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Original Article

The Maternal Referral Profile Before and During the Covid-19 Pandemic at the Educational Hospital and Affiliation Hospital in Makassar City 2019 - 2021

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ABSTRACT

Background*: The Covid-19 pandemic is a global outbreak. Several nations, including Indonesia, have implemented COVID-19 infection prevention and control measures. The biggest concern is for disadvantaged populations at higher risk, one of which is pregnant women. Several aspects of health services, including maternal health care facilities, saw adjustments during this restriction period. Pregnant women are apprehensive about visiting the Community Health Center for fear of contracting an infection. As a result, maternal and newborn health services, including access to and quality of maternal and referral services, become affected.* ***Method****: it was a descriptive retrospective method within 3 years data. Data were collected from registration data of obstetric referral cases at Education Hospital and Affiliated Hospital in Makassar City.* ***Results****: Between before and during the COVID-19 pandemic, the number of maternal referral cases decreased by half,* which the highest variables are reproductive age, *Grande Multipara, Insurance methods using the National Health Insurance, and according to the criteria of refferal is the potential for Obstetrics Emergency.*

***Conclusion**: There was a decline in maternal referral cases in Education Network hospitals before and during the COVID-19 pandemic.*

1. BACKGROUND

The spread of a new virus strain known as Corona Virus Disease (Covid-19) startled the world at the start of 2020. Coronavirus first became a plague in Wuhan, China, towards the end of December 2019 and has since spread worldwide, prompting the World Health Organization (WHO) to declare it a pandemic in February 2020. [1]

According to WHO confirmed cases of Covid-19 were 119,603,761 cases as of March 15, 2021, with 2,649,722 deaths (CFR 2.2 percent) in 222 countries and 189 local transmission countries. The Covid-19 case was discovered for the first time in March 2020 and quickly spread throughout Indonesia, including South Sulawesi. According to data from the Covid-19 Task Force, there were 2,877,467 confirmed cases in Indonesia as of July 18, 2021, with 73,582 deaths (2.56 %). [2] According to data from the Directorate of Family Health, as of September 14, 2021, 1086 mothers died due to a positive PCR SWAB/Antigen examination. [3]

The Covid-19 pandemic situation, several countries, including Indonesia, have implemented COVID-19 infection prevention and control measures. The main concern is for vulnerable groups with a high risk. Due to physiological changes during pregnancy which result in a decrease in partial immunity, pregnant women are a vulnerable group at risk of being infected with COVID-19. [4.5] According to the Indonesian Obstetrics and Gynecology Association (POGI), Covid-19 was responsible for 20% for deaths of pregnant women in Indonesia during the COVID-19 pandemic. [3] As shown in a survey performed by the SEMERU Research Institute, the number of first (K1) and fourth (K4) visits to pregnant women dropped in February 2020. This decrease in K1 and K4 visits potentially contribute to the risk of maternal and fetal death during pregnancy during the pandemic of Covid-19.[7] This resulted from pregnant women's concern of becoming infected if they visited the Public Health Center or other healthcare institutions, as well as suggestions that prenatal check-ups and classes be postponed. Access to and quality of maternal and newborn health services, as well as maternal referrals, are impacted. [8] The inadequacy of the healthcare system, as well as the inability to adapt to the pandemic, led to a significant increase in maternal mortality. In the aftermath of the Covid-19 pandemic, maternal mortality remains an issue [6,9]

Prior to the Covid-19 epidemic, Indonesia had the highest Maternal Mortality Rate (MMR) in Southeast Asia. In comparison to 2019, the maternal mortality rate collected from the Ministry of Health's recording of family programs data increased in 2020. [10] The government has made various efforts to prevent MMR, one of which has been the emergence of the National Action Plan for the Acceleration of Maternal Mortality Reduction (RAN PPAKI) in 2013–2015 by the Ministry of Health of the Republic of Indonesia, through the Maternal Health Development Director The fourth main program is to implement effective maternal referrals in difficult situations. One of the healthcare system's weaknesses is maintaining referrals effectively and quickly. The term "three late" is most commonly used in Indonesia to describe the causes of maternal and

newborn mortality, specifically late family decision-making, late arrival at healthcare facilities, and late intervention at healthcare facilities.. [11,12]

The government developed guidance for the referral system to prevent and control COVID-19 during the Pandemic. As a separate COVID-19 reference, the government of Sulawesi South issued a decree authorizing several hospitals. At the beginning of the pandemic, hospitals in the area lacked the proper equipment and infrastructure to deal with COVID-19 cases, especially when it involves place. This condition also affected non-Covid referral systems, such as MCH services (Pregnant Mother Health). [13]

The authors are interested in evaluating maternal referral characteristics at Hospital Education and associated Hospital in Makassar before and after the Covid-19 outbreak, based on the concerns.

2. METHODS

This was a descriptive retrospective study within 30 months (January 2019 – July 2021). Women from Makassar City's Education Hospital and Affiliated Hospitals were used as samples. This study was approved by th Health Reseach Ethical Committee, Faculty of Medicine, Hasanuddin University.The Data were collected from obstetric referral patients registered at Education Hospital and Affiliated Hospitals in Makassar City.

The distribution of maternal referral cases is associated with age, parity, education level, referral origin, the reason for referral, and referral category and diagnosis. The Analysis was performed using Microsoft Excel version 16.57.

3. THE ANALYSIS

This study compared the number of maternal referral cases during the Covid-19 pandemic. As shown in table 1, there were 6688 maternal referral cases from January 2019 to March 2020 and 3802 referral cases from April 2020 to July 2021, a decrease almost 50 percent during the pandemic contrasted to before the Covid-19 pandemic.

Table 1. Distribution Maternal Referral Cases Based on Characteristics Before and During the COVID-19 Pandemic

CHARACTERISTIC	BEFORE COVID-19 PANDEMIC		DURING COVID-19 PANDEMIC		SUM	
	SUM	%	SUM	%	SUM	%
Age						
< 20	260	3,89	223	5,87	483	4,60
20-35	4768	71,29	2701	71,04	7469	71,20
≥ 35	1660	24,82	878	23,09	2538	24,19
Parity						
Nullipara	1846	27,60	962	25,30	2808	26,77
Primipara	1578	23,59	1118	29,41	2696	25,70
Multipara	2226	21,17	1302	21,07	3528	21,13
Grande para	1038	9,52	420	6,50	1458	8,43
Education Level						
< 6 Years	701	0,01	525	2,63	1226	0,96
6-9 Years	4280	10,47	2732	11,18	7012	10,72
≥ 9 Years	1707	25,09	545	23,01	2252	24,34

Source: Obstetrics and Gynecology Social Data, 2019-2021

The age range 20-35 was the most affected both before and during the pandemic (71.29 percent) (71.04 percent). Prior to the pandemic, the highest number was nulliparous (27.60 percent), while the highest number during the pandemic was primiparous (29.41 percent). Meanwhile, before the pandemic, the education level is 9 years (25.09 percent), and during the pandemic, the education level is 9 years (23.01 percent)

Table 2. Distribution of Maternal Referral Cases Based on Diagnosis Before and During the COVID-19 Pandemic

DIAGNOSE	Before Covid-19 Pandemic		During Covid-19 Pandemic		SUM	
	SUM	%	SUM	%	SUM	%
Abortion	383	5,73	216	5,68	599	5,71
Blighted Ovum	10	0,15	6	0,16	16	0,15
Hydatidiform Mole	39	0,58	10	0,26	49	0,47
Ectopic Pregnancy	139	2,08	35	0,92	174	1,66
Post-partum hemorrhage	54	0,81	17	0,45	71	0,68
Placenta Previa/Accreta	157	2,35	71	1,87	228	2,17
Prior Caesarean Section	1309	19,57	729	19,17	2038	19,43
Preeclampsia/Severe preeclampsia	467	6,98	369	9,71	836	7,97
Eclampsia	58	0,87	27	0,71	85	0,81
Fetal Distress	428	6,40	80	2,10	508	4,84
Contracted Pelvic	38	0,57	10	0,26	48	0,46
Malpresentation	371	5,55	146	3,84	517	4,93
Post-term Pregnancy	208	3,11	30	0,79	238	2,27
Premature Rupture of Membrane	514	7,69	175	4,60	689	6,57
Congenital Anomaly	38	0,57	22	0,58	60	0,57
Hepatitis Infection	7	0,10	5	0,13	12	0,11
HIV/AIDS	42	0,63	30	0,79	72	0,69
Macrosomia	91	1,36	44	1,16	135	1,29
Precious Child	76	1,14	3	0,08	79	0,75
Multiple Pregnancy	105	1,57	38	1,00	143	1,36
Cephalopelvic disproportions	18	0,27	69	1,81	87	0,83
Preterm	215	3,21	130	3,42	345	3,29
Prolonged 2nd Phase of Labor	378	5,65	42	1,10	420	4,00
Prolonged 1st phase of labor	17	0,25	5	0,13	22	0,21
Inertia Uterine	350	5,23	56	1,47	406	3,87
Hyperemesis	0	0	29	0,76	29	0,28
Mother's Comorbid	178	2,66	41	1,08	219	2,09
Uterine Contractile	0	0	1	0,03	1	0,01
Abruption Placenta	3	0,04	2	0,05	5	0,05
Retained Placenta	21	0,31	38	1,00	59	0,56
Intra Uterine Fetal Death	9	0,13	59	1,55	68	0,65
Term Delivery	965	14,43	1267	33,32	2232	21,28
SUM	6688	100	3802	100	10490	100

Prior to the Covid-19 pandemic, prior cesarean section (19.57 percent), vaginal delivery (14.43 percent), premature rupture of membrane/water release (7.69 percent), preeclampsia / severe preeclampsia (6.98 percent), fetal distress (6.40 percent), and abortion were the most common referral cases to Education Hospital (5.73 percent). As shown in table 2, vaginal delivery (33.32 percent) was the most common referral case during the pandemic, followed by prior caesarean section (19.17 percent), severe preeclampsia (9.71 percent), abortion (5.68 percent), and premature rupture of membranes (4.60 percent).

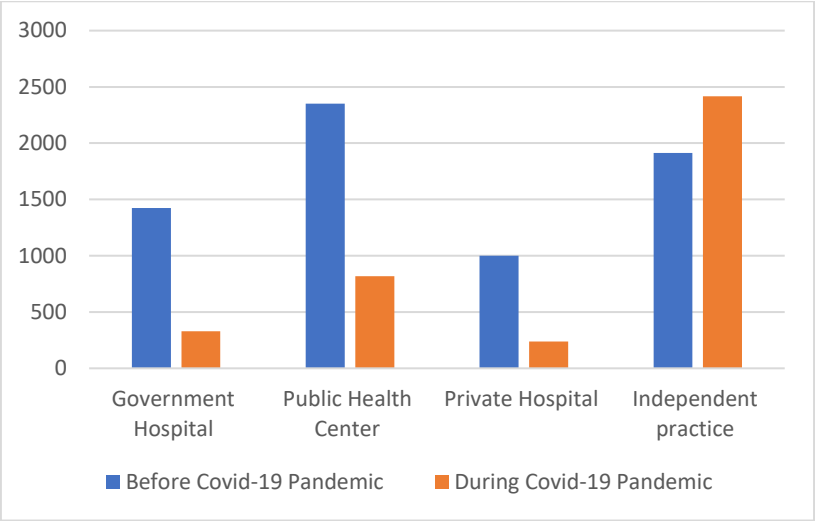

Fig 1. Distribution of Maternal Referral Cases based on Origin of Referrals Before and During the Covid-19 Pandemic

The data in Figure 1 shows that the highest maternal referrals before the COVID-19 pandemic came from primary health care facilities, which when compared to the time of the pandemic, the most referrals were from private practice. For other origin of referral, there is no difference between before and during the pandemic.

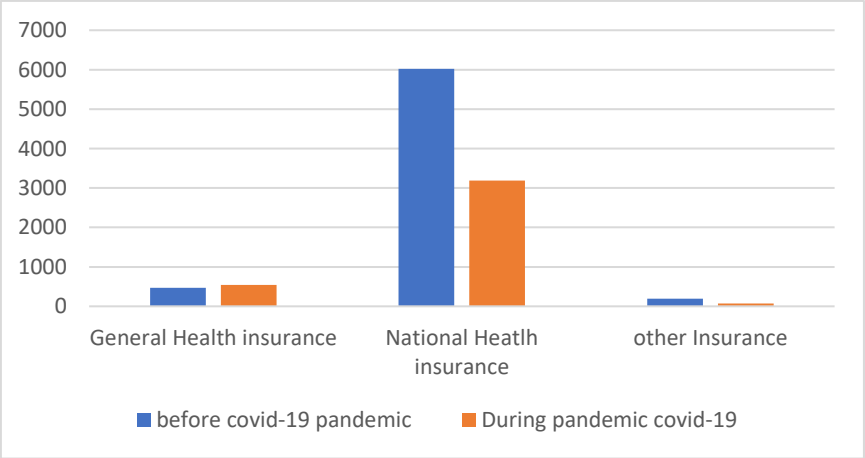

Fig 2. Distribution of Maternal Referrals Based on Payment Methods Before and During the Covid-19 Pandemic

Figure 2 shows the distribution of maternal referrals based on insurance where the most insurances system are 9,000 cases using National Health Insurance. Still, other insurance such as general and other insurance are less than 1000 cases.

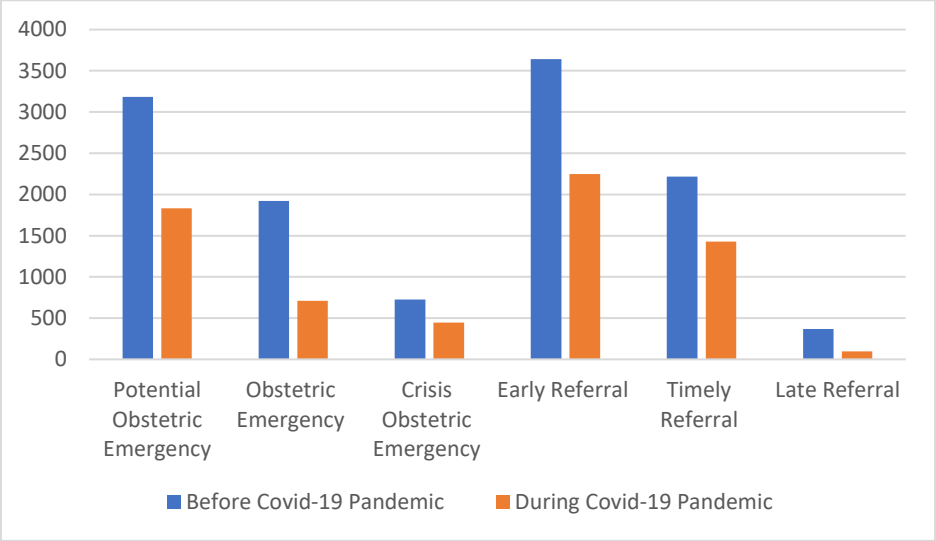

Fig 3. Distribution of Maternal Referrals by Type and Emergency Before and During COVID-19

Figure 3 shows that there is no difference in the number of cases in the pattern seen in the diagram before and during the Covid-19 pandemic for the type and time of maternal referral cases, and this has been done through with a tiered referral system that begins at primary level health facilities or community health centers.

4. DISCUSSION

The presentation is the same for the three characteristics of age, parity, and education. The number of cases before (2019) and during the pandemic (2020) has decreased Because of the PSBB policy and Covid-19 prevention guidelines published by the government about preliminary screening before entering the hospital and contextual features (public trust, culture, and knowledge). Government policy about WHF (Work from Home) was developed in response to a government program to anticipate and prevent transmission—a decrease of contraceptives related to an increase in the number of pregnancies during the COVID-19 pandemic. The use of family planning most likely decreased during pandemic covid-19 due to governments policy [7,8]

According to the table 2, the number of referrals for vaginal delivery cases increased during the pandemic compared to before the pandemic, given the fact that primary services, such as health workers, facilities, and infrastructure, including personal protective equipment, were not ready at the beginning of the pandemic.

Service methods are changing, with delays in integrated service post activities and service restrictions in public health care. [8] Pregnant women's fear of having the COVID-19 virus is also a serious obstacle. Pregnant women are scared of going to healthcare facility; thus they prefer to go to a private practice. All people, including pregnant women, who visit a hospital or other healthcare facility must be screened for covid-19, as according to government policy. Patients with confirmed positive antigens or symptoms for COVID-19 must be referred to a COVID-19-specific hospital. Some pregnant women

are concerned and hide the results of the Covid-19 test because they are fearful that the delivery will take place in an isolation room without their family there. [7,8]

Except for the fact that during the pandemic, the maternity referral rate decreased. The decrease in maternal referral rates during the COVID-19 pandemic has yet to be considered as a benchmark for the system's success. Delays in handling and referral of pregnant women at high risk during the COVID-19 pandemic are still an issue in several Indonesian provinces.

5. CONCLUSION

According to the study's findings, maternal referral cases decreased by nearly 50% during the COVID-19 pandemic compared to before the pandemic.

ACKNOWLEDGMENTS

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Conflict of Interest Statement:

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.