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# Caring for Pregnant Patients with COVID-19 Pandemic

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**ABSTRACT**

**Introduction**

Pandemics are simultaneous global transmission of emerging and re-emerging infectious disease epidemics affecting large amounts of people, often resulting in substantial deaths and social and economic disruption. The 2019 novel coronavirus disease (COVID-19), which is caused by the novel beta coronavirus, SARS-CoV-2, is currently prevalent all over the world, causing thousands of deaths with relatively high virulence. Like two other notable beta coronaviruses, severe acute respiratory syndrome coronavirus-1 (SARS-CoV-1) and Middle East respiratory syndrome coronavirus (MERS-CoV), SARS-CoV-2 can lead to severe contagious respiratory disease. [Mei et al,2020]. Due to impaired cellular immunity and physiological changes, pregnant women are susceptible to respiratory disease and are more likely to develop severe pneumonia. COVID-19 pneumonia in pregnancy are milder and with good recovery. [ICMR]

**Aim**

To assess knowledge and practice on Caring for Pregnant Patients with COVID-19 Pandemic

**Methods and Materials**

In view of the nature of the problem and to accomplish the objectives of the study survey approach was adopted. One group pretest and posttest design were adopted for this study. The study population comprises nurses working in maternity ward. Purposive sample of 30 nurses were taken as sample for the study. The tool used for gathering relevant data was a structured questionnaire on knowledge and practice regarding Caring for Pregnant Patients with COVID-19 Pandemic and a set of education module was given through video, pamphlets and handout. This study was conducted in selected maternity hospitals, at Coimbatore district.

**Results**

The mean value and standard deviation of pretest was 19.03; 3.593. The mean value and standard deviation of posttest was 27.4; 3.017. The mean difference was 8.37. The calculate 't' value 11.74 is greater than the table value at 0.05 level of significance. This shows that there is a significant difference in the mean level of the knowledge and practice scores. Thus, the education given on Caring for Pregnant Patients with COVID-19 Pandemicwas effective.

**Key words**: COVID-19, Pneumonia in pregnancy, Caring for Pregnant Patients

## Introduction

Pandemics are simultaneous global transmission of emerging and re-emerging infectious disease epidemics affecting large amounts of people, often resulting in substantial deaths and social and economic disruption. The 2019 novel coronavirus disease (COVID-19), which is caused by the novel beta coronavirus, SARS-CoV-2, is currently prevalent all over the world, causing thousands of deaths with

relatively high virulence. Like two other notable beta coronaviruses, severe acute respiratory syndrome coronavirus-1 (SARS-CoV-1) and Middle East respiratory syndrome coronavirus (MERS-CoV), SARS-CoV-2 can lead to severe contagious respiratory disease. [Mei et al,2020]. Due to impaired cellular immunity and physiological changes, pregnant women are susceptible to respiratory disease and are more likely to develop severe pneumonia. COVID-19 pneumonia in pregnancy are milder and with good recovery. [ICMR]

Pregnant women do not appear more likely to contract the infection than the general population. Pregnancy itself alters the body's immune system and response to viral infections in general, which can occasionally cause more severe symptoms. This may be the same for COVID-19 but there is currently no evidence that pregnant women are more likely to be severely unwell, need admission to intensive care, or die from the illness than non-pregnant adults. With regard to vertical transmission (transmission from woman to her baby antenatally or intrapartum), evidence suggests that vertical transmission might be possible. Two reports have published evidence of immunoglobulin M (IgM) for SARS-CoV-2 in neonatal serum at birth. A recent report has demonstrated a high SARS-CoV-2 viral load in the placenta, associated with a maternal viraemia and followed by a neonatal infection, including neurological manifestations with inflammatory changes in the neonatal cerebrospinal fluid. In the report from the UK Obstetric Surveillance System (UKOSS), six babies (2.5%) had a positive nasopharyngeal swab within 12 hours of birth [Royal college of Obstetricians and Gynecologists (RCOG),2020]

**Need for the Study**

Several organizations have recently promulgated standards for the care of COVID-19-infected pregnant women. While these standards are evidence-based and reasonable, executing them can be challenging. This is a strong need for more information and more education among the nurses regarding Caring for Pregnant Patients with COVID-19 Pandemic.

The priorities are:

- The reduction of transmission of COVID-19 to pregnant women.
- The provision of safe, personalized and woman-centered care during pregnancy, birth and the early postnatal period during the COVID-19 pandemic.
- The provision of safe, personalized and woman-centered care to pregnant and postnatal women with suspected/confirmed COVID-19. [RCOG,2020]

**Statement of the Problem**

Assessment of Knowledge and practice on Caring for Pregnant Patients with COVID-19 Pandemic

**Objectives of the Study**

- Assess the Knowledge and practice on Caring for Pregnant Patients with COVID-19 Pandemic
- Structural teaching programme of Knowledge and practice on Caring for Pregnant Patients with COVID-19 Pandemic
- Reassessment of Knowledge and practice on Caring for Pregnant Patients with COVID-19 Pandemic

## Materials and Methods

### Research Approach

Survey approach was adopted.

### Research Design

One group pretest and posttest design were adopted for this study.

Setting

This study was conducted in maternity hospitals, at Coimbatore district.

Population

The study population comprises nurses working in maternity ward

Sampling

Purposive sample of 30 nurses were taken as sample for the study.

Criteria for Selection of Sample

**Inclusion Criteria**

- Nurses who are working in maternity units
- Nurses who are willing to participate in this study

**Exclusion Criteria**

- Nurses who are working in other than maternity units
- Nurses not willing to participate in this study

### Description of the Tool

**Part I**

Demographic variable consists of nurse's age, year of experience, working area

**Part II**

Questionnaire consists of multiple-choice questions to assess the Knowledge and Yes or No type questionnaire to assess the practice on Caring for Pregnant Patients with COVID-19 Pandemic

**Education Module**

A set of education module was prepared on risk factors for hospital admission with COVID-19 infection in pregnancy, effect of COVID-19 on the fetus, antenatal care during the COVID-19 pandemic, venous thromboembolism prevention, labour and birth during the COVID-19 pandemic, managing clinical deterioration during the COVID-19 pandemic and Postnatal care. Education was given through

video, pamphlets and handout.

**Method of Data Collection**

The data was collected for 2 weeks in the maternity hospitals, Coimbatore. The samples were selected and administered the questionnaire on knowledge and practice on risk factors for hospital admission with COVID-19 infection in pregnancy, effect of COVID-19 on the fetus, antenatal care during the COVID-19 pandemic, venous thromboembolism prevention, labour and birth during the COVID-19 pandemic, managing clinical deterioration during the COVID-19 pandemic and Postnatal care. Initially an assessment was done to assess the knowledge and practice. An education and practice on Caring for Pregnant Patients with COVID-19 Pandemicwas imparted followed by after the three days of interval post test was conducted to evaluate the effectiveness of the knowledge and practice on Caring for Pregnant Patients with COVID-19 Pandemic

**Techniques for Data Analysis**

The collected data was analyzed categorized and interpreted in master coding sheet and scoring was given to each variable

Formula used

Standard deviation SD = $\sqrt{\frac{\sum\left(d-\bar{d}\right)^2}{n-1}}$

t = $\frac{\bar{d}}{s}\sqrt{n}$

**Results**

**Distribution of Samples based on Demographic Data**

**Table** 1

| **Age (inyears )** | **Number of Respondent** | **Percentage (%)** |
|---|---|---|
| 23-27 | 4 | 13.4 |
| 28-32 | 19 | 63.3 |
| 33-37 | 7 | 23.3 |
| Total | 30 | 100 |
| **Years of experience** | **Number of Respondent** | **Percentage (%)** |
| 1-5 | 9 | 30 |

| | | |
|---|---|---|
| 6-10 | 12 | 40 |
| 11-15 | 9 | 30 |
| Total | 30 | 100 |
| **Working area** | **Number of Respondent** | **Percentage (%)** |
| Antenatal ward | 18 | 60 |
| Postnatal ward | 10 | 33.2 |
| Labour room | 2 | 6.8 |
| Total | 30 | 100 |

**Distribution of Samples based on Demographic Data**

Out of the 30 respondents 13.4% were in the age group between 23-27years and 63.3% were in the age group of 28-32 years and 23.3% were in the age group of 33-37 years.30% had 1-5 years of experience, 40% had 6-10 years of experience and30% had 11-15 years of experience.60% were working in antenatal ward, 33.2 % were working in postnatal ward and 6.8% working in labour room.

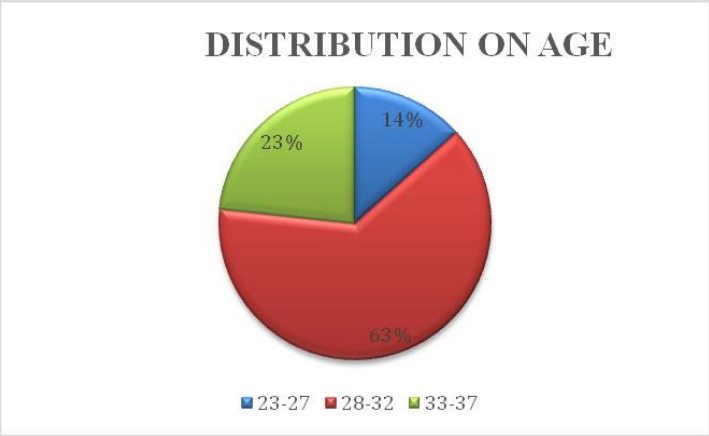


**Figure-1: Distribution on Age**

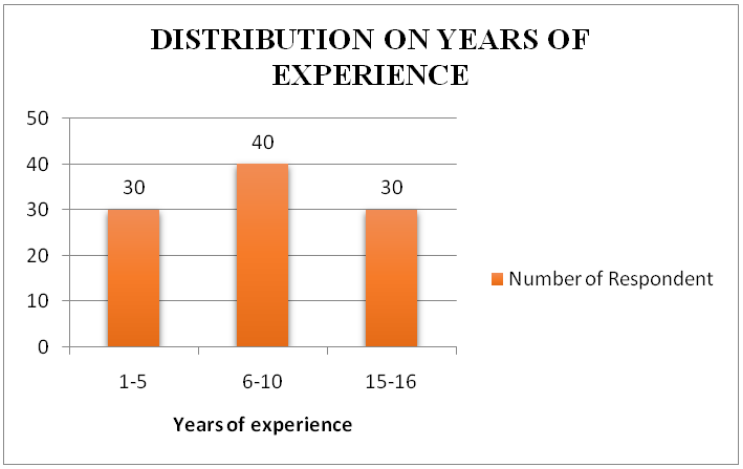


**Figure-2: Distribution on Years of Experience**

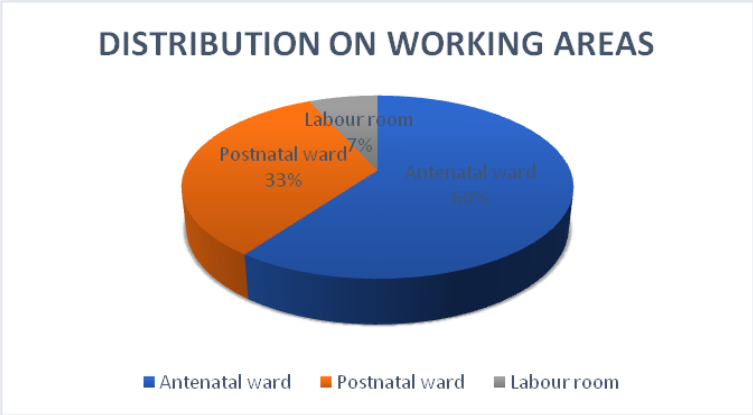


**Figure-3: Distribution on Working Areas**

**Pretest and Post Test Knowledge and Practice onCaring for Pregnant Patients with COVID-19 Pandemic**

3% of nurses had adequate knowledge and practice, 40% of nurses had moderate knowledge and practice, and 57% of nurses had inadequate knowledge and practice in pretest and 83.3% of nurses had adequate knowledge and practice, 10% of nurses had moderate knowledge and practice and 6.7% of nurses had inadequate knowledge and practice in posttest.

**Comparison of Pretest and Post Test Knowledge and Practice on Caring for Pregnant Patients with Covid 19 Pandemic**

**Table 2**

| Level of knowledge and Practice | Frequency | | Percentage (%) | |
|---|---|---|---|---|
| | pretest | Post test | pretest | Post test |
| Adequate | 1 | 25 | 3 | 83.3 |
| Moderate | 12 | 3 | 40 | 10 |
| Inadequate | 17 | 2 | 57 | 6.7 |
| Total | 30 | 30 | 100 | 100 |

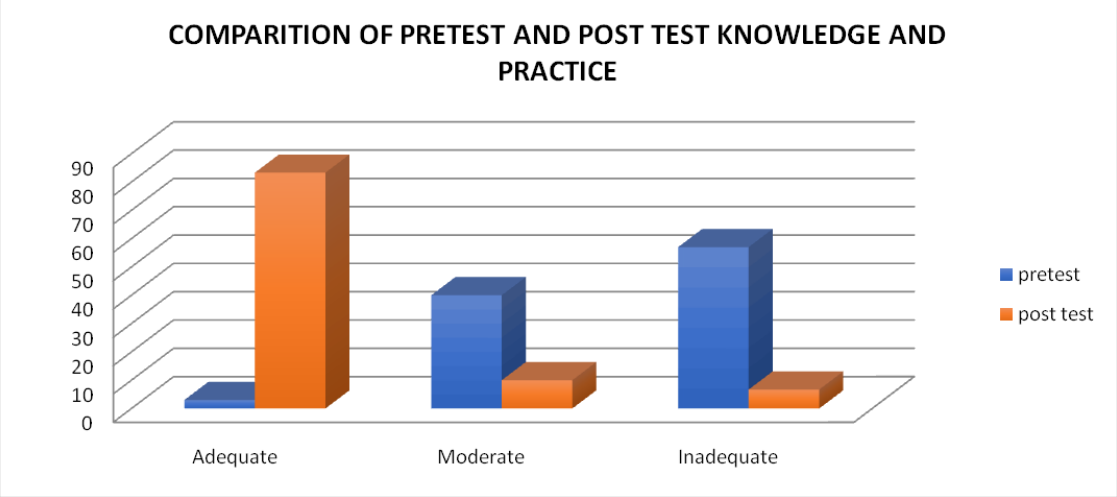


**Figure-4: Comparison of Pretest Knowledge and Practice with post Test Knowledge and Practice**

**Effectiveness of Structured Teaching Programme of Knowledge and Practice on Caring for Pregnant Patients with COVID-19 Pandemic**

The mean value of pretest was 19.03; the value for standard deviation for pretest was 3.593. The mean value for posttest was 27.4 and the value for standard deviation for posttest was 3.017. The mean difference is 8.37.'t' test was used to test the significance of mean difference in knowledge and practice scores of nurses. The calculate ‘t’ value 11.74 is greater than the table value at 0.05 level of significance. Thus, the null hypothesis is rejected. This shows that there is a significant difference in the mean level of the knowledge and practice scores. Thus, the education given on knowledge and practice onCaring for Pregnant Patients with COVID-19 Pandemicwas effective.

**Effectiveness of Structured Teaching Programme of Knowledge and Practice on Caring for Pregnant Patients with Covid 19 Pandemic**

**Table 3**

| | Mean | Standard Deviation | Mean Difference | 't' value |
|---|---|---|---|---|
| Pretest | 19.03 | 3.593 | 8.37 | 11.74 |
| Post test | 27.4 | 3.017 | | |

**Limitations**

- The sample size of the present study was limited.
- The study was conducted in only one specific area.
- Because of the time limit, the study was able to conduct only for 2 weeks

**Recommendations**

- A similar study could be replicated taking a large sample
- A comprehensive study may be conducted in different Areas.

**Summary of Recommended Changes**

General Guidelines in the Management of an Obstetrical Patient on the Labor and Delivery Unit during the COVID-19 Pandemic [Stephens et al,2020]

- Screen and limit all patients and visitors on the labor and delivery unit.
- Health care workers should use appropriate PPE on labor and delivery units.
- PUIs and COVID-19-positive patients should be isolated in compliance with CDC guidelines.
- Scheduled caesarean deliveries and medical inductions should not be delayed.
- Scheduling elective inductions with a poor Bishop's score at 39 weeks should be reconsidered.
- We should limit the frequency and duration of room visits and cervical exams during uncomplicated labor.
- Efforts should be made to shorten the second stage of labor.
- Active pushing during the second stage of labor should not be encouraged.
- Delayed cord clamping should be avoided until additional information is available regarding vertical transmission of COVID-19.
- Avoid aggressive fluid hydration and maternal oxygen therapy during labor.
- Maternal and fetal status should be balanced with clinical circumstances to make an individualized decision for delivery in a severe COVID-19-positive patient during the third trimester.
- Expectant management of PPROM after 32to 34weeks should be avoided, if possible.

- Use of late preterm and rescue antenatal corticosteroids should be limited.
- The respiratory status of patients should be considered prior to administration of magnesium sulphate.
- Suspension of clinical trials pending resolution of the current pandemic should be considered.
- NSAIDS should be used as clinically indicated postpartum.
- 15-Methyl prostaglandin $F_{2\alpha}$ should be avoided in PUIs and COVID-19-positive patients.
- Consider VTE prophylaxis in PUI or COVID-19-Positive Patients.

**Practical Tips for Changes in obstetrical Practice due to COVID 19[London et al,2020]**

**Outpatient Practices**

- Screen patients prior to presentation to outpatient offices
- Revise protocols to decrease frequency of visits (office and perinatal unit)
- Use video conferencing or phone visits
- Combine ultrasound with office visit when possible
- Ask patients to delay visit until symptom free for 8 days
- Designate a high level provider to follow-up on COVID-19 patients

**Inpatient Practices**

- Screen patients prior to presentation for scheduled procedures (inductions and caesarean delivery)
- Centralize visitors screening at hospital entrance
- Screen unscheduled patients at presentation
- Repurpose space: designate rooms for COVID-19-positive or PUI patients in Triage and inpatient ward. Cohort patients when needed
- Use video or phone to connect with patient
- Set up rooms to minimize health worker exposure (long-IV tubing to place IV pumps outside rooms)
- Prioritize testing for pregnant patients
- Early discharge for low-risk mothers and neonate

**Protocols and Dissemination**

- Create clear protocols with use of algorithms and checklists
- Designate one leader in charge of editing and dissemination
- Use multiple media for dissemination: blast emails, online repository, online advisory meetings, videos, simulation

Provide psychosocial support to both patients and staff members

- Work with your institution's human resources and designated institutional officer
- Create back-up schedule to avoid fatigue
- Say thank you often

**Conclusion**

Despite the limited data regarding COVID-19 in pregnancy, it is important to make changes in clinical practice that consider the current health care climate. It is our belief that implementation of the above recommendations will protect patients and health care workers while also conserving health care resources

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