

Experience of women who gave birth during the Second Wave of COVID-19 Pandemic in Mansoura city

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Abstract

Background: Maternity care practices have been significantly altered during COVID-19 pandemic as a protective behavior to control spread of infection, but it affect experience of parturient woman during giving birth. **Aim:** Current study aimed to describe the experience of women who gave birth during the second wave of COVID-19 Pandemic in Mansoura city. **Design:** Descriptive cross-sectional study design. **Setting:** The study was carried out at three health centers located in Mansoura city, Egypt. **Subjects:** A purposive sample of 330 woman were included. **Sample type:** A non-probability purposive sample. **Data collection tools** included two tools; structured interview questionnaire & women's experience questionnaire. **Results:** Less than one-third of the studied women had a birth companion, had enough social or emotional support during birth. Moreover, less than one quarter of them had a skin to skin contact with their newborn after birth. Most of the studied women didn't receive breast feeding support during hospital stay. As regard to their physical health after discharge, less than one quarter of them had enough sleep, had a high blood pressure. Also, a round one third of them experienced empathy, closeness, strength, and safety during giving birth and most of them had fear of getting infected. **Conclusion:** Birth experience was affected during COVID-19 as absence of birth companions, emotional and social support before and after discharge, lack of information and counselling was reported by the majority of studied women. Furthermore, physical and psychological concerns of women was affected which affect newborn care. **Recommendations:** Health care policy and maternity care practices should focus not only on keeping women safe from infection but also, increasing women's overall feelings of safety and control in their birthing environment.

Keywords: Covid-19, Experience, Giving birth, Mansoura city.

Introduction

Worldwide, Coronavirus disease (COVID-19) is a newly and rapidly evolving infectious disease caused by a newly discovered coronavirus. Infection with COVIS-19 leads to many health problems such as pneumonia, severe lung disease, multi-organs failure and death

(Centers for Disease Control and prevention, 2020). The novel coronavirus outbreak not only affects the physical health status of the infected women, but also leads to alteration in the everyday routines, health care systems, social, and economical circumstances, all can cause depression, anxiety and stress among the

laboring and post-partum women (*Stepowicz et al., 2020*).

Maternity care practices have been significantly altered during the worldwide pandemic. COVID-19 infection among pregnant and post-partum women is very serious as the consequences of infection not only affect their health, but also their newborns (*Rasmussen et al., 2019 & Dashraath et al., 2020*). Early in the pandemic, mothers who were infected with COVID-19 not know whether they should separate from their infants or if they should continue breastfeeding. Many concerns arise among women that affect the physical and psychological health (*Shabaan, El Sayed & Ghonemy., 2018 and Tscherning et al., 2020*).

The Center of Disease Control (CDC) recommended that infants be temporarily separated from mothers with confirmed or suspected COVID-19 infection and fed with expressed breast milk (*CDC, 2019*). Alternatively, the World Health Organization recommended that infected women are allowed to stay with their infants, rooming in, practicing skin-to-skin contact, and continue breastfeeding.

Conflicting recommendations led hospitals leaders to create a variety of maternity care policies with varying levels of restrictions on birthing women (*WHO, 2020*).

Non infected pregnant women were also greatly affected by the developed changes on maternity care policies. Women had to face the actual and perceived threats of contracting COVID-19, while also accepting that their pregnancy and childbirth experiences would be altered (*Spiegelman et al., 2020 & Sutton et al., 2020*). Women were uncertain if they would be able to have a birth companion, doula, or preferred provider to attend during their birth. When arriving at labor

and delivery, even minor symptoms could be deemed a presumed positive enacting several policies to prevent infection transmission (*Stephens et al., 2020*).

Typical best maternity care practices such as immediate skin-to-skin contact after delivery, assistance with breastfeeding in the first hour of life, and rooming-in with the infant may have been discontinued or modified (*CDC, 2019*). Hospital stays were shortened in many areas (*Stephens et al., 2020*). The threat of infection transmission and changes to hospital policies made women uneasy about delivering in a hospital, provoking the professional organizations of obstetric care providers across disciplines to release a joint statement affirming that the hospital is a safe place to give birth, even during a pandemic (*Patient-centered care for pregnant patients during the COVID-19 pandemic, 2020*).

Significance of the study

Currently, with the rapid spreading of COVID-19; the pregnancy related stress, anxiety and depression has been increased due to increased number of affected and died cases (70 million and 1.6 million) respectively. Correspondingly, Egypt has the 62th rank among the countries with coronavirus cases in the world, with more than 155,000 infected people and more than 8,000 deaths (*WHO, 2020*). Also, Women who were pregnant or giving birth during the early phases of the COVID-19 pandemic faced considerable uncertainty compounded with other common potential physical and mental health comorbidities that can occur in pregnancy. The general population demonstrated a 3-fold increase in affective disorders such as depression during the COVID-19 pandemic (*Fawcett et al, 2019*). Accordingly, a recent survey conducted in China on 1210 subjects

highlighted the pandemic consequence on psychological health, showing a severe anxiety syndrome in the 53.8% of the interviewed cohort (*Wang C, Pan R, Wan X, et al., 2020*).

Strict public health measures directed towards mitigating the spread of disease are necessary, but known to have negative psychological effects leading to stress, anger and confusion. The prolonged pandemic period will inevitably have economic consequences, and financial uncertainties are likely to further escalate psychological burden and worsen the mental wellbeing of pregnant women and new mothers (*Durankuş and Aksu, 2020 & Brooks SK, Webster RK, Smith LE, et al., 2020*). Pre-pandemic research has shown that pregnant women are vulnerable to elevated levels of anxiety, depression, and other health problems exacerbated by stress such as hypertension or diabetes (*Gaynes et al., 2005 & Harris et al., 2009*). Little is known about how being pregnant or delivering a baby during a pandemic, even when being not infected with COVID-19, may have affected expecting and new mothers in Mansoura city. So the researcher decides to do this study.

Aim of the study:

This study aimed to describe the experience of women who gave birth during the second wave of COVID-19 Pandemic in Mansoura city.

Research question:

What are the experiences of women who gave birth during the second wave of COVID-19 Pandemic in Mansoura city?

Study design:

A descriptive cross-sectional design was followed to achieve the aim of the current. This design measure specific condition and potentially related factors

at a specific point in time for a defined population study (*Olsen & ST George, 2004*).

Study setting:

This study was conducted at three health centers located in Mansoura city, Dakahlia Governorate, Egypt. The three health centers were (Meet khamis health center, Awish Ehager health center, and Mansoura First health center). Meet khamis health center consists of five rooms and big waiting hall (a room for examination, a room for providing family planning services, a room for lab investigation, a room for pharmacists, and a room for employees); nearly 30 mothers and patients visit the center daily. Awish Elhager health center is a building which consists of two floors with eight rooms, nearly 40 mothers and patients visit the center per day. Mansoura First health center consists of a reception area, waiting hall, and six rooms (two examination rooms, a room for dental care, a room for family planning service, laboratory room and a room for child vaccination), from 30-40 cases visit the center per day to receive different health care services.

Sample type:

A non-probability purposive sample was utilized.

Study subjects:

This study included 330 woman who were chosen according to the following criteria:

Inclusion criteria:

- Women aged 18 and 35 years old.

- Woman who gave birth during the second wave of covid 19.

Exclusion criteria:

- Women who had psychological health problems.

Sample size calculation:

Sample size was calculated using G power program version 3.1.9.4 using the following data: chi square test, effect size 0.30, α error prop 0.05, power (1- β err prop) 97 %. Sample size is 330 participants.

Tools of data collection:

Two tools were used to collect the data as the following:

Tool I: A Structured Interview

Schedule: It was designed by the researchers after reviewing related literatures; to be filled from each woman. It is included two parts. **Part I:** Covered the data related to general characteristics of women as age, education, occupation, residence, number of children, and month income. **Part II:** Covered obstetric history of the woman as gravidity, parity, number of abortion, having pregnancy problems, types of delivery, having birth problems, having baby problems, length of hospital stay after delivery, and place of birth.

Tool II: Woman's experience questionnaire: It was developed by researcher after revising national and international related literatures to assess woman experience after giving birth during COVID-19. It included five domains (birth experience, breast feeding experience, newborn care, physical condition after birth and psychological concerns after delivery). **First domain** assessed birth experience and included

items, as (presence of companion at birth, availability of social support at birth, rooming-in after delivery, skin-to-skin contact after birth. **Second domain** described breastfeeding experience and involved items as (time of initiation of breast feeding, breast feeding support after birth, length of breastfeeding, protective measures during breast feeding. **Third domain** concerned with newborn care and included (ability of the mother to perform newborn care, family assistance & support, regular immunization of the newborn. **Fourth domain** assessed the physical condition of the mother after birth as blood pressure, blood sugar, diet, sleep, wound healing. **Fifth domain** covered the psychological concerns of the mothers during and after birth. It assessed either positive or demotions as (hope, empathy, safety, anxiety, and fear.

Validity of the tool

The study questionnaire was translated into Arabic language before introducing it to the women. Tools were revised by a jury of five professors in the woman health and midwifery nursing specialty field to test the validity of the contents, and to ensure that the tools were conveying the anticipated meaning. The recommended adjustments and modifications were considered according to their remarks as simplify the meaning of some statement to be easily understood by the women.

Reliability of the tool

Tool was tested for its reliability by using Cronbach alpha coefficients. It was 0.895 for the study tool, hence it was found to be highly reliable.

Pilot study:

A pilot study was carried out on 10% (33 women) of the total study sample. The aim of the pilot was to test

the objectivity and applicability of the study tools and the feasibility of the research process as well as to estimate the time needed to answer the questionnaire. Women in the pilot study were excluded from the total study sample.

Ethical considerations:

An ethical approval letter was obtained from Research Ethics Committee, Faculty of Nursing, Mansoura University. A written consent was obtained from every woman involved in the study after clarification the aim and approach of the study. All women were reassured about the confidentiality of the collected data. In addition, all the participants had the right to withdraw from the study at any time.

Research process

The current research was done through two process: preparation of the work and collecting the data from the study participants.

I-Preparation of the work:

This process was started by obtaining approval from the concerned authorities in the previous mentioned health centers. Tools for data collection was designed after reviewing the national and international related literatures. A pilot study was conducted on 33 women before collecting the actual sample. This process took about one month from the beginning of November to the beginning of December 2020.

II- Data collection process :

The current study was carried out from the beginning of December 2020 to the end of February 2021 during the second wave of COVID-19 infection. Data was collected from the three health centers (Meet khamis health center, Awish Ehager health center, and Mansoura First health center) respectively. Usually, the post-partum women were attended these health care centers to

vaccinate their newborns according to the recommended vaccination schedule.

The researchers visited the previously mentioned settings 3 days weekly from 9:00 am to 2:00 pm. As the mothers waiting for their turn to vaccinate their newborns, the researchers introduced themselves to the women, greeting them, explained the purpose for conducting the current study. Written informed consent was obtained from each woman who accepted to participate in the study.

After identifying the eligible women for the study, the researchers sit in a private area with every woman and filling the data collection questionnaire that started by assessing the base line data of the women, then the birth experience were assessed including all aspects of care from attending the health care setting to give birth till after discharge. Physical and psychological concerns around birth also considered.

Every interview took about 25 to 30 minutes with every woman. The researchers follow the recommended protective measures of COVID-19 pandemic during data collection process. The researcher continued to attend the predetermined setting until the sample size completed.

Data analysis:

All statistical analyses were performed using SPSS for windows version 20.0 (SPSS, Chicago, IL). All continuous data were normally distributed and were expressed in mean \pm standard deviation (SD). Categorical data were expressed in number and percentage. Chi-square test was used for comparison of variables with categorical data. Cronbach's alpha test was performed to test for the internal consistency of the

tools used in the study. Statistical significance was set at $p < 0.05$.

Results

Table (1): presents that the mean age of the studied group was (26.66 ± 3712) . About (63.1%) of them had a basic education, more than two third of them (67.9%) were housewife and more than half of them (56.4%) had enough income.

Table (2): shows that (71.8%) of the studied women were primi-para, only (30.6%) of them had pregnancy complications which pregnancy induced hypertension was the highest problem. About (60.9 %) of the studied women delivered by cesarean section, about (48.5 %) of them had birth problems where wound infection considered the most arising condition. Nearly one third of them (29.4%) had baby problems, low birth weight was highest among their infants.

Figure (1): presents that 59.2% of the studied women delivered at private hospitals and 30.2% of them delivered at governmental hospitals, while only (10.6%) of them delivered at private clinics.

Figure (2): shows that nearly half (44.8%) of the studied women were stayed 2-4 hours at hospital after delivery, more than one quarter of them stayed 4-8 hours to one day after delivery (25.2% & 27.6) respectively. While only (2.4%) of them stayed more than one day at hospital after delivery.

Table (3): shows that 33.3% of the studied women had a birth companion, 27.3 % of them had enough social support during birth. Less than one third (23%) of the studied women had emotional support from the health care providers. Only (19.1) had skin to skin contact, 66.7 % of them rooming in with their newborn. Less than one third of the studied women had close

observation from health care providers and only 8.2 % Of the studied women had emotional support from husband and family after discharge.

Table (4): shows that (63%) of the studied women not initiate breast feeding immediately after birth and (96%) of them didn't receive breast feeding support during hospital stay. Also, most of them (95.8%, 94.5% & 91.8% respectively) breast fed their babies on demand, provide close contact during breast feeding, and wash their hands before and after breast feeding. More than three quarters (77.3%) of the studied women wear face mask during breast feeding and about two thirds (66.6%) of them continue exclusive breast feeding during the first 6 months. Regarding newborn care, 54.5% of the studied women had ability to perform newborn care after discharge, and (89%) of them follow-up newborn growth and development. Most of them (98.2%) received scheduled newborn immunization and only 18.5% of them had support from their families regarding newborn care.

Figure (3): shows that 78.2% of the studied women performed their self-care after discharge without family support. About (38.2%, & 34.8%, respectively) of the studied women had a good appetite and normal wound healing. Only 17.9 % of them had enough sleep, and 13.9 % & 3.3 % respectively of them had a high blood pressure and a high blood sugar after birth.

Table (5): shows that a round one third of the studied women (36.7%, 34.8%, 31.5% & 29.4% respectively) experienced empathy, closeness, strength, and safety. Concerning negative psychological concerns, most of the studied women (93.9% & 97.3%) had fear of getting infected or newborn infection. Majority of them (85.2%) were worried during period of hospital stay, while around three quarters (76.1% & 73.9% respectively) experienced restriction and

feeling of danger. About (65.8%, 58.8%, 53.9% & 47.9% respectively) of them experienced loneliness, anxiety, self-dought & depression.

Table (6): shows that there were a statistical significant correlation between the birth experience and breast feeding, newborn care, and psychological experiences of the studied women ($p = 0.000$).

Table (7): shows that there were a highly statistical significant association between place of birth, number of abortions and psychological experiences of the studied women ($p = 0.000$). Also, there was a statistical significant association between number of abortion and psychological experience of the women ($p = 0.027$).

Table (1): General characteristics of the studied women. (N= 330).

Items	No.	%
Age / year		
▪ less 20 years	15	4.5
▪ 20: <26 years	133	40.4
▪ 26:<31 years	137	41.5
▪ 31 : 40 years	45	13.6
Mean age \pm SD	26.660\pm 3712	
Educational level:		
▪ Basic education	208	63.1
▪ Secondary	114	34.5
▪ University	8	2.4
Occupation		
▪ Housewife	224	67.9
▪ Working	106	32.1
Income		
▪ Not enough	132	40
▪ Enough	196	59.4
▪ Enough and save	2	0.6

Table (2): Distribution of the studied women according to their obstetric history(N= 330).

Items	No	%
Gravidity		
▪ Once	94	28.5
▪ Twice	95	28.8
▪ Three	96	29.1
▪ More than three	45	13.6
Parity		
▪ Once	237	71.8
▪ Twice	81	24.5
▪ Three	11	3.3
▪ More than three	1	0.3
Having Pregnancy complications		
▪ No	229	69.4
▪ Yes	101	30.6
Types of pregnancy complications (101)	54	53.5
▪ Pregnancy induced hypertension	15	14.9
▪ Gestational diabetes	6	5.9
▪ Heart disease	9	8.9
▪ Placenta previa	16	15.8
▪ Abortion	1	9.9
▪ Anemia		
Mode of delivery		
▪ Normal	129	39.1
▪ CS	201	60.9
Having birth problems		
▪ No	170	51.5
▪ Yes	160	48.5
Type of birth problems (160)		
▪ Prolonged labor	41	25.6
▪ Obstructed labor	9	5.6
▪ Post-partum Hemorrhage	20	12.6
▪ Wound infection	90	56.2
Having baby problems		
▪ No	233	70.6
▪ Yes	97	29.4
Type of baby problems (97)		
▪ Jaundice	38	39
▪ low birth weight	57	58.8
▪ still birth	2	2.2

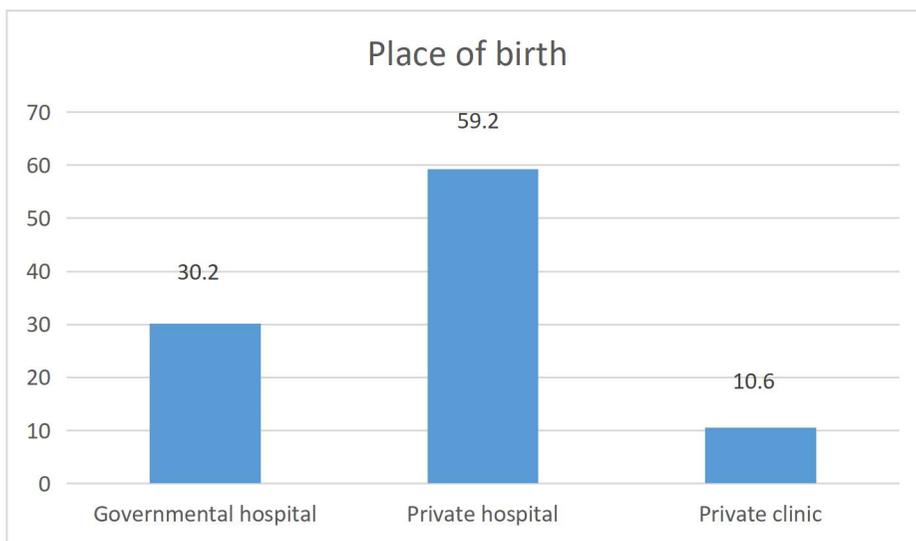


Figure (1): Place of delivery of the studied women. (N= 330).

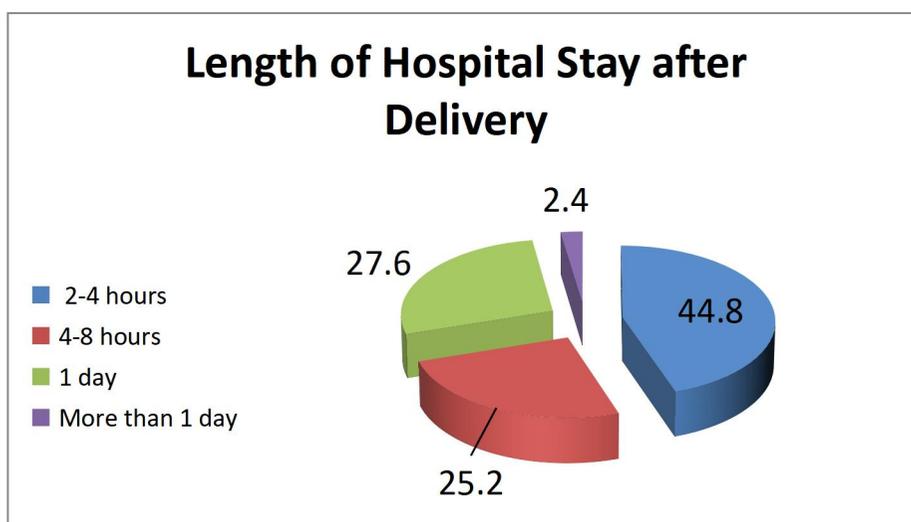


Figure (2): Length of hospital stay after delivery. (N= 330).

Table (3): Distribution of the studied women according to their birth experience. (N= 330).

Items	No		Yes	
	No.	%	No.	%
➤ Presence of birth companion	220	66.7	110	33.3
➤ Presence of husband at birth	147	44.5	183	55.5
➤ Enough social support was provided at birth	240	72.7	90	27.3
➤ Emotional support of health care providers was enough	254	77	76	23
➤ Skin to skin contact was applied	267	80.9	63	19.1
➤ Rooming- in of newborn and mother after delivery	110	33.3	220	66.7
➤ Close observation of healthcare providers during hospital stay	239	72.4	91	27.6
➤ Counseling and health education provided during hospital stay	270	81.8	60	18.2
➤ Arrangement of follow up appointments by hospital staff	200	60.6	130	39.4
➤ Emotional support from husband and family after discharge	39	11.8	291	88.2
➤ Attending post-partum visits after discharge	175	53	155	47
➤ Covid-19 precautionary measures affect care provided	94	28.5	236	71.5

Table (4): Breast feeding experience and newborn care among studied women. (N= 330).

Breast feeding Experience	No		Yes	
	No.	%	No.	%
Initiation of breast feeding immediately after birth	208	63	122	37
Breast feeding support during hospital stay	317	96.1	13	3.9
Breast feeding on demand	14	4.2	316	95.8
Wearing face mask during breast feeding	75	22.7	255	77.3
Hand washing before and after breast feeding	27	8.2	303	91.8
Use bottle feeding	316	95.8	14	4.2
Close contact with your infant during breast feeding	18	5.5	312	94.5
Availability of breast feeding support after discharge	249	75.5	81	24.5
Exclusive breastfeeding during the first 6 months.	112	33.4	218	66.6
Newborn care				
Ability to perform newborn care after discharge	150	45.5	180	54.5
Family support with newborn care	269	81.5	61	18.5
Follow up newborn growth & development regularly	36	10.9	294	89.1
Received scheduled newborn immunization regularly	6	1.8	324	98.2

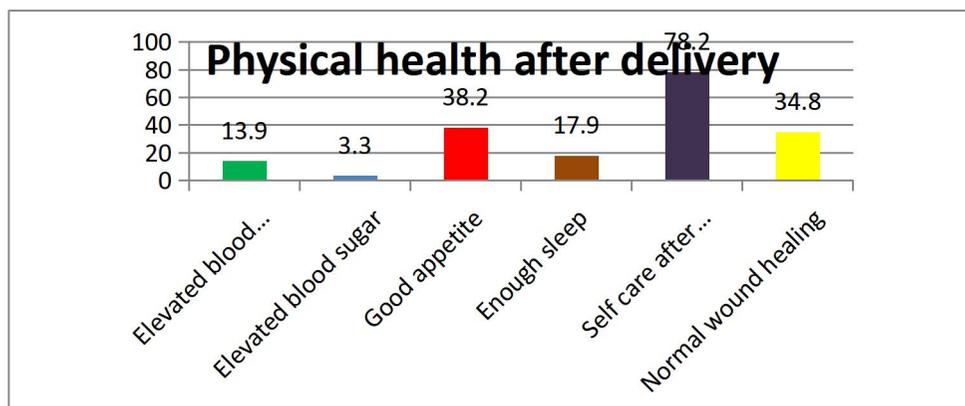


Figure (3): Physical health of the studied women after delivery. (N= 330).

Table (5): Psychological concerns experienced by the studied women during second wave of COVID-19. (N= 330).

Positive psychological concerns	No		Yes	
	No.	%	No.	%
▪ Closeness	215	65.2	115	34.8
▪ Safety	233	70.6	97	29.4
▪ Empathy	209	63.3	121	36.7
▪ Strength	226	68.5	104	31.5
▪ Hope	152	46.1	178	53.9
Negative psychological concerns				
▪ Anxiety	136	41.2	194	58.8
▪ Fear getting infected	20	6.1	310	93.9
▪ Fear newborn infection	9	2.7	321	97.3
▪ Danger	86	26.1	244	73.9
▪ Loneliness	113	34.2	217	65.8
▪ Restriction	79	23.9	251	76.1
▪ Self-dought	152	46.1	178	53.9
▪ Worry	49	14.8	281	85.2
▪ Depressed	172	52.1	158	47.9

Table (6): Correlation between birth experience and breast feeding, newborn care, physical and psychological concerns of the studied women.

Variables	R	P
Birth experiences and breast feeding	-0.323	0.000**
Birth experiences and newborn	-0.279	0.000**
Birth experiences and physical health	-0.142	0.010*
Birth experiences and psychological construction	-0.306	0.000**

Table (7): Association between obstetric history and psychological concerns of the studied women.

Items	Positive No (%)		Negative No (%)		Significance test
Parity					
▪ Once	198	(71.2)	39	(75)	$X^2=0.613$ $p=0.962$
▪ Twice	70	(25.2)	11	(21.2)	
▪ Three	9	(3.2)	2	(3.8)	
▪ More three	1	(0.4)	0	(0)	
No. of abortion					
▪ None	186	(66.6)	40	(76.9)	$X^2=9.175$ $p=0.027^*$
▪ Once	74	(26.6)	7	(13.5)	
▪ Twice	18	(6.5)	4	(7.7)	
▪ Three	0	(0)	1	(1.9)	
Pregnancy problems					
▪ No	188	(67.6)	41	(78.8)	$X^2 = 2.597$ $p= 0.071$
▪ Yes	90	(32.4)	11	(21.2)	
Place of birth					
▪ Governmental hospital	9	(17.3)	140	(50.4)	$X^2 = 19.785$ $p= 0.000^{**}$
▪ Private hospital	110	(39.6)	36	(69.2)	
▪ Private clinic	28	(10.1)	7	(13.5)	
▪ Private clinic					

Discussion

The aim of the present study was to describe the experience of women who gave birth during the second wave of COVID-19 pandemic in Mansoura city. Also, the study questions were answered within the frame work of the present study. The study findings handled the answer of the study question as the women' birth experience was affected during COVID -19 pandemic.

Regarding, the mean age of the studied woman, the current study found that the mean age of the participants was (26.66 ± 3712) , more than one third of the studied women delivered vaginally, and the others delivered by cesarean section. These findings were in contrast with **Mollard & Wittmaack, (2021)** who assess women birth experience during COVID-19 in US and found that the average age of the women was 29.8 years

old with a standard deviation of 4.9. Most of them had a vaginal delivery with a significant minority undergoing cesarean delivery. This difference can be explained as pregnancy complications were diagnosed among the study participants so they delivered by cesarean delivery.

Considering place of birth among the studied group, the study illustrated that more than half of the studied women delivered at private hospitals and about one third of them delivered at governmental hospitals. This result was in an agreement with **Rocca-Ihenacho, & Alonso, (2020)** who assess where women gave birth during COVID-19 pandemic in US and Europe, and found that women admission to private obstetric units was greatly increased than governmental hospitals during delivery. Also, **Coxon et al., (2020)** who describe how maternity care was altered during COVID-19 in Europe and reported that most of the birth had been shifted to private clinics and midwifery centers. This can be explained as the changes in the hospital system and policy to follow the precautionary measures of COVID-19 leads to restriction of companions during labor, separation babies from their mothers, as well as fear of transmission of infection in the governmental than private hospitals. All these factors allow women to shift from governmental to private institutions for giving birth.

As regard to the period of hospital stay after delivery, nearly half of the studied women stay from 2-4 hours at hospital after delivery, and more than one quarter of them stay 4-8 hours to one day after delivery. This was in contrast with **Coxon et al., (2020)** who reported that

most of the studied women stay only an hour after birth and send to home quickly. Moreover, **Stephens et al., (2020)** who studied obstetric management of women during COVID-19 and reported that the period of hospital stay is decreased in many areas after delivery either vaginal or cesarean deliveries during COVID 19 pandemic. This can be explained as the alteration in the hospital system and policies during pandemic focus on decrease period of hospital stay to eliminate the risk of spread of COVID-19 infection.

With respect to the outcome of birth, it is clearly obvious from the results of the current study that the birth outcome is greatly affect during COVID-19 pandemic. The current study revealed that about two thirds of the studied women delivered by cesarean section, about half of them had birth problems and wound infection considered the most arising condition. More than half of them had baby problems which low birth weight was the most distributed among their infants. This finding was in an agreement with **Wu et al., (2020)** who assess perinatal outcome of pregnant women in China and reported that during COVID-19 pandemic, both maternal and fetal outcomes were affected as increased cesarean deliveries rate, preterm labor, post-partum complications and low birth weight.

Also, **Mariño-Narvaez et al., (2021)** who describe birth experience during COVID-19 and found that birth outcome was different as the rate of cesarean deliveries was increased, and low birth weight was high among laboring women. A possible explanation may be due to the changed health care system and policy during pandemic as

shortage of hospitals' staff and limited period of hospital stay and lead to increase rate of cesarean deliveries and post-partum complications.

Concerning women birth experience during COVID-19 pandemic, the current study showed that about two thirds of the studied women hadn't birth companions during delivery. More than two-thirds of the studied women hadn't enough social & emotional support or skin to skin contact during delivery. Most of the studied women hadn't breast feeding support or close observation after delivery. Two thirds of the studied participants had rooming-in with their babies after delivery. Less than half of the studied women attended the post-partum visits after discharge. The study results were consistent with **Stephens et al., (2020)** who found that women were unable to have a birth partner, doula, or preferred provider to attend during birth. Typical best maternity care practices such as immediate skin-to-skin contact after delivery, assistance with breastfeeding in the first hour of life, and rooming-in with the infant may have been discontinued or modified during the current worldwide pandemic.

While, the present study results were in disagreement with **Mollard & Wittmaack, (2021)** who reported that most of women had a birth partner present with them during delivery. The majority of women had a rooming-in with their newborns during hospital stay. Also, women reported that skin-to-skin was maintained and breastfeeding was initiated earlier and breastfeeding support within the first hour of life was encouraged. Despite that healthcare institutions altered many maternity care practices to adapt the world wide

pandemic, many practices in U.S remained intact. Science these practices remaining in place to make a hopeful statement that women could have a positive birth experience in their hospital through this pandemic.

Concerning, breastfeeding experience, the current study results showed that more than half of the studied women not initiated breast feeding immediately after birth and most of them not received breast feeding support during hospital stay. However, most of them breast fed their babies on demand, provide close contact during breast feeding, and wash their hands before and after breast feeding; and the majority of them wearing face mask during breast feeding. Unfortunately, less than one third of them had family support with newborn care.

These findings were in the same line with **Vazquez-Vazquez et al., (2020)** who assess feeding experience during COVID-19 lock down and reported that, there were a change in feeding pattern among the participants as the period of hospital stay was decreased, no immediate initiation of breast feeding after delivery and no support from hospital staff during breastfeeding. Moreover, women reported that after discharged home, there was a lack of contact and support from family and they were distressed that their family missed seeing their babies.

In addition, these results were in agreement with **Ajayi et al., (2021)** who analyzed the lived experience of new mothers during COVID-19 and found that breast feeding support was altered during COVID-19 as the minority of women had skin to skin contact after delivery and not

received adequate information regarding breast feeding from hospital staff. Lack of social support after discharge affect women health and their abilities to care of their infants was affected.

These results were in disharmony with **WHO, (2020)** recommendations that strength on the importance of continuous breast feeding with complete following the personal protective measures and without separation between mothers and their babies. The previous finding can be explained as the alteration in health care system and shortage in maternity staff during current pandemic affect breast feeding support after delivery and due to fear of transmittion of infection especially among suspected cases led to limit skin to skin contact between mothers and their newborns.

Considering psychological concerns of the studied women, the current study showed that only one third of the studied women experienced positive psychological concerns as (empathy, closeness, strength, and safety). While, negative psychological concerns as (fear of getting infected or newborn infection. worry, restriction, feeling of danger, loneliness, anxiety, and self-dought) was highly distributed among study participants. The previous finding was supported by **Zanardo et al., (2020)** who assessed the psychological concerns of the post-partum women during COVID-19 quarantine measures in Northeastern and reported that most of mothers experienced anxiety, fear, worry and depression in the early post-partum period during COVID-19 quarantine.

Moreover, **Mariño-Narvaez et al., (2021)** who assessed the experience of women who gave birth during COVID-19

pandemic and reported that the majority of the studied mothers experienced stress, anxiety, worry and about half of them developed postpartum depression after discharge. While the present study results were in contrast with **Mollard & Wiittmaack, (2021)** who illustrated that the majority of participants reported that they felt safe during their hospital stay after delivery. This difference can be explained as the previous study was conducted in US and the policy in these hospitals allow the presence of birth companions and support group during delivery, so this can help women to feel more safe and secure during period of hospital stay.

Not only the psychological aspects of women was affected during COVID-19 pandemic, but the physical condition also affected. As the current study showed that more than three quarter of the studied women performed their self-care after discharge without family support, and most of them experienced poor appetite, poor quality of sleep, and poor wound healing. Further level of blood pressure and blood sugar was elevated in some cases. The previous results were supported by **Mollard & Wittmaack, (2021)** who found that level of blood pressure and blood sugar was elevated among women who delivered during the current pandemic.

Also, the current study results were in agreement with **Woodworth et al., (2020)** who found that the physical health of women was affected as the women said that they performed their self-care and care of their newborn without any social assistance. As well as **Mizrak Sahin and Kabakci, (2020)** who conducted a qualitative study to elicit women experience during COVID-19 in

Turkey and reported that due to lack of information received by healthcare providers and alteration of health care delivery system during COVID-19, the mothers' physical health after discharge was affected and the incidence of post-partum complications was increased.

Finally, it was evident from the present study that COVID-19 pandemic greatly affect birth experience. Unfortunately, certain Evidence-Based Practices either during childbirth or during post-partum period were not practiced or modified during COVID-19 as shifting deliveries from governmental hospitals to private sectors, decreased period of hospital stay, absence of birth companions, lack of breastfeeding support. All these alterations were done as an attempts to fight the emergent world-wide pandemic but in the other side, it negatively affect maternity care, physical and psychological experiences of women giving birth during the an unprecedented pandemic.

Limitation of the study

This study included a retrospective experience of women giving birth during the second wave of COVID-19 pandemic, where some cases can be assessed within few days after birth, while others several months later. The researchers overcome this limitation as the take only the cases that they delivered from 1-3 months only and not longer than this period, so the women can be able to remember their birth experience correctly without any forgetfulness.

Conclusion

COVID-19 pandemic greatly affect maternity care in Mansoura city as the current study found that more than half of the participant's shifting their deliveries from governmental to private institutions as a result of fear of being infected. Moreover, many aspects of birth experience were altered as absence of birth companions, lack of emotional and social support, lack of information and counselling. Breast feeding experience also affected as the majority of them not initiate breast feeding immediately after birth. Furthermore, physical and psychological concerns of women was affected as a result of periods of isolation and quarantine which also affect newborn care.

Recommendations

- Health care policy and maternity care practices should focus not only on keeping women safe from COVID-19 infection but also on increasing women's overall feelings of safety and control in their birthing environment.
- Maternity evidenced based practices during delivery and post-partum period should be maintained during the current pandemic with complete following the protective practices to avoid infection.
- Psychological variables surrounding giving birth should be taken into consideration from maternity staff along with the physical health.
- Further researches should be conducted to support women after delivery through an online sessions by

maternity staff to respond to their needs and concerns.

- Further researches should be conducted to determine the effect of breast feeding support programmes during COVID-19.

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Conflict of Interests

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