Kolhapur	Mothers were diagnosed with RT-PCR.
		South Asia				
		LMIC				

Bircher C 2022	Retrospective Cohort	UK Europe and Central Asia HIC	429 pregnant women with confirmed COVID	0 maternal death	All pregnant women with confirmed Covid-19 referred to Norfolk and Norwich University Hospitals Trust deployed a exible maternity virtual ward	Method of COVID diagnosis is unknown.
Brendolin N 2022	Prospective cohort	Brazil Latin America and the Caribbean UMIC	1609 pregnant women with confirmed COVID	21 maternal deaths 18 COVID-19 related deaths	All pregnant women evaluated for emergency care, for labour and delivery, for respiratory symptoms, for obstetric or medical reasons	
Borges Charepe N 2022	Retrospective Cohort	Portugal Europe and Central Asia HIC	630 pregnant women with confirmed COVID	0 maternal death	All pregnant women with confirmed Covid-19 admitted in 23 Portuguese maternity hospitals	Mothers were diagnosed with RT-PCR.
Budhram S 2021	Retrospective cohort	South Africa Sub-Saharan Africa UMIC	673 pregnant women with confirmed COVID	39 maternal deaths 29 COVID-19-related deaths 5 pregnancy-related deaths 1 unrelated death	All pregnant women with confirmed Covid-19 admitted to 36 hospitals in South Africa	Mothers were diagnosed with RT-PCR.
Cambou M 2022	Prospective cohort	United States and Brazil Various Various	256 pregnant women with confirmed COVID	1 maternal death	Pregnant women above 16 years of age with confirmed COVID-19	Mothers were diagnosed with RT-PCR
Carranza Lira S (1) 2022	Retrospective cohort Registry	Mexico Latin America and the Caribbean UMIC	53 pregnant women with confirmed COVID	0 maternal deaths	All pregnant women	
Carrion Nessi FS 2022	Retrospective cohort	Venezuela Latin America and the Caribbean UMIC	80 pregnant women with confirmed COVID	21 maternal deaths	All pregnant women with confirmed COVID hospitalised in two sentinel centres	Mothers were diagnosed with RT-PCR
Chaichian S 2021	Prospective cohort	Iran Middle East and North Africa LMIC	14 pregnant women with confirmed COVID	1 unrelated death		Mothers were diagnosed with RT-PCR

Chapuma CJ 2022	Retrospective Cohort	Malawi Sub-Saharan Africa LIC	246 pregnant women with confirmed COVID	47 maternal death	All pregnant women with confirmed Covid-19 admitted at 33 health facilities across all region in Malawi	Method of COVID diagnosis is unknown
Chigateri S 2022	Prospective cohort Registry	India South Asia LMIC	118 pregnant women with confirmed COVID	2 maternal deaths 2 COVID-19 related deaths	All pregnant women with confirmed covid-19	Mothers were diagnosed with RT-PCR or rapid antigen test
Choudary A 2022	Retrospective cohort Registry	India South Asia LMIC	249 pregnant women with confirmed COVID	4 maternal deaths 4 COVID-19 related deaths	All pregnant women with confirmed covid-19 admitted to the hospital	Mothers were diagnosed with RT-PCR or rapid antigen test
Chung Y 2021	Retrospective Cohort Registry	Republic of Korea East Asia and Pacific HIC	19 pregnant women with confirmed COVID	0 maternal deaths	All pregnant women with confirmed COVID-19 from the Korea Disease Control and Prevention Agency database	Mothers were diagnosed with RT-PCR.
Clemente MJQ, 2021	Retrospective cohort	Philippines East Asia and Pacific LMIC	196 pregnant women with confirmed COVID	4 maternal deaths 1 COVID-19 related death 2 unrelated deaths	All pregnant women with confirmed COVID-19 admitted to the Philippine General Hospital	Mothers were diagnosed with RT-PCR or suspected radiology.
Cunha CMP 2022	Ambispective cohort	Brazil Latin America and the Caribbean UMIC	611 pregnant women with confirmed COVID	27 maternal deaths	All pregnant or postpartum women with confirmed COVID-19 admitted to one of the institutions included in the study	Mothers were diagnosed with RT-PCR
Dave A 2021	Prospective cohort	India South Asia LMIC	197 pregnant women with confirmed COVID	12 maternal deaths	All pregnant women with confirmed Covid-19 admitted to Maharaja Tukojirao Hospital, Indore, Madhya Pradesh	Mothers were diagnosed with RT-PCR and rapid antigen test
Datta S 2021	Retrospective cohort	India South Asia LMIC	20 pregnant and postnatal women with confirmed COVID	0 maternal deaths	All pregnant women with confirmed COVID-19 admitted to SKN Medical College, Pune, Maharashtra, India	Mothers were diagnosed with RT-PCR.
Decenti EC 2022	Prospective cohort	Italy Europe and Central Asia HIC	1086 pregnant women with confirmed COVID	1 maternal death	Unvaccinated pregnant women with previous or current confirmed covid-19 admitted to the hospital	Mothers were diagnosed with RT-PCR
Denizli R 2022	Retrospective cohort	Turkey Europe and Central Asia UMIC	126 pregnant women with confirmed COVID	10 maternal deaths	All pregnant women with confirmed COVID-19	Mothers were diagnosed with RT-PCR

Dingom MAN 2020	Prospective cohort	Cameroon Sub-Saharan Africa LMIC	25 pregnant women with confirmed COVID	0 maternal deaths	All pregnant women with confirmed Covid-19 admitted to Yaounde Central Hospital	Mothers were diagnosed with RT-PCR or a rapid diagnostic test.
Doke G 2022	Retrospective cohort Registry	India South Asia LMIC	144 pregnant women with confirmed COVID	3 maternal deaths 3 COVID-19 related deaths	All pregnant women with confirmed covid admitted	Mothers were diagnosed with RT-PCR or rapid antigen test
Dollinger S 2022	Retrospective cohort Registry	Israel Middle East and North Africa HIC	193 pregnant women with confirmed COVID	0 maternal deaths	All pregnant women with confirmed covid admitted for hospitalization or quarantined due to exposure to covid-19	Mothers were diagnosed with RT-PCR
Donati S 2021	Prospective cohort Registry	Italy Europe and Central Asia HIC	3306 pregnant women with confirmed COVID	1 maternal death 1 COVID-19-related death	All pregnant women with confirmed Covid-19 admitted to 315 Italian maternity hospitals	Mothers were diagnosed with RT-PCR, serology or radiological suspicion.
Elsmore A 2022	Prospective cohort	UK Europe and Central Asia HIC	55 pregnant women with confirmed COVID	1 maternal death	All pregnant women with confirmed Covid-19 admitted at the University Hospitals Birmingham	Mothers were diagnosed with RT-PCR.
Emekar SM 2022	Retrospective cohort Registry	India South Asia LMIC	8841 pregnant women with confirmed COVID	5 maternal deaths	All pregnant women with confirmed covid-19 who were hospitalised	Mothers were diagnosed with RT-PCR.
Engjom HM 2022	Prospective cohort	UK Europe and Central Asia HIC	1561 pregnant women with confirmed COVID	3 maternal death	All pregnant women with confirmed Covid-19 admitted to 194 hospitals in the UK	Mothers were diagnosed with RT-PCR.
Estrada-Chiroque LM 2022	Retrospective cohort Registry	Peru Latin America and the Caribbean UMIC	322 pregnant women with confirmed covid	2 maternal deaths	All pregnant women at 20 or more gestational weeks with confirmed covid	Mothers were diagnosed with RT-PCR.
Fakhar S 2021	Retrospective cohort	Pakistan South Asia LMIC	46 pregnant women with confirmed COVID	1 maternal death 1 COVID-19-related death	All pregnant women with confirmed Covid-19 admitted to a tertiary facility in Pakistan.	Method of COVID diagnosis is unknown.
Favre G (1) 2022	Prospective cohort Registry	Various Various Various	1964 pregnant women with confirmed COVID	7 maternal deaths	All pregnant women with confirmed covid-19	Mothers were diagnosed with RT-PCR or rapid antigen test
Ferreira RBS 2022	Retrospective cohort Registry	Brazil Latin America and the Caribbean UMIC	4773 pregnant women with confirmed COVID	247 maternal deaths 247 COVID-19 related deaths	All pregnant women with confirmed covid-19 who were hospitalised	

Filho MCB 2022	Retrospective cohort Registry	Brazil Latin America and the Caribbean UMIC	828 pregnant women with confirmed COVID	79 maternal deaths	All pregnant and postpartum women with confirmed covid-19	
Flannery DD 2022	Prospective cohort Registry	USA North America HIC	209 pregnant women with confirmed COVID	0 maternal deaths	All pregnant women with confirmed covid-19	Mothers were diagnosed with RT-PCR.
Furrukh R 2021	Prospective cohort	Pakistan South Asia LMIC	47 pregnant women with confirmed COVID	2 maternal deaths	All pregnant women with confirmed covid-19 admitted to the isolation ward	Mothers were diagnosed with RT-PCR.
Gargari S 2022	Prospective cohort Registry	Iran Middle East and North Africa LMIC	158 pregnant women with confirmed COVID	7 maternal deaths 7 COVID-19 related deaths	All pregnant women with confirmed covid-19	Mothers were diagnosed with RT-PCR.
Goldenberg RL 2022	Prospective cohort Registry	Various Various LMIC	3272 pregnant women with confirmed COVID	1 maternal death	Prenant women who delivered at 20 weeks of gestation or more and had confirmed covid-19	Mothers were diagnosed with antibody tests
Goyal R 2022	Retrospective cohort	India South Asia LMIC	91 pregnant women with confirmed covid	10 maternal deaths	All pregnant women who were admitted to the hospital during the second wave of covid-19 epidemic	Mothers were diagnosed with RT-PCR.
Grados IZ 2021	Retrospective cohort	Peru Latin America and the Caribbean UMIC	317 pregnant women with confirmed COVID	1 maternal death 1 COVID-19-related death	All pregnant women with confirmed Covid-19 admitted to Daniel Alcides Carrion National Hospital, Callao, Peru	Method of COVID diagnosis is unknown.
Grgic G 2022	Retrospective cohort	Bosnia and Herzegovina Europe and Central Asia UMIC	61 pregnant women with confirmed COVID	0 maternal deaths	All hospitalised pregnant women	Mothers were diagnosed with RT-PCR.
Ghosh M, 2022	Retrospective Cohort	India South Asia LMIC	53 pregnant women with confirmed COVID	0 maternal death	All pregnant women with confirmed Covid-19 admitted at Tata Main tertiary Hospital, Jamshedpur, India	Mothers were diagnosed with RT-PCR.
Gomez UT 2022	Retrospective cohort Registry	Brazil Latin America and the Caribbean UMIC	377 pregnant women with confirmed COVID	6 maternal deaths 6 COVID-19 related deaths	Pregnant women admitted to HC due to covid-19 who delivered in both hospitals	Mothers were diagnosed with RT-PCR or antigen tests

Goyal LD 2022	Prospective cohort Registry	India South Asia LMIC	21 pregnant women with confirmed COVID	0 maternal deaths	All pregnant women enlisted in the study area before the lockdown	
Guleroglu FY 2022	Retrospective cohort	Turkey Europe and Central Asia UMIC	445 pregnant women with confirmed COVID	5 maternal deaths	All pregnant women with confirmed covid-19 referred to the tertiary care centre	
Gupta P 2021	Retrospective cohort	India South Asia LMIC	108 pregnant women with confirmed COVID	1 maternal death 1 unrelated death	All pregnant women with confirmed Covid-19 admitted to Shri Maharaja Gulab Singh maternity hospital in Jammu and Kashmir, India	Mothers were diagnosed with RT-PCR.
Hall M 2022	Retrospective Cohort	Austria Europe and Central Asia HIC	118 pregnant women with confirmed COVID	1 maternal death	All pregnant women with confirmed Covid-19 admitted at Clinic Ottakring	Mothers were diagnosed with RT-PCR.
Hamidi OP 2022	Retrospective cohort	USA North America HIC	441 pregnant women with confirmed COVID	0 maternal death	All pregnant women with confirmed Covid-19	Mothers were diagnosed with RT-PCR.
Hazari K 2020	Retrospective cohort	UAE Middle East and North Africa HIC	79 pregnant women with confirmed COVID	1 maternal death 1 COVID-19-related death	All pregnant women with confirmed Covid-19 admitted to Latifa Hospital in Dubai	Mothers were diagnosed with RT-PCR.
Hodzic J 2021	Retrospective Cohort	Bosnia and Herzegovina Europe and Central Asia UMIC	24 pregnant women with confirmed COVID	0 maternal deaths	All pregnant women with confirmed Covid-19 admitted to the Cantonal Hospital, Zenica	Mothers were diagnosed with RT-PCR.
Hojo-Souza 2022	Retrospective Cohort	Brazil Latin America & the Caribbean UMIC	9537 pregnant women with confirmed COVID	1065 maternal death	All pregnant women with confirmed Covid-19 collected from the Influenza Epidemiological Surveillance Information System (SIVEP-Gripe in Brazil	Method of COVID diagnosis is unknown.
Hossain I 2020	Retrospective cohort	Bangladesh South Asia LMIC	30 pregnant women with confirmed COVID	2 maternal deaths	All pregnant women with confirmed Covid-19 admitted to Mugda Medical College and Hospital, Dhaka, Bangladesh	Method of COVID diagnosis is unknown.
Hosseini MS 2021	Retrospective cohort	Iran Middle East and North Africa LMIC	42 pregnant women with confirmed COVID	2 maternal deaths 1 COVID-19-related death	All pregnant women with confirmed Covid-19 admitted to the Shahid Beheshti hospitals in Tehran, Iran	Mothers were diagnosed with RT-PCR.

Ibrahim AA 2022	Retrospective cohort Registry	Egypt Middle East and North Africa LMIC	75 pregnant women with confirmed COVID	3 maternal deaths 3 COVID-19 related deaths	All pregnant women with confirmed covid-19	Mothers were diagnosed with RT-PCR.
Ioscovich A, 2021	Prospective cohort	Spain, Israel, and Portugal Various Regions HIC	165 pregnant women with confirmed COVID	1 maternal death	All pregnant women with confirmed Covid-19 admitted to three 8 medical centres in three European countries (Spain, Israel and Portugal)	Mothers were diagnosed with RT-PCR.
Jarraya A 2022	Prospective cohort	Tunisia Middle East and North Africa LMIC	129 pregnant women with confirmed COVID	13 maternal deaths	Unvaccinated pregnant women hospitalised for delivery and gave birth while infected with covid-19	Mothers were diagnosed with RT-PCR.
Joshi SD 2020	Prospective cohort	India South Asia LMIC	133 pregnant women with confirmed COVID	1 maternal death 1 COVID-19-related death	All pregnant women with confirmed Covid-19 admitted to health centers and private hospitals in Bellary, Karnataka India	Mothers were diagnosed with RT-PCR.
Kamali A 2021	Prospective Cohort	Iran Middle East and North Africa LMIC	13 pregnant and postnatal women with confirmed COVID	0 maternal deaths	All pregnant women with confirmed Covid-19 admitted to Taleghani and Qods Hospitals	Mothers were diagnosed with RT-PCR.
Kaur P 2021	Prospective cohort	India South Asia LMIC	30 pregnant women with confirmed COVID	1 maternal death 1 COVID-19-related death	All pregnant women with confirmed Covid-19 admitted to Fortis Hospital, Shalimar Bagh, India	Mothers were diagnosed with RT-PCR.
Kayem G, 2020	Prospective cohort	France Europe and Central Asia HIC	597 pregnant women with confirmed COVID	1 maternal death 1 COVID-19-related death	All pregnant women with COVID-19 admitted to 33 French maternity units	Mothers were diagnosed with RT-PCR.
Khan N 2021	Retrospective cohort	Pakistan South Asia LMIC	121 pregnant women with confirmed COVID	2 maternal deaths	All pregnant women with confirmed Covid-19 admitted to Mardan and Combined Military Hospital in Pakistan	Mothers were diagnosed with RT-PCR.
Khoiwal K 2021	Prospective Cohort	India South Asia LMIC	60 pregnant women with confirmed COVID	1 maternal deaths	All pregnant women with confirmed Covid-19 admitted at tertiary care center at AIIMS Rishikes, Rishikesh uttarakhand	

Khoiwal K 2022	Prospective cohort	India	42 pregnant women with confirmed COVID	7 maternal deaths	All pregnant women with confirmed Covid-19	Mothers were diagnosed with RT-PCR.				
	Registry	South Asia	7 COVID-19 related deaths							
		LMIC								
Kilic O 2022	Retrospective cohort	Turkey	30 pregnant women with confirmed COVID	0 maternal deaths	All women with confirmed covid-19 admitted to the hospital	Mothers were diagnosed with RT-PCR.				
		Europe and Central Asia								
		UMIC								
Kinci OS 2022	Retrospective cohort	Turkey	46 pregnant women with confirmed COVID	2 maternal deaths	All pregnant women with confirmed covid-19	Mothers were diagnosed with RT-PCR.				
		Europe and Central Asia	2 COVID-19 related deaths							
		UMIC								
Kumari A 2022	Retrospective cohort	India	201 pregnant women with confirmed COVID	2 maternal deaths	All pregnant women coming to labour to the hospital with confirmed covid-19	Mothers were diagnosed with RT-PCR.				
	Registry	South Asia	2 COVID-19 related deaths							
		LMIC								
Kusuma AANJ 2022	Retrospective cohort	Indonesia	70 pregnant women with confirmed COVID	9 maternal deaths	All pregnant women with confirmed covid-19					
		East Asia and Pacific								
		LMIC								
Leung C (1) 2022	Retrospective cohort	Brazil	7461 pregnant women with confirmed COVID	702 maternal deaths	All pregnant women with confirmed covid-19 who were hospitalised between 15 and 45 years of age	Mothers were diagnosed with RT-PCR.				
	Registry	Latin America and the Caribbean	687 COVID-19 related deaths							
		UMIC					15 unrelated deaths			
Leung C (2) 2022	Retrospective cohort	Brazil	9389 pregnant women with confirmed COVID	1071 maternal deaths	All pregnant women with confirmed covid-19 who were hospitalised between 15 and 45 years of age	Mothers were diagnosed with RT-PCR.				
	Registry	Latin America and the Caribbean								
		UMIC								
Li Q 2021	Retrospective cohort	China	138 pregnant women with confirmed COVID	1 maternal death	All pregnant women with confirmed COVID-19 admitted to designated hospitals in mainland China	Mothers were diagnosed with RT-PCR.				
	Registry	East Asia and Pacific								
		UMIC								
Lucovnik M 2021	Prospective cohort	Slovenia	193 pregnant women with confirmed COVID	1 maternal deaths	All pregnant women with confirmed Covid-19 admitted at a hospital	Mothers were diagnosed with RT-PCR.				
Mahajan NN (1) 2022	Retrospective cohort	India	2058 pregnant women with confirmed COVID	47 maternal deaths	All pregnant and postpartum women with confirmed covid-19					
	Registry	South Asia								
		LMIC								
Mahajan NN (5) 2021	Retrospective cohort	India	1530 pregnant women with confirmed COVID	30 maternal deaths	All pregnant women with confirmed Covid-19 admitted to BYL Nair Charitable Hospital, Mumbai, India	Method of COVID diagnosis is unknown.				
		South Asia		28 COVID-19-related deaths						
		LMIC								
				2 unrelated deaths						

Mahato RD 2022	Prospective cohort Registry	Nepal South Asia LMIC	74 pregnant women with confirmed COVID	1 maternal death 1 COVID-19 related death	All pregnant women with confirmed covid-19 admitted in the antenatal ward	Mothers were diagnosed with RT-PCR
Manasova G 2021	Prospective cohort	Ukraine Europe and Central Asia LMIC	218 pregnant women with confirmed COVID	0 maternal deaths	All pregnant women with confirmed Covid-19 admitted Maternity Hospital No. 2 of the Odessa city and Odessa region in Ukraine	Mothers were diagnosed with RT-PCR
Maraqa B 2021	Retrospective cohort	Palestine Middle East and North Africa LMIC	120 pregnant women with confirmed COVID	1 maternal death	All pregnant women with confirmed Covid-19 admitted to hospitals in Palestine	Mothers were diagnosed with RT-PCR.
Marwah M, 2022	Retrospective Cohort	UK Europe and Central Asia HIC	111 pregnant women with confirmed COVID	1 maternal death	All pregnant women with confirmed Covid-19 admitted at a single centre medical health trust in the UK	Mothers were diagnosed with RT-PCR.
Mattar CNZ 2020	Prospective cohort	Singapore East Asia and Pacific HIC	16 pregnant women with confirmed COVID	0 maternal deaths	All pregnant women with confirmed Covid-19 admitted to 4 tertiary hospitals	Mothers were diagnosed with RT-PCR.
Maukayeva S 2022	Retrospective Cohort	Kazakhstan Europe and Central Asia UMIC	20 pregnant women with confirmed COVID	1 maternal death	All pregnant women with confirmed Covid-19 admitted at Semey Infectious Diseases Hospital (East Kazakhstan)	Mothers were diagnosed with RT-PCR.
McCreary EK 2022	Retrospective Cohort Registry	USA North America HIC	944 pregnant women with confirmed COVID	1 maternal death 1 COVID-19 related death	Pregnant women aged 12 years of age or older with any documented positive SARS-CoV-2 test	Mothers were diagnosed with RT-PCR or antigen test
Mercedes BR 2020	Retrospective cohort	Dominican Republic Latin America and the Caribbean UMIC	154 pregnant women with confirmed COVID	2 maternal deaths	All pregnant women with confirmed Covid-19 admitted to a tertiary hospital in Domingo, Dominican Republic	Mothers were diagnosed with RT-PCR or IgM/IgG serology.
Mishra S 2022	Prospective cohort	India South Asia LMIC	144 pregnant women with confirmed COVID	13 maternal death	All women with confirmed covid-19	
Mitra S 2022	Retrospective cohort Registry	India South Asia LMIC	201 pregnant women with confirmed COVID	0 maternal deaths	All pregnant women with confirmed covid-19	

Mohaghegh Z 2021	Prospective cohort	Iran Middle East and North Africa LMIC	263 pregnant women with confirmed COVID	3 maternal deaths	All pregnant women with confirmed Covid-19 admitted to 154 health centres in Tehran province, Iran	Mothers were diagnosed with RT-PCR.
Mohini 2022	Retrospective cohort	India	189 pregnant women with confirmed COVID	4 maternal deaths	All pregnant women who delivered in the same tertiary centre during both waves	Mothers were diagnosed with RT-PCR.
	Registry	South Asia LMIC	4 COVID-19 related deaths			
Morales NM 2020	Prospective cohort	Chile Latin America and the Caribbean HIC	72 pregnant women with confirmed COVID	0 maternal deaths	All pregnant women with confirmed Covid-19 admitted to the El-Pino Hospital	Mothers were diagnosed with RT-PCR.
Mrazguia C 2021	Retrospective cohort	Tunisia	11 pregnant women with confirmed COVID	0 maternal deaths	All pregnant women with confirmed Covid-19 admitted to Mohamed Tlatli hospital.	Method of COVID diagnosis is unknown.
		Middle East and North Africa LMIC				
Najafian M 2021	Retrospective cohort	Iran	54 pregnant women with confirmed COVID	4 maternal deaths	All pregnant women with confirmed Covid-19 admitted to Razi Hospital, Iran	Method of COVID diagnosis is unknown.
		Middle East and North Africa LMIC				
Najam R 2022	Retrospective cohort	India	260 pregnant women with confirmed COVID	14 maternal deaths	Antenatal patients with confirmed covid-19 admitted in COVID-19 level 3 hospital	Mothers were diagnosed with RT-PCR.
	Registry	South Asia LMIC	14 COVID-19 related deaths			
Nandi N 2021	Prospective cohort	India South Asia LMIC	33 pregnant women with confirmed COVID	1 maternal deaths	All pregnant women with confirmed Covid-19 admitted to Teerthankar Mahaveer Medical College & Research Centre	Mothers were diagnosed with RT-PCR.
Naveen Chandra S 2022	Retrospective cohort	India	62 pregnant women with confirmed COVID	0 maternal deaths	All pregnant women with confirmed covid-19 admitted for delivery	
	Registry	South Asia LMIC				
Nayak M 2021	Prospective cohort	India South Asia LMIC	162 pregnant women with confirmed COVID	1 maternal death	All pregnant women with confirmed Covid-19 admitted to KIMS hospital, Bhubaneswar in Odisha, India	Mothers were diagnosed with RT-PCR.
NethOSS 22nd January 2021 update	Prospective cohort	Netherlands	4634 pregnant women with confirmed COVID	1 maternal death	All pregnant women with confirmed Covid-19 in the Netherlands	Mothers were diagnosed with RT-PCR.
	Registry	Europe and Central Asia HIC	1 COVID-19-related death			
Nunes MC 2022	Prospective cohort	South Africa Sub-Saharan Africa UMIC	138 pregnant women with confirmed COVID	1 maternal death 1 COVID-19-related death	All pregnant women with confirmed Covid-19	

Omrani AS 2020	Retrospective cohort Registry	Qatar Middle East and North Africa HIC	26 pregnant women with confirmed COVID	0 maternal deaths	All pregnant women with confirmed Covid-19 registered on the Hamad Medical Corporation Covid-19 database	Mothers were diagnosed with RT-PCR.
Ozurmeli M 2021	Retrospective cohort	Turkey Europe and Central Asia UMIC	24 pregnant women with confirmed COVID	1 maternal death 1 COVID-19-related death	All pregnant women with confirmed Covid-19 admitted to two hospitals in Istanbul	Mothers were diagnosed with RT-PCR.
Paudyal P 2022	Prospective cohort	Nepal South Asia LIC	47 pregnant women with confirmed COVID	0 maternal death	All pregnant women with confirmed Covid-19 admitted in a tertiary care center in Nepal	Mothers were diagnosed with RT-PCR..
Pecks U 2020	Prospective cohort Registry	Germany Europe and Central Asia HIC	247 pregnant women with confirmed COVID	1 maternal death 1 COVID-19-related death	All pregnant women with confirmed COVID-19 admitted to 98 clinics in Germany	Mothers were diagnosed with RT-PCR or clinical or radiological suspicion.
Peepal P 2022	Retrospective Cohort	India South Asia LMIC	92 pregnant women with confirmed COVID	1 maternal death	All pregnant women with confirmed Covid-19 admitted at a tertiary care hospital in Odisha, India	Mothers were diagnosed with RT-PCR.
Peter B (1), 2022	Retrospective Cohort	USA North America HIC	34 pregnant women with confirmed COVID	1 maternal death	All pregnant women with confirmed Covid-19 admitted to two public hospitals in Chicago, USA	Mothers were diagnosed with RT-PCR.
Pineles BL 2022	Retrospective Cohort Registry	USA North America HIC	2251 pregnant women with confirmed COVID	24 maternal deaths 24 COVID-19-related deaths	All pregnant women with confirmed covid-19 between 14 and 45 years of age admitted to acute care hospitals	
Qudsieh S 2022	Retrospective Cohort	Jordan Middle East and North Africa LIC	112 pregnant women with confirmed COVID	5 maternal deaths 5 COVID-19-related deaths	All pregnant women with confirmed Covid-19	
Rahmadhini DA 2022	Retrospective Cohort Registry	Indonesia East Asia and Pacific LMIC	620 pregnant women with confirmed COVID	1 maternal death 1 COVID-19 related death	All pregnant women with confirmed Covid-19	Mothers were diagnosed with RT-PCR or rapid test
Remaeus K 2020	Retrospective cohort	Sweden Europe and Central Asia HIC	67 pregnant women with confirmed COVID	0 maternal deaths	All pregnant women with confirmed Covid-19 admitted to hospitals in Stockholm	Mothers were diagnosed with RT-PCR.

Rottenstreich A 2020	Prospective cohort	Israel Middle East and North Africa HIC	52 pregnant and postnatal women with confirmed COVID	0 maternal deaths	All pregnant women with confirmed Covid-19 admitted to seven university affiliated hospitals in Israel	Mothers were diagnosed with RT-PCR.
Rozo N 2021	Prospective cohort Registry	Colombia Latin America and the Caribbean UMIC	5614 pregnant women with confirmed COVID	54 maternal deaths	All pregnant women with confirmed Covid-19 admitted to hospitals in Colombia (national disease surveillance data)	Mothers were diagnosed with RT-PCR or rapid antigen test.
Saadia Z 2021	Prospective cohort	Pakistan South Asia LMIC	48 pregnant women with confirmed COVID	2 maternal deaths	All pregnant women with confirmed Covid-19 admitted to Sir Ganga Ram Hospital, Lahore, Pakistan	Mothers were diagnosed with RT-PCR.
Sadiq H 2021	Prospective cohort	Pakistan South Asia LMIC	16 pregnant women with confirmed COVID	0 maternal deaths	All pregnant women with confirmed Covid-19 admitted to KRL Hospital, Islamabad	Mothers were diagnosed with RT-PCR.
Sahin D 2021	Prospective cohort	Turkey Europe and Central Asia UMIC	1416 pregnant women with confirmed COVID	6 maternal deaths 6 COVID-19-related deaths	All pregnant women with confirmed Covid-19 admitted to Ankara City Hospital	Mothers were diagnosed with RT-PCR.
Sahin D, 2022	Prospective cohort	Turkey Europe and Central Asia UMIC	1935 pregnant women with confirmed COVID	21 maternal death	All pregnant women with confirmed Covid-19 admitted at, Ankara city hospital in Turkey	Mothers were diagnosed with RT-PCR.
Saimin J 2021	Retrospective Cohort	Indonesia East Asia and Pacific LMIC	41 pregnant women with confirmed COVID	0 maternal deaths	All pregnant women with confirmed Covid-19 admitted to referral hospitals in Southeast Sulawesi, Regional Hospital of Bau-Bau and Bahteramas Hospital	Mothers were diagnosed with RT-PCR.
Salvatore MA 2022	Prospective cohort Registry	Italy Europe and Central Asia HIC	975 pregnant women with confirmed COVID	1 maternal death 1 COVID-19 related death	Pregnant women with current or previous confirmed covid-19 and admitted to the hospital for birth	Mothers were diagnosed with RT-PCR.
Samadi P 2021	Prospective cohort	Iran Middle East and North Africa LMIC	258 pregnant women with confirmed COVID	8 maternal deaths	All pregnant women with confirmed Covid-19 admitted to Forghani Hospital in Qom, Iran.	Mothers were diagnosed with RT-PCR.

Santhosh J 2020	Retrospective cohort	Oman Middle East and North Africa HIC	60 pregnant and postnatal women with confirmed COVID	0 maternal deaths	All pregnant and postpartum women with confirmed Covid-19 admitted to The Royal Hospital, Muscat, Oman	Mothers were diagnosed with RT-PCR.
Sarmadi S 2022	Retrospective cohort Registry	Iran Middle East and North Africa LMIC	38 pregnant and postnatal women with confirmed COVID	1 maternal death 1 COVID-19 related death	All pregnant women with confirmed Covid-19	Mothers were diagnosed with RT-PCR.
Sayed SK 2021	Prospective cohort	Bangladesh South Asia LMIC	68 pregnant women with confirmed COVID	2 maternal deaths 2 COVID-19-related deaths	All pregnant women with confirmed Covid-19 admitted to Dhaka Medical College Hospital, Bangladesh	Mothers were diagnosed with RT-PCR.
Secara DC 2022	Retrospective cohort	Romania Europe and Central Asia HIC	184 pregnant women with confirmed COVID	3 maternal deaths 3 COVID-19 related deaths	All pregnant women with confirmed Covid-19	Mothers were diagnosed with RT-PCR.
Sero L 2022	Retrospective cohort	Turkey Europe and Central Asia UMIC	327 pregnant women with confirmed COVID	11 maternal deaths	All pregnant women with confirmed Covid-19	Mothers were diagnosed with RT-PCR.
Shah PT 2020	Prospective cohort	India South Asia LMIC	125 pregnant and postnatal women with confirmed COVID	0 maternal deaths	All women with confirmed Covid-19 admitted to NHL Municipal Medical College	Mothers were diagnosed with RT-PCR.
Shams T 2022	Retrospective cohort Registry	Saudi Arabia Middle East and North Africa HIC	394 pregnant and postnatal women with confirmed COVID	1 maternal death 1 COVID-19 related death	All women with confirmed Covid-19	Mothers were diagnosed with RT-PCR.
Sharief M 2021	Prospective cohort	Iraq Middle East and North Africa LMIC	135 pregnant women with confirmed COVID	7 maternal deaths 7 COVID-19-related deaths	All pregnant women with confirmed Covid-19 admitted to Basrah Teaching Hospital, Iraq	Mothers were diagnosed with RT-PCR or computer topography.
Shirazi M 2022	Retrospective cohort	Iran Middle East and North Africa LMIC	177 pregnant women with confirmed COVID	7 maternal deaths	All pregnant women with confirmed covid-19 who referred to prenatal clinics	Mothers were diagnosed with RT-PCR.
Sibia P 2021	Prospective cohort	India South Asia LMIC	150 pregnant women with confirmed COVID	1 maternal death 1 COVID-19-related death	All pregnant women with confirmed Covid-19 admitted to Rajindra Hospital, Patiala, India	Mothers were diagnosed with RT-PCR.
Siddiqui S (1) 2021	Retrospective cohort	India South Asia LMIC	100 pregnant women with confirmed COVID	1 maternal death 1 pregnancy-related death	All pregnant women with confirmed Covid-19 admitted to a designated Covid-19	Mothers were diagnosed with RT-PCR.

					hospital in Teerthanker Mahaveer Medical College and Research Centre, Moradaba, Northern India	
Singh V (1) 2021	Retrospective cohort	India South Asia LMIC	132 pregnant women with confirmed COVID	0 maternal deaths	All pregnant women with confirmed Covid-19 admitted to Tata Main Hospital, Jamshedpur	Mothers were diagnosed with RT-PCR.
Singh V 2022	Retrospective cohort Registry	India South Asia LMIC	249 pregnant women with confirmed COVID	4 maternal deaths 4 COVID-19 related deaths	All pregnant women with confirmed Covid-19	Mothers were diagnosed with RT-PCR or rapid test
Sharma R, 2022	Ambispective cohort	India South Asia LMIC	134 pregnant women with confirmed COVID	2 maternal death	All pregnant women with confirmed Covid-19 admitted at Government institute of medical science, UP India	Mothers were diagnosed with RT-PCR.
Sharma R, 2022	Ambispective cohort	India South Asia LMIC	58 pregnant women with confirmed COVID	8 maternal death	All pregnant women with confirmed Covid-19 admitted at Government institute of medical science, UP India	Mothers were diagnosed with RT-PCR.
Shoji K 2022	Retrospective Cohort	Japan East Asia and Pacific HIC	254 pregnant women with confirmed COVID	1 maternal death	All pregnant women with confirmed Covid-19 registered in Japan nationwide COVID-19 registry (COVIREGI-JP)	Mothers were diagnosed with antigen
Shree P 2022	Prospective cohort Registry	India South Asia LMIC	52 pregnant women with confirmed COVID	1 maternal death	All pregnant women with confirmed Covid-19 admitted to the ward	
Sobkowski M 2022	Retrospective Cohort	Poland Europe and Central Asia HIC	304 pregnant women with confirmed COVID	2 maternal deaths 2 COVID-19 related deaths	All pregnant or parturient women with confirmed Covid-19	Mothers were diagnosed with RT-PCR.
Subedi K 2022	Prospective cohort Registry	Nepal South Asia LMIC	160 pregnant women with confirmed COVID	4 maternal deaths 2 COVID-19 related deaths	All pregnant women with confirmed Covid-19 presenting to maternity and women's hospital	Mothers were diagnosed with RT-PCR.
Suriñach-Ayats B 2022	Prospective cohort Registry	Spain Europe and Central Asia HIC	109 pregnant women with confirmed COVID	0 maternal deaths	All pregnant women with confirmed Covid-19	Mothers were diagnosed with RT-PCR.

Sundar A 2022	Retrospective Cohort	Bahrain Middle East and North Africa HIC	74 pregnant women with confirmed COVID	0 maternal death	All pregnant women with confirmed Covid-19 admitted at Bahrain Defense Force Hospital, Riffa, Bahrain.	Mothers were diagnosed with RT-PCR.
Szczygiol P 2022	Prospective cohort	Poland Europe and Central Asia HIC	83 pregnant women with confirmed COVID	2 maternal deaths	All pregnant women with confirmed Covid-19 admitted at Wroclaw Medical University Teaching Hospital in Poland	Mothers were diagnosed with RT-PCR.
Tekin AB (2) 2022	Retrospective Cohort	Turkey	1065 pregnant women with confirmed COVID	28 maternal deaths	All pregnant women who were hospitalised and diagnosed with covid-19	Mothers were diagnosed with RT-PCR.
	Registry	Europe and Central Asia UMIC		28 COVID-19 registry related deaths		
Thiabaud A 2020	Prospective cohort	Switzerland Europe and Central Asia HIC	35 pregnant women with confirmed COVID	0 maternal deaths	All pregnant women with confirmed Covid-19 admitted to 20 Swiss hospitals	
Timur B 2022	Retrospective Cohort	Turkey	63 pregnant women with confirmed COVID	0 maternal deaths	Pregnant women with confirmed covid-19 hospitalised	
	Registry	Europe and Central Asia UMIC				
Tiwari L 2021	Prospective cohort	India	51 pregnant women with confirmed COVID	1 maternal death	All pregnant women with confirmed Covid-19 admitted to a tertiary care center, North India	Mothers were diagnosed with RT-PCR.
		South Asia LMIC		1 COVID-19-related death		
Trahan MJ (3) 2021	Retrospective cohort	Canada North America HIC	45 pregnant and postnatal women with confirmed COVID	0 maternal deaths	All pregnant women with confirmed Covid-19 admitted to McGill University Health Centre and Jewish General Hospital	Mothers were diagnosed with RT-PCR.
USA CDC surveillance (25 December 21)	Prospective cohort	USA North America HIC	178338 pregnant women with confirmed COVID	261 maternal death	CDC national registry	Method of COVID diagnosis is unknown.
Vousden N (1) 2022	Prospective cohort	UK Europe and Central Asia HIC	4436 pregnant women with confirmed COVID	22 maternal death	All pregnant women with confirmed Covid-19 admitted to 194 hospitals in the UK (UKOSS)	Mothers were diagnosed with RT-PCR.
Villar J 2021	Prospective Cohort	18 countries	706 pregnant women with	11 maternal death	All pregnant women with confirmed Covid-19 admitted	Mothers were diagnosed with RT-PCR

			confirmed COVID	aINTERCOVID-43 hospitals in 18 countries		
Vural T 2022	Retrospective Cohort	Turkey Europe and Central Asia UMIC	61 pregnant women with confirmed COVID	0 maternal death	All pregnant women with confirmed Covid-19 admitted at the University of Health Science Turkey Tepecik training and research hospital	Mothers were diagnosed with RT-PCR.
Wadhvani R 2022	Prospective cohort	India	210 pregnant women with confirmed COVID	26 maternal deaths	All antenatal COVID-19 patients	
		South Asia LMIC		26 COVID-19 related deaths		
Yadav V 2020	Retrospective cohort	India	28 pregnant women with confirmed COVID	0 maternal deaths	All pregnant women with confirmed Covid-19 admitted to Sharda School of Medical Sciences and Research, Greater Noida, UP	Mothers were diagnosed with RT-PCR.
		South Asia				
		LMIC				
Zaharie G 2020	Retrospective cohort	Romania	5 pregnant and postnatal women with confirmed COVID	0 maternal deaths	All pregnant women with confirmed Covid-19 admitted to Clinic of Obstetrics and Gynecology Ist, County Emergency Hospital, Cluj-Napoca, Romania	Mothers were diagnosed with RT-PCR.
		Europe and Central Asia				
		UMIC				