

## BRIEF COMMUNICATION

### **Psychological impact of the COVID-19 pandemic among pregnant women in Sri Lanka**

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#### **KEYWORDS**

Anxiety; COVID-19; Depression; Hospital Anxiety and Depression Scale; Pregnancy

#### **SYNOPSIS**

The COVID-19 pandemic has caused increased rates of perinatal anxiety and depression in pregnant women with no known COVID-19 infection in Sri Lanka.

Psychological disturbance among pregnant women is an important health parameter.[1]

There is a dearth of studies assessing the psychological impact of the COVID-19 pandemic on the pregnant population. The present descriptive, cross-sectional study evaluated anxiety, depression, and associated factors in pregnant women attending antenatal clinics in Castle Street Hospital for Women (CSHW), a tertiary care maternity hospital located in Colombo, Sri Lanka. Assessments were conducted between April 27, 2020 and May 20, 2020 during the peak of Sri Lanka's pandemic response and lockdown through use of the Hospital Anxiety and Depression Scale (HADS). Ethical approval was granted by the Ethical Review Committee of CSHW, Colombo, Sri Lanka.

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Sri Lanka had a low rate of infection at the time of the study. Women with non-viable pregnancy, fetal anomaly, suspected or confirmed COVID-19, and known psychiatric illnesses were excluded from this study. The study instrument was a self-administered waiting room questionnaire with two sections. Section 1 assessed demographic and clinical variables. Section 2 consisted of the validated Sinhala translated version of HADS. HADS is a reliable 14-item self-assessment tool used in outpatient hospital clinics to assess the levels of anxiety (seven items) and depression (seven items) experienced by patients, with each item scored from 0–3.[2] A total score of  $\geq 8$  on the depression or anxiety scale was considered a positive result. Anxiety or depression status was regarded as the main outcome variable. The Sinhala translated version of HADS has been validated and used in Sri Lankan practice previously.[3]

Variables measured in Section 1 included demographic and clinical information, time spent watching television to seek COVID-19-related information, the use of social media to obtain COVID-19-related information, and psychological disturbance. Psychological disturbance was defined as being anxious, depressed, or both.

Approximately 1500 pregnant women attended antenatal hospital clinics during the study period. A quota sampling technique was used and approximately 50 women were recruited from each clinic. Women were allocated a number on a first come, first served basis and the first 25 eligible attendees each day were invited to take part in the study. Mean age was 29.2 (SD $\pm$ 5.7) years and median (IQR) parity 2(1–3). Mean gestational age of the study participants was 23.3 (SD $\pm$ 10.2) weeks. Of 257 patients studied, 191 (74.3%) had uncomplicated pregnancies at the time of survey. Overall, the prevalence of anxiety and depression were 17.5% (45/257) and 19.5% (50/257), respectively. Of the patients, 73 (28.4%) were either anxious, depressed, or both. The youngest age group (18–25 years) was found to be at higher risk (45.5%) of being both anxious and depressed.

Logistic regression details for anxiety and depression, along with demographic and other variables, are summarized in Table 1. Monthly family income ( $P=0.01$ ), and watching television to seek COVID-19-related information ( $P=0.02$ ) were found to be significant.

Seeking information from social media (Facebook, WhatsApp, Viber, etc.) was not significant.

A Sri Lankan study by Agampodi et al.[4] revealed a 16.2% prevalence of antenatal depression in 2013. The present study found an increased prevalence of antenatal depression (19.5%) among non-COVID-19-infected pregnant women. A recent study by Liu et al.[5] assessing perinatal anxiety among pregnant women in Wuhan reported that 24.5% of women were suffering from anxiety, while a less affected city, Chongqing, reported an anxiety prevalence of 10.4%. By comparison, Sri Lankan women displayed a higher rate of anxiety than that observed in Chongqing, despite the fact that Sri Lanka had successfully contained the spread of the virus at the time of the study (10.4% vs 17.5%). Other studies have also reported higher prevalence of perinatal and postpartum anxiety and depression during the COVID-19 pandemic.[6, 7]

As of June 22, 2020, Sri Lanka has reported 1951 COVID-19 cases, 11 deaths, and six reported cases of COVID-19-positive pregnant women in the country.[8] This is evidence of effective control of the COVID-19 pandemic within the country. However, strict quarantine measures were in place during this period; airports and ports were closed, and an island-wide curfew was implemented. All non-essential workers were told to stay at home and healthcare access was limited. Pandemic-related news dominated the media output. Increased rates of psychological disturbance may be attributed to media focus on the pandemic, social isolation, economic concerns, quarantine and the resultant change in family interactions.

The COVID-19 pandemic has resulted in an increase in prevalence of perinatal anxiety and depression among Sri Lankan pregnant women with no proven/known COVID-19 infection. Special support is needed for pregnant mothers during infectious epidemics. HADS is a valid and appropriate tool to assess pregnant women at outpatient antenatal clinics during the COVID-19 pandemic, allowing clinics to take necessary actions and provide appropriate support. Limitations of this study are its single center design and possible selection bias.

## **AUTHOR CONTRIBUTIONS**

MP participated in the conception of the study, administering of the questionnaire, analysis of data, and writing of the manuscript. MMG participated in the administering of the questionnaire, analysis of data, and writing of the manuscript. MW participated in the conception of the study and editing of manuscript. AJ participated in conception of the study and writing of the manuscript. All authors critically revised, edited, and approved the final version of the manuscript.

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## **CONFLICTS OF INTEREST**

The authors have no conflicts of interest.

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**TABLE 1** Basic demographic and relevant clinical variables and responses for HADS

| Demographic characteristics | Frequency (%)<br>N=257 | Normal (%)<br>n=184 | Anxious (%)<br>n=45 | Depressed (%)<br>n=50 | Both anxious and depressed together (%)<br>n=22 | p value |
|-----------------------------|------------------------|---------------------|---------------------|-----------------------|-------------------------------------------------|---------|
| <b>Age in years</b>         |                        |                     |                     |                       |                                                 | 0.31    |
| 18-25                       | 66 (25.7)              | 45 (24.5)           | 14 (31.1)           | 17 (34.0)             | 10 (45.5)                                       |         |
| 26-30                       | 91 (35.4)              | 67 (36.4)           | 16 (35.5)           | 14 (28.0)             | 6 (27.3)                                        |         |
| 31-35                       | 57 (22.2)              | 45 (24.5)           | 5 (11.1)            | 9 (18.0)              | 2 (9.1)                                         |         |
| 36-40                       | 33 (12.8)              | 21 (11.4)           | 8 (17.8)            | 6 (12.0)              | 2 (9.1)                                         |         |
| 41-50                       | 5 (1.9)                | 3 (1.6)             | 1 (2.2)             | 2 (4.0)               | 1 (4.5)                                         |         |
| Missing data                | 5 (1.9)                | 3 (1.6)             | 1 (2.2)             | 2 (4.0)               | 1 (4.5)                                         |         |
| <b>Parity</b>               |                        |                     |                     |                       |                                                 | 0.56    |
| Primigravida                | 90 (35)                | 67 (36.4)           | 13(28.9)            | 16 (32.0)             | 6 (27.3)                                        |         |
| Multigravida                | 167 (65.0)             | 117 (63.6)          | 32 (71.1)           | 34 (68.0)             | 16 (72.7)                                       |         |

|                          |            |            |           |           |           |      |
|--------------------------|------------|------------|-----------|-----------|-----------|------|
| Missing data             | 0          | 0          | 0         | 0         | 0         |      |
| <b>Gestational age</b>   |            |            |           |           |           | 0.09 |
| First trimester          | 50 (19.5)  | 33 (17.9)  | 8 (17.8)  | 12 (24.0) | 3 (13.6)  |      |
| Second trimester         | 98 (38.1)  | 68 (37.0)  | 20 (44.4) | 22 (44.0) | 12 (54.5) |      |
| Third trimester          | 98 (38.1)  | 75 (40.8)  | 16 (35.6) | 14 (28.0) | 7 (31.8)  |      |
| Missing data             | 11 (4.3)   | 8 (4.3)    | 1 (2.2)   | 2 (4.0)   | 0         |      |
| <b>Complications</b>     |            |            |           |           |           | 0.12 |
| Uncomplicated            | 191(74.3)  | 142 (77.2) | 29 (64.4) | 33 (66.0) | 13 (59.1) |      |
| Diabetes                 | 25 (9.7)   | 17 (9.2)   | 5 (11.1)  | 6 (12.0)  | 3 (13.6)  |      |
| Hypertension             | 6 (2.3)    | 4 (2.3)    | 0         | 2 (4.0)   | 2 (9.1)   |      |
| SGA                      | 4 (1.6)    | 1 (0.5)    | 2 (4.4)   | 3 (6.0)   | 2 (9.1)   |      |
| Multiple pregnancy       | 2 (0.8)    | 0          | 0         | 0         | 1 (4.5)   |      |
| Heart disease            | 1 (0.4)    | 1 (0.5)    | 0         | 0         | 0         |      |
| Anemia                   | 1 (0.4)    | 1 (0.5)    | 0         | 0         | 0         |      |
| Epilepsy                 | 1 (0.4)    | 1 (0.5)    | 0         | 0         | 0         |      |
| Missing data             | 26 (10.1)  | 17 (9.2)   | 9 (20.0)  | 6 (12.0)  | 1 (4.5)   |      |
| <b>Educational level</b> |            |            |           |           |           | 0.16 |
| No formal education      | 3 (1.2)    | 2 (1.1)    | 1 (2.2)   | 0         | 0         |      |
| Up to G.C.E.             | 126 (49.0) | 83 (45.1)  | 27 (60.0) | 29 (58.0) | 13 (59.1) |      |

|                                                                    |            |            |           |           |           |      |
|--------------------------------------------------------------------|------------|------------|-----------|-----------|-----------|------|
| Ordinary Level                                                     |            |            |           |           |           |      |
| Up to G.C.E.<br>Advanced Level                                     | 87 (33.8)  | 67 (36.4)  | 10 (22.2) | 15 (30.0) | 5 (22.7)  |      |
| University degree or<br>above                                      | 26 (10.1)  | 22 (12.0)  | 3 (6.7)   | 1 (2.0)   | 0         |      |
| Missing data                                                       | 15 (5.8)   | 10 (5.4)   | 4 (8.9)   | 5 (10.0)  | 4 (18.2)  |      |
| <b>Monthly income in<br/>LKR</b>                                   |            |            |           |           |           | 0.01 |
| <20 000                                                            | 59 (23.0)  | 37 (20.1)  | 15 (33.3) | 12 (24.0) | 5 (22.7)  |      |
| 20 000–50 000                                                      | 134 (52.1) | 98 (53.2)  | 21 (46.7) | 25 (50.0) | 10 (45.5) |      |
| >50 000                                                            | 14 (5.4)   | 12 (6.5)   | 1 (2.2)   | 1 (2.0)   | 0         |      |
| Missing data                                                       | 50 (19.5)  | 37 (20.1)  | 8 (17.8)  | 12 (24.0) | 7 (31.8)  |      |
| <b>Employment<br/>Status</b>                                       |            |            |           |           |           | 0.38 |
| Employed                                                           | 55 (21.4)  | 43 (23.4)  | 8 (17.8)  | 7 (14.0)  | 3 (13.6)  |      |
| Self-employed                                                      | 9 (3.5)    | 6 (3.3)    | 1 (2.2)   | 2 (4.0)   | 0         |      |
| Unemployed                                                         | 182 (70.8) | 130 (70.7) | 22 (48.9) | 38 (76.0) | 17 (77.3) |      |
| Missing data                                                       | 11 (4.3)   | 5 (2.7)    | 14 (31.1) | 3 (6.0)   | 2 (9.1)   |      |
| <b>Use of social<br/>media to get<br/>COVID-19<br/>information</b> |            |            |           |           |           | 0.39 |
| Not using social<br>media                                          | 22 (8.6)   | 17 (9.2)   | 3 (6.7)   | 4 (8.0)   | 2 (9.1)   |      |
| Less than 2 hours<br>per day                                       | 125 (48.6) | 90 (48.9)  | 20 (44.4) | 25 (50.0) | 10 (45.5) |      |

|                                                        |            |           |           |           |          |      |
|--------------------------------------------------------|------------|-----------|-----------|-----------|----------|------|
| 2-4 hours per day                                      | 60 (23.3)  | 44 (23.9) | 11 (24.4) | 9 (18.0)  | 4 (18.2) |      |
| Average 6 hours per day                                | 10 (3.9)   | 8 (4.3)   | 2 (4.4)   | 2 (4.0)   | 2 (9.1)  |      |
| More than 6 hours per day                              | 8 (3.1)    | 3 (1.6)   | 3 (6.7)   | 4 (8.0)   | 2 (9.1)  |      |
| Missing data                                           | 32 (12.4)  | 95 (51.6) | 6 (13.3)  | 6 (12.0)  | 2 (9.1)  |      |
| <b>Watching television to get COVID-19 information</b> |            |           |           |           |          | 0.02 |
| Less than 2 hours per day                              | 104 (40.5) | 81 (44.0) | 16 (35.5) | 16 (32.0) | 9 (40.9) |      |
| 2-4 hours per day                                      | 113 (44.0) | 83 (45.1) | 17 (37.8) | 20 (40.0) | 7 (31.8) |      |
| Average 6 hours per day                                | 21 (8.2)   | 15 (8.1)  | 4 (8.9)   | 5 (10.0)  | 3 (13.6) |      |
| More than 6 hours per day                              | 14 (5.4)   | 3 (1.6)   | 5 (11.1)  | 7 (14.0)  | 1 (4.5)  |      |
| Missing data                                           | 5 (1.9)    | 2 (1.1)   | 3 (6.7)   | 2 (4.0)   | 2 (9.1)  |      |

G.C.E., General Certificate of Education; LKR, Sri Lankan Rupees; SGA, Small for gestational age.