# Trends in online misogyny before and during the COVID-19 pandemic: Analysis of Twitter data from five South-Asian countries

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## Background

Violence against women has indisputably increased under the COVID-19 pandemic, largely in the form of intimate partner violence.[1,2] In this brief, we examine online misogyny on Twitter, which is the digital expression of hatred or dislike of women.

Online misogyny—including the use of denigrating and violent language about women and justification or even glorification of the abuse of women—has been documented on social media platforms for almost a decade. Millions of women and girls globally have reported being exposed to this abuse.[3] The primary goal of online misogyny is to maintain the patriarchal order and perpetuate sexist norms, which enforce and normalize male control and push women out of online spaces.[4] Misogynistic language can also be viewed as backlash to shifting social norms related to women's roles.

Recent reports suggest a potential increase in hate speech against women across different social media platforms since the onset of COVID-19.[5-7] It is possible that heightened financial stressors and isolation during the pandemic have created a social environment that encourages the expression of deeply embedded sexist norms. Given the paucity of scientific evidence testing this relationship, we examine, in this brief, whether online misogyny on Twitter has increased since the COVID-19 pandemic. We analyze a large dataset of tweets posted between November 2019 and October 2020 from five South Asian countries: Bangladesh, India, Nepal, Pakistan, and Sri Lanka. Secondarily, we qualitatively examine patterns in the daily volume of misogynistic tweets for each country, in order to identify any potential correlation with real-world events.
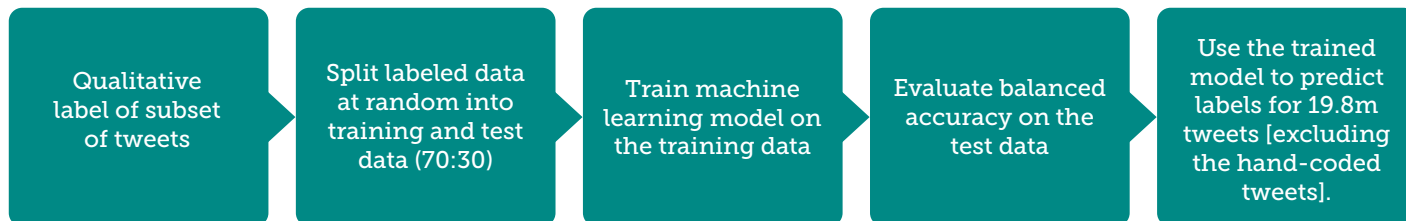
## Key Insights

- The percentage of tweets containing misogynistic content increased significantly in South Asia during the pandemic; a consistent and steady increase was observed particularly since July 2020.

- In addition to gendered slur words and abusive content, many misogynistic tweets focused on discrediting reports of violence against women and criticizing feminist movements.

- Distinct peaks in the volume of misogynistic tweets were observed in response to specific events related to gender rights.

## Our Approach

Our analysis covers 19.8 million tweets posted between November 2019 and October 2020. India has significantly more Twitter users than the other four countries; therefore, it represents the majority of tweets in our dataset (16 million or 80%).

To classify tweets as misogynistic, we used supervised machine learning models — a common methodology for online hate-speech detection research. To this end, a smaller subset of tweets (59,761 unique tweets) was first qualitatively coded as misogynistic or non-misogynistic by an experienced researcher. Consistent with prior empirical work, we defined online misogyny as any digital content that uses abusive language to dominate, silence, and control women, or that focuses on the inferiority of women.[8] Figure 1 outlines the steps taken to label the full dataset of over 19 million tweets.

| Qualitative label of subset of tweets | Split labeled data at random into training and test data (70:30) | Train machine learning model on the training data | Evaluate balanced accuracy on the test data | Use the trained model to predict labels for 19.8m tweets [excluding the hand-coded tweets]. |
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The machine learning model used in our study is a Support Vector Machine (SVM) model, popularly used for text classification. Our trained model had good performance on the test set, with 96% balanced accuracy, which is the average of sensitivity and specificity of a model.[a]

To examine whether the percentage of daily misogynistic content increased over the course of the pandemic, we ran an interrupted time series model, which can assess the effect of a specific event that occurred at one point of time using longitudinal data. In our case, COVID-19 was the event of interest. We considered April 1, 2020 as the first date of the event, given that the five countries included in our study declared COVID-19 lockdowns on different dates around the last week of March 2020.

## Results

Overall, around 0.05% of the tweets in our dataset contained misogynistic content, with prevalence before and during the pandemic hovering at 0.046% and 0.057%, respectively. Results from the interrupted time series model show a significant increase in the daily percentage of misogynistic tweets after the onset of COVID-19, relative to months before the pandemic.
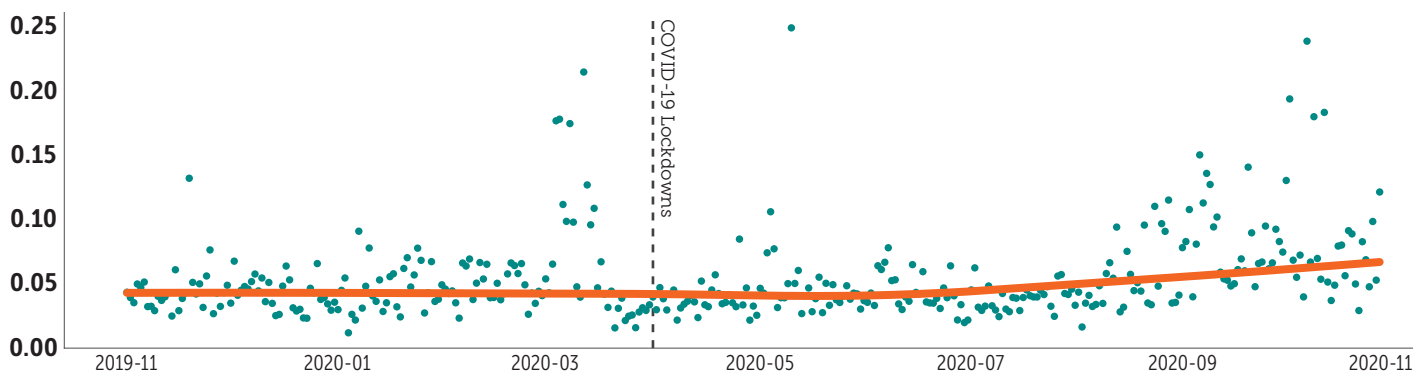
Examination of country-specific trends for the number of misogynistic posts revealed multiple peaks across different time periods (Figure 3). While most of the

posts were from India, we observed a relative increase in misogynistic content from the other four countries as well. We qualitatively assessed the tweets corresponding to respective peaks to understand the context and their relevance to any offline or online event. Many of the peaks were found to be in response to, or as a backlash to, incidents related to feminism and gender rights.

For example, the peak in the number of misogynistic tweets from Pakistan in March covered posts of hatred toward, and rejection of, the annual Women's Day rally, held across the country on International Women's Day (also known as Aurat March). On March 8, 2020, people in Pakistan gathered to call for women's rights, including reproductive rights. In India, a similar increase in the number of misogynistic tweets in March was due to derogatory posts directed at an Indian movie actress who spoke about partner violence in a popular television show.

After the COVID-19 related lockdowns, the highest peak was observed in May for India. The tweets covered an incident where police took a 15-year old boy into custody for taking part in an Instagram chat group where images of underage girls were shared and sexist comments about rape and sexual assault were made.[b] The tweets labeled as misogynistic included hate speech toward women and girls that justified gender-based violence and rejected male responsibility.
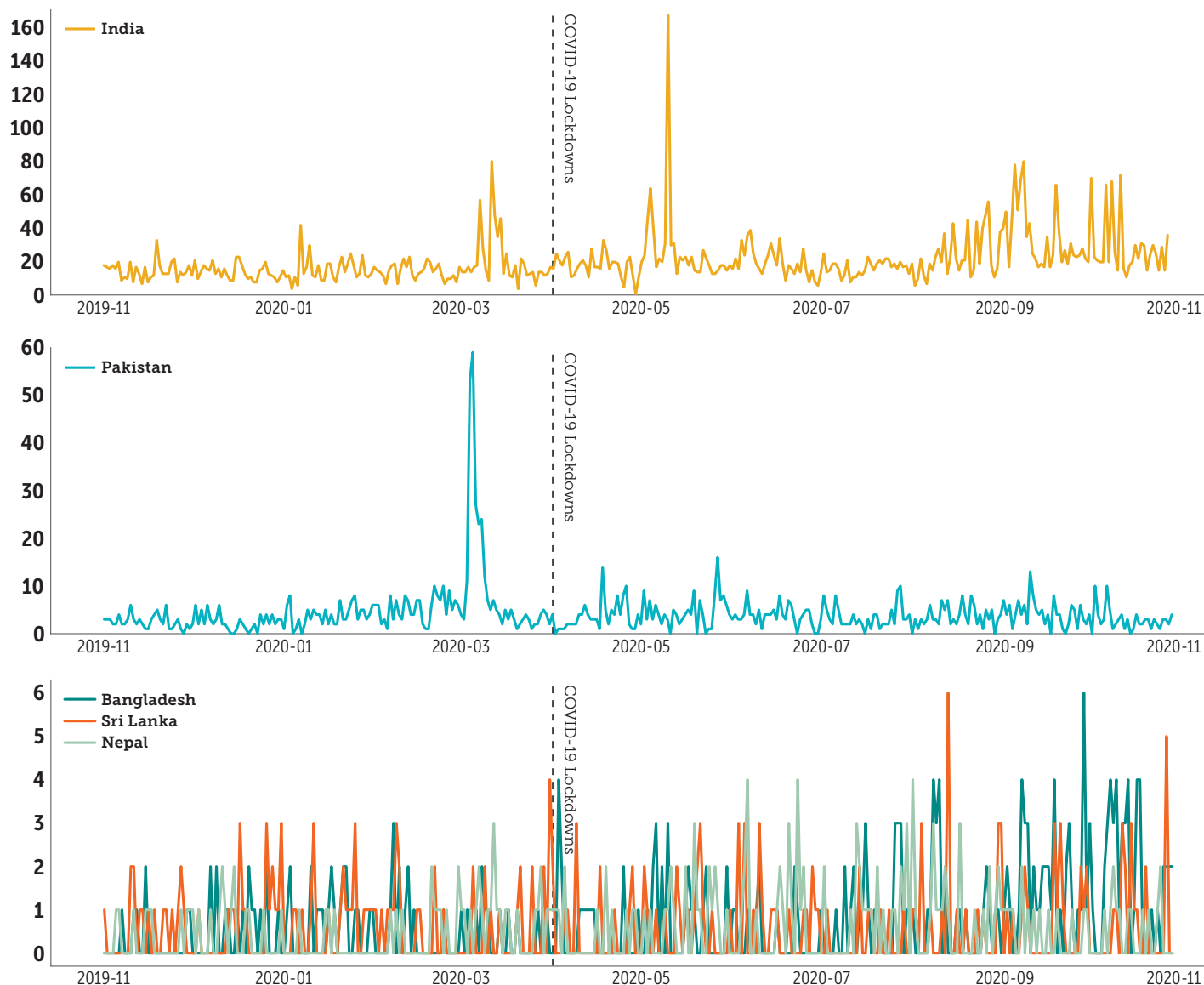
**Figure 2:** Percentage of tweets labeled as misogynistic



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a. Sensitivity of the model was 93% and specificity was 99%.
b. https://www.aljazeera.com/news/2020/5/5/bois-locker-room-indian-teen-probed-over-instagram-rape-chats

**Figure 3:** Daily number of misogynistic tweets, by country



## Implications

While digital spaces have amplified female voices, these platforms are also notoriously and increasingly infiltrated by hate speech, including misogynist comments. Our analysis indicates a significant increase in the prevalence of misogyny on Twitter in South Asia since the COVID-19 related lockdowns began. This is in line with global studies that have found an increase in different forms of hate speech related to race and ethnicity on social media platforms during the pandemic.[9]

Our findings suggest that hate speech in digital spaces proliferates following specific incidents related to conflict or crises. We find that the spikes in online abuse correspond with events related to feminist movements or gender rights across our nations of focus. Although seemingly obvious, this backlash is alarming given that such content discredits reports of violence and everyday discrimination experienced by women. Digital hate speech can be viewed as a sanction, deployed to discourage changes in behavior that are perceived to violate patriarchal norms. This methodology offers an important approach for monitoring shifting norms at national and global levels — an essential boost for assessing social norms change in the short- and long-term.

While social media platforms can provide women with a democratic environment, they can also foster online misogynistic environments that are actively working to overcome feminist activism and justify gender-based violence, as this analysis shows. The danger of this lies not only in the potential to silence voices of change, but also to normalize regressive gender norms, which has already been exacerbated by the pandemic.[1,2]

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*The code is available here:*
*https://github.com/mdehingia/onlinemisogyny*