Original Research

Disruption to antenatal and postnatal services during the COVID-19 pandemic: Experience in a selected Medical Officer of Health area in Colombo District

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Key words – antenatal care, post natal care, Covid-19 pandemic

Background

Sri Lankan government imposed nationwide curfew to curtail the spread of COVID-19 in March 2020. Colombo district having the highest caseload was under the curfew over six consecutive weeks.

Objective

To analyze the effect of COVID-19 pandemic on provision and utilization of antenatal, and postnatal services at field level during the curfew in a selected Medical Officer of Health (MOH) area in Colombo district.

Methods

A descriptive cross-sectional study was conducted in Boralesgamuwa MOH area by comparing data for the second quarter for 2019 with 2020 in monthly returns of Public Health Midwife (PHM). Difference between two proportions were compared using Chi-squared test. Significance level was taken as p<0.05.

Results

Pregnant mothers under care for second quarter of 2019 and 2020 were 353 and 345 respectively. Significant reductions were observed in subsequent antenatal clinic (ANC) visits (15.20%, CI 8.00%-22.18%, p<0.0001), attendance to second antenatal session (22.94%, CI 11.88%-33.21%, p<0.0001), number of pregnant mothers who attended more than seven ANC (12.92%, CI 1.67%-23.70%, p=0.024), and number referred for oral health (21.84%, CI 11.55%-31.49%, p<0.0001). Postpartum mothers under care during the study period for the years 2019 and 2020 were 58 and 53 while infants registered were 151 and 133 respectively. Infants registered with a normal birth weight decreased by 14.82% (CI 6.19%-23.27%, p=0.0008). Continuation of home visits by PHM after 42 days of delivery and the number of infants who were brought to the clinic at one month showed a significant decline of 18.25% (CI 15.19%-23.27%, p=0.0008) and 30.93% (CI 20.30%-40.48%, p<0.0001) respectively.

No significant reduction in pregnant mother registration or antenatal and postpartum home visits.

Conclusions

A significant disruption of antenatal and postnatal services occurred during the COVID-19 pandemic at the field level.
Introduction

Coronavirus outbreak reported in Wuhan, China in December 2019 later developed into a pandemic affecting 213 countries and territories all around the world. As of April 13th, 2022, over 500 million had contracted the virus and over 6 million deaths reported globally. Sri Lankan statistics revealed over 600,000 cases with 16,000 deaths during the same period. To curtail the disease spread, various social distancing measures were adopted by the governments. Sri Lanka was under strict social distancing measures including nationwide curfew imposed by the government during 20th of March to 11th of May 2020. Due to high case load curfew was extended in Colombo district which lasted over 52 days. Under such a national and global situation every aspect of living was affected to large scale. Health care system was playing the topmost important role in controlling this pandemic. However, as expected in any disaster situation, routine public health services got disrupted. Reasons may include closure of public health clinics to prevent spread of the disease, and non-participation of service recipients due to fear of being contracted. Despite the fact that pregnant women were placed in the ‘vulnerable group’, women’s rights to have optimum antenatal care were threatened during the pandemic. In UK, pregnant women were asked to not to visit a health centre unless they have an appointment that involve an ultrasound or laboratory test. Case studies from Italy, Germany and Israel reveal swift recalibration of health care during the pandemic was instrumental in maintaining the essential service provision and therefore the well-being of pregnant women and their babies. In Sri Lanka, after initial disruption of service provision over a period of three weeks, pregnant women were given special permission to travel despite the nationwide curfew for their medical needs. Antenatal clinics, postnatal clinics and obstetric wards operated under extreme cautions of hygiene and social-distancing according to the new guidelines issued by the Ministry of Health.

Since this pandemic is a sudden onset novel scenario, global lack of preparedness is foreseeable. Due to the lack of research evidence extreme caution is necessary especially when dealing with vulnerable groups such as pregnant women and infants. Hence, there should be no disruption in the provision of health care for those particular groups. With this in mind, the aim of our research was to get an overview of antenatal and postnatal health care in a selected MOH division in Colombo district during the first wave of the COVID-19 pandemic in order to identify service disruptions and help in future preparations for such pandemics.

Methods

A cross sectional study was conducted using secondary data related to antenatal and postnatal services obtained from the electronic based routine health management information system of the MOH office which included Quarterly MCH Clinic Returns (H527), and the PHM monthly returns (H524). The selected study period was April to June (second quarter) for the year 2020 which was compared with the same period for 2019. This period was purposefully selected since it included the period of lockdown and indefinite curfew in the country during the first wave of the COVID-19 pandemic. Two trained pre-intern medical undergraduates extracted the relevant data from the MOH office database under the supervision of the MOH. Antenatal clinic visits, investigations and other routine care, postpartum maternal morbidity, postnatal care and family planning for the above mentioned periods were entered into in an excel sheet. Data was presented as percentages with 95% CI using tables and graphs and statistical significance of difference between two proportions were
analyzed using the Chi-squared test. Level of significance was taken at p<0.05.

**Results**

**Antenatal care**

Total number of pregnant mothers under care during the study period (second quarter April to June) for the year 2019 and 2020 were 353 and 345 respectively. Registration of new pregnant mothers was similar over the period compared (n=156 for year 2019 and n=156 for 2020). However, there was a statistically significant reduction in the proportion of subsequent clinic attendance percentage difference of 15.20% (CI 8.00-22.2) (p<0.0001). Percentage of antenatal clinic attendance at either government hospitals or field (more than 7 visits) showed a statistical significant reduction percentage difference of 12.92% (CI 1.67-23.7)(p<0.024) (88 visits in 2019 vs 70 visits in 2020). Percentage of attendance to 2nd antenatal sessions conducted at the MOH clinics and percentage of pregnant mothers referred for oral health also showed a significant statistical difference for the study period for year 2019 and 2020. (Table 1). Antenatal home visit at least one done by PHM for new mothers was 141 in 2019 and 122 for the 2020 during the data collection period. There were 508 subsequent visits done in 2019 compared to 2020 which was 337 visits during the same period.

**Table 1: Comparison of field antenatal care services for the second quarter of 2019/2020**

<table>
<thead>
<tr>
<th>Indicator*</th>
<th>2019 N (%)</th>
<th>2020 N (%)</th>
<th>% Difference (95% CI)</th>
<th>Test statistic Chi value*</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subsequent antenatal visits (old)</td>
<td>245 (69.40)</td>
<td>187 (54.20)</td>
<td>15.20 (8.00-22.2)</td>
<td>17.072</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>ANC attendance either govt. hospitals or field (more than 7 visits)</td>
<td>88 (58.66)</td>
<td>70 (45.75)</td>
<td>12.92 (1.67-23.7)</td>
<td>5.046</td>
<td>0.0247</td>
</tr>
<tr>
<td>Couples attending 2nd antenatal sessions conducted by MOH office</td>
<td>105 (70.00)</td>
<td>72 (47.05)</td>
<td>22.94 (11.8-33.21)</td>
<td>16.356</td>
<td>0.0001</td>
</tr>
<tr>
<td>Pregnant mothers referred for oral health</td>
<td>121 (80.66)</td>
<td>90 (58.82)</td>
<td>21.84 (11.5-31.49)</td>
<td>17.035</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Pregnant mothers with oral health problems reported</td>
<td>25 (16.66)</td>
<td>10 (6.53)</td>
<td>10.13 (2.92-17.52)</td>
<td>7.583</td>
<td>0.0059</td>
</tr>
</tbody>
</table>

**denominator taken as pregnant mothers under care in the quarter**
Proportion of mothers investigated for, HIV status and diabetes mellitus was not significant for the 2nd quarters for the two years.

Postpartum care

The number of postpartum delivery reporting (by message or physically) was 172 and 148 for the years 2019 and 2020 during the period from April to June. Postpartum mothers under care during study period for the year 2019 and 2020 were 58 & 53. The postpartum home visits done within the first 10 days was 142 and 119 for 2019 and 2020 respectively. Post partum visits done during 14-21 days and around 42 days was 135 and 134 for 2019 and 109 and 110 for 2020 respectively (denominator is estimated births).

Number of infants under care for the 2nd quarter of 2019 and 2020 were 591 and 552 respectively. Infants registered with a normal birth weight decreased by 14.82% (CI 6.19%-23.27%, p=0.0008) for the two compared years. Continuation of home visits by PHM after 42 days of delivery and the number of infants who were brought to the clinic at one month showed a significant decline of 18.25% (CI 15.61%-20.85%, p<0.0001) and 30.93% (CI 20.30% - 40.48%, p<0.0001) respectively (Table 2). Infant registration for the second quarter for year 2019 was 187 when compared to 145 for the year 2020. Child welfare clinic attendance at one month showed a significant reduction for the same quarter for the year 2019 and 2020 which was 118 and 48 respectively.

Table 2: Comparison of field infant care services for the second quarter of 2019/2020

<table>
<thead>
<tr>
<th>Indicator</th>
<th>2019 N (%)</th>
<th>2020 N (%)</th>
<th>% Difference (95% CI)</th>
<th>Test statistic Chi value*</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>*No. of live births &gt;2.5kg</td>
<td>134 (89.33)</td>
<td>114 (74.50)</td>
<td>14.82 (6.19-23.27)</td>
<td>11.166</td>
<td>0.000</td>
</tr>
<tr>
<td>**No. Registered within one month</td>
<td>187 (31.64)</td>
<td>145 (26.26)</td>
<td>5.37 (0.10-10.2)</td>
<td>3.995</td>
<td>0.0456</td>
</tr>
<tr>
<td>**Infants new home visits</td>
<td>100 (16.92)</td>
<td>58 (10.50)</td>
<td>6.41 (2.42-10.37)</td>
<td>9.846</td>
<td>0.001</td>
</tr>
<tr>
<td>**Infants subsequent (old) home visits</td>
<td>125 (87.81)</td>
<td>187 (33.87)</td>
<td>53.94 (48.9-58.45)</td>
<td>351.35</td>
<td>0.0001</td>
</tr>
<tr>
<td>**CWC attendance within one month</td>
<td>112 (59.89)</td>
<td>42 (28.96)</td>
<td>30.93 (20.3-40.48)</td>
<td>31.318</td>
<td>0.001</td>
</tr>
</tbody>
</table>

* denominator taken as total number of deliveries reported during the quarter  
** denominator taken as number of infants under care during the quarter
Discussion

The selected study period was April- June 2020 (second quarter) which was compared with the services provided and utilized during the same period in 2019. This period was selected since this was the period during which continuous curfew was imposed that could have adversely affected the MCH service provision at field level.

The Family Health Bureau released several guidelines during the COVID-19 pandemic period regarding the method of conducting field clinics and home visits. The midwives were expected to prepare a list of mothers who were over 32 weeks of gestation and high risk mothers and to visit them at home after prior appointment. The registrations of new antenatal mothers were done via phone calls. The public health midwives were expected to conduct at least one home visit during the postnatal period after prior appointment from the mothers.

Provision of routine health care being limited to high risk antenatal women to prevent overcrowding and reduction in utilization of the limited services provided may have contributed to the observed findings. This reduction in health seeking behaviour could be attributed to the reluctance of public transport utilization for travelling and avoidance of crowded places due to fear of contagion. A study conducted in Nepal reported that lockdown took the form of severe restrictions on transport and closure of outpatient departments of many hospitals, and only intra district travel has been permitted once the lockdown was lifted. They also reported that the capacity to provide routine health services were restricted in hospitals while instituting COVID-19 preparedness. In Nepal, fear of COVID-19 transmission in hospital settings was widespread because of a scarcity of proper protective equipment. Therefore, the authors concluded that all these factors would have affected a woman’s access to safe delivery.

A similar study on utilization of maternal and child health services was conducted in South West Ethiopia where they compared the same time periods for the year 2019 and 2020. Compatible with our findings, the authors reported that there was a statistically significant reduction in mean utilization of all services including antenatal care, institutional delivery, postnatal care, family planning and child immunization by 27.4%, 23.5%, 29.1%, 15.9% and 28.5% respectively.

Another study reported that the COVID-19 pandemic was indirectly threatening breastfeeding practices such as early initiation and exclusive and continued breastfeeding specially in the lower middle income countries. This was due to the limited provision and use of health services and disruptions to the enabling environment and availability of skilled health workers and limited community based lactation support and counselling. However, in our study we were unable to extract this evidence.

In par with our findings, another study on the impact of COVID-19 pandemic on the preventive services in Qatar reported that a marked decline in the utilization of wellness services by 20%, well baby clinic and immunization services by 40% and breast cancer screening services by 100% during the lockdown period.

A similar study was conducted in Bangladesh to assess the potential impacts of COVID-19 on maternal health services by analyzing the routine monthly service statistics from January to July in the year 2019 and 2020. The authors reported the antenatal clinic visits had reduced by 50% during the study period, a clear negative trend in the postnatal visits and reduction in institutional deliveries. Ahmed et al conducted a study in three low- and middle-income countries in 2021 during the period.
from March to May 2020 on the effect of COVID-19 on maternal newborn and child health (MNCH) services and they reported that there was a reduction in utilization of basic essential MNCH services such as antenatal care, immunization of children and family planning services. Although our findings indicate a reduction in antenatal and postnatal care service provision compatible with the findings reported by Ethiopia, Bangladesh and Qatar, the rate of reduction was not more than 25% for the antenatal service provision. Sri Lanka had provided better services when compared to other countries cited in the literature during the same period of study.

Conclusions

This study showed that utilization of maternal, reproductive, and newborn healthcare services was adversely affected by the pandemic. These findings will help the public health policymakers to understand the effects COVID-19 on preventive services. Through monitoring the utilization of the essential preventive health services and having a contingency recovery plans to manage the backlog in provision of quality care is needed to prevent recurrence of similar situation during any future pandemic. Further research is needed to explore the impact of the service disruption due to COVID-19 on maternal and perinatal outcomes.

References

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