Caste and COVID-19: Psychosocial disparities amongst rural Indian women during the coronavirus pandemic

Zishan Jiwani1 | Vaishali V. Raval2 | Miriam Steele3 | Simon B. Goldberg1

1University of Wisconsin-Madison, Madison, Wisconsin, USA
2Miami University, Oxford, Ohio, USA
3New School for Social Research, New York, New York, USA

Correspondence
Zishan Jiwani, Department of Counseling Psychology, University of Wisconsin-Madison, Education Building, 1000 Bascom Mall, Rm. 335, Madison, WI 53706, USA.
Email: zjiwani@wisc.edu

Abstract
The COVID-19 pandemic has exacerbated preexisting mental health disparities. In India, marginalization based on caste membership, gender, and rural residence are critical determinants of inequity across the lifespan. Guided by the theoretical frameworks of minority stress and intersectionality, this study examined caste-based disparities in fear of coronavirus (FOC), mental health symptoms, and perceived loneliness amongst rural women in north India during the COVID-19 pandemic. Participants (N = 316) completed self-report measures and were classified into three groups based on their responses: General caste (GC, n = 124), other backward castes (OBC, n = 122), and scheduled caste or tribe (SC/ST, n = 71). Using a three-way ANOVA and Tukey t-tests, women in SC/ST and OBC groups reported greater FOC (OBC d = .37; SC/ST d = .40) and greater mental health symptoms (OBC d = .58; SC/ST d = .43) relative to the GC group. OBC, but not SC/ST, group also reported higher perceived loneliness (d = .32). The results were consistent after adjusting for demographic variables such as wealth and highlight caste as...
an important social determinant for well-being during the COVID-19 pandemic amongst rural Indian women.

INTRODUCTION

The COVID-19 pandemic has amplified preexisting disparities globally, such that historically marginalized communities have experienced worse psychosocial outcomes due to systemic inequities (Fulcher & Dinella, in press). This has been particularly challenging in India, where the devastation from the pandemic has been extensive (Pickard et al., 2020). As of January 2022, more than 35 million people have been infected, and nearly half a million deaths were reported, though experts contend that the actual figure is likely much higher (The New York Times, 2022). The imposition of an initial national lockdown between March and June 2020 created significant economic and mental health burdens across the population (Agoramoorthy & Hsu, 2021) and was followed by a gradual reopening between June and December 2020 when cases were relatively low (The Indian Express, 2021; The New York Times, 2022). However, additional regional lockdowns triggered by subsequent surges in cases created a continuous sense of uncertainty throughout the pandemic (Agoramoorthy & Hsu, 2021). Prospective studies examining mental health in India before and during the pandemic suggest that the onset of D-19 has negatively impacted mental health (Manjareeka & Pathak, 2020; Saraswathi et al., 2020).

However, the health and socioeconomic effects have not been equally distributed between gender groups. While gender inequality existed before the pandemic (Batra & Reio, 2016), it has been suggested that the pandemic has magnified this divide (Agarwal, 2021). Research thus far has demonstrated that during the pandemic, relative to men, women in India have a higher COVID fatality rate (Dehingia & Raj, 2021), are more likely to experience food insecurity (Agarwal, 2021), are less likely to be employed during the pandemic (Deshpande, 2020), are more likely to engage in high-risk (e.g., frontline healthcare worker) or stigmatized (e.g., trash picking) employment without receiving minimum wage (Chakraborty, 2020) and experience worse mental health outcomes (Pinchoff et al., 2020). Evidence from prior epidemics around the world also suggests differential health outcomes across genders. For example, research during the Ebola outbreak in West Africa demonstrated that women were particularly at risk of infection because of their role as primary caretakers in their homes, whereby women are typically responsible for caring for the infirm (Menéndez et al., 2015).

While gender disparities have been examined in India, less attention has been paid in the social science literature on disparities experienced by women living at the intersection of gender and other marginalized socio-cultural identities. Overlapping marginalized identities have the potential to create disparate outcomes that are greater than the sum of those identities (Crenshaw, 1991), and studies in other contexts such as the United States have found that women with multiple minority identities experience worse health (Garland McKinney et al., in press; Le & Nguyen, 2021; Rushovich et al., 2021) and socioeconomic (Ibekwe-Okafor et al., in press; Modarressy-Tehrani, 2020) outcomes. In India, caste membership has been found to be a critical determinant of inequity across the lifespan (Human Rights Watch, 2001). Being a member of a perceived low-caste group is associated with lower life expectancy (Kumari & Mohanty, 2020), lower income (Desai & Dubey, 2012), greater experiences of discrimination (Khubchandan et al., 2018), higher exposure to intimate partner violence (Dalal & Lindqvist, 2012), greater barriers in accessing healthcare (Baru et al., 2010; Shaikh et al., 2018) and worse education outcomes (Desai
& Dubey, 2012). Additionally, living in a rural community in India creates an added burden as compared to urban areas (Antony & Laxmaiah, 2008; Balasubramanian et al., 2021). There is a substantial gap between rural and urban areas in India across economic, educational, and health outcomes (Antony & Laxmaiah, 2008). Recent economic analysis has found that, on average, individuals living in rural India have half the income relative to those residing in urban areas, and the income divide is continuing to widen (Balasubramanian et al., 2021). Drawing on minority stress theory (Carter, 2007; Meyer, 2003) and the theory of intersectionality (Crenshaw, 1991), the present study aims to examine if caste membership might play a role in the psychosocial impact of the COVID-19 pandemic amongst rural women in India.

Marginalization and stress based on multiple intersecting identities: A theoretical framework

Minority stress theory has predominantly been applied to understand the experiences of sexual (Meyer, 2003) and racial (Carter, 2007) minorities in Western countries. This theory proposes that pervasive experiences of discrimination can lead to excessive social stressors, which may explain worse mental health within minority populations. To our knowledge, the theory has not been applied to understand experiences of marginalization rooted in the caste system in India. However, there are several reasons, as outlined below, to suggest that it may be appropriate to consider in the present context.

Caste system in India

Isabel Wilkerson (2020) defines a caste system as:

A fixed and embedded ranking of human value that sets the presumed supremacy of one group against the presumed inferiority of other groups on the basis of ancestry and often immutable traits, traits that would be neutral in the abstract but are ascribed life-and-death meaning in a hierarchy favoring the dominant caste, whose forebears designed it. A caste system uses rigid, often arbitrary boundaries to keep the ranks apart, distinct from one another and in their assigned places. (p. 29)

Wilkerson (2020) goes on to describe that a caste system is often rationalized as part of a divine plan or as the natural order of human life and, once embedded, becomes a deeply held schema influencing an individual’s automatic assessments about the world and their place in it. One of the oldest surviving social hierarchies in the world, the caste system in India is a complex social and class structure where individuals are classified into groups on the basis of family of origin (Desai & Dubey, 2012; Human Rights Watch [HRW], 2001).

The Indian caste system was codified by a series of religious and legal Hindu texts in the early part of the first millennium of the Common Era and consisted of four broad hierarchical divisions in the society: Brahmins (teachers and clerics), Kshatriyas (kings and soldiers), Vaishyas (merchants) and Shudras (artisans and manual workers). Later a fifth division, considered to be outside the caste system, known as untouchables or Dalits, was added (Chakravarti, 2018; Vaid, 2014). A dominant theory in the understanding of the caste system in India suggests that it is grounded on the twin concepts of purity and pollution, whereby in order to protect the purity of the higher castes,
typically considered to be the Brahmans, Kshatriyas, and Vaishyas, elaborate rules were created to limit social interaction between caste groups. These restrictions include restriction of intergroup marriage and socialization and restriction of stigmatized occupations (e.g., manual scavenging) to low-caste groups (Bidner & Eswaran, 2015; Chakravarti, 2018; Vaid, 2014). For example, in one part of India, untouchables were required to maintain social distance from brahmins as even a shadow of an untouchable person casting upon a brahmin could be considered polluting (Chakravarti, 2018). In order to enforce these norms, high-caste communities used a range of punishments for violators, such as violence, ostracization, and ex-communication (Bidner & Eswaran, 2015; Chakravarti, 2018; Pal, 2015).

Upon independence from British Rule in 1947, India legally abolished the caste system and, in order to provide affirmative action to historically marginalized communities, developed a classification system with four groups: scheduled castes (SCs), which refers to Dalits, scheduled tribes (STs), refers to the aboriginal people of India who typically dwell in remote and inaccessible parts of the country, Other Backward Classes (OBCs), refers to a disparate group of communities considered to be historically marginalized consists predominantly of Shudra division, and general caste (GC) refers to all high-caste groups (Vaid, 2014). However, despite the legal prohibition on discrimination based on caste, social norms, particularly in rural regions, often lead to complete segregation and ostracization of low-caste populations (human rights watch, 2001).

The intersection of caste, gender, and rural residence

Current and historical socio-institutional structures continue to reinforce systemic inequities based on caste and other marginalized identities (Chakravarti, 2018; Vaid, 2014). For example, through its gender-based economic and endogamy (marriage only within caste) restrictions, the caste system depends on the subjugation of women and has aggravated the oppression of women relative to what they might have suffered under a more traditional patriarchal system (Bidner & Eswaran, 2015; Chakravarti, 2018). The Code of Manu, considered the most authoritative religious-legal text of ancient India, states that for a woman, “…nothing must be done independently, even in her own house. In childhood, a female must be subject to her father, in youth to her husband, when her [husband] is dead to her sons; a woman must never be independent” (Bühler, 1886, p. 147). The legal and religious proposition that men are inherently superior to women has been suggested to create a social reality whereby women internalize and unwittingly participate in their own oppression and the oppression of those considered to be lower-caste (Bidner & Eswaran, 2015; Chakravarti, 2018). Low-caste women experience the oppression of patriarchy in their homes and caste in their communities, leading to unique lived experiences (Chakravarti, 2018).

Gender and caste-based inequities are particularly amplified in rural India (Chakravarti, 2018; Crenshaw, 1991). A recent study across rural India has found that higher castes do not allow low-caste individuals to enter their homes, and low-caste children regularly sit separately in school from their high-caste peers (Thomas et al., 2013). These acts of segregation also extend to public health workers, who regularly refrain from entering the homes of low-caste community members (Thomas et al., 2013). Khubchandani et al. (2018) found that independent of socioeconomic status, low-caste women in rural areas experience greater levels of discrimination relative to high-caste communities and are also more likely to accept it as a fact of life. That said, some low-caste women have also pushed back against caste-based inequities through media exposure, legal channels as well as organizing efforts coordinated by self-help groups (Chakravarti, 2018). However, the hierarchical caste system is pervasive, and evidence suggests that it has generally
been strongly internalized. For example, in an experimental study, Hoff et al. (2011) found that low-caste individuals were less likely to punish high-caste members who inflict harm on fellow caste members relative to when the situations were reversed, and high-caste members punish low-caste individuals.

Low-caste women are at a particular disadvantage in terms of access to healthcare and education (Haq, 2013) and greater exposure to violence, particularly in rural areas (Krishnan, 2005). Furthermore, low-caste women in rural areas experience greater vulnerability to sexual violence as high-caste men may utilize it as a social instrument to maintain their subjugation over low-caste communities (Bhagavatheeswaran et al., 2016; Pal, 2015, 2018). Given the pervasive and internalized discrimination, which is particularly prominent in rural areas, it is likely that low-caste women experience an adverse social environment that may contribute to worse mental health, especially in the context of a pandemic where preexisting inequalities are magnified (Agoramoorthy & Hsu, 2021).

**Current study**

Drawing on minority stress theory and the theory of intersectionality, the present study aims to examine caste-based disparities in mental health outcomes in India during the COVID-19 pandemic. Specifically, we assess if women in low-caste communities (SC/ST and OBC groups) experience a greater fear of coronavirus (FOC), worse mental health, and higher loneliness relative to women in general-caste communities in a rural district in North India.

**Fear of coronavirus**

During an infectious pandemic, fear can be both beneficial and detrimental (Broche-Pérez et al., 2020). Fear of infection has been used by public health officials as an essential mechanism to drive compliance with pandemic-related restrictions and can be effective in creating greater adherence to precautions (Jiwani et al., 2021). Nonetheless, fear has also been found to be associated with adverse effects. Specifically, FOC has been found to be associated with worse anxiety outcomes in India, though the causality and directionality of the association have not been established (Srivastava et al., 2020). Additionally, research into the Ebola outbreak in West Africa found that fear of infection was associated with behavioral outcomes which can exacerbate the public health risk such as lower utilization of services which can lead to increased risk of distress, faster spread of disease, and a greater likelihood of death from infection (Massaquoi et al., 2021; Shultz et al., 2016). In India, members of low-caste communities are potentially at risk of experiencing greater FOC, in part due to stigma as some government officials, including senior members of the ruling Bharatiya Janata Party, have blamed low-caste groups for spreading COVID-19 (Ganguly, 2020; Islam et al., 2021). Women in India have been found to be at a greater risk of FOC (Doshi et al., 2020), but to our knowledge, caste-based disparities in FOC in rural India remain unexamined.

**Mental health and loneliness**

Research in India has indicated that pandemic-induced lockdowns have been associated with elevated levels of loneliness (Dsouza et al., 2020; Iqbal & Dar, 2020) and worse mental health
(Shukla & Manohar Singh, 2021) across the population. However, women in low-caste women may be at a greater risk for worse mental health outcomes and higher perceived loneliness relative to high-caste women. Prior research has found that low-caste women have been found to experience greater social exclusion (Pal, 2015), greater job loss (Deshpande, 2020), and greater barriers to healthcare (Haq, 2013) and thus may experience both worse mental health and higher loneliness. However, no study to our knowledge has empirically examined the role of caste-based disparities in the mental health outcomes during the pandemic in a sample of rural Indian women.

We hypothesize that women in SC/ST and OBC groups will experience greater FOC, worse mental health, and higher perceived loneliness relative to women in the general caste group. We expect that this difference will be robust even when accounting for sociodemographic factors.

**METHOD**

**Setting and procedure**

Data utilized in this study was part of a larger effort to understand the associations between trauma and self-efficacy amongst women in Bahraich District in the northern Indian state of Uttar Pradesh, with results published elsewhere (Jiwani et al., 2022). Women were recruited in person through community centers and schools as well as over the phone using a snowball sampling method. Due to an error in data collection procedures, women who were approached but did not consent were not tracked. All questionnaires were administered in Hindi. To ensure fidelity of the items, an adaptation protocol was followed whereby items were translated into Hindi and back-translated into English by two separate translators (Cha et al., 2007). Additionally, the questionnaires were reviewed by local members of a partner non-profit organization assisting in data collection to ensure that items were linguistically accurate given the regional dialect and culturally relevant. Data were collected between September and November 2020, and informed consent was collected orally from all participants. All procedures and questionnaires were approved by The New School Institutional Review Board.

**Participants**

Three hundred and sixteen women between the ages of 18 and 40 years ($M = 26.72$, $SD = 4.81$) consented to participate in the survey. Women were interviewed in their homes, and public health protocols (such as wearing masks and maintaining social distancing) were put in place to ensure the safety of the interviewers and participants. In terms of caste affiliation, the largest group of women in the sample belonged to the general caste (GC, 39.1%, $n = 124$), 38.5% identified as other backward castes (OBC, $n = 122$), 19.9% as scheduled caste (SC, $n = 63$) and 2.5% as scheduled tribes (ST, $n = 8$). Nationally, 30.8% of the population belongs to GC, 41.1% is associated with OBC, and 28.2% is described as SC/ST (Directorate of Census Operations, 2014). All women reported being married, and a significant portion of the sample (46.8%, $n = 148$) reported being unable to read or write, which is lower than the district illiteracy rate (60.8%) for all women reported in 2011 (Nazneen & Nakhat, 2014).
Measures

Fear of coronavirus (FOC)

Fear of coronavirus was assessed using an eight-item scale adapted from the Fear of COVID-19 Scale (e.g., “I am afraid of losing my life because of coronavirus”; Ahorsu et al., 2020). Items were rated on a five-point scale (1 “Strongly Disagree” to 5 “Strongly Agree”). Possible scores ranged from 8 to 40 and were tabulated by summing the responses to each item, with higher scores indicating greater FOC. The scale has been used in India previously with good internal consistency (Bharatharaj et al., 2021; Lathabhavan, 2021) and demonstrated high internal consistency in the present study (Cronbach’s alpha $\alpha = .92$).

Depression, anxiety and stress scale (DASS)

General mental health was assessed using the 21-item DASS (Lovibond & Lovibond, 1995). The scale is used to assess depression (e.g., “I felt that I had nothing to look forward to”) anxiety (e.g., “I felt I was close to panic”) and stress (e.g., “I tended to over-react to situations”). Each subscale had seven items and the items were rated on a four-point scale (0 “Did not apply to me at all” to 4 “Applied to me very much or most of the time”). Possible scores ranged from 0 to 21 for each subscale and from 0 to 63 for the entire scale and were tabulated by summing the responses to each item, with higher scores indicating worse mental health. The scale has been used in India previously with good internal consistency (Kumar et al., 2019; Verma & Mishra, 2020). Good internal consistency was demonstrated for the present sample across depression ($\alpha = .84$) anxiety ($\alpha = .81$) and stress ($\alpha = .84$) subscales and the entire scale ($\alpha_1 = .93$).

Perceived loneliness

Loneliness was assessed using the eight-item UCLA Loneliness Scale (UCLA-8, Hays & DiMatteo, 1987) (e.g., “I feel isolation from others”). Items were rated on a four-point scale (1 “Never” to 4 “Often”). Possible scores ranged from 8 to 32 and were tabulated by summing the responses to each item, with higher scores indicating greater loneliness. The scale has been used in a South Asian context previously (Das et al., 2021) and demonstrated acceptable consistency in the present study ($\alpha = .81$).

Demographics

Demographic information collected included age, caste affiliation, literacy, and marital status. Given the difficulty of assessing income in rural India, a wealth index was calculated using the house type and the number of rooms in the home. The physical characteristics of a home have been used as a stand-in for wealth by the Indian government (Census of India, 2011) and researchers (Kattula et al., 2016). In terms of caste, we grouped women into three divisions: GC, OBC, or SC/ST. The latter two were combined due to only eight participants reporting being part of ST, and SC and ST groups have been combined in other studies as well (Khubchandani et al.,
TABLE 1  Means, standard deviations, and frequencies for variables by caste

| Variable     | GC          | OBC         | SC/ST        |
|--------------|-------------|-------------|--------------|
|              | n (%)       | M (SD)      | n (%)        | M (SD)      | n (%)        | M (SD)      |
| n            | 124 (39.1)  | 122 (38.5)  | 71 (19.9)    |              |              |              |
| Literacy     | 60 (48.8)   | 66 (54.1)   | 42 (59.2)    |              |              |              |
| Participant age | 26.88 (5.07) | 26.88 (5.08) | 26.17 (3.77) |              |              |              |
| Wealth index | 9.82 (5.66) | 7.49 (3.63) | 7.18 (4.67)  |              |              |              |
| Mental health | 7.39 (7.82) | 12.92 (10.10) | 11.55 (11.21) |              |              |              |
| Anxiety      | 2.07 (2.20) | 3.72 (3.34) | 3.72 (3.92)  |              |              |              |
| Stress       | 2.95 (3.24) | 5.14 (3.81) | 4.55 (4.49)  |              |              |              |
| Depression   | 2.37 (2.82) | 4.06 (3.70) | 3.28 (3.68)  |              |              |              |
| Loneliness   | 18.38 (4.75) | 19.89 (4.60) | 19.00 (4.67) |              |              |              |
| Fear         | 22.28 (8.05) | 25.09 (7.52) | 25.32 (7.10) |              |              |              |

Note: Mental health is the composite results from the Depression, Anxiety and Stress (DASS) 21 scale. Anxiety, stress, and depression are subscale scores.
Abbreviation: GC, general caste, OBC, other backward caste, SC/ST, scheduled caste or scheduled tribe.

Finally, prior research from India suggests that age (Kazmi et al., 2020; Sanjana & Raghavan, 2020; Venugopal et al., 2020), literacy (Srivastava et al., 2020), and wealth (Sathe et al., 2020) were associated with FOC, mental health or loneliness. Thus, we included these demographic factors as covariates in our main analyses.

Analytic strategy

Analyses were conducted in Jamovi (The Jamovi Project, 2021) and R (R Core Team, 2022). Variable normality and scale reliability were assessed, and Pearson correlations were used to examine associations between covariates and dependent variables. An analysis of variance (ANOVA) approach was used to assess whether significant group differences were present in mental health, FOC, and perceived loneliness. General caste was used as the reference group and OBC and SC/ST groups were assessed as comparison groups. If the F statistic was significant, post hoc Tukey tests were conducted, and estimated marginal means were calculated. Additionally, multiple regression models that included demographic covariates were used for conducting sensitivity analyses to assess the robustness of the findings. Effect sizes for t-tests were assessed using Cohen’s d with emmeans package (Lenth et al., 2022) and standardized betas for multiple regression were calculated using lm.beta package (Behrendt, 2022).

RESULTS

The variables met assumptions of normality based on skewness and kurtosis cutoffs between −2 and +2 with the exception of the wealth index, which had a kurtosis (2.37, SE = .273) which was slightly higher than the cutoff (George & Mallery, 2019). Means, standard deviation, and frequencies of the dependent variables and covariates by caste group are reported in Table 1. Correlations between primary variables and covariates are reported in Table 2. As expected,
| Table 2  | Correlations among covariates and study variables |
|----------|-----------------------------------------------|
|          | Participant age | Wealth index | Literacy | Fear | Mental health | Depression | Anxiety | Stress | Loneliness | General caste | OBC | SC or ST |
| Participant age | — | — | — | — | — | — | — | — | — | — | — | — |
| Wealth index | −.038 | — | — | — | — | — | — | — | — | — | — | — |
| Literacy | −.174** | .024 | — | — | — | — | — | — | — | — | — | — |
| Fear | .004 | .131* | −.052 | — | — | — | — | — | — | — | — | — |
| Mental health | .003 | −.136* | −.043 | — | — | — | — | — | — | — | — | — |
| Depression | .009 | −.136* | −.072 | — | — | — | — | — | — | — | — | — |
| Anxiety | .029 | −.098 | −.029 | — | — | — | — | — | — | — | — | — |
| Stress | −.023 | −.144* | −.021 | — | — | — | — | — | — | — | — | — |
| Loneliness | −.062 | −.022 | −.105 | — | — | — | — | — | — | — | — | — |
| General caste | .034 | .289*** | −.066 | — | — | — | — | — | — | — | — | — |
| OBC | .021 | −.155** | .012 | — | — | — | — | — | — | — | — | — |
| SC or ST | −.064 | −.157** | .063 | — | — | — | — | — | — | — | — | — |

Abbreviations: GC, general caste; OBC, other backward caste; SC/ST, scheduled caste or scheduled tribe. 
*p < .05, **p < .01, and ***p < .001.
the three primary variables – FOC, mental health, and loneliness – were correlated with each other.

**Caste differences in fear of coronavirus**

The first hypothesis was that women in low-caste communities are likely to experience greater FOC than those in the general caste. An ANOVA was conducted to assess the mean difference in FOC across caste groups. There was a significant main effect of caste membership on FOC, $F(2313) = 5.43, p = .005$. Fully supporting the hypothesis, post hoc analysis using Tukey tests suggested FOC was significantly higher in the OBC group versus the GC group ($M_{\text{diff}} = 2.81, SE = .98, p_{\text{tukey}} = .012, \text{Cohen's } d = .37$) and higher in SC/ST group relative to the GC group ($M_{\text{diff}} = 3.05, SE = 1.14, p_{\text{tukey}} = .021, \text{Cohen's } d = .40$). No significant difference was found between SC/ST groups and OBC ($M_{\text{diff}} = .23, SE = 1.14, p_{\text{tukey}} = .977, \text{Cohen's } d = .03$). See Figure 1a for differences in estimated marginal means.

A follow-up multiple regression analysis with FOC as the dependent variable and caste membership and demographic variables (age, literacy, and wealth) as independent variables was conducted to assess the sensitivity of the results. All variables were included simultaneously. The model was found to predict significant variation in FOC, $R^2 = .07, F(5309) = 5.64, p < .001$. Using GC as the reference group, OBC ($\beta = .22, p < .001$) and SC/ST ($\beta = .21, p < .001$) group memberships were significantly associated with greater FOC. Additionally, a significant association was seen between wealth and FOC, such that greater wealth was associated with higher FOC ($\beta = .19, p < .001$). Neither age nor literacy significantly predicted FOC. See Table 3 for the regression results.

**Caste differences in mental health symptoms**

The second hypothesis was that low-caste women were more likely to experience worse mental health relative to high-caste women. Group differences were assessed using an ANOVA and found to be significant, $F(2313) = 10.8, p < .001$. Fully supporting the hypothesis, post hoc Tukey $t$-tests suggested that mental health symptoms as assessed by DASS were significantly higher in the OBC group versus the GC group ($M_{\text{diff}} = 5.53, SE = 1.22, p_{\text{tukey}} < .001, \text{Cohen's } d = .58$) and higher in the SC/ST group relative to the GC group ($M_{\text{diff}} = 4.16, SE = 1.42, p_{\text{tukey}} = .010, \text{Cohen's } d$...
### Table 3: Multiple regression results for fear of coronavirus, mental health, and perceived loneliness

| Predictor                  | $b$   | $b$ 95% CI [LL, UL] | $\beta$ | Fit |
|----------------------------|-------|--------------------|---------|-----|
| Fear of coronavirus        |       |                    |         |     |
| (Intercept)                | $-0.55$ | $[-1.26, .16]$     | $0.22$  |     |
| Caste (OBC)                | $0.46^{***}$ | $[0.21, .71]$     |         |     |
| Caste (SC or ST)           | $0.51^{***}$ | $[0.22, .80]$     |         |     |
| Participant age            | $0.00$  | $[-0.02, .02]$     | $0.00$  |     |
| Literacy (literate)        | $-0.14$ | $[-0.36, .08]$     | $-0.07$ |     |
| Wealth index               | $0.04^{***}$ | $[0.02, .06]$     | $0.19$  |     |
| R²                         | $0.071^{**}$ | $95\% CI [0.02, .12]$ |          |     |

| Mental health              |       |                    |         |     |
| (Intercept)                | $-0.13$ | $[-0.84, .58]$     | $0.27$  |     |
| Caste (OBC)                | $0.55^{***}$ | $[0.29, .80]$     |         |     |
| Caste (SC or ST)           | $0.41^{**}$ | $[0.11, .70]$     | $0.17$  |     |
| Participant age            | $-0.00$ | $[-0.02, .02]$     | $0.00$  |     |
| Literacy (literate)        | $-0.12$ | $[-0.34, .10]$     | $-0.06$ |     |
| Wealth Index               | $-0.01$ | $[-0.03, .01]$     | $-0.05$ |     |
| R²                         | $0.071^{***}$ | $95\% CI [0.02, .12]$ |          |     |

| Loneliness                 |       |                    |         |     |
| (Intercept)                | $0.38$  | $[-0.34, 1.10]$    | $0.17$  |     |
| Caste (OBC)                | $0.35^{**}$ | $[0.10, .61]$     |         |     |
| Caste (SC or ST)           | $0.15$  | $[-0.14, .45]$     | $0.06$  |     |
| Participant age            | $-0.02$ | $[-0.04, .01]$     | $-0.07$ |     |
| Literacy (literate)        | $-0.26^{*}$ | $[-.49, -.04]$     | $-0.13$ |     |
| Wealth index               | $0.00$  | $[-0.02, .03]$     | $0.01$  |     |
| R²                         | $0.042^{*}$ | $95\% CI [0.00, .08]$ |          |     |

Note. $b$ represents unstandardized regression weights. LL and UL indicate the lower and upper limits of a confidence interval, respectively. $\beta$ indicates standardized regression weights.

$^*p < .05. **p < .01, and ***p < .001.

No significant difference was found between the SC/ST and OBC groups ($M_{diff} = -1.37, SE = 1.43, t_{tukey} = .603$, Cohen’s $d = -.14$). See Figure 1b for differences in estimated marginal means.

Group differences were also analyzed by subscales using ANOVA. Significant differences were found for depression, $F(2, 313) = 7.6, p = .001$, anxiety, $F(2313) = 10.7, p = .001$, and stress, $F(2313) = 10.8, p = .001$. Post hoc tukey $t$-tests found that depression symptoms were greater for OBC women relative to GC ($M_{diff} = 1.68, SE = .43, t_{tukey} < .001$, Cohen’s $d = .50$), but no differences were found between SC/ST and GC ($M_{diff} = .91, SE = .50, t_{tukey} = .170$, Cohen’s $d = .27$) or between OBC and SC/ST ($M_{diff} = -1.78, SE = .50, t_{tukey} = .274$, Cohen’s $d = -2.3$) groups. Anxiety symptoms were higher for both OBC ($M_{diff} = 1.66, SE = .40, t_{tukey} < .001$, Cohen’s $d = .53$) and SC/ST ($M_{diff} = 1.65, SE = .46, t_{tukey} = .001$, Cohen’s $d = .53$) groups relative to GC. No significant differences in anxiety symptoms were found between OBC and SC/ST groups ($M_{diff} = -.00, SE = .46, t_{tukey} = .999$, Cohen’s $d = .00$). Finally, stress symptoms were also greater for OBC ($M_{diff} = 2.19, SE = .48, t_{tukey} < .001$, Cohen’s $d = .58$) and SC/ST ($M_{diff} = 1.60, SE = .56, t_{tukey} = .013$, Cohen’s $d = .42$).
groups relative to GC. No significant differences in stress symptoms were found between OBC and SC/ST groups ($M_{\text{diff}} = -0.59$, $SE = 0.56$, $P_{\text{tukey}} = 0.547$, Cohen’s $d = -0.16$).

A follow-up multiple regression analysis with overall mental health symptoms as the dependent variable and caste membership and demographic variables (age, literacy, and wealth) as independent variables was conducted to assess the sensitivity of the results. The model was found to predict significant variation in mental health symptoms, $R^2 = 0.07$, $F(5309) = 5.37$, $p < .001$. Using GC as the reference group, OBC ($\beta = 0.27$, $p < 0.001$) and SC/ST ($\beta = 0.17$, $p = 0.007$) group memberships were found to be associated with higher mental health symptoms. None of the demographic variables were significantly associated with mental health symptoms. See Table 3 for the regression results.

**Perceived loneliness**

The third hypothesis was that low-caste women were likely to experience greater perceived loneliness relative to women in GC group. Group differences were assessed using an ANOVA and found to be significant, $F(2313) = 3.23$, $p = 0.041$. Partially supporting the hypothesis, post hoc Tukey test indicated that perceived loneliness was significantly higher in the OBC group versus the GC group ($M_{\text{diff}} = 1.15$, $SE = 0.60$, $P_{\text{tukey}} = 0.032$, Cohen’s $d = 0.32$). However, no significant difference was observed between GC and SC/ST groups ($M_{\text{diff}} = 0.62$, $SE = 0.70$, $P_{\text{tukey}} = 0.649$, Cohen’s $d = 0.13$) or between SC/ST and OBC groups ($M_{\text{diff}} = -0.89$, $SE = 0.70$, $P_{\text{tukey}} = 0.41$, Cohen’s $d = -0.19$). See Figure 1c for differences in estimated marginal means.

A follow-up multiple regression analysis with loneliness as the dependent variable and caste membership and demographic variables (age, literacy, and wealth) as independent variables was conducted to assess the sensitivity of the results. The model was predictive of loneliness, $R^2 = 0.04$, $F(5309) = 2.72$, $p = 0.020$. Using GC as the reference group, OBC was associated significantly with greater perceived loneliness ($\beta = 0.16$, $p = 0.007$) but SC/ST was not ($\beta = 0.15$, $p = 0.312$). There was a significant negative association between literacy and perceived loneliness, such that those who were literate experienced less perceived relative to those who reported being illiterate ($\beta = -0.13$, $p = 0.021$). Age and wealth were not significantly associated with perceived loneliness. See Table 3 for the regression results.

**DISCUSSION**

To our knowledge, this is the first study to empirically examine caste-based disparities in mental health outcomes during the COVID-19 pandemic in a sample of rural Indian women. Prior research has found that the caste system in India is a critical determinant of inequity across the lifespan, such that low-caste communities tend to have worse socioeconomic and health outcomes (Baru et al., 2010; Bhagavatheeswaran et al., 2016; Dalal & Lindqvist, 2012). Furthermore, research examining the intersection of caste and gender in India has found that low-caste women are at a particular disadvantage (Haq, 2013; Krishnan, 2005; Pal, 2018) and evidence suggests that the COVID-19 pandemic has exacerbated the impact on vulnerable groups such as low-caste women in India (Agoramoorthy & Hsu, 2021). Drawing on the theories of minority stress and intersectionality, we hypothesized that caste-based disparities in FOC, mental health, and loneliness would be demonstrated in a sample of women in a rural north Indian district.
Based on the data collected during the early phase of the pandemic (September–November 2020), the first hypothesis that women in SC/ST and OBC communities would experience greater FOC was fully supported. Both SC/ST and OBC groups reported experiencing worse FOC relative to individuals identifying as GC. These findings held when accounting for demographic factors. While fear may be an important tool to drive compliance with COVID-19 regulations, FOC has been associated with worse mental health outcomes (Srivastava et al., 2020) and greater instances of deaths by suicide (Dsouza et al., 2020) in India. Particularly amongst low-caste women who face significant burdens associated with intersectional minority identities, FOC may be an outcome of stigma and the experience of feeling blamed for the spread of the COVID-19 pandemic (Islam et al., 2021). Based on the principles of purity and pollution of the Indian caste system, low-caste communities are considered less hygienic (Doron, 2016), and thus, some high-caste individuals have held them responsible for spreading the virus. Furthermore, caste-based norms and economic disparities may also play a role in creating greater FOC. Low-caste communities may have less access to water due to caste-based segregation or economic disadvantage and may not be able to afford practices such as frequently washing hands with soap. The difficulty in following such public health recommendations may lead to a greater experience of FOC (Mondal & Karmakar, 2021).

Caste-based disparities were also found in psychological distress, even when controlling for demographic factors. This finding builds on a study from Gupta and Coffey (2020) which utilized data collected from the World Health Organization from six states (Assam, Karnataka, Maharashtra, Rajasthan, Uttar Pradesh, and West Bengal) and also found worse mental health for SC communities relative to high-caste individuals prior to the pandemic in a dataset of 10,125 individuals. However, the effect sizes from the Gupta and Coffey (2020) study (Cohen’s $d = .05–.07$) were smaller than the effect size in the present study (Cohen’s $d = .43–.58$). Although this is only one pre-COVID point of comparison, the difference in magnitude supports the possibility the pandemic may have magnified the disparity. This finding also mirrors the broader literature suggesting that marginalized communities have experienced worse health outcomes during the pandemic (Fulcher & Dinella, in press). It should be noted that when examining individual subscales, anxiety and stress were found to be greater in both OBC and SC/ST groups relative to GC but depression was only significantly higher in OBC. This difference may be due to the possibility that the historical marginalization and collective resistance of the SC and ST communities has created stronger social cohesion relative to the OBC group, which are more disparate, thereby keeping depressive symptoms at bay (Chakravarti, 2018; Hoelscher et al., 2012). Poor mental health can have physical health consequences, including lowering life expectancy (Cullen et al., 2020). Given the historic systemic inequity and social exclusion experienced by low-caste communities in India (Bidner & Eswaran, 2015; Chakravarti, 2018), it is possible that a range of factors from the individual to the systemic level might play a role in mental health challenges for OBC and SC/ST women relative to GC women in this sample. Future research might examine systemic level factors associated with worse mental health for members of low-caste communities, such as access to basic services, including healthcare, water, and education.

The third hypothesis was that low-caste communities would experience greater perceived loneliness was partially supported as OBC group membership was associated with greater loneliness relative to GC, although SC/ST group membership was not. Similar to findings related to the depression subscale, this difference may be due to the collective resistance and social cohesion of the SC and ST communities (Chakravarti, 2018; Hoelscher et al., 2012) or it may be related to other factors such as family structure and religious practices, which have been associated with loneliness in India and unmeasured in this study, might be playing a larger role relative to group
differences (Hossain et al., 2020). That said, greater loneliness for OBC groups is still a cause for concern as loneliness has been associated with suicidality in India (Dsouza et al., 2020) as well as worse health outcomes in a number of other contexts (Dahlberg, 2021; Holt-Lunstad et al., 2010; Killgore et al., 2020).

In addition to caste-based disparities, regression analyses indicated that some demographic characteristics aside from caste were associated with the outcomes of interest. Interestingly, wealth was positively associated with FOC (β = .19). One possible reason for this association might be exposure to formal media. Wealthier individuals may have greater access to media sources (Tharoor, 2017), and in India, formal media has been found to provide sensational coverage of pandemics such as COVID-19 and H1N1, which may lead to elevated levels of FOC for wealthier individuals (Mukherjee et al., 2021; Sharma et al., 2020). Additionally, literacy was found to be negatively associated with loneliness (β = -.13). This association confirms prior research in India, which found that women who were illiterate were at a higher risk for loneliness (Anil et al., 2016). It has been suggested that illiteracy might be correlated with other factors such as lower self-esteem, lower self-worth, or a smaller social network, with the association between loneliness and illiteracy potentially explained by the aforementioned factors (Zhong et al., 2018).

Theoretical integration

The findings from the study in conjunction with other studies on caste-based disparities (Bhagavathee, 2016; Gupta & Coffey, 2020; Khubchandani et al., 2018; Pal, 2018) suggest that minority stress and intersectionality theories may be applicable in the context of low-caste women, particularly in rural India. In terms of minority stress theory, one implication might be that caste-based stressors are unique, chronic, and based on existing societal normative structures (Meyer et al., 2008) and extend across the lifespan (Dispenza et al., 2016). From an intersectionality perspective, an important implication might be that for low-caste women, there are multiple layers of marginalization that must be addressed in research and policy (Al-Faham et al., 2019; Chakravarti, 2018). A one-size-fits-all approach (i.e., assuming all women are similar or all low-caste individuals are the same) will not lead to the necessary understanding or subsequent changes needed to create greater health and sociocultural equity (Hankivsky & Cormier, 2011).

Social policy implications and recommendations

The findings have several implications for social policy. In the short-term, given that fear of infection has been found to be associated with lower use of services and faster spread of disease (Massaquoi et al., 2021; Shultz et al., 2016) and low-caste women are found to have greater FOC, public health officials must focus on improving access to information for this group to avoid the proliferation of the virus in low-caste communities and beyond. One potential delivery mechanism might be through engaging networks of women's self-help groups which have been effective in delivering financial services to women in low-caste communities (Deininger & Liu, 2009; Galab & Rao, 2003). More recently, self-help groups have also been found to be effective in delivering public health messages (Mehta et al., 2020) and thus could be used to deliver COVID-19-specific information. Delivering messaging through existing networks would enable low-caste women to take charge and exercise agency rather than a top-down approach where low-caste women are passive recipients.
Additionally, as noted, greater FOC and worse mental health amongst low-caste women may be associated with the stigma of being blamed for spreading the virus (Islam et al., 2021; Pickard et al., 2020). In a field experiment, Islam et al. (2021) found that sharing accurate information about COVID through a brief phone call led to lower levels of stigmatization against low-caste communities. Thus, while it is important to provide information to low-caste communities, it is also important to provide accurate information to rural communities at large and particularly to high-caste groups to eliminate the stigma associated with marginalized groups. Finally, given the mental health challenges in low-caste groups, it may also be effective to utilize the existing infrastructure of community health workers – also known as Accredited Social Health Activists or ASHA workers – who have been utilized in delivering mental health services (Bansal et al., 2021; Rahul et al., 2021). ASHAs may be able to deliver basic mental health first aid to individuals who are experiencing distress and work to reduce stigma in both low and high-caste communities by providing accurate information.

In the long term, a systematic dismantling of existing institutions which support caste-based inequities may be necessary to eliminate the observed disparities. Low-caste communities must be guaranteed basic rights, including equitable access to education (Chauhan, 2008), health services (Baru et al., 2010), employment (Dunn, 1993), the police, and the judicial system (Chakravarti, 2018; Pal, 2018). Furthermore, as policies are developed at governmental, intergovernmental, and non-governmental institutions, the voices of low-caste women must be centered (Govinda, 2009). This is particularly important if the agenda equity is to be advanced in the long term.

Strengths, limitations, and future direction

A strength of the current study is our focus on an understudied and vulnerable population and its identification of caste as an essential social variable for consideration when examining the psychosocial impact of the COVID-19 pandemic in India. Furthermore, by collecting data in person rather than online, this study reduced barriers associated with technology and literacy to ensure that the voices of marginalized communities are represented in research. However, there are limitations that must be acknowledged and considered when interpreting the results. First, the data are cross-sectional, and thus, applying causal inference is not possible. Future studies may consider longitudinal designs assessing the aforementioned factors over time. Importantly, with a lack of pre-COVID data in the same participants as a comparison, it is not possible to definitively conclude that COVID has increased caste-based disparities. Second, it is important to consider the context in interpreting the results. The sample was limited in geography (one district), and age range (18–40), and was collected using a snowball sampling method which did not lead to a representative sample. Additionally, the data were collected between September and November of 2020 when COVID cases in India were relatively low, especially when compared to May 2021, when average daily cases in India were reported to be averaging nearly 400,000 per day (The New York Times, 2022). Future research may assess if these outcomes hold in other regions of India, with a broader age range, and across multiple time points that include both peaks and valleys of the pandemic. Additionally, we did not collect data about beliefs, behaviors, and attitudes about the coronavirus, which may impact FOC. Future research may explore these questions and the impact of other factors such as disease prevalence and experiences of discrimination related to the coronavirus. Finally, future research may also consider exploring a strengths-based perspective to better understand how low-caste communities might be generating solutions to the problems proposed. Collectively, continued empirical research in this area is likely to help scholars, and
policymakers better understand the impact of the caste system during the pandemic and develop effective interventions to counteract this impact.

ACKNOWLEDGMENTS
The authors would like to acknowledge the helpful comments from Marilyn Ahunon on an earlier version of the draft.

CONFLICT OF INTEREST
The authors declare no known conflicts of interest.

STATEMENT
Data available on request due to privacy/ethical restrictions.

ORCID
Zishan Jiwani https://orcid.org/0000-0001-9054-8982

REFERENCES
Agarwal, B. (2021) Livelihoods in COVID times: gendered perils and new pathways in India. World Development, 139, 105312. https://doi.org/10.1016/j.worlddev.2020.105312
Agoramoorthy, G. & Hsu, M.J. (2021) How the coronavirus lockdown impacts the impoverished in India. Journal of Racial and Ethnic Health Disparities, 8(1), 1–6. https://doi.org/10.1007/s40615-020-00905-5
Ahorsu, D.K., Lin, C.-Y., Imani, Y., Saffari, M., Griffiths, M.D. & Pakpour, A.H. (2020) The fear of COVID-19 Scale: development and initial validation. International Journal of Mental Health and Addiction, 20, 1537-1545. https://doi.org/10.1007/s11469-020-00270-8
Al-Faham, H., Davis, A.M. & Ernst, R. (2019) Intersectionality: from theory to practice. Annual Review of Law and Social Science, 15(1), 247–265. https://doi.org/10.1146/annurev-lawsocsci-101518-042942
Anil, R., Prasad, K. & Puttaswamy, M. (2016) The prevalence of loneliness and its determinants among geriatric population in Bengaluru City, Karnataka, India. International Journal of Community Medicine and Public Health, 3(11), 3246–3251. https://doi.org/10.18203/2394-6040.ijcmph20163944
Antony, G.M. & Laxmaiah, A. (2008) Human development, poverty, health & nutrition situation in India. Indian Journal of Medical Research, 128(2), 198–205.
Balasubramanian, S., Kumar, R. & Loungani, P. (2021) Sustaining India’s growth miracle requires increased attention to inequality of opportunity. VoxEU.Org. https://voxeu.org/article/sustaining-india-s-growth-miracle-requires-increased-attention-inequality-opportunity
Bansal, S., Srinivasan, K. & Ekstrand, M. (2021) Perceptions of ASHA workers in the HOPE collaborative care mental health intervention in rural South India: a qualitative analysis. BMJ Open, 11(11), e047365. https://doi.org/10.1136/bmjopen-2020-047365
Baru, R., Acharya, A., Acharya, S., Kumar, A.K.S. & Nagaraj, K. (2010) Inequities in access to health services in India: caste, class and region. Economic and Political Weekly, 45(38), 49–58.
Batra, R. & Reio, T.G. (2016) Gender inequality issues in India. Advances in Developing Human Resources, 18(1), 88–101. https://doi.org/10.1177/1523422316630651
Behrendt, S. (2022) lm.beta: Add Standardized Regression Coefficients to lm-Objects (1.6-2) [Computer software]. https://cran.r-project.org/web/packages/lm.beta/lm.beta.pdf
Bhagavatheeswaran, L., Nair, S., Stone, H., Issac, S., Hiremath, T., T. R., Vadde, K., Doddamane, M., Srikantamurthy, H.S., Heise, L., Watts, C., Schweisfurth, M., Bhattacharjee, P. & Beattie, T.S. (2016) The barriers and enablers to education among scheduled caste and scheduled tribe adolescent girls in northern Karnataka, South India: a qualitative study. International Journal of Educational Development, 49, 262–270. https://doi.org/10.1016/j.ijedudev.2016.04.004
Bharatharaj, J., Alyami, M., Henning, M.A., Alyami, H. & Krägeloh, C.U. (2021) Tamil version of the fear of COVID-19 scale. International Journal of Mental Health and Addiction. https://doi.org/10.1007/s11469-021-00525-y
Bidner, C. & Eswaran, M. (2015) A gender-based theory of the origin of the caste system of India. *Journal of Development Economics*, 114, 142–158. https://doi.org/10.1016/j.jdeveco.2014.12.006

Broche-Pérez, Y., Fernández-Fleites, Z., Jiménez-Puig, E., Fernández-Castillo, E. & Rodríguez-Martin, B.C. (2022) Gender and fear of COVID-19 in a Cuban population sample. *International Journal of Mental Health and Addiction*, 20, 83-91 https://doi.org/10.1007/s11469-020-00343-8

Bühler, G. (1886) *The laws of Manu*. Clarendon Press. https://catalog.hathitrust.org/Record/009777152

Carter, R.T. (2007) Racism and psychological and emotional injury: recognizing and assessing race-based traumatic stress. *The Counseling Psychologist*, 35(1), 13–105. https://doi.org/10.1177/001100006292033

Census of India. (2011) Office of the Registrar General & Census Commissioner, India. https://censusindia.gov.in/2011-Documents/Houselisting%20English.pdf

Cha, E.-S., Kim, K.H. & Erlen, J.A. (2007) Translation of scales in cross-cultural research: issues and techniques. *Journal of Advanced Nursing*, 58(4), 386–395. https://doi.org/10.1111/j.1365-2648.2007.04242.x

Chakraborty, S. (2020) COVID-19 and women informal sector workers in India. *Economic and Political Weekly*, 55(35), 17–21.

Chakravarti, U. (2018) *Gendering caste: through a feminist lens*. SAGE Publications, Inc. https://doi.org/10.4135/9789353287818

Chauhan, C.P.S. (2008) Education and caste in India. *Asia Pacific Journal of Education*, 28(3), 217–234. https://doi.org/10.1080/02188790802267332

Crenshaw, K. (1991) Mapping the margins: intersectionality, identity politics, and violence against women of color. *Stanford Law Review*, 43(6), 1241–1299. https://doi.org/10.2307/1229039

Cullen, W., Gulati, G. & Kelly, B.D. (2020) Mental health in the COVID-19 pandemic. *QJM: An International Journal of Medicine*, 113(5), 311–312. https://doi.org/10.1093/qjmed/hcaa110

Dahlberg, L. (2021) Loneliness during the COVID-19 pandemic. *Aging & Mental Health*, 25(7), 1161–1164. https://doi.org/10.1080/13607863.2021.1875195

Dalal, K. & Lindqvist, K. (2012) A national study of the prevalence and correlates of domestic violence among women in India. *Asia Pacific Journal of Public Health*, 24(2), 265–277. https://doi.org/10.1177/1010539510384499

Das, R., Hasan, M.R., Daria, S. & Islam, M.R. (2021) Impact of COVID-19 pandemic on mental health among general Bangladeshi population: a cross-sectional study. *BMJ Open*, 11(4), e045727. https://doi.org/10.1136/bmjopen-2020-045727

Dehingia, N. & Raj, A. (2021) Sex differences in COVID-19 case fatality: do we know enough? *The Lancet Global Health*, 9(1), e14–e15. https://doi.org/10.1016/S2214-109X(20)30464-2

Deininger, K. & Liu, Y. (2009) Economic and social impacts of self-help groups in India. *World Bank*, https://doi.org/10.1596/1813-9450-4884

Desai, S. & Dubey, A. (2012) Caste in 21st century India: competing narratives. *Economic and Political Weekly*, 46(11), 40–49.

Deshpande, A. (2020) *The Covid-19 pandemic and lockdown: first effects on gender gaps in employment and domestic work in India*. IDEAS. https://ideas.repec.org/p/ash/wpaper/30.html

Directorate of Census Operations. (2014) 2011 Anand District Census Handbook.

Dispensa, F., Brown, C. & Chastain, T.E. (2016) Minority stress across the career-lifespan trajectory. *Journal of Career Development*, 43(2), 103–115. https://doi.org/10.1177/0894845315580643

Doron, A. (2016) Unclean, unseen: social media, civic action and urban hygiene in India. *South Asia: Journal of South Asian Studies*, 39(4), 715–739. https://doi.org/10.1080/00856401.2016.1218096

Doshi, D., Karunakar, P., Sukhabogi, J.R., Prasanna, J.S. & Mahajan, S.V. (2021) Assessing coronavirus fear in Indian population using the fear of COVID-19 scale. *International Journal of Mental Health and Addiction*, 19, 2383–2391. https://doi.org/10.1007/s11469-020-00332-x

Dsouza, D.D., Quadros, S., Hyderabadwala, Z.J. & Mamun, M.A. (2020) Aggregated COVID-19 suicide incidences in India: fear of COVID-19 infection is the prominent causative factor. *Psychiatry Research*, 290, 113145. https://doi.org/10.1016/j.psychres.2020.113145

Dunn, D. (1993) Gender inequality in education and employment in the scheduled castes and tribes of India. *Population Research and Policy Review*, 12(1), 53–70. https://doi.org/10.1007/BF01074509

Fulcher, M. & Dinella, L. (in press) How the COVID-19 global pandemic further jeopardized women’s health, mental well-being, and safety: intersectionality framework and social policy action. *Journal of Social Issues*. 
Galab, S. & Rao, N.C. (2003) Women’s self-help groups. Poverty Alleviation and Empowerment. Economic and Political Weekly, 38(12/13), 1274–1283.

Ganguly, S. (2020) India’s coronavirus pandemic shines a light on the curse of caste. The Conversation. http://theconversation.com/indias-coronavirus-pandemic-shines-a-light-on-the-curse-of-caste-139550

Garland McKinney, J., Meinersmann, L.M. & Borders, L.D. (in press) The cost of intersectionality: motherhood, mental health, and the state of the world. Journal of Social Issues.

George, D. & Mallery, P. (2019) IBM SPSS statistics 26 step by step: a simple guide and reference. Routledge.

Gupta, A. & Coffey, D. (2020) Caste, religion, and mental health in India. Population Research and Policy Review, 39(6), 1119–1214. https://doi.org/10.1007/s11113-020-09585-9

Hankivsky, O. & Cormier, R. (2011) Intersectionality and public policy: some lessons from existing models. Political Research Quarterly, 64(1), 217–229. https://doi.org/10.1177/1065912910376385

Jaqu, R. (2013) Intersectionality of gender and other forms of identity: dilemmas and challenges facing women in India. Gender in Management: An International Journal, 28(3), 171–184. https://doi.org/10.1108/GM-01-2013-0010

Hoelscher, K., Miklian, J. & Vadlamannati, K.C. (2012) Hearts and mines: a district-level analysis of the Maoist conflict in India. International Area Studies Review, 15(2), 141–160. https://doi.org/10.1017/S1088565912447022

Hoff, K., Kshetramade, M. & Fehr, E. (2011) Caste and punishment: the legacy of caste culture in norm enforcement. The Economic Journal, 121(556), F449–F475. https://doi.org/10.1111/j.1468-0297.2011.02476.x

Holt-Lunstad, J., Smith, T.B. & Layton, J.B. (2010) Social relationships and mortality risk: a meta-analytic review. PLOS Medicine, 7(7), e1000316. https://doi.org/10.1371/journal.pmed.1000316

Hossain, M.M., Purohit, N., Khan, N., McKyer, E. L., Ma, P., Bhattacharya, S. & Pawar, P. (2020) Prevalence and correlates of loneliness in India: a systematic review. SocArXiv. https://doi.org/10.31235/osf.io/s4ctz

Human Rights Watch. (2001) CASTE DISCRIMINATION: a global concern. Human Rights Watch, https://www.hrw.org/reports//pdfs/g/general/caste0801.pdf

Ibekwe-Okafor, N., Sims, J. & Curenton-Jolly, S. (in press) The effects of the dual pandemic on black female caregivers of young children. Journal of Social Issues

Iqbal, N. & Dar, K.A. (2020) Coronavirus disease (COVID-19) pandemic: furnishing experiences from India. Psychological Trauma: Theory, Research, Practice, and Policy, 12(S1), S33. https://doi.org/10.1037/trt0000770

Islam, A., Pakrashi, D., Vlassopoulos, M. & Wang, L.C. (2021) Stigma and misconceptions in the time of the COVID-19 pandemic: a field experiment in India. Social Science & Medicine, 278, 113966. https://doi.org/10.1016/j.socscimed.2021.113966

Jiwani, Z., Cadwell, O.G., Parnes, M. & Brown, A.D. (2021) Uncertainty in the time of corona: precautionary adherence, fear, and anxiety in New York City during the COVID-19 pandemic. Journal of Nervous & Mental Disease, 209(4), 251–255. https://doi.org/10.1097/NMD.00000000000001308

Jiwani, Z., Drylewski, G., Sharma, S., Ahun, M., Thapa, S. & Steele, M. (2022) Adverse childhood experiences and maternal self-efficacy: examining the mediating role of intimate partner violence and the moderating role of caste membership in rural India. Infant Mental Health Journal, 43(4), 546-557. https://doi.org/10.1002/imhj.21997

Kattula, D., Venugopal, S., Velusamy, V., Sarkar, R., Jiang, V., S, M.G., Henry, A., Deosaran, J.D., Muliyil, J. & Kang, G. (2016) Measuring poverty in Southern India: a comparison of socio-economic scales evaluated against childhood stunting. PLOS ONE, 11(8), e0160706. https://doi.org/10.1371/journal.pone.0160706

Kazmi, S.S.H., Hasan, D.K., Talib, S. & Saxena, S. (2020) COVID-19 and lockdown: a study on the impact on mental health [SSRN Scholarly Paper]. https://doi.org/10.2139/ssrn.3577515

Khubchandani, J., Soni, A., Fahey, N., Raithatha, N., Prabhakaran, A., Byatt, N., Moore Simas, T. A., Phatak, A., Rosal, M., Nimblekar, S. & Allison, J.J. (2018) Caste matters: perceived discrimination among women in rural India. Archives of Women’s Mental Health, 21(2), 163–170. https://doi.org/10.1007/s00737-017-0790-1

Killigore, W.D.S., Cloonan, S.A., Taylor, E.C. & Dailey, N.S. (2020) Loneliness: a signature mental health concern in the era of COVID-19. Psychiatry Research, 290, 113117. https://doi.org/10.1016/j.psychres.2020.113117

Krishnan, S. (2005) Gender, caste, and economic inequalities and marital violence in rural South India. Health Care for Women International, 26(1), 87–99. https://doi.org/10.1080/07399330490493368
Kumar, K., Kumar, S., Mehrotra, D., Tiwari, S., Kumar, V. & Dwivedi, R. (2019) Reliability and psychometric validity of Hindi version of Depression, Anxiety and Stress Scale-21 (DASS-21) for Hindi speaking head neck cancer and orally potentially malignant disorders patients. *Journal of Cancer Research and Therapeutics*, 15(3), 653. [https://doi.org/10.4103/jcrt.JCRT_281_17](https://doi.org/10.4103/jcrt.JCRT_281_17)

Kumari, M. & Mohanty, S.K. (2020) Caste, religion and regional differentials in life expectancy at birth in India: cross-sectional estimates from recent National Family Health Survey. *BMJ Open*, 10(8), e035392. [https://doi.org/10.1136/bmjopen-2019-035392](https://doi.org/10.1136/bmjopen-2019-035392)

Lathabhavan, R. (2021) A psychometric analysis of fear of COVID-19 scale in India. *International Journal of Mental Health and Addiction*. [https://doi.org/10.1007/s11469-021-00657-1](https://doi.org/10.1007/s11469-021-00657-1)

Le, K. & Nguyen, M. (2021) The psychological consequences of COVID-19 lockdowns. *International Review of Applied Economics*, 35(2), 147–163. [https://doi.org/10.1080/02692171.2020.1853077](https://doi.org/10.1080/02692171.2020.1853077)

Lenth, R.V., Buerkner, P., Herve, M., Love, J., Miguez, F., Riebl, H. & Singmann, H. (2022) emmeans: Estimated Marginal Means, aka Least-Squares Means (1.7.4-1) [Computer software]. [https://CRAN.R-project.org/package=emmeans](https://CRAN.R-project.org/package=emmeans)

Lovibond, S.H. & Lovibond, P.F. (1995) Manual for the depression anxiety stress scales. *Psychology Foundation of Australia*.

Manjareeka, M. & Pathak, M. (2020) COVID -19 lockdown anxieties: is student a vulnerable group? *Journal of Indian Association for Child and Adolescent Mental Health*, 17, 72–80.

Massaquoi, H., Atuhaire, C., Chinkonono, G.S., Christensen, B.N., Bradby, H. & Cumber, S.N. (2021) Exploring health-seeking behavior among adolescent mothers during the Ebola epidemic in Western rural district of Freetown. *Sierra Leone. BMC Pregnancy and Childbirth*, 21(1), 37. [https://doi.org/10.1186/s12884-020-03521-7](https://doi.org/10.1186/s12884-020-03521-7)

Mehta, K. M., Irani, L., Chaudhuri, I., Mahapatra, T., Schooley, J., Srikanthia, S., Abdalla, S., Ward, V.C., Carmichael, S.L., Bentley, J., Creanga, A., Wilhelm, J., Tarigopula, U.K., Bhattacharyya, D., Atmavilas, Y., Nanda, P., Weng, Y., Pepper, K.T. & Darmstadt, G.L. (2020) Health impact of self-help groups scaled-up statewide in Bihar, India. *Journal of Global Health*, 10(2), 021006. [https://doi.org/10.7189/jogh.10.021006](https://doi.org/10.7189/jogh.10.021006)

Menéndez, C., Lucas, A., Munguambe, K. & Langer, A. (2015) Ebola crisis: the unequal impact on women and children's health. *The Lancet Global Health*, 3(3), e130. [https://doi.org/10.1016/S2214-109X(15)70009-4](https://doi.org/10.1016/S2214-109X(15)70009-4)

Meyer, I.H. (2003) Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: conceptual issues and research evidence. *Psychological Bulletin*, 129(5), 674–697. [https://doi.org/10.1037/0033-290X.129.5.674](https://doi.org/10.1037/0033-290X.129.5.674)

Meyer, I.H., Schwartz, S. & Frost, D.M. (2008) Social patterning of stress and coping: does disadvantaged social statuses confer more stress and fewer coping resources? *Social Science & Medicine*, 67(3), 368–379. [https://doi.org/10.1016/j.socscimed.2008.03.012](https://doi.org/10.1016/j.socscimed.2008.03.012)

Modarressy-Tehrani, C. (2020) Financial pain of the pandemic has hit women of color the hardest. *NBC News*, [https://www.nbcnews.com/news/us-news/women-color-hardest-hit-pandemic-joblessness-n1235585](https://www.nbcnews.com/news/us-news/women-color-hardest-hit-pandemic-joblessness-n1235585)

Mondal, S. & Karmakar, R. (2021) Caste in the Time of the COVID-19 Pandemic. *Contemporary Voice of Dalit*. [https://doi.org/10.1177/2455328X211036338](https://doi.org/10.1177/2455328X211036338)

Mukherjee, M., Maity, C. & Chatterjee, S. (2021) Media use pattern as an indicator of mental health in the COVID-19 pandemic: dataset from India. *Data in Brief*, 34, 106722. [https://doi.org/10.1016/j.dib.2021.106722](https://doi.org/10.1016/j.dib.2021.106722)

Nazneen, A.S. & Nakhat, N. (2014) Status of female literacy in various districts of Uttar Pradesh. *International Journal of Education and Literacy Studies*, 2(2), 24–30. [https://doi.org/10.7575/aiac.i-jels.v.2n.2p.24](https://doi.org/10.7575/aiac.i-jels.v.2n.2p.24)

Pal, G.C. (2015) Social exclusion and mental health: the unexplored aftermath of caste-based discrimination and violence. *Psychology and Developing Societies*, 27(2), 189–213. [https://doi.org/10.1017/S0971336615593446](https://doi.org/10.1017/S0971336615593446)

Pal, G.C. (2018) Caste–gender intersectionality and atrocities in Haryana: emerging patterns and state responses. *Journal of Social Inclusion Studies*, 4(1), 30–50. [https://doi.org/10.1177/2394481118774476](https://doi.org/10.1177/2394481118774476)

Pickard, J., Srivastava, S., Bhatt, M.R. & Mehta, L. (2020) SSHAP In-focus: COVID-19, uncertainty, vulnerability and recovery in India. [https://doi.org/10.19088/SSHAP.2021.011](https://doi.org/10.19088/SSHAP.2021.011)

Pinchoff, J., Santhya, K.G., White, C., Rampal, S., Acharya, R. & Ngo, T.D. (2020) Gender specific differences in COVID-19 knowledge, behavior and health effects among adolescents and young adults in Uttar Pradesh and Bihar. India. *PLOS ONE*, 15(12), e0244053. [https://doi.org/10.1371/journal.pone.0244053](https://doi.org/10.1371/journal.pone.0244053)

R Core Team. (2022) R: a language and environment for statistical computing. R Foundation for Statistical Computing. [https://www.R-project.org/](https://www.R-project.org/)

Rahul, P., Chander, K.R., Murugesan, M., Anjappa, A.A., Parthasarathy, R., Manjunatha, N., Kumar, C.N. & Math, S.B. (2021) Accredited Social Health Activist (ASHA) and her role in district mental health program: learn-
The jamoviproject (1.6). (2021). [Computer software]. https://www.jamovi.org

Times T.N.Y. (2022) India coronavirus map and case count. The New York Times. https://www.nytimes.com/interactive/2021/world/india-covid-cases.html

Thomas, J., Rita, S. & Kumar, V. (2013) A note on caste discrimination and human rights violations. Man in India, 93(2–3), 227–237.

Vaid, D. (2014) Caste in contemporary India: flexibility and persistence. Annual Review of Sociology, 40(1), 391–410. https://doi.org/10.1146/annurev-soc-071913-043303

Venugopal, V.C., Mohan, A. & Chennabasappa, L.K. (2020) Status of mental health and its associated factors among the general populace of India during COVID-19 pandemic. Asia-Pacific Psychiatry, 14(2), e12412. https://doi.org/10.1111/appy.12412

Verma, S. & Mishra, A. (2020) Depression, anxiety, and stress and socio-demographic correlates among general Indian public during COVID-19. International Journal of Social Psychiatry, 66(8), 756–762. https://doi.org/10.1177/0020764020934508

Wilkinson, I. (2020) Caste: the origins of our discontents. Random House Publishing Group.

Zhong, B.-L., Liu, X.-J., Chen, W.-C., Chiu, H.F.-K. & Conwell, Y. (2018) Loneliness in Chinese older adults in primary care: prevalence and correlates. Psychogeriatrics, 18(5), 334–342. https://doi.org/10.1111/psyg.12325

ings from the COVID 19 pandemic. Community Mental Health Journal, 57(3), 442–445. https://doi.org/10.1007/s10597-021-00773-1

Rushovich, T., Boulicault, M., Chen, J.T., Danielsen, A.C., Tarrant, A., Richardson, S.S. & Shattuck-Heidorn, H. (2021) Sex disparities in COVID-19 mortality vary across US racial groups. Journal of General Internal Medicine, 36(6), 1696–1701. https://doi.org/10.1007/s11606-021-06699-4

Sanjana, G. & Raghavan, V. (2020) Prevalence and family factors associated with loneliness during COVID-19: a cross-sectional study from South India. Indian Journal of Mental Health and Neurosciences, 3(2), 61–67. https://doi.org/10.32746/ijmhns.2020.v3.i2.52

Shakth, M., Miraldo, M. & Renner, A.-T. (2018) Waiting time at health facilities and social class: evidence from the Indian caste system. Plos One, 13(10), e0205641. https://doi.org/10.1371/journal.pone.0205641

Sharma, D.C., Pathak, A., Chaurasia, R.N., Joshi, D., Singh, R.K. & Mishra, V.N. (2020) Fighting infodemic: need for robust health journalism in India. Diabetes & Metabolic Syndrome: Clinical Research & Reviews, 14(5), 1445–1447. https://doi.org/10.1016/j.dsx.2020.07.039

Shukla, J. & Manohar Singh, R. (2021) Psychological health amidst COVID-19: a review of existing literature in the Indian context. Clinical Epidemiology and Global Health, 11, 100736. https://doi.org/10.1016/j.jcegh.2021.100736

Srivastava, A., Bala, R., Srivastava, A., Mishra, A., Shamim, R. & Sinha, P. (2020) Anxiety, obsession and fear from coronavirus in Indian population: a web-based study using COVID-19 specific scales. International Journal of Community Medicine and Public Health, 7, 4570–4577. https://doi.org/10.18203/2394-6040.ijcmph20204763

Tharoor, S. (2017) There’s one country in the world where the newspaper industry is still thriving. World Economic Forum. https://www.weforum.org/agenda/2017/05/despite-the-decline-of-printed-papers-theres-one-place-that-is-bucking-the-trend/

The Indian Express. (2021) Covid-19 India timeline: looking back at pandemic-induced lockdown and how the country is coping with the crisis. The Indian Express. https://indianexpress.com/article/india/covid-19-india-timeline-looking-back-at-pandemic-induced-lockdown-7241583/

Thejamoviproject (1.6). (2021). [Computer software]. https://www.jamovi.org

Thomas, J. (2013) A note on caste discrimination and human rights violations. Man in India, 93(2–3), 227–237.

Tharoor, S. (2017) There’s one country in the world where the newspaper industry is still thriving. World Economic Forum. https://www.weforum.org/agenda/2017/05/despite-the-decline-of-printed-papers-theres-one-place-that-is-bucking-the-trend/

The Indian Express. (2021) Covid-19 India timeline: looking back at pandemic-induced lockdown and how the country is coping with the crisis. The Indian Express. https://indianexpress.com/article/india/covid-19-india-timeline-looking-back-at-pandemic-induced-lockdown-7241583/

Thejamoviproject (1.6). (2021). [Computer software]. https://www.jamovi.org

Times T.N.Y. (2022) India coronavirus map and case count. The New York Times. https://www.nytimes.com/interactive/2021/world/india-covid-cases.html

Thomas, J., Rita, S. & Kumar, V. (2013) A note on caste discrimination and human rights violations. Man in India, 93(2–3), 227–237.

Vaid, D. (2014) Caste in contemporary India: flexibility and persistence. Annual Review of Sociology, 40(1), 391–410. https://doi.org/10.1146/annurev-soc-071913-043303

Venugopal, V.C., Mohan, A. & Chennabasappa, L.K. (2020) Status of mental health and its associated factors among the general populace of India during COVID-19 pandemic. Asia-Pacific Psychiatry, 14(2), e12412. https://doi.org/10.1111/appy.12412

Verma, S. & Mishra, A. (2020) Depression, anxiety, and stress and socio-demographic correlates among general Indian public during COVID-19. International Journal of Social Psychiatry, 66(8), 756–762. https://doi.org/10.1177/0020764020934508

Wilkinson, I. (2020) Caste: the origins of our discontents. Random House Publishing Group.

Zhong, B.-L., Liu, X.-J., Chen, W.-C., Chiu, H.F.-K. & Conwell, Y. (2018) Loneliness in Chinese older adults in primary care: prevalence and correlates. Psychogeriatrics, 18(5), 334–342. https://doi.org/10.1111/psyg.12325
CASTE AND COVID-19

AUTHOR BIOGRAPHIES

Zishan Jiwani is a doctoral student in Counseling Psychology at the University of Wisconsin-Madison. His research focuses on mental health disparities in the United States and the Global South and on improving access to mental health interventions for minoritized and marginalized populations. He previously completed his MA in Psychology at The New School for Social Research.

Vaishali V. Raval is professor of psychology and affiliate of global and intercultural studies at Miami University. Her program of research focuses on three interrelated areas: In one line of research, she explores cultural and contextual foundations of parenting, with a focus on emotion processes and how they relate to child and adolescent mental health outcomes among culturally diverse families around the world. In a related research trajectory focusing on global mental health, she explores contextual understanding of psychopathology, and culturally informed mental health training and intervention approaches. A third line of inquiry focuses on experiences of marginalization and their impact on mental health and well-being. Her teaching, mentoring, and service also reflect a deep commitment to global awareness, diversity, and inclusion.

Miriam Steele is a Professor of Psychology and Co-Director of the Center for Attachment Research at The New School for Social Research. Her work aims to bridge the world of psychoanalytic thinking and clinical practice with contemporary research in child development. She initiated the London Parent – Child Project, a major longitudinal study of intergenerational patterns of attachment that gave rise to the concept of "reflective functioning." With Howard Steele and Anne Murphy, Dr. Steele has pioneered the development of Group Attachment-Based Intervention (GABI©), aimed at preventing child maltreatment and promoting attachment security. She is a recipient of the 2017 Bowlby–Ainsworth Award from the Center for Mental Health Promotion, which cited her innovative longitudinal studies and translational research on attachment and mental representation.

Simon B. Goldberg is an assistant professor in the Department of Counseling Psychology and affiliate faculty at the Center for Healthy Minds at the University of Wisconsin – Madison. His research focuses on psychotherapy, the clinical application of mindfulness and meditation, and veteran mental health. He is currently funded on a K award from the National Center for Complementary and Integrative Health focused on the delivery of meditation training through mobile technology.

How to cite this article: Jiwani, Z., Raval, V.V., Steele, M., & Goldberg, S.B. (2022) Caste and COVID-19: Psychosocial disparities amongst rural Indian women during the coronavirus pandemic. Journal of Social Issues, 1–21. https://doi.org/10.1111/josi.12532