

# Effect of the Covid-19 Pandemic on Prenatal Consultations for Pathological Pregnancies at the Maternity Unit of Abass Ndao Hospital, Dakar, Senegal

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## Abstract

**Introduction:** The COVID-19 pandemic has led to changes in health systems. The objective was to assess the effect of Covid-19 on the frequency of prenatal consultations (PNCs) for pathological pregnancies at the Abass NDAO Hospital Centre. **Materials and Methods:** This was primarily a retrospective study conducted at the Abass NDAO Hospital maternity ward. The target was the medical records of women followed for a pathological pregnancy at maternity from July 2019 to November 2020. Second, the department's qualified staffs were asked about their experiences with the Covid-19 pandemic. Data collection was carried out between October 2021 and February 2022. **Results:** A total of 690 prenatal charts for pathological pregnancy were collected: 375 (54%) before the pandemic compared to 315 during Covid-19 (46%). The average age of women was 28.15 years. The age group 25 and 35 was the most represented (36.81%). Reasons for consultation were dominated by threats of premature delivery (51%), followed by severe pre-eclampsia (14%) and premature membrane rupture (11%), respectively. The frequency of prenatal consultations (PNCs) was inversely related to pandemic dynamics and significant monthly variations were observed. Qualified health personnel were midwives (71.40%) and gynecologists (28.60%). During the pandemic, more than the majority of staff (67%) worked 3 days a week, and 24% of health workers 5 days. The majority of staff (60%) reported experiencing overwork during the pandemic. Non-compliance with consultation days was noted in

38% of health providers. Protective equipment was not provided to 14% of the staff. Staff difficulties during prenatal consultations were fear of occupational exposure (12%) and patient reluctance (88%). **Conclusion:** The Covid-19 pandemic is having a major impact on prenatal consultations for pathological pregnancies at Abass NDAO Hospital. Effective measures must be taken to avoid the consequences of maternal mortality and the functioning of the structure.

## Keywords

Pandemic, Covid-19, Pathological Pregnancy

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## 1. Introduction

Covid-19 first documented in late 2019 [1], quickly spread around the world, infecting tens of millions [2]. It was classified as a public health emergency of international concern and declared a pandemic by the World Health Organization in March 2020 [1]. It reached all continents in a short time [1]. Pregnant women, especially those with pathological pregnancies, were not spared. Covid-19 has led to many changes in the way health systems work [3]. These changes have impacted many actors in maternity services including women, support persons, midwives, medical staff and students [3].

In addition to Covid-19 outbreaks, the impact of the pandemic and response on health structures, communities and the global economy can also affect maternal health globally and in Senegal in particular [4]. There has been a significant decline in the use of services in most structures [5]. This may increase the number of out-of-hospital deaths related to other diseases. Several studies have shown an impact of this pandemic on patients and providers of maternal health services [6]. Stress, the anxiety of pregnant women, isolation of health personnel and change in the practice of care were often mentioned, in addition to excess mortality [5] [6].

To our knowledge, no research has yet been done in Senegal on the effect of the Covid-19 pandemic on pathological pregnancies. The rationale behind this study was to assess the effect of Covid-19 on prenatal consultations (PNCs) for pathological pregnancies at the Abass NDAO Hospital Centre (CHAN).

## 2. Materials and Methods

### 2.1. Framework for the Study

The study was carried out at the Abass NDAO Hospital in Dakar. In its design, the Abass NDAO Hospital was built to serve as a nursing home for elderly prisoners. It was created in 1935 by Alfred Goux. In 1974, the center became a municipal hospital with services such as gynecology and surgery. It's part of the South Health District. The maternity unit consists of a gynecological department

and an obstetric department. It provides outpatient and inpatient care.

## 2.2. Type and Period of Study

This was primarily a descriptive retrospective study conducted at the Abass NDAO Maternity Hospital over the period of July 2019 to November 2020. It had a qualitative component as well. Collection was completed in October 2021 and February 2022.

## 2.3. Study Population

It was constituted by:

- all medical records of women with pathological pregnancies who have been treated in the maternity ward of the Abass NDAO hospital between July 2019 and November 2020,
- Skilled Maternity Service Personnel was the 2nd sub population

⇒ Inclusion criteria

We have included in this study, pregnant women who consulted the Maternity Department of the Abass NDAO Hospital for pathological pregnancy between July 2019 and November 2020 as well as qualified health workers involved in the management of these women.

⇒ Non-inclusion criteria

Women who met the inclusion criteria but whose records were illegible or poorly informed; and qualified personnel involved in the management of pathological pregnancies who are unavailable or who have refused to participate in the study.

## 2.4. Sampling

The sampling was exhaustive for the target meeting the selection criteria (pregnant women with pathological pregnancy and qualified health workers).

## 2.5. Data Collection Technique and Tools

For the retrospective study, a data collection grid was developed and the data was collected from pathological pregnancy follow-up records. The main variables collected were the socio-demographic characteristics, the reasons for emergency consultation, the frequency of prenatal consultations. Regarding health personnel, an interview guide was used to collect data on the professional category, the number of working days per week, the number of working hours, their perception of Covid-19 and the means of protection available to them.

## 2.6. Data Entry and Analysis

The quantitative data were entered into Excel and then used with Stata. The results were presented in the form of contingency tables or graphs. The Chi<sup>2</sup> test was used to analyze the evolutionary trend of antenatal consultations over time.

For staff, a content analysis of the responses was conducted to identify the

major concerns raised.

## 2.7. Ethical Considerations

A data collection grid was pre-established. The anonymity of pregnant women was respected. Data collected anonymously was kept confidential. Only those responsible for the epidemiological treatment center had access to it. For health personnel, participation was free and voluntary.

The research protocol was approved by the Director and the Hospital Ethics Committee for Health Research before the start of the study.

## 3. Results

In total, 690 records of pregnant women with pathological pregnancies were collected: 375 prenatal records (54%) in the pre-pandemic period compared to 315 during Covid-19 (46%). In this study, the pre-Covid-19 period is from June 2019 to February 2020 and the Covid-19 period is from March to November 2020.

In terms of the period before COVID-19, the frequency of prenatal consultations on pathological pregnancy in November and December 2019 was 8.12% and 7.68% respectively. From March 2020 to May 2020, this frequency was respectively 2.75%, 4.64% and 2.46%. The frequency of prenatal consultations was 5.22% in June 2020, gradually increasing to 8.70% in September 2020, then decreasing in October and November 2020 (see **Figure 1**). The trend test showed a statistically significant difference between the observed monthly frequencies with a  $p$  value  $< 0.01$ .

The average age of women was 28.15 years. The age group 25 and 34 was the most represented with 36.81%. Women under 25 years of age accounted for 33.33% and women aged 35 and over for 19.86% (see **Table 1**).

Reasons for consultation were dominated by threats of premature delivery with 51.01% of cases followed by severe pre-eclampsia 15.07% of cases and premature membrane rupture with 11.01% of cases respectively. Pregnant vomiting accounted for about 9% of cases. Gestational diabetes and fluid discharge each accounted for 4%, high blood pressure (HBP) 3% (see **Table 1**).

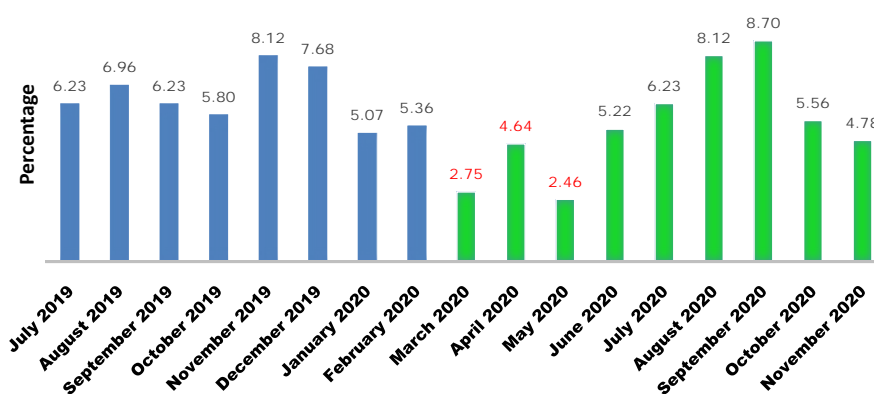
In terms of assessing the functionality of the maternity service, the health staff involved in the management of pathological pregnancies ( $n = 21$ ) consisted mainly of midwives (71.40%) and gynecologists (28.60%).

And 95% of agents reported working 5 days a week before the Covid-19 pandemic (see **Figure 2**). During the pandemic more than the majority of staff (67%) had worked only 3 days a week, 24% of health care staff had worked 5 days. Only 9% of officers were present 6 days a week (see **Figure 2**).

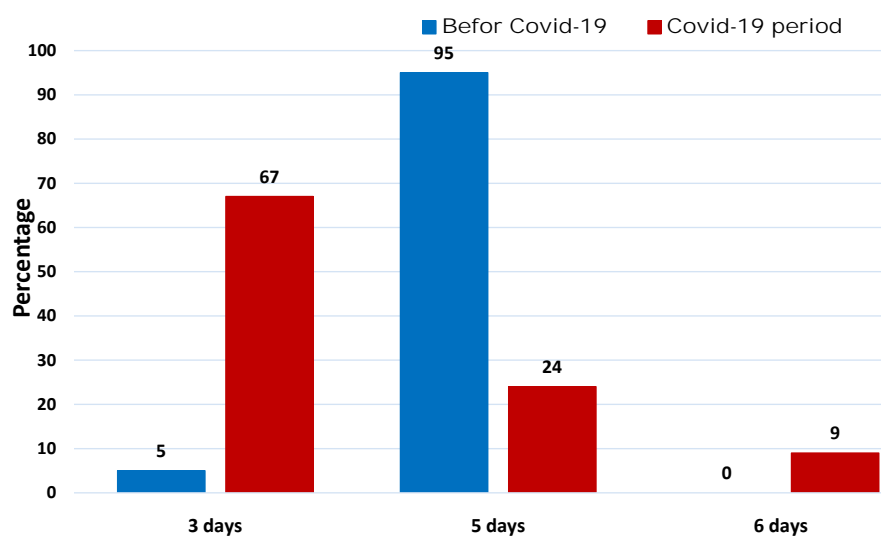
Among health care providers, 86% of cases worked 8 hours a day before Covid-19. During the pandemic, more than the majority worked 8 hours a day (57%). And 5% of the officers worked only 5 hours (see **Figure 3**). There was a decrease in qualified staff by 91% of health personnel. The majority of staff (60%)

**Table 1.** Distribution of women surveyed by age and reason for consultation (n = 690).

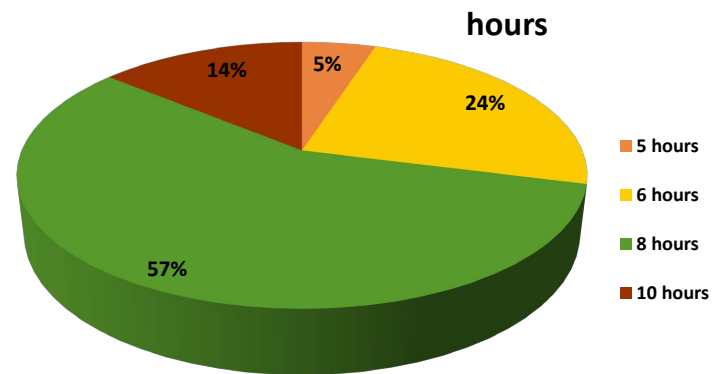
	Number	%
<b>Age group</b>		
15 - 24 years	230	33.33
25 - 34 years	323	46.81
35 - 44 years	137	19.86
<b>Reasons for consultation</b>		
Threatened delivery	352	51.01
Pre-eclampsia	104	15.07
Premature membrane rupture	76	11.01
Pregnant vomiting	62	8.99
Gestational diabetes	28	4.06
Fluid flow	28	4.06
HBP	21	3.04
Other	19	2.75



**Figure 1.** Distribution of pathologic pregnancies per month.



**Figure 2.** Distribution according to the number of working days of qualified staff.



**Figure 3.** Distribution of work hours during COVID-19.

reported being overworked during the coronavirus pandemic. Among health care providers, 43% of cases noticed a decrease in workload during the pandemic. Non-compliance with consultation days was noted in 38% of health providers. The two reasons cited were absence of pregnant women (37%) and confinement (63%). However, the majority of midwives and gynecologists (62%) reported seeing patients regularly. For patients, non-adherence to consultation appointments was noted in 86% of cases depending on the provider. Protective equipment was not provided to 14% of the staff. Difficulties encountered in the management of pathological pregnancies were noted in 81% of cases. Midwives and gynecologists at prenatal consultations noted fear of occupational exposure (12%) and patient reluctance (88%). Hygiene and protection measures were followed by 91% of health providers during the management of pathological pregnancies.

#### 4. Discussion

This study examined the effect of Covid-19 on prenatal consultations (PNCs) visits for pathological pregnancies and showed a significant reduction in attendance at the Maternity Ward for pathological pregnancy during the Covid-19 pandemic from March 2020 to May 2020. This could be explained on the one hand by the number of health workers redeployed for the pandemic response, and on the other hand by the risk of occupational exposure to Covid-19. The incidence among health workers leads to occupational unavailability and also the reluctance of pregnant women to attend health facilities. This finding has been mentioned by several authors, particularly Brazilian [7] [8]. In Niger, Abdoulaye M and Moynihan [9] [10] reported a decline in the use of curative services during the pandemic. For Abdoulaye M the drop in service attendance was noted in some districts by nearly 60% in the second quarter of 2020 compared to the same period in 2019 [9].

From June 2020 to September 2020, the gradual revival of rated NHC activities would be linked to a good communication policy and strategies to combat maternal mortality. This growing trend is followed by a decrease in the frequency of prenatal consultations (PNCs). The pace of the NHC frequency curve ap-

pears to follow the dynamics of the pandemic at the national level. Restriction measures are most observed during periods of epidemic peak. This finding was mentioned by Ndiaye O *et al.* in their pediatric study who noted an average reduction of 19% in visits, meaning a significant decrease in service attendance. And despite all the development strategies, this decline was more marked in March 2020 by 33% [5]. In fact, a World Health Organization study [11] found significant disruptions in health services among low-income countries. In our study, difficulties encountered by midwives and gynecologists during prenatal consultations are of two kinds: fear of occupational exposure to Covid-19 (12%) and reluctance of patients (88%). In Senegal, Sougou *et al.* in a study in the Dakar suburbs, shared the same observation [12]. In Egypt, a study showed that there was a positive correlation between knowledge scores about Covid-19 and the attitudes of claimants [13]. In the same study, 83.1% of health care providers reported a fear of being infected with Covid-19 [13].

Some authors noted psychological disorders during Covid-19 and these were more pronounced among younger women than men, and among nurses than physicians [14] [15]. In our study, claimants mentioned an experience of work overload during the pandemic, which could suggest signs of burn-out.

Non-adherence to prenatal appointments was noted by 86% of caregivers. This can lead to complications of pregnancy and even increase maternal deaths. These deaths can be indirectly related to the pandemic.

As a result, efforts must be made to develop programs and should develop strategies to catch up on missed consultations in order to avoid an increase in morbidity and maternal mortality. For example, Robertson T *et al.* in a recent study on modelling the indirect effects of the COVID-19, predicted an increase in maternal and infant mortality in developing countries that could be partly related to the decline in coverage of service provision [16]. In Nigeria, guidelines for medical consultations and telephone counselling should be established for non-emergencies to avoid unnecessary hospital visits [17]. In China, telemedicine has contributed to the reduction of psychological disorders in pregnant women [18].

In our study, 38% of health care providers reported non-compliance with the consultation days. The two reasons cited were absence of pregnant women (37%) and confinement (63%). This is consistent with the literature that noted a reduction in critical maternal health interventions during the pandemic period in many countries [19] [20].

Protective equipment was not provided to 14% of the staff. Indeed, the WHO noted that the underlying causes of the existing disruptions, with transport malfunctions, insufficient personal protective equipment, insufficient personnel and a lack of inventory, impact low- and middle-income countries to a greater extent [21].

## 5. Conclusion

The frequency of prenatal consultations (PNCs) of pathological pregnancies

seems to follow the dynamics of the Covid-19 pandemic at Abass NDAO Hospital. This would be due to the higher risk of infection in hospitals but also to certain restrictive measures limiting travel. These results are corroborated by several authors. Effective measures must be taken to avoid the consequences of maternal mortality and the functioning of the structure. The extension of telemedicine can be a way to explore especially in times of crisis. Populations must also be committed to a paradigm shift.

### Limitations of the Study

This is mainly a literature review with a limit on the number of variables filled in, the study focuses exclusively on pathological pregnancies.

### Authors' Contribution

All authors participated in the design of the study and the writing of the paper.

### Conflicts of Interest

No conflict of interest was noted.

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