Maternal Characteristics and Outcomes Affected by COVID-19 Pandemic in Indonesia

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Abstract

Aim Compare the impact of the intervention on the outcome of pregnancy of patients receiving obstetric care with and non-COVID-19 diagnosis at a tertiary referral hospital located in the region of East Java, Indonesia.

Methods This was a cross-sectional analysis of 694 pregnant women. These patients' information was acquired based on the medical data obtained from the hospital. The Mann–Whitney test was used to analyze the disparities among the factors examined in this research investigation.

Results There was a statistically significant difference in length of stay (LOS). It has been shown that individuals diagnosed with COVID-19 often exhibit a longer length of stay (LOS) in healthcare facilities compared to those who do not have the infection. More than fifty percent of patients gave birth by cesarean section, 83 in COVID-19 group and 283 in non-COVID-19 group. The most prevalent complications among COVID-19 patients were maternal infectious and parasitic diseases (1.3 vs 0%), prolonged labor (12.3 vs 9.6%) and puerperal complications (0.6 vs 0%). In 40.9% of COVID-19 patients, acute respiratory distress syndrome (ARDS) was encountered. Infection due to COVID-19 had no discernible impact on the outcomes of pregnancy.

Conclusion Numerous interventions, including cesarean delivery in COVID-19 and non-COVID-19 patients, require reevaluation. It is imperative to undertake a comprehensive reassessment of the health care delivery system, with particular emphasis on enhancing the efficacy of the referral system.

Keywords COVID-19 · Maternal outcome · Pregnancy outcome · Maternal death

Introduction

The outbreak of coronavirus disease 2019 (COVID-19) originated in Wuhan, China, towards the conclusion of the year 2019, later disseminating to many nations around the globe. Furthermore, the World Health Organization (WHO) officially declared the COVID-19 pandemic in March 2020 [1].

On March 2, 2020, the novel coronavirus was introduced into Indonesia after the identification of two confirmed cases. The transmission of COVID-19 cases began on April 9, 2020, over 34 provinces in Indonesia [2]. The provision of sufficient healthcare in Indonesian hospitals is hindered by the constraints imposed by inadequate infrastructure, insufficient isolation rooms, and a scarcity of personal protective equipment (PPE) [3]. Amidst the COVID-19 outbreak, a referral hospital in Indonesia saw a surge in patient admissions, leading to overwhelming capacity. Due to a significant prevalence of COVID-19 infections among healthcare professionals, the availability of healthcare personnel for service provision has been severely constrained, leading to suboptimal efficiency in service delivery [4]. The functionality of Indonesia's referral system has been compromised since the start of the COVID-19 outbreak. The efficacy of primary health care preventative measures and facility coordination is suboptimal [5]. Further investigation is required to ascertain the impact of COVID-19

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on maternal and neonatal health. A retrospective assessment conducted in Wuhan, China, revealed that pregnant women have similar clinical features to their nonpregnant counterparts [6]. According to a research conducted in the United Kingdom, it has been shown that pregnant women have just a negligible influence from COVID-19, with no significant adverse effects noted [7]. At now, there exist no empirical data indicating that COVID-19 has a detrimental impact on the health condition of women or facilitates vertical transmission of the virus to the developing fetus [8]. This instance has garnered attention from a number of Indonesian scholars. A previous study conducted at a secondary facility of referral in Indonesia revealed that there were similarities in the clinical symptoms and laboratory test findings between individuals diagnosed with COVID-19 and those without the virus. This investigation elucidates that individuals afflicted with COVID-19 are at a significantly elevated likelihood of mortality [5]. According to a recent investigation, expectant women who contracted COVID-19 did not exhibit significant symptoms [9].

The objective of this research is to conduct a comparative analysis of the intervention, maternal characteristics and pregnancy outcomes among obstetric patients with COVID-19 disease and those without COVID-19 disease in a tertiary referral hospital in Indonesia.

Methods

The present research used cross-sectional design and relied on secondary records obtained from medical records of a tertiary hospital located in East Java, Indonesia, throughout the year 2020. The hospital was chosen because to its status as one of the major healthcare facilities in Indonesia, and its notable concentration of COVID-19 patients was identified.

Samples

The researchers used a simple random sampling technique in order to ascertain the appropriate sample size. Slovin's formula functioned as a means of approximating the required sample size. The sample for this research included women who were pregnant, in labor, or had just had childbirth. The total number of participants was 1265 (N), with 8 in the prenatal group, 391 in the labor group, and 301 in the postpartum group. The margin of error utilized in the analysis was 0.05 (e).

sample size: $n = \dfrac{N}{1 + Ne^2}$

Therefore, a total of 694 pregnant women at various stages of labor and postpartum were included in this study. The use of a high sample size in simple random sampling has the potential to significantly enhance the representativeness of the target population [10]. The sampling methodology used in this study was a simple random sample strategy, which included the use of certain inclusion criteria. These criteria encompassed obstetric patients at various stages, namely pregnancy, labor, and postpartum. Additionally, data from accessible medical records were utilized, and it was ensured that all required information was duly completed. Exclusions were made for gynecological instances and other non-obstetric situations. The timeframe of data collecting spanned from May 30th to August 1st, 2021. The data were extracted from patient records collected from hospital within the time frame of March 3, 2020, to February 28, 2021.

Data Collection

The hospital used an electronic medical record system that incorporated documentation capabilities to facilitate data entry. The hospital's status as a teaching institution contributed to the maintenance of accuracy and authenticity in the medical records.

The objective of this research was to compare the characteristics of hospitalization, maternal outcomes, and maternal demographic data between women with COVID-19 disease and those without COVID-19 disease. The variables examined included hospitalization admission procedure, delivery method, length of stay, diagnostic information, as well as maternal demographic factors such as age, educational, occupation, and residence. The demographic data were categorized into four distinct categories. Surabaya and Sidoarjo, both located in the East Java Province, were identified as two places with a substantial population size. In this investigation, the International Classification of Diseases, Tenth Revision (ICD-10) was used for the purpose of categorizing diagnoses. In addition, our study included other illnesses associated with COVID-19, such as acute respiratory distress syndrome, renal failure, and cardiac events.

Data Analysis

The research used descriptive statistics for data analysis. Subsequently, a study was undertaken to evaluate the discrepancies in several attributes between the two groups. The Mann–Whitney U test was used to conduct a comparative analysis of the two research variables, a p value of less than 0.05. The data analysis was performed with IBM SPSS version 25, developed by IBM Corporation based in Armonk, New York, the USA.

Results

Following the application of inclusion and exclusion criteria, a total of 694 women, including pregnant, laboring, and postpartum individuals, were involved in the study. Among these participants, 154 were given a diagnosis with COVID-19 disease, while the remaining 540 did not exhibit symptoms of the infection.

The Maternal Demographic Characteristics

Table 1 provides an overview of the maternal demographic characteristics of the individuals who took part in the present investigation. The data from both groups had a similar pattern across several variables, and no statistically significant difference was seen between them. The research sample mostly comprised female participants between the age brackets of 21–25 years and 26–30 years, representing both COVID-19 and non-COVID-19 patients, respectively. The age distribution of COVID-19 patients indicated that those between the ages of 21 and 25 accounted for 33.1% of the cases, while those aged 26–30 constituted 25.3% of the total. Similar findings were seen among individuals who were not affected by COVID-19, namely, 24.8% of moms aged 21–25 years and 31.5% of mothers aged 26–30 years exhibited the same results. There were no statistically significant age differences between women who tested positive for COVID-19 and those who tested negative for COVID-19. The data pertaining to maternal education attainment exhibited similar findings, indicating no statistically significant disparity between the two groups. Approximately 50.6% of those diagnosed with COVID-19 and 56.7% of those without COVID-19 exhibited attainment of a full vocational degree. The profession of housewife was held by a significant proportion of mothers in both cohorts, with 57.8% of

Table 1 Maternal characteristics

Maternal demographic	Category	COVID-19 n (%)	Non-COVID-19 n (%)	Total	p value
Age (years)	<15	6 (3.9)	35 (6.5)	41 (5.9)	0.605
	15–20	29 (18.8)	98 (18.1)	127 (18.3)	
	21–25	51 (33.1)	134 (24.8)	185 (26.7)	
	26–30	39 (25.3)	170 (31.5)	209 (30.1)	
	36–40	27 (17.5)	85 (15.7)	112 (16.1)	
	41–45	2 (1.3)	17 (3.1)	19 (2.7)	
	51–55	0 (0.0)	1 (0.2)	1 (0.1)	
	<15	6 (3.9)	35 (6.5)	41 (5.9)	
Educational attainment	Uneducated	3 (1.9)	10 (1.9)	13 (1.9)	0.469
	Elementary school	10 (6.5)	52 (9.6)	62 (8.9)	
	Junior high school	35 (22.7)	74 (13.7)	109 (15.7)	
	Senior high school	78 (50.6)	306 (56.7)	384 (55.3)	
	Vocation degree	9 (5.8)	25 (4.6)	34 (4.9)	
	Bachelor degree	18 (11.7)	71 (13.1)	89 (12.8)	
	Magister degree	1 (0.6)	2 (0.4)	3 (0.4)	
Occupation	Private employees	40 (26)	122 (22.6)	162 (23.3)	0.807
	Civil servant	0 (0.0)	7 (1.3)	7 (1.0)	
	Entrepreneur	3 (1.9)	31 (5.7)	34 (4.9)	
	Teacher	4 (2.6)	9 (1.7)	13 (1.9)	
	College lecturer	1 (0.6)	0 (0.0)	1 (0.1)	
	Doctor	1 (0.6)	3 (0.6)	4 (0.6)	
	Farmer	0 (0.0)	3 (0.6)	3 (0.4)	
	College student	8 (5.2)	12 (2.2)	20 (2.9)	
	Housewife	89 (57.8)	327 (60.6)	416 (59.9)	
	Unemployed	2 (1.3)	7 (1.3)	9 (1.3)	
	Other	6 (3.9)	19 (3.5)	25 (3.6)	
Residence	Surabaya	108 (70.1)	254 (47.0)	362 (52.2)	0.000
	Sidoarjo	9 (5.8)	34 (6.3)	43 (6.2)	
	Other districts in East Java Province	33 (21.4)	225 (41.7)	258 (37.2)	
	Other districts outside East Java Province	4 (2.6)	27 (5.0)	31 (4.5)	

COVID-19 patients and 60.6% of non-COVID-19 patients falling into this category. The number of college students in this cohort exceeded that of the non-COVID-19 patients. According to the operational description of a resident student documented in the hospital's medical file, it is indicated that the individual in question, a college student, falls within this category.

A notable disparity was seen in the proportion of individuals residing in the two categories. The preponderance of those diagnosed with COVID-19 consisted of women residing in Surabaya and Sidoarjo. In contrast to those who did not get COVID-19, a significant proportion of COVID-19 patients, namely 70.1%, were found to originate from the Surabaya area. The non-COVID-19 patient group had a larger proportion, namely 41.7%, of individuals originating from districts within East Java Province other than the one under consideration. The non-COVID-19 patient group, comprising 5.0% of the total, had a higher proportion of patients originating from regions outside of East Java.

The Hospitalization Characteristics

The attribute of hospitalization is elucidated in Table 2. There was a notable disparity seen in the hospital admission process between the two groups. The referral mechanism shown favorable outcomes among non-COVID-19 patients, with 15.2% of individuals being referred for outpatient care. In comparison, a mere 5.2% of individuals diagnosed with COVID-19 were sent to an outpatient clinic. The study findings indicate that a significant proportion of individuals diagnosed with COVID-19 disease (92.9%) were sent to emergency installations, suggesting the urgent nature of their medical condition. Conversely, a small percentage (1.9%) of patients were admitted without any prior referrals or were already inpatients at the time of diagnosis. During the COVID-19 pandemic, a significant proportion of individuals seeking medical attention were sent to emergency installations.

The prevalence of cesarean delivery was higher in both groups, with COVID-19 patients accounting for 53.9% and non-COVID-19 patients accounting for 26.3%. There were no significant differences between the two categories in terms of labor characteristics. The rates of vaginal birth using instruments were found to be almost comparable between COVID-19 patients (36.4%) and non-COVID-19 patients (26.3%). In contrast, the occurrence of spontaneous vaginal birth was seen in a mere 0.4% of individuals who did not have COVID-19. There was a considerable disparity in the length of stay (LOS) between the two groups, as COVID-19 patients exhibited a notably lengthier LOS in comparison with non-COVID-19 patients. A total of 31.2% of patients diagnosed with COVID-19 exhibited a length of

stay (LOS) ranging from 10 to 12 days. In contrast, 36.9% of patients without COVID-19 had a LOS falling within the 0 to 3 day range.

There were notable differences in the diagnostic features between the two groups. A notable percentage of persons who received a diagnosis of COVID-19, namely 40.9%, exhibited symptoms indicative of acute respiratory distress syndrome (ARDS). Abnormalities of labor forces have been observed as a prevalent obstetric diagnostic among individuals affected by COVID-19 exhibiting a higher incidence rate compared to those unaffected by the virus (12.3% vs 9.6%). Hypertensive disorders were seen in a significant proportion (17.8%) of individuals who were not affected by COVID-19, namely during the periods of pregnancy, delivery, and puerperium. In relation to mortality, individuals diagnosed with COVID-19 disease exhibited a comparatively higher fatality rate (4.5%) in comparison with patients without COVID-19 disease (3.3%). However, it is important to note that this observed disparity did not reach statistical significance.

Maternal Outcomes

The maternal outcomes are shown in Table 3. There was no statistically significant difference seen in maternal death rates ($p = 0.47$). Nevertheless, the incidence of maternal death among those afflicted with COVID-19 was shown to be greater in comparison with those without the virus (4.5 vs. 3.3%).

Discussion

The tiered referral health system had challenges in achieving optimum functionality during the COVID-19 pandemic. The aforementioned healthcare institution, operating as a tertiary care facility, is expected to function as a central hub for patient referrals in the region of East Java. There was no evidence of this phenomenon being detected in individuals who were pregnant, lactating, or had just had childbirth throughout the COVID-19 pandemic. The predominant patient receiving treatment within the medical facilities of this hospital mostly consists of individuals hailing from the regions of Sidoarjo and Surabaya. Surabaya accounted for a significant majority, namely 70.1%, of the total number of COVID-19 cases. The predominant mode of hospital admission in both cohorts was by referral from an emergency facility. The hospital admission procedures of the two groups exhibited distinct features. Identifying individuals exhibiting signs of COVID-19 may provide challenges due to the predominant use of obstetric emergency departments during childbirth [11]. Patients with COVID-19 who did not have a referral or were not already admitted to the hospital had a higher likelihood of requiring hospitalization compared to patients

Table 2 Hospitalization characteristic

Hospitalization characteristics	Category	COVID-19 n (%)	Non-COVID-19 n (%)	Total	p value
Hospital admission procedure	Emergency installation referral	143 (92.9)	451 (83.5)	594 (85.6)	0.005
	Outpatient referral	8 (5.2)	82 (15.2)	90 (13.0)	
	Without referral/inpatient	3 (1.9)	7 (1.3)	10 (1.4)	
Delivery method	Spontaneous vaginal delivery	0 (0.0)	2 (0.4)	2 (0.4)	0.184
	Vaginal delivery with instruments	56 (36.4)	142 (26.3)	198 (28.5)	
	Cesarean delivery	83 (53.9)	283 (52.4)	366 (52.7)	
	Not childbirth	15 (9.7)	113 (20.9)	128 (18.4)	
LOS (days)	0–3	10 (6.5)	199 (36.9)	209 (30.1)	0.00
	4–6	21 (13.6)	181 (33.5)	202 (29.1)	
	7–9	37 (24.0)	77 (14.3)	114 (16.4)	
	10–12	48 (31.2)	41 (7.6)	89 (12.8)	
	13–15	18 (11.7)	14 (2.6)	32 (4.6)	
	16–18	8 (5.2)	9 (1.7)	17 (2.4)	
	19–21	4 (2.6)	7 (1.3)	11 (1.6)	
	22–24	2 (1.3)	0 (0.0)	2 (0.3)	
	25–27	1 (0.6)	2 (0.4)	3 (0.4)	
	28–30	1 (0.6)	2 (0.4)	3 (0.4)	
	>31	4 (2.6)	8 (1.5)	12 (1.7)	
Diagnostic	ARDS	63 (40.9)	2 (0.4)	65 (9.4)	0.00
	Renal failure	1 (0.6)	0 (0.0)	1 (0.1)	
	Cardiac event/outcomes	0 (0.0)	9 (1.7)	9 (1.3)	
	Hypertensive disorders in pregnancy, childbirth and the puerperium	4 (2.6)	96 (17.8)	100 (14.4)	
	Obstetric hemorrhage	3 (1.9)	21 (3.9)	24 (3.5)	
	Complications following abortion and ectopic and molar pregnancy	6 (3.9)	32 (5.9)	38 (5.5)	
	Maternal infectious and parasitic diseases classifiable elsewhere but complicating pregnancy	2 (1.3)	0 (0.0)	2 (0.3)	
	Maternal care for known or suspected abnormality of pelvic organs	5 (3.2)	55 (10.2)	60 (8.6)	
	Maternal care for known or suspected malpresentation of fetus	4 (2.6)	56 (10.4)	60 (8.6)	
	Prolonged labor	19 (12.3)	52 (9.6)	71 (10.2)	
	Premature rupture of membranes	9 (5.8)	44 (8.1)	53 (7.6)	
	Placenta previa	2 (1.3)	45 (8.3)	47 (6.8)	
	Complications of the puerperium	1 (0.6)	0 (0.0)	1 (0.1)	
	Maternal care for other known or suspected fetal problems	1 (0.6)	16 (3.0)	17 (2.4)	
	Other disorders of amniotic fluid and membranes	2 (1.3)	19 (3.5)	21 (3.0)	
	Other diseases complicating pregnancy, childbirth and the puerperium	32 (20.8)	55 (10.2)	87 (12.5)	
	False labor	0 (0.0)	12 (2.2)	12 (1.7)	
	Other obstetric trauma	0 (0.0)	2 (0.4)	2 (0.3)	
	Placental disorders	0 (0.0)	20 (3.7)	20 (2.9)	
	Preterm labor and delivery	0 (0.0)	3 (0.6)	3 (0.4)	
	Delivery by emergency cesarean section	0 (0.0)	1 (0.2)	1 (0.1)	

without COVID-19. This observation suggests a potential malfunction in Indonesia's referral system [12]. Throughout the duration of the COVID-19 pandemic, it was seen that the referral system continued to exhibit deficiencies. In actuality, a significant proportion of village health posts, specifically 76%, were found to be non-operational, while a considerable

Table 3 Maternal output

Output	COVID-19 n (%)	Non-COVID-19 n (%)	Total	p value
Death	7 (4.5)	18 (3.3)	25 (3.6)	0.447
Not death	147 (95.5)	522 (96.7)	669 (96.4)	

portion of house visits, specifically 41%, were observed to have been terminated. The COVID-19 pandemic has hindered the effective functioning of primary health services, such as family planning, vaccination, and regular maternity and infant healthcare services. One contributing factor to this phenomenon was the limited ability to move due to imposed travel limitations. Furthermore, there were concerns among officers about the potential spread of the virus. Additionally, both basic and secondary health facilities were not operating at their maximum capacity [5, 12].

A majority of those diagnosed with COVID-19 disease (53.9%) have cesarean section births. Prior studies have also shown no statistically significant difference in the manner of delivery among individuals infected with COVID-19, regardless of whether symptoms are present or absent [11]. Subsequent referral hospitals had a similar trend, whereby cesarean deliveries were shown to be prevalent among patients diagnosed with COVID-19 [3]. At the onset of the COVID-19 pandemic, a number of referral institutions in Indonesia issued recommendations advocating for cesarean birth among patients infected with the virus, with the primary objective of mitigating the potential transmission risk to healthcare personnel [3, 11]. According to some theoretical perspectives, the increase in cesarean deliveries might be attributed to regulatory modifications implemented in reaction to the COVID-19 pandemic [13]. According to a recommendation by the National Obstetrics and Gynecology Association (POGI), it is advised that individuals diagnosed with COVID-19 have cesarean births [14]. Vaginal birth is recognized for its ability to enhance the interaction between patients and healthcare providers due to the extended period of monitoring required. Additionally, during the second stage of labor, vaginal delivery has been shown to potentially expose healthcare personnel to droplets [3, 15]. Several nations have classified COVID-19 as a medical reason for cesarean birth operations, resulting in its prevalence as the predominant technique of delivery [15]. Based on a comprehensive analysis of many meta-analyses and systematic reviews, it has been observed that a majority of individuals diagnosed with COVID-19 had the delivery process by cesarean section, as shown by various studies [8, 16]. During the COVID-19 pandemic, it was observed that cesarean births constituted 52.7% of the total number of deliveries among mothers. Based on the results of the research, the commonest mode of delivery among pregnant women who

tested negative for the COVID-19 virus was reported to be cesarean births, accounting for 52.4% of cases. A similar pattern is seen in China, where the prevalence of cesarean sections emerges as the predominant medical intervention among women subjected to lockdown measures [17]. Although cesarean births are considered medically essential, research indicates that only a minority of newborn maternal fatalities, namely 20%, are linked to this kind of delivery [18]. The World Health Organization (WHO) reports that it is advised to restrict the use of cesarean birth to a range of 15–20% [19]. COVID-19 patients exhibited a notably extended length of stay (LOS) in comparison with those without COVID-19. A significant proportion of individuals diagnosed with COVID-19 (31.2%) had a length of stay (LOS) ranging from 10 to 12 days. In contrast, a higher percentage of those without COVID-19 (36.9%) had a shorter LOS, namely between 0 and 3 days. Indeed, the duration of hospitalization was shown to be extended when the treatment regimen was administered for a period of three days after delivery. Consequently, there was a tendency for COVID-19 patients to be hospitalized for longer than those without the virus [20]. In many nations, there was a decline in length of stay (LOS) during the pandemic in comparison with the period before the pandemic. Additionally, it was observed that the LOS for patients diagnosed with COVID-19 tended to be quite brief [20, 21]. It is important to acknowledge that the clinical severity of a disease may also serve as an indicator of an extended length of stay (LOS) [22]. Moreover, in the event that the patient presented at the medical facility in a state of serious condition. Based on the available data, it is evident that the entrance process for patients diagnosed with COVID-19 was mostly characterized by emergency cases.

There was no statistically significant disparity seen in maternal death rates between patients with COVID-19 and those without COVID-19. Certain illnesses, however, shown a statistically significant increase among those affected by COVID-19. Initially, it is noteworthy that maternal infectious and parasitic disorders, which do not fall under any other classification but nevertheless provide a challenge during pregnancy, were seen in 1.3% of cases compared to 0.0% in other categories. It is important to highlight that tuberculosis is a distinctive problem associated with this particular diagnosis. Pregnant women with a history of tuberculosis had an increased risk of contracting Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), and their childbirth process required more labor efforts compared to those without such medical history [23]. The lack of available evidence about the transmission of tuberculosis in individuals diagnosed with COVID-19 precludes us from establishing a temporal relationship between tuberculosis and the onset of COVID-19. The prevalence of labor anomalies was found to be greater among those diagnosed with COVID-19 compared to those without the disease, with rates of 12.3 and

9.6%, respectively. The problems in question were categorized as labor progress under the International Classification of Diseases (ICD). The diagnosis included issues such as inadequate contraction, uterine inertia, and hypertonicity. The presence of several difficulties that impede the progression of labor may serve as a medical justification for the implementation of a cesarean birth. Based on the guidelines put forward by the Perinatal Obstetric and Gynecological Infections (POGI), instances when labor progress is impeded may serve as a justification for the implementation of a cesarean delivery procedure, with the primary objective being the reduction of direct interaction between healthcare providers and patients (POGI, 14). Finally, it was shown that only individuals diagnosed with COVID-19 disease had puerperium problems that were not categorized under any other classification, with a prevalence of 0.6% compared to 0% in other patient groups. One risk that arises with this diagnosis is the disruption of the cesarean section incision. Indeed, there exists a positive correlation between the aforementioned phenomenon and the elevated proportion of cesarean births seen in individuals afflicted with COVID-19 disease so suggesting an increased susceptibility to difficulties arising from this medical intervention.

Limitations of this Study

This research only relied on secondary data sources, without conducting a comprehensive investigation via direct observation of the participants. Moreover, it is important to note that this research fails to comprehensively depict the whole of maternal health conditions in Indonesia during the duration of the pandemic, which spanned around two years.

Conclusion

The findings of this study suggest that there is no statistically significant disparity in the rate of maternal mortality between those diagnosed with COVID-19 and those who are not. However, other additional production measures exhibit contradictory findings. Patients diagnosed with COVID-19 exhibit a prolonged length of stay (LOS) in comparison with patients without COVID-19. Additionally, the incidence of acute respiratory distress syndrome (ARDS) problems, which have the potential to exacerbate the maternal disease, is considerably elevated. An further factor of concern is to the elevated frequency of cesarean deliveries within the COVID-19 pandemic, impacting both those afflicted with COVID-19 and those unaffected by the virus. Furthermore, due to the prevalence of emergency referrals, there exists a potential for patients to accumulate inside the emergency department setting.

Declarations

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