

A SYSTEMATIC REVIEW AND META- ANALYSIS OF DATA ON PREGNANT WOMEN WITH CONFIRMED COVID-19: CLINICAL PRESENTATION AND PREGNANCY AND PERINATAL OUTCOMES BASED ON COVID-19 SEVERITY

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A systematic review and meta-analysis of data on pregnant women with confirmed COVID-19: Clinical presentation, and pregnancy and perinatal outcomes based on COVID-19 severity

- ❑ Gebe kadınlar gebelikte solunum yolları patojenlerine karşı daha savunmasızlardır
- ❑ Geçmişte MERS (Middle East Respiratory Syndrome) veya SARS-CoV-1 ile enfekte gebelerde yapılan çalışmalarda düşük, pre-eklempi, erken doğum ve perinatal ölüm oranları daha yüksek bulunmuştur
- ❑ Yapılan çalışmalarda; ağır COVID-19 enfeksiyonu için risk faktörleri
 - ❑ İleri anne yaşı
 - ❑ Komorbiditeler
 - ❑ Artmış BMI

ÇALIŞMANIN AMACI

- Kanıtlanmış COVID-19'u olan hamile kadınlarda COVID-19 şiddetine göre klinik prezentasyon, risk faktörleri, gebelik ve perinatal sonuçlar arasında fark olup olmadığını belirlemek

METOD

- ❑ Tüm çalışmalar iki bağımsız yazar tarafından değerlendirildi
- ❑ Çalışmaların; yayın yılı, örneklem boyutu, semptomlar, komorbiditeler, hastalığın şiddeti, gebelik, doğum ve perinatal sonuçlar ve yenidoğanın COVID-19 durumu değerlendirildi
- ❑ COVID-19 şiddeti, Dünya Sağlık Örgütü'nün sınıflamasına göre; 'severe(ağır)', 'non-severe(ağır olmayan)' olarak sınıflandırıldı

METOD

DAHİL EDİLME KRİTERLERİ

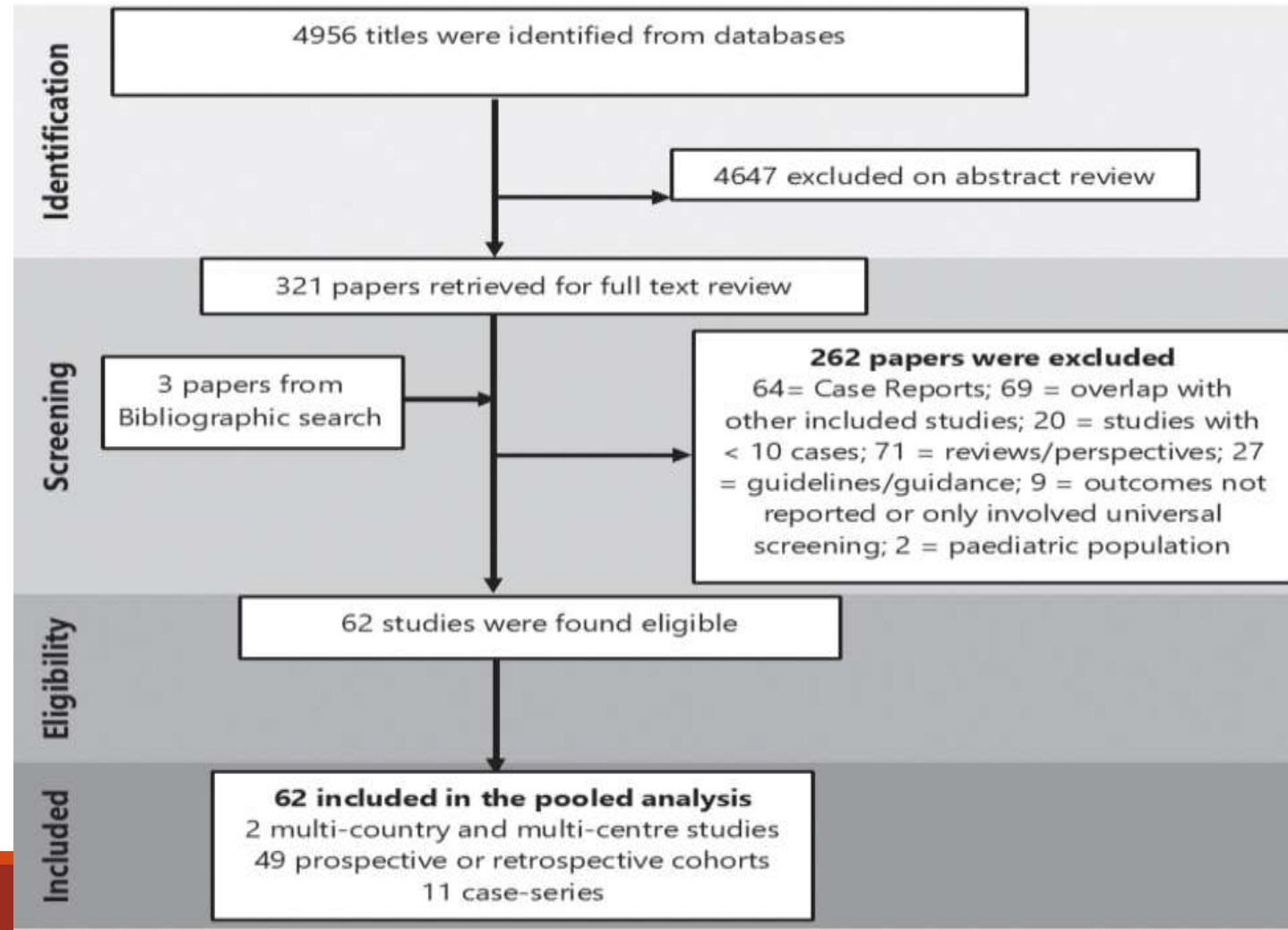
- ❑ Aralık 2019-Şubat 2021 tarihleri arasında
- ❑ **“Coronavirus” ve “Pregnant Women”**
- ❑ **Tüm vakalar kanıtlanmış COVID-19**
- ❑ Medline, EMBASE, China Knowledge Resource Integrated Database (CNKI), and Google Scholar, MedRxiv, BioRxiv, Clinicaltrials
- ❑ Bütün makalelerin atıfları

DIŞLAMA KRİTERLERİ

- ❑ Hamile olmayan kadınlar, çocuklar, ergenler, yetişkinler
- ❑ Klinik prezentasyon, risk faktörleri, gebelik ve perinatal sonuçlar olmayan tüm COVID-19 ile enfekte gebelerle ilgili çalışmalar

- ❑ Aynı vakaların birden çok çalışmada kullanılmasını engellemek için; çalışmaların yöneticileri ile iletişim kurulmuştur
- ❑ Benzer yerlerden yapılan çalışmalarda çalışmaların yöneticisi ile iletişime geçilemediğinde, vaka sayısı fazla olan çalışma dahil edildi

SONUÇLAR



SONUÇLAR



- 62 farklı çalışmadan 51'i prospektif veya retrospektif kohort iken 11'i vaka serisidir
Sahin D, Tanacan A, Erol SA, Anuk AT, Yetiskin FDY, Keskin HL. Updated experience of a tertiary pandemic center on 533 pregnant women with COVID-19 infection: A prospective cohort study from Turkey. Int J Gynaecol Obstet. 2021;152:328- 34.
- Toplam 6 detay ve 44 farklı ilde veri alınmıştır
- Toplam 51016 gebe çalışmaya dahil edilmiştir
- Hastalığın ciddiyetinin değerlendirildiği çalışma sayısı 13 iken gebe sayısı 2743'tür
- Ağır COVID-19 ile enfekte gebe oranı 14.4 olarak bulunmuştur

VARIABLES		ALL CASES (N = 31 016)			
		# studies	Total events/participants	Pooled proportion (%)	Heterogeneity (I^2)
Age (years)	Mean age (years)	40		30.92±0.65	99.7
	<35 years	12	20 476/25 256	54.9 (38.6 to 70.7)	99.0
	≥35 years	10	4546/24883	31.3 (23.5 to 39.6)	95.0
Gestational age (Weeks)	Mean gestational age	22		33.36±0.71	99.6
	First trimester	9	184/1847	13.9 (6.4 to 23.3)	94.5
	Second trimester	11	369/1887	20.7 (13.2 to 29.2)	90.6
	Third trimester	15	1373/2184	77.7 (63.4 to 89.5)	97.5
	≥37 weeks	4	360/1120	39.3 (9.3 to 74.5)	99.0
	<37 weeks	3	602/1056	65.1 (22.9 to 96.9)	99.3
Parity	Nulliparous	18	667/1821	34.7 (28.4 to 41.3)	87.4
	Multiparous	9	464/887	51.6 (36.8 to 66.2)	94.7
Ethnicity	White	8	5919/24962	35.2 (16.9 to 55.9)	99.3
	Black	6	3586/25 199	15.8 (7.4 to 26.5)	98.5
	Asian	6	1246/24987	61.8 (19.3 to 95.8)	99.9
	Central/Latin American	4	7230/23 760	58.5 (28.1 to 85.7)	98.8
	Mixed	2	62/488	10.6 (8.0 to 13.6)	98.4
	Others	4	972/24 706	2.1 (0.4 to 5.0)	93.8
Health insurance	Private	4	196/436	49.4 (39.0 to 59.9)	75.1
	Public	4	265/476	53.4 (44.2 to 62.5)	71.9
Body Mass Index	Mean BMI	16		27.77±0.72	99.0
	<25	2	130/435	28.7 (24.2 to 33.3)	32.4
	25 to <30	3	480/1166	38.2 (28.6 to 48.3)	89.2
	≥30	13	735/26 170	19.3 (10.5 to 30.0)	98.8

CHARACTERISTICS OF ALL PREGNANT WOMEN		ALL CASES (N = 31016)			BASED ON COVID-19 SEVERITY (N = 2743)			
		Total # of studies	Total events/participants	Pooled proportion* (%) (95% CI)	Heterogeneity (I ² %)	Severe COVID-19§ (n = 395)	Non-severe COVID-19 (n = 2348)	Risk ratio (95% CI)
Presenting symptoms	Asymptomatic	26	1274/3422	42.5 (31.6 to 53.8)	97.4	0	103/390 [27,34,36,40-42]	Non-estimable
	Fever	27	1905/26947	44.1 (35.1 to 53.3)	98.1	44/56 [27,28,31,36,43]	239/393[27,28,31,36,38,41]	1.29 (1.10 to 1.51)
	Cough	26	7074/26931	51.5 (41.7 to 61.2)	98.4	49/56 [24,27,28,36,43]	230/396[24,27,28,36,38,41]	1.51 (1.32 to 1.72)
	Fatigue/malaise	20	1931/25587	26.7 (14.4 to 40.9)	98.9	20/41 [27,28,36,38]	101/313[27,28,36,38]	1.51 (1.06 to 2.15)
	Myalgia	12	4046/25262	20.7 (14.1 to 28.3)	96.0	11/18 [38]	8/122 [27,38]	9.32 (4.34 to 20.02)
	Headache	12	4653/25054	13.5 (10.3 to 17.0)	80.6	9/27 [36,38]	8/135 [36,38,44]	5.63 (2.39 to 13.27)
	Rhinorrhoea	7	1471/24954	8.4 (5.4 to 12.1)	89.2	-	-	Non-estimable
	SOB/Dyspnoea	26	3456/26887	24.1 (17.0 to 32.0)	97.9	38/56 [27,28,31,36,38,43]	99/393 [27,28,31,36,38,41]	1.39 (1.17 to 1.65)
	Sore throat	13	3195/25188	18.1 (11.9 to 25.3)	95.8	2/8 [27]	46/68 [41]	0.37 (0.11 to 1.24)
	Congestion	2	176/23463	4.4 (0.0 to 25.3)	91.2	-	-	Non-estimable
	Abdominal pain	4	879/23632	4.4 (0.9 to 9.8)	79.4	-	-	-
	Nausea/vomiting	11	2231/25010	14.2 (8.7 to 20.7)	95.1	6/6 [28]	74/128 [28,41]	Non-estimable
	Diarrhoea	20	1718/26615	8.0 (5.2 to 11.3)	93.3	7/15 [28,36]	31/299 [27,28,36]	4.50 (2.38 to 8.50)
	Anosmia/ageusia	16	2712/25637	25.1 (12.4 to 40.4)	99.1	5/6 [28]	77/97 [24,28]	1.05 (0.72 to 1.52)
	Chest pain/tightness	8	436/24899	4.8 (1.8 to 8.8)	93.7	8/27 [36,38]	16/123 [36,38]	2.28 (1.09 to 4.77)

CHARACTERISTICS OF ALL PREGNANT WOMEN	ALL CASES (N = 31016)				BASED ON COVID-19 SEVERITY (N = 2743)		
	Total # of studies	Total events/participants	Pooled proportion* (%) (95% CI)	Heterogeneity (I ² %)	Severe COVID-19§ (n = 395)	Non-severe COVID-19 (n = 2348)	Risk ratio (95% CI)
No comorbidity	5	172/358	40.6 (15.3 to 68.6)	94.2	-	-	-
Smoke/tobacco	18	235/3492	8.3 (2.3 to 17.8)	98.3	14/148 [26,28,33,37]	20/683 [28,33,34,37]	3.23 (1.67 to 6.25)
Anaemia	5	189/1171	16.1 (4.9 to 32.0)	96.8	3/8 [27]	0	Non-estimable
Hypothyroidism	7	126/1270	8.7 (4.3 to 14.3)	86.0	2/14 [26,27]	7/181 [26,45]	3.69 (0.85-16.14)
Chronic resp. disease (incl. asthma)	17	786/27 486	7.0 (2.3 to 13.5)	98.8	32/216 [26,33,35,46]	58/835 [26,33,34,38,40,44,45]	2.13 (1.42-3.20)
Cardiac disease (incl. HTN)	16	462/26 750	4.4 (2.9 to 6.2)	87.1	40/293 [26,27,33,35,46,47]	43/796 [33,35,45]	2.53 (1.68-3.81)
Chronic kidney disease	3	25/24 176	0.5 (0.0 to 2.5)	92.0	-	-	-
Diabetes	18	606/27 110	3.4 (1.8 to 5.5)	92.2	7/128 [33,47]	20/777 [26,33,37,40,44,45]	2.12 (0.92 to 4.92)
Immunocompromised	3	158/23 669	2.7 (0.0 to 12.7)	96.2	-	-	to
Any chronic disease†‡	11	8413/26240	18.9 (11.7 to 27.3)	98.2	61/212 [28,33,43,46]	61/683 [28,33,34,37]	3.22 (2.34 to 4.44)

Past medical Hx to

CHARACTERISTICS OF ALL PREGNANT WOMEN		ALL CASES (N = 31016)			BASED ON COVID-19 SEVERITY (N = 2743)			
		Total # of studies	Total events/participants	Pooled proportion* (%) (95% CI)	Heterogeneity (I ² %)	Severe COVID-19§ (n = 395)	Non-severe COVID-19 (n = 2348)	Risk ratio (95% CI)
Pregnancy related complications	GDM	21	337/3451	8.2 (6.2 to 10.4)	72.6	17/128 [33,47]	60/720 [33,34,40,45]	1.59 (0.96 to 2.64)
	Pre-eclampsia (history or existing)	19	238/3005	7.0 (5.1 to 9.1)	70.9	23/180 [27,33,46]	41/806 [27,33,41,45]	2.51 (1.55 to 4.08)
	PROM (including pPROM)	9	128/1184	5.2 (2.4 to 8.7)	71.4	3/64 [27,46,47]	4/40 [31,40,48]	0.47 (0.11 to 1.99)
	IUGR	6	27/903	9.3 (0.0 to 30.7)	97.6	3/23 [26,46]	8/12 [40]	0.20 (0.06 to 0.60)
	Fetal distress	1	4/15	to	-	0	3/12 [31]	Non-estimable
	Placental abruption	2	2/549	0.8 (0.0 to 12.5)	74.0	0	0	Non-estimable

CHARACTERISTICS OF ALL PREGNANT WOMEN	TOTAL # OF STUDIES	TOTAL EVENTS/PARTICIPANTS	POOLED PROPORTION (%) (95% CI)	HETEROGENEITY (I ²)
Antibiotic	14	448/1140	45.8 (27.0 to 65.3)	97.5
Antiviral	17	514/1742	33.4 (16.3 to 53.1)	98.4
Hydroxychloroquine	11	305/877	41.3 (21.0 to 63.1)	97.2
Anticoagulants	5	282/1219	50.6 (12.8 to 88.0)	99.4
Corticosteroids	8	73/425	14.7 (8.0 to 22.8)	75.5
Immunotherapy	6	45/827	16.2 (1.7 to 39.7)	96.6
Plasma therapy	4	183/385	22.5 (0.0 to 79.3)	99.2
Oxygen therapy	20	321/1812	20.6 (11.0 to 32.2)	96.3
ICU admission	22	717/27865	7.2 (4.8 to 9.9)	94.1

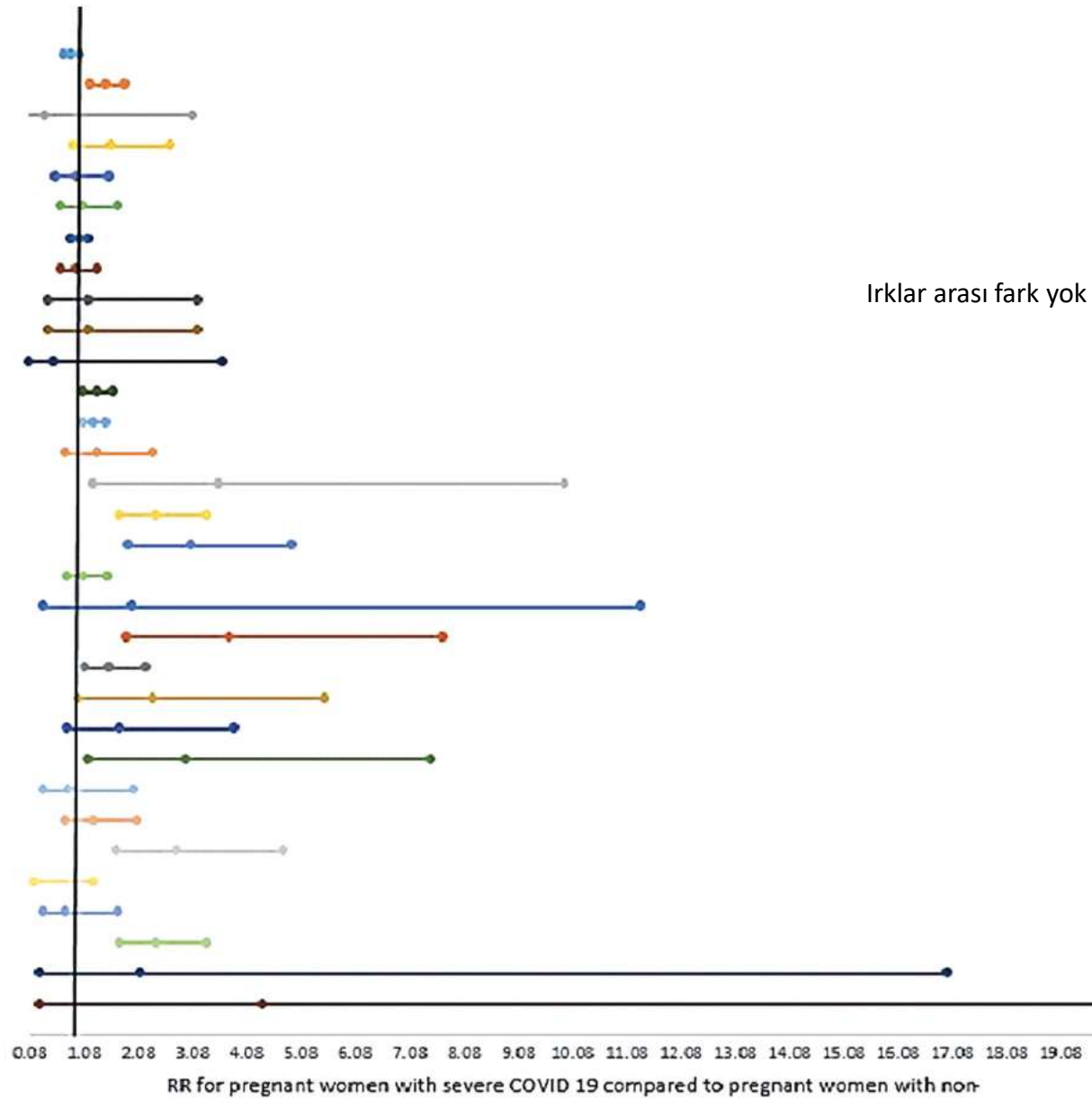
ICU management	Mechanical ventilation	20	282/4048	7.7 (3.7 to 12.9)	95.8
	Non-invasive ventilation	5	268/1463	15.1 (3.3 to 32.4)	97.0
	ECMO	6	31/24937	0.3 (0.0 to 1.2)	79.8
	ARDS	4	30/522	10.0 (0.1 to 25.3)	91.6
	Maternal death	14	208/27 680	2.0 (0.8 to 3.8)	94.6



CHARACTERISTICS OF ALL PREGNANT WOMEN		ALL CASES (N = 31016)				BASED ON SEVERITY (N = 2743)		Risk ratio/Mean difference (95% CI)
		Total # of studies	Total events/ participants	Pooled proportion % (95% CI)	Heterogeneity (I ² %)	Severe COVID-19* (n= 477)	Non-severe COVID-19† (n= 2449)	
Pregnancy outcomes	Spontaneous 1st trimester abortion	5	21/387	7.3 (1.9 to 15.2)	74.1	0	3/61 [36]	Non-estimable
	Elective termination/ induced abortion	4	17/540	2.6 (1.4 to 4.3)	65.4	0	4/61 [36]	Non-estimable
	Fetal loss/miscarriage	9	28/874	2.6 (0.5 to 5.6)	66.5	0	14/184 [33,36]	Non-estimable
	Total deliveries	41	2943/4245	80.0 (69.6 to 88.7)	98.2	241/369 [24,26-28,31, 33-36,43,46,47,49]	926/1479 [24,26,28,31,33,34, 36,40,41,45,48,52,53]	-
	-Vaginal delivery	35	1495/2787	53.8 (46.6 to 60.9)	92.0	53/183 [27,33,35,36,43,46,47]	411/841 [26-28,33-36, 40,41,44,45,48,52,53]	0.59 (0.47 to 0.75)
	-Caesarean section	35	1256/2740	48.4 (40.6 to 56.3)	93.3	149/207 [27,28,31,33-36,43,46]	439/850 [26,28,31,33,34,36, 40,41,45,48,52,53]	1.39 (1.25 to 1.55)
Indication for C-section	COVID related	10	156/321	49.8 (31.8 to 67.8)	85.9	56/65 [26,27,33,36,47]	66/264 [26,27,33,36]	3.45 (2.74 to 4.34)
	Pregnancy related	11	362/520	66.7 (43.3 to 86.8)	95.7	4/33 [33,36,47]	107/273 [26,27,31,33,36]	0.31 (0.12 to 0.78)
Birth outcomes	Stillbirths	7	21/1121	1.6 (0.8 to 2.7)	19.8	2/29 [33]	6/126 [26,33]	1.45 (0.31 to 6.81)
	Live births‡							
	-Singleton	14	894/946	96.9 (94.4 to 98.7)	50.6	174/183 [26,27,31,33,38,46,47]	569/602 [26,27,31,33,35,40,41,44,53]	1.01 (0.97 to 1.05)
	-Twins	14	34/1177	1.4 (0.6 to 2.4)	0.2	2/47 [33,46]	15/470 [27,33,35,40,53]	1.33 (0.31 to 5.65)
	Preterm birth <37 weeks	27	539/2393	23.4 (18.9 to 28.1)	83.1	82/182 [27,31,33,35,36,43,46]	78/519 [27,31,33,35,36,41,48]	4.91 (3.97 to 6.08)
	Preterm birth <32 weeks	7	45/465	18.2 (0.4 to 38.5)	94.3	34/151 [33,35,46]	8/301 [33,35]	8.47 (4.02 to 17.85)
	Low birth weight (<2500 g)	7	107/613	16.6 (11.4 to 22.5)	59.6			-
	Mean birthweight (g)	19		2937.88±87.26	99.6	2274.51±243.62 [27,46]	3077.30±166.93 [27,40,52]	-802.79 (-826.91 to -778.67)
Neonatal outcomes	Asphyxia	3	74/316	13.2 (1.9 to 31.0)	87.0	1/8 [27]	3/55 [41]	2.29 (0.27-19.44)
	Apgar score at 1 min	9		8.18±0.25	99.4	8.49±0.25 [27,36]	0	Non-estimable
	Apgar score at 5 min	9		9.01±0.15	95.4	8.76±0.19 [27,43,46]	0	Non-estimable
	NICU admission	17	401/1726	23.7 (17.1 to 31.0)	90.2	51/99 [27,33,34,43,46]	57/222 [27,33,34]	2.01 (1.50 to 2.69)
	Neonatal deaths	9	24/1161	1.6 (0.4 to 3.3)	58.3	0	0	to
Neonatal COVID-19	Positive	11	50/1507	3.5 (1.6 to 8.5)	74.6	1/20 [33]	13/205 [26,33,34,45]	6.69 (3.46 to 12.94)



AĞIR-HAFİF COVID-19'LU GEBELERİN KLİNİK PREZENTASYON, RİSK FAKTÖRLERİ, GEBELİK VE PERİNATAL SONUÇLARININ KARŞILAŞTIRILMASI



AĞIR OLMAYAN

AĞIR

İrklar arası fark yok

Age <35 0.85(0.71-1.01)	
Age >35 1.49(1.21-1.84)	1.39 kat daha yüksek
GA >37 weeks 0.35(0.04-3.11)	
GA <37 weeks 1.57(0.91-2.69)	
Nulliparous 0.93(0.55-1.56)	
Multiparous 1.07(0.67-1.72)	
Asian 1.00(0.86-1.17)	
Black 0.94(0.67-1.32)	
Hispanic 1.17(0.43-3.19)	
White 1.17(0.43-3.19)	
Asymptomatic 0.53(0.08 to 3.65)	
Fever 1.32(1.08 to 1.61)	
Cough 1.26(1.07 to 1.48)	
Fatigue/malaise 1.33(0.75 to 2.34)	
Headache 3.57(1.28 to 9.94)	
SOB/Dyspnoea 2.42(1.76 to 3.34)	
Diarrhoea 3.07(1.92 to 4.92)	
Anosmia/Ageusia 1.08(0.77 to 1.53)	
Chest pain/tightness 1.95(0.34 to 11.35)	
Smoker 3.77(1.86-7.67)	
Obesity 1.56(1.09-2.23)	
Hypertension 2.34(0.99-5.53)	
Respiratory Diseases 1.73(0.78-3.86)	
Diabetes 2.96(1.17-7.47)	
Any chronic disease 0.8(0.32-2.00)	
GDM 1.25(0.76-2.07)	
Pre-eclampsia 2.81(1.67-4.75)	
Fetal loss 0.17(0.02-1.28)	
Vaginal birth 0.75(0.33-1.71)	
Pre-term birth 2.41(1.74-3.34)	
NICU 2.14(0.27-16.98)	
COVID positive neonates 4.37(0.28-67.85)	

Semptomatik hastalar daha ağır geçiriyor

Komorbiditesi olan hastalar daha ağır geçiriyor

LİMİTASYONLAR

- ❑ Dahil edilen çalışmaların içinde; çalışma tasarımı sebebiyle yanlı olan çalışmalar mevcut
- ❑ Çalışmalardaki çoğu kadın; üçüncü trimesterde hastaneye başvurduğu için, erken ve geç gebelik karşılaştırması yapılamadı
- ❑ Ulusal tarama programları sebebiyle asemptomatik vaka sayısı artmış, bunu sonucunda da maternal ve perinatal sonuçlar daha iyi çıkmış olabilir
- ❑ Tüm çalışmalarda sosyodemografik veriler, bazal sağlık parametreleri ve hastalığın şiddeti doğru ve tam olarak belirtilmemiştir

LİMİTASYONLAR

- ❑ Çalışmalarda sezeryan endikasyonları için COVID-19 ile ilişkili kaygı, endişe ve doktorun yönlendirmeleri tam olarak ortaya konmamıştır
- ❑ Afrika kıtasından diğer kıtalara oranla daha az vaka alınmıştır
- ❑ Çoğu çalışmada ileri anne yaşı ve maternal diyabet üstünde çalışılmış olup, bunu değerlendirilmesi görece daha kolaydı
- ❑ Vakaların birden fazla dahil edilme potansiyeli mevcut

ÖNERİLER

- ❑ COVID-19'u daha ağır geçirecek riskli gebe grubunun belirlenmesi
- ❑ Gebelerin her vizitte COVID-19 açısından da değerlendirilmesi
- ❑ Yatan veya ayaktan tedavi gören tüm COVID-19 ile enfekte gebe hastaların değerlendirilmesinin sistematik hale getirilmesi, kadın doğum klinikleri ve doğumhanelerin COVID-19 ile mücadeleye uygun hale getirilmesi
- ❑ Anneden bebeğe geçiş düşük olmasına rağmen, doğum sırasında COVID-19 için uygun önlemlerin alınması ve hijyen kurallarına uyulması
- ❑ Annelerin bebekleri görüşmesi sırasında maske takmaları
- ❑ COVID-19 ile enfekte gebe veya annelerin tedavilerinin ulusal veya uluslararası rapor veya yönergelerle göre yapılması
- ❑ Gebelerden gelen sonuçlarla hasta yönetiminin sürekli güncel tutulması



I'm pregnant. How can I protect myself against COVID-19?



Wash your hands
frequently



Avoid touching your
eyes, nose and mouth



Put space
between yourself
and others



Cough or sneeze into
your bent elbow or a
tissue

If you have fever, cough or difficulty breathing, seek care early.
Call beforehand, and follow medical advice.



World Health
Organization

#COVID19 #CORONAVIRUS

PREGNANCY

AND CORONAVIRUS (COVID-19)

Are you pregnant and worried about coronavirus (COVID-19)?
Follow the guidance of your healthcare provider.

DON'T FORGET:



WASH YOUR
HANDS OFTEN



STAY WELL
HYDRATED
AND GET LOTS
OF REST



REACH OUT
FOR HELP IF
YOU NEED IT



VISIT TRUSTED
SOURCES FOR
INFORMATION
AND GUIDANCE



AVOID LARGE
GATHERINGS



AVOID CONTACT
WITH PEOPLE
WHO ARE SICK

CORONAVIRUS.DC.GOV



DC HEALTH
GOVERNMENT OF THE DISTRICT OF COLUMBIA



GOVERNMENT OF THE
DISTRICT OF COLUMBIA
MURIEL BOWSER, MAYOR

TEŞEKKÜRLER