Peace of Mind: Examining Election-Induced Sleeplessness among Minorities in India

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Abstract

We examine if the national elections held in India differentially affected minorities after the ruling party's landslide victory in 2019. Using nationally representative survey data, we find a significant increase in sleeplessness among minorities, particularly within the Muslim community. Muslims experience a 125% (2.9 minutes) increase in sleeplessness intensity relative to the pre-election mean, while Christians exhibit an increase of 263% (0.3 minutes). Moreover, our results uncover significant heterogeneity across subpopulations. The effect is concentrated in districts with a historical background of Hindu-Muslim tensions and is more pronounced in districts characterized by high electoral competitiveness. We establish the credibility of our research design through a battery of empirical tests. Back-of-the-envelope calculations suggest sleeplessness-driven daily wage loss of approximately $3 million.

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1 Introduction

There is mounting evidence that societies across the globe are becoming highly polarized.[1] Accentuated polarization may result from politicians' public speeches and announcements pandering to their electorate for electoral gains. When the society is diverse, this polarization often takes the form of appeal to a particular salient aspect like religion. Existing work shows that when these group characteristics are subconsciously appealed to, there might be significant consequences for the choices that individuals make (Ochsner and Roesel, 2024; Mani et al., 2013). Nonetheless, there are gaps in our knowledge of how non-majority residents are affected when their minority status is highlighted. This paper aims to fill this glaring gap.

Our focus is *Lok Sabha* (House of the People, or the Lower House of Parliament of India) Elections, which are held nationally over multiple phases every five years and determine the composition of the national legislature. In the run-up to the 2019 *Lok Sabha* elections, there were visible signs of increasing religious tensions in the Indian society (Vaishnav, 2019). On the campaign trail, candidates from the incumbent *Bharatiya Janata Party* (BJP) resorted to using language with clear religious undertones (Sardesai, 2019). While the victory of BJP may have been a foregone conclusion, the extent of victory was not predictable (Slater, 2019). As the BJP won a massive majority, which gave it almost unchecked power to pass various legislation in the parliament, the perceptions of weakening of rights for minority religious residents may have become more acute.[2] According to the latest available population census estimates, minorities constitute 20.2% of India's overall population, with the remaining share following Hinduism. Hence, with a diverse religious composition, the 2019 elections provide a fertile ground to examine the aforementioned hypotheses.

Existing work documents that violence against religious minorities has increased since the BJP came to power in 2014 (Basu, 2021) and that religious minorities feel increasingly insecure given the current political and social trends (Ramachandran, 2020). These feelings may have been heightened in the backdrop of increased activities by vigilante groups who often target religious minorities, thereby increasing the risks to their physical safety (Jaffrelot, 2017). The literature also shows that political parties influence ethnic violence (Nellis et al., 2016).

Given these incidences, we examine how differently the respondents of various religions respond to the massive BJP victory in the elections. It is plausible that religious minorities, who are potentially the primary target, feel acute insecurity, which might result in the worsening of their mental health.

To address the research question, we combine multiple data sources. Our outcome variable

[1] For a review of the available evidence, see Andreottola and Li (2024), Carothers and O'Donohue (2019), Funke et al. (2023), Iyengar et al. (2019) and Sahoo (2020). Acemoglu et al. (2013) develop a theory of populism highlighting the crucial role of voter and politician characteristics on optimal policies of a politician.

[2] We define a respondent as following a minority religion if they do not report Hinduism as their religion, acknowledging that this definition based on religion is not the only way to categorize an individual as being part of a minority group.

comes from the India Time-Use Survey, which provides detailed information on various activities undertaken by approximately half a million respondents who are six years or older within a 24-hour time window. Information on more than 160 distinct activities for each 30-minute interval is collected via interviews for each respondent.

Using these data, we construct measures of sleeplessness both at the intensive and extensive margin through time spent experiencing sleeplessness and experiencing any sleeplessness episodes, respectively. Sleeplessness, or "the inability to sleep," as such, is a good proxy for the mental health status or anxiety as it is caused mainly by stress (Angelucci and Bennett, 2024; Farbmacher et al., 2022; Biasi et al., 2021; Singhal, 2019; Yaniv, 2004). Though this outcome variable of time spent experiencing sleeplessness does not fully capture clinical measures of mental health, the spells of sleeplessness have been documented to be highly correlated with worse mental health in the psychological literature (for more details, see Section 3). Economists have also investigated how it affects a host of health (Rao et al., 2021; Deschenes et al., 2020; Heyes and Zhu, 2019; Giuntella and Mazzonna, 2019; Mullins and White, 2019; Cappuccio et al., 2010; Hillman et al., 2006)[3] and other outcomes (Gulek, 2024; Smith, 2016).[4] In terms of economic performance, the lack of adequate sleep has been shown to affect workplace productivity, absenteeism, school performance, and earnings (Costa-Font et al., 2024; Jagnani, 2024; Gibson and Shrader, 2018; Sedigh et al., 2017; Asgeirsdottir and Olafsson, 2015; Biddle and Hamermesh, 1990).[5] Therefore, worse sleep quality in and of itself imposes high economic costs on the affected, and we use sleeplessness, anxiety, and mental health worsening interchangeably hereafter.[6]

Our main empirical strategy is based on a regression discontinuity design (RDD) approach. We leverage a sharp discontinuity in the interview date that arises as respondents are interviewed before and after the *Lok Sabha* election results announcement. The examined context meets the

[3]See Heyes and Zhu (2019) and references therein. Rao et al. (2021) discuss the physical and mental consequences of sleeplessness. Mullins and White (2019) and Deschenes et al. (2020) depict that sleep disruption is the mechanism behind the effect of temperature on mental health and the effect of air pollution on body weight, accordingly. Giuntella and Mazzonna (2019) find that social jetlag leads to circadian rhythm disruptions via insufficient sleep. Undertaking a literature review, Cappuccio et al. (2010) suggest that both short- and long duration of sleep are positively correlated with a greater risk of death. Hillman et al. (2006) find that sleep disorders impose a total financial cost of approximately $4524 million in Australia.

[4]Smith (2016) and Gulek (2024) provide evidence for the effect of sleeplessness on road traffic accidents.

[5]Using longitudinal data from Germany, Costa-Font et al. (2024) show that better mental health is a potential mechanism for improved workplace productivity resulting from increased sleep. Employing the Indian Time Use Survey, Jagnani (2024) finds that sleep deprivation leads to a reduction in children's test scores in the short run and lower school completion rates in the long run. Gibson and Shrader (2018) establish a positive causal relationship between sleep and earnings, both in the short- and long-run, using time-use data from the USA. Asgeirsdottir and Olafsson (2015) find that sleep duration and wages have an inverse u-shape relationship using data from the American Time Use Survey. Biddle and Hamermesh (1990) develop a theory of demand for sleep which accounts for labor market productivity effects of sleep. They find that for males, there is a negative relationship between wage and sleep time. Sedigh et al. (2017) confirm the negative relationship between wages and sleep documented by Biddle and Hamermesh (1990) using data from Canada.

[6]In Table C1, we present results from treating sleeping time as the dependent variable. These results suggest that Hindu respondents' sleeping time goes up while it declines considerably for minority respondents immediately following the election results announcement. Unsurprisingly, we do not find any statistically significant effect on an indicator variable for whether any time is spent on sleeping.

requirements for the validity of the RDD research design: at the cutoff, the running variable does not discontinuously change, and the observable characteristics of the respondents are balanced. Furthermore, the RDD design is valid after performing various empirical checks suggested for when the running variable is discrete, as in our case (Cattaneo et al., 2020b).

Results demonstrate that while there is a large increase in sleeplessness for minority religion respondents due to the landslide victory of the incumbent BJP, there is no effect on Hindus' sleeplessness intensity. Point estimates for minorities reflect an increase in sleeplessness intensity of 81% over the pre-election mean (0.9 minutes on average, *ceteris paribus*) on the day of the election results announcement. In particular, this effect for Muslims and Christians is 125% (2.9 minutes) and 263% (0.3 minutes), respectively. This is a sizeable increase,[7] which suggests a severe worsening of mental health for minority residents in the aftermath of victory for a party that used religiously motivated language in its election campaign. The effect for minorities persists for about 40 days, which may signal the development of sleep disorders (Joseph M Dzierzewski and McCrae, 2010).

Increased sleeplessness is estimated to have led to the lost wages of $3 million per working day. This estimate is likely a lower bound as it abstracts from accounting for general equilibrium consequences of lost productivity and due to the strong assumptions (see Appendix B for more details about the quantification of pecuniary costs).

The estimated effect on minorities' sleeplessness after the incumbent BJP's massive electoral win is robust to various empirical tests. Findings are unaltered by changing the estimating sample, aggregating the individual-level microdata, or including various control variables. Sensitivity checks provide evidence that the increased sleeplessness among minorities is not merely due to monitoring electoral outcomes. We find that placebo (state legislative) elections do not affect sleeplessness.

We also illustrate that the effect is potentially driven by heightened insecurities on account of affiliation with a particular religion – Islam, by leveraging another major national event during our sample period – the Ayodhya land dispute verdict by the Indian Supreme Court. Since this major event had a clear Hindu-Muslim connotation, we should expect the heightened sleeplessness to be concentrated on Muslim respondents only (and not among other minorities). This is precisely what we find. In light of this evidence, we emphasize that religious affiliation can significantly

[7]While this effect may appear large, it is similar to the existing studies on mental health effects of large national events. Tsai and Venkataramani (2015) show that in the aftermath of the September 11 attack in 2001, the mental health of the respondents in their data worsened by up to 60%. Using the same terrorist attack as a natural experiment, Metcalfe et al. (2011) show that respondents' subjective well-being in a British household panel survey worsened by approximately 22%. Employing landmine explosions during pregnancy in Colombia, Camacho (2008) find large negative effects on birth outcomes, which are presumably mediated through maternal stress emanating due to landmine exposure. Leveraging the plausibly exogenous variation provided by the Boston Marathon bombing in 2013, Clark et al. (2020) find happiness immediately after the bombing dropped by a third of a standard deviation. Using data from Wisconsin and using the September 11 terrorist attacks as a natural experiment, Krueger (2008) show that in the immediate aftermath of the attacks, the reported sadness increases by more than 100% over the sample mean of the pre-treatment period. Our main point estimate is in the ballpark of these estimates.

affect the mental health of respondents of a particular religion if they happen to be stimulated by some external event with clear religious undertones (Ochsner and Roesel, 2024).

While uncovering heterogeneities in our estimates, we find that the effect is concentrated in districts with a historical background of Hindu-Muslim tensions only and significantly higher in the states where BJP has control of the state legislature and more electorally competitive districts. When examining whether the election results affect time spent on various broad activity categories, we do not find a statistically significant change. Nonetheless, we observe a significant decline in the time spent outdoors, suggestive of fear afflicting the religious minorities in the immediate aftermath of the elections.

With this work, we contribute to multiple strands of literature. First, we contribute to the extensive literature on the economics of religion (Iyer, 2016) by highlighting the role of religious tensions during elections in affecting the sleeplessness intensity of minority religion residents. In contrast to the existing literature that notes positive impacts of religion on mental health outcomes (Fruehwirth et al., 2019; Mellor and Freeborn, 2011), we show that for some minorities, political events may worsen mental health (Iyer and Rosso, 2020).

We also add to an expanding literature on the mental health effects associated with political events (Carod-Artal, 2017). In this literature, we highlight the role of religiously laced political campaigns and the potential heightening of insecurities that might be perpetuated by the large victory of parties indulging in making religious identity salient (Finke, 2013).

Finally, we also contribute to a particular strand of literature that studies myriad effects of religious fractionalizations in India (Blakeslee, 2013; Iyer, 2018; Iyer and Shrivastava, 2018; Jha, 2014; Mitra and Ray, 2014; Wilkinson, 2006). Our finding supplements this strand that only certain religion respondents experience sleeplessness from the victory of a political party pandering to the majority religion (Glaeser, 2005; Posner, 2004). To the best of our knowledge, ours is the first study that examines the potential mental health consequences emanating from the worsening social climate experienced by religious minorities in India.

The rest of the paper is organized as follows. In Section 2, we provide a brief background on the general elections held in India in 2019. We then discuss the data we employ in our study in Section 3. Section 4 presents our empirical framework along with various empirical tests to test the validity of our research design. Results are presented in Section 5. We conclude and discuss our findings in Section 6.

2 Background

General elections (or national elections) in 2019 were conducted in five phases from April to May. These elections are held to elect members for the lower house of the Indian parliament (*Lok Sabha*). Elected members then choose a prime minister who is the head of the central government. Often, the prime minister is a member of the party or coalition of political parties with a majority in

the lower house of the parliament. *Lok Sabha* comprises 543 members called the members of parliament (MPs), each representing a parliamentary constituency (PC). National elections are conducted approximately every five years, with some precedence of earlier elections due to the dissolution of the parliament.

National elections in 2019 were contested amongst a mix of big national and small regional parties. Two main national parties that contested the elections were the incumbent *Bharatiya Janata Party* (BJP) and the *Indian National Congress* (INC). The incumbent BJP held onto the majority with a resounding victory in over 300 PCs. These elections were significant as it was the first time in almost 50 years that the incumbent majority party increased its tally of elected representatives (Varshney, 2019). The elections were held in the backdrop of considerable agrarian and economic distress with historic levels of unemployment.[8] Moreover, political analysts predicted that the incumbent BJP would fare poorly relative to its performance in the previous elections as it had supposedly realized potential gains in its regional strongholds of North and West India (Sridharan, 2014). What is even more striking is that the BJP won more than half the popular vote in thirteen of the 36 states and union territories. The only social group where the BJP lost vote share was Muslims (Kumar and Gupta, 2019). On the other hand, another major national party, INC, gained vote share from non-Hindu minorities, the only social group where it led BJP in vote share (Varshney, 2019).

On the campaign trail, BJP candidates made public comments that can be considered religiously motivated (Deccan Chronicle, 2019; Ghoshal, 2019). While there are legal repercussions to using religiously laced language in political campaigns, deterrence does not have enough teeth as the reprimands are not harsh, and monetary fines are low. Representation of religious minorities is also low in BJP relative to their population share. BJP did field six candidates in constituencies with a sizeable Muslim population, but neither won. Therefore, there is no BJP Muslim legislator in the current *Lok Sabha* even though Muslims constitute more than 14% of the total population, making India the country with the third largest number of Muslims.

3 Data

The ideal data to examine how the election results affected the residents would contain information on their experiences and feelings. In the absence of such data, we use nationally representative data on time-use to examine if various subpopulations were differentially impacted in their experiences following the landslide victory of the incumbent BJP in the *Lok Sabha* elections. We describe all data and their source in detail below.

Indian Time-Use Survey (ITUS) was collected in 2019 via personal interviews by the Indian

[8]See detailed discussion on the agrarian distress in the lead up to the elections in Das (2019). There were major economic headwinds in the years 2014 to 2019, such as demonetization in late 2016, implementation of goods and services tax in 2017, and collapse of non-bank lenders in 2018 (Sender, 2020).

National Sample Survey Organization (NSSO) on approximately 450,000 respondents in more than 138,000 households. The survey encompasses information on all activities performed in each 30-minute interval between 4 A.M. on the day preceding the interview and 4 A.M. on the day of the interview. ITUS provides activity codes using the 2016 International Classification of Activities for Time Use Statistics (ICATUS). The survey also collects information on individual and household demographics, which is used to establish the validity of our empirical framework and examine the heterogeneity across various subpopulations.[9]

We construct our outcome measure as spells of sleeplessness, defined as "the inability to sleep," using the three-digit activity codes in ITUS. Particularly, we examine the extensive margin of experiencing any sleeplessness and the cumulative time spent experiencing sleeplessness. Existing work in psychological literature has demonstrated that sleeplessness might result due to perceived stress (Ellis et al., 2012; Fang et al., 2021; Kim and Dimsdale, 2007; Meaklim et al., 2023; Scott et al., 2021), be a precursor and is often perpetuated by anxiety and depression (Fava, 2004; Narisawa, 2013; Neckelmann et al., 2007; Shanahan et al., 2014; Walsh, 2004). Relying on these studies, we treat spells of sleeplessness as a proximate cause of anxiety surrounding the elections. Fear of exclusion, retribution, and backlash could heighten anxiety for certain groups of people, and we causally establish that this indeed is the case in the backdrop of general election results in India in 2019. Albeit correlational, Appendix A illustrates that sleeplessness is associated with worse mental health outcomes in India.

We also obtained information on the weather conditions on the days when the respondents were surveyed since these conditions may impact time allocation across different activities (Jafarov et al., 2023). These data are derived from satellite reanalysis data ERA5-Land climate (Hersbach et al., 2020). We use information on temperature and precipitation on the day of the survey.

To construct the measure of electoral competition at the district-level, we use data from Bhogale et al. (2019). Based on existing literature, our primary measure of electoral competitiveness is the Effective Number of Parties (ENOP) at the district-level, depicted on a map in Figure C2. To aggregate constituency-level ENOP, we take a simple average for all parliamentary constituencies in a given district.[10]

Descriptive statistics for the entire sample are presented in Table C2. These summary statistics suggest that our sample captures the broader demographics of the population very well and that there is significant variation in the outcome variable of interest. In Figure 2, we see that the

[9]We note that the reported religion in the survey data is at the household-level. Religious identity in India is a way of life and expression; all household members invariably associate themselves with the same religion (Clothey, 2007). Therefore, we assign the household-level religion to all household members. Figure C1 shows spatial variation in the proportion of Muslims (the largest minority religion group in India) in the district populations. For more details about ITUS, see Jafarov et al. (2023).

[10]Consider district d that has n_d number of Parliamentary Constituencies. The district-level ENOP is defined as $\frac{\sum_{i=1}^{n_d} ENOP_i}{n_d}$, where $ENOP_i = \sum_{j=1}^{n_i} \frac{1}{v_j^2}$ is ENOP for PC i, v_j is the vote share of candidate j in this PC amongst a total of n_i candidates in the PC. Figure C3 illustrates the spatial variation in the district-level ENOP below and above the median.

sleeplessness spells are, on average, concentrated during those times when the respondents are trying to sleep during the day – the early afternoon and in the night, i.e., typical times when respondents are most likely to sleep (Bessone et al., 2021).

4 Empirical Strategy

To estimate the causal effect of election results on the outcome variable, we employ a regression discontinuity design (RDD) by estimating the following specification:

$$\begin{aligned} y_i =& \alpha_h + \tau_h \cdot \mathbb{1}\{Date_i > ResultsDate\} + \beta_h^- \cdot (Date_i - ResultsDate) \\ &+ \beta_h^+ \cdot \mathbb{1}\{Date_i > ResultsDate\} \cdot (Date_i - ResultsDate) + \epsilon_i \end{aligned} \tag{1}$$

In Equation 1, y_i is the outcome of interest for respondent i. $Date_i$ refers to the day on which the respondent i is interviewed, while $ResultsDate$ is the day of the *Lok Sabha* election results announcement – May 23, 2019.[11] The estimate of τ_h captures the effect of being interviewed after the general election result announcement on the outcome variable. This parameter estimate depends on the bandwidth h used to determine the estimating sample. In all our specifications, we use optimal bandwidth according to the method of Calonico et al. (2017). We allow the slope of the conditional expectation function to be different on either side of the cutoff (β_h^- and β_h^+ are the slope parameters to the left and right of the cutoff, respectively) and use a triangular kernel, which assigns a higher weight to an observation close to the threshold. Our running variable takes discrete values only but has rich support permitting the use of standard estimation methods for continuous running variable (Cattaneo et al., 2020b; Kolesár and Rothe, 2018).

We establish the robustness of our empirical framework through multiple validity checks according to Cattaneo et al. (2020b). The identifying assumption in our empirical framework is the continuity of potential outcomes of respondents who are surveyed on either side of the day of the election result announcement. One way to assess the validity of this assumption is to establish that observable covariates that are potentially correlated with the outcome of interest do not change discontinuously around the cutoff. In Table C3, we show that none of the observable covariates change discontinuously on the day of the election result announcement.[12] Figure C4 shows that

[11] While there were exit polls at the end of the last phase of voting on May 19, we show later that there is no effect of the exit poll predictions on the incidence of sleeplessness (see Table C5). It is not clear whether exit polls have any effect on the sleeplessness intensity of minorities. The exit polls projected widely different election outcome scenarios, with some polls predicting a hung parliament while others projected a substantial majority for the incumbent BJP. Therefore, the election outcome was apriori uncertain even if some exit polls predicted a majority for the incumbent coalition of parties.

[12] In our main estimation sample of respondents who do not report their religion to be Hinduism, only the indicator variable reporting usual principal activity status as self-employed has a p-value of 0.1. In Table C8, we show that our main conclusions are unaltered when we control for these observable characteristics of the respondents.

the density of responses might have potential discontinuities across the treatment threshold.[13,14] Table C4 establishes that the number of interviews does not change significantly around the cutoff for our main estimating sample.[15]

We also perform a falsification check where artificial cutoffs are chosen before and after the actual cutoff. The results from this exercise in Table C5 show that there is no evidence of discontinuity in the outcome variable away from the cutoff. In Table C6, we establish that our estimates are not sensitive to observations near the cutoff. Table C7 confirms that our estimates are also not sensitive to alternate bandwidth choices. These balance tests and placebo checks suggest that the identification assumptions for our estimates to be interpreted as causal are not violated.

5 Results

We present the main results in Figure 1 and Table 1. Figure 1 suggests that following the overwhelming majority obtained by BJP in the 2019 elections, respondents from all religions except Hinduism report increased sleeplessness. This figure also suggests that the increasing sleeplessness among minorities is driven by those who report following Islam or Christianity.

In Table 1, we test if the minorities experience increased sleeplessness intensity at the cutoff. The findings reflect that while Hindus experience no change in their sleeplessness intensity, the minority respondents experience increased spells of sleeplessness. The point estimate of 0.917 shows the marginal increase in the sleeplessness time (in minutes) for the average respondent from minority religions on the day of election result announcement, *ceteris paribus*. Relative to the pre-election results announcement mean, this is approximately an 81% increase. The point estimate for respondents following Islam is significantly larger than the point estimate for respondents who follow Christianity. Relative to the pre-election mean, Muslim respondents see an increase in sleeplessness intensity of approximately 125% (2.868 minutes). This increase for Christian respondents is approximately 263% (0.290 minutes).[16,17]

We also find that minorities' likelihood of reporting any sleeplessness on the day of election results increases by 2.4 percentage points. These effects persist for about 40 days post election results announcement. To the extent that sleeplessness is positively associated with underlying anxiety and mental health issues, the findings suggest that minorities experience worsened mental

[13] We also check for manipulation-robust treatment effects using Gerard et al. (2020) approach, for which the findings provide no evidence of manipulation at the threshold. The manipulation-robust estimate is 1.09, which is very close to our preferred point estimate of 0.917 (see Table 1).

[14] The corresponding p-value is 0.3908. The asymmetry between point estimate and confidence bounds results from different polynomial degrees for their estimation (Cattaneo et al., 2020a).

[15] We do find that the number of interviews for Muslims goes up (marginally insignificant) post the general elections results. Therefore, we refrain from making inferences on the sample of respondents who report their religion to be Islam only.

[16] See Footnote 7 for a discussion on the magnitudes of these point estimates.

[17] We also reject the null hypothesis that there is no statistically significant difference between estimates for Muslim and Christian respondents (p-value: 0.00).

health in the immediate aftermath of BJP's landslide victory in the 2019 *Lok Sabha* elections.

We establish the robustness of our main finding of the increase in sleeplessness experienced by minorities in the backdrop of the resounding electoral success of the incumbent BJP. The estimates from alternate samples and aggregations, where we restrict the sample to the respondents who report their religion not to be Hinduism, are presented in Tables C8.[18] Our point estimates are unaltered on expanding the bin width with multiple number of days (Figure C5), dropping households with infants, states that held state legislative assembly elections concurrently with the *Lok Sabha* elections, ITUS-classified "other" days,[19] and weekends. The point estimates are much larger if we rely on the time division where all the time is allocated to the major activity.[20] This conclusion also holds when we include outlier observations that have extremely high levels of reported time spent experiencing sleeplessness.[21]

Our point estimates on including individual and household controls are relatively smaller but point to the same increase in sleeplessness experienced by minorities. Cattaneo et al. (2020b) suggests that RDD with multiple mass points and discrete running variables are similar to a single mass point for each discrete value of the running variable. We show that when we aggregate our data to a single mass point as the average value of the outcome variable, the point estimate is slightly attenuated but is qualitatively similar to the main point estimate. These results suggest that our empirical setup is not confounded by alternate samples, the inclusion of other control variables, or by different aggregation of data.

We next turn to examining if the main effect differs across various subpopulations. We once again restrict the estimating sample to those respondents who do not report their religion to be Hinduism. The results are presented in Figure 3.

Findings from the heterogeneity analysis reveal that the increase in minorities' post-election sleeplessness is confined to districts with a historical background of Hindu-Muslim tensions. This observation can be attributed to heightened anxiety among minority religion respondents in regions, where past conflicts have likely exacerbated feelings of insecurity in the wake of the ruling party's victory. Importantly, the estimated effect of election results differs by the electoral competitiveness in the district – the intensity of sleeplessness is more pronounced in more electorally competitive districts, which suggests that electoral competition-driven incentives to indulge in partisan campaigns might potentially worsen the mental health.[22] Moreover, minorities' sleeplessness becomes more pronounced as the fraction of "General" or "OBC" caste Hindus in the district

[18]The results for respondents who report their religion to be either Islam or Christianity are very similar and are presented in Table C9-C10.

[19]In ITUS, the day is designated as "other" if the respondents cannot perform their normal routine activities.

[20]Respondents are instructed to report "major" activity in case multiple activities are performed in a given time slot. For more details on the "major" and "minor" classification of activities, see Jafarov et al. (2023).

[21]In our main estimation samples, we drop all respondents who report sleeplessness time, which is above the 99$^{\text{th}}$ percentile of the distribution.

[22]Districts with a high percentage of Muslim population exhibit a significant increase in instances of sleeplessness (Table C12). This observation highlights the role of competition-driven incentives, as higher proportions of minorities in districts may increase their hopes of victory, thereby heightening stress levels.

increases (Figure C6), which is not surprising as these are the social classes that BJP panders to more intensively (Vaishnav and Hintson, 2019).

Upon examining the heterogeneity by where the respondent resides in the four distinct regions of the country, we find that the effect is concentrated in northern and western parts. This result ties well with the following finding on the larger effect in states where BJP has control of state legislature, which suggests that minorities might experience a relatively more pronounced increase in sleeplessness if there is an overlap between the ruling party at the federal and state levels. Although local legislators may improve local economic outcomes if they belong to the ruling party at a higher level, these improvements may worsen the existing disparities across ethnic groups (Asher and Novosad, 2017; Banerjee et al., 2005).

We also find that the increased sleeplessness intensity is concentrated in the top two quartiles of consumption expenditure. A more pronounced effect for relatively wealthier respondents may emanate from feelings of increased risk to their physical capital or other costly assets in the event of backlash.

Though we do not find any significant reallocation of time among various activities, the results provide evidence that minorities spend less time outdoors after the elections (Table C11). This reduction is probably due to the fact that minorities feel insecure and limit their outdoor time to lower the potential backlash they may be subjected to.

Table C12 provides more details on the difference across subpopulations. Results illustrate that the effect of election results on sleeplessness is more pronounced for males; existing work shows that females, on average, have better objective sleep quality with relatively lower sleep latency values (Lauderdale et al., 2006). Our point estimates suggest that exposure to a potentially overwhelming external event might exacerbate this sleep quality gender gap. We also reveal that the main effect is driven by increased intensity of sleeplessness in young adolescents and non-elderly adults. Respondents who have only completed primary school almost entirely lead to an increase in sleeplessness post-election results. We consider this finding to be symptomatic of the wider issues of the members of minority religions. As poor sleep quality hinders productive capacity and since respondents with only primary school are more likely to be employed in occupations where tasks are more routine and physical,[23] sleeplessness may put them at increased risk of physical injury or harm to the work. This hypothesis is bolstered by the relatively larger point estimate for the self-employed and casual wage laborers.

6 Discussion and Conclusion

Since the BJP came to power, violence against religious minorities has increased, leaving them feeling increasingly insecure due to political and social trends. In this paper, we identify the

[23] Almost two-thirds of respondents who have potentially completed schooling and have up to primary schooling report working either as self-employed or casual wage laborer or attending to domestic duties.

causal effect of the announcement of the 2019 *Lok Sabha* election results (the landslide victory of the incumbent BJP) on the sleeplessness experienced by the minority religion respondents. Our results show that while there is no effect of election results on the sleeplessness intensity for Hindus, there is a substantial increase for minorities, especially Muslims.

While documenting significant heterogeneity in the main effect, we find that the sleeplessness intensity is more pronounced for minorities with above-median consumption expenditure, residents of states with BJP-controlled state legislatures, and those living in districts with higher levels of electoral competition. This pattern is also observed in districts with a history of Hindu-Muslim riots.

Our results can be interpreted as the negative mental health consequence of religious rhetoric in the lead-up to the elections and during election campaigning by the incumbent BJP candidates.

To bolster our claim that religious tensions might negatively affect minorities, we leverage another national event that potentially affected a particular minority religion profoundly – the Ayodhya Land Dispute Verdict by the Supreme Court of India (Table 2). This is a dispute regarding the land that was contested as the site of the birthplace of the Hindu deity Rama and the mosque Babri Masjid. The dispute led to the demolition of the mosque in 1992. The religious tensions in the aftermath of the demolition led to riots in many cities in India, with scores of people killed. After the State High Court pronounced its verdict in 2010 to split the disputed land among the contesting parties, the Supreme Court took up the case and pronounced its verdict in November 2019 (for a historical background on the dispute, see BBC (2012)). The results provide evidence for the substantial increase in sleeplessness intensity for Muslims after the Ayodhya Land Dispute Verdict,[24] which is absent for Hindus or Christians.

These findings, along with our main results, suggest that in periods of religious fervor, minorities could benefit from improved access to mental health services. This policy recommendation is further supported by Angelucci and Bennett (2024), who demonstrate that providing depression treatment, such as psychiatric care and livelihood assistance, significantly and persistently reduces mental health issues in India. Additionally, providing information about the costs of sleeplessness (or the benefits of sleep) may also serve as an effective intervention, as documented in the Indian context by Bessone et al. (2021).

Considering these findings are crucial for understanding the broader societal impacts of political polarization and its influence on the mental health of vulnerable communities, there are prospective avenues of research that remain unexplored herein due to data constraints. One such intriguing perspective involves delving into the causal impact of the *Lok Sabha* election results announcement on workplace efficiency, short-term educational accomplishments, and other poten-

[24]In the last panel of Table 2, we show that our main conclusions are not driven by a change in time-use patterns that emerge in the aftermath of state elections, i.e., the result announcement for state legislative elections does not causally affect the sleeplessness intensity of minorities. The absence of the effect for state elections also indicates that for the main effect (the effect of the *Lok Sabha* elections results announcement on anxiety), minorities are not solely awake to follow the electoral process.

tial outcomes of the interest, whereby sleeplessness could emerge as a pivotal mechanism. While mental health issues are highly correlated with sleeplessness, scholars may examine the clinical diagnoses employing novel data and test how respondents cope with mentally stressful episodes when the source of stress has religious underpinnings. Minorities may also alter fertility decisions and reevaluate their mobility in the long term. Finally, one may shed light on further downstream effects of worse sleep quality of minorities that may worsen the existing socioeconomic disparities in India.

References

Acemoglu, Daron, Georgy Egorov, and Konstantin Sonin, " A Political Theory of Populism *," *The Quarterly Journal of Economics*, 02 2013, *128* (2), 771–805.

Andreottola, Giovanni and Christopher Li, "Polarization and Policy Design," *Journal of Political Economy Microeconomics*, 2024, *2* (1), 1–42.

Angelucci, Manuela and Daniel Bennett, "The Economic Impact of Depression Treatment in India: Evidence from Community-Based Provision of Pharmacotherapy," *American Economic Review*, January 2024, *114* (1), 169–98.

Asgeirsdottir, Tinna Laufey and Sigurdur Pall Olafsson, "An empirical analysis of the demand for sleep: Evidence from the American Time Use Survey," *Economics & Human Biology*, 2015, *19*, 265–274.

Asher, Sam and Paul Novosad, "Politics and Local Economic Growth: Evidence from India," *American Economic Journal: Applied Economics*, January 2017, *9* (1), 229–73.

Banerjee, Abhijit, Lakshmi Iyer, and Rohini Somanathan, "History, Social Divisions, and Public Goods in Rural India," *Journal of the European Economic Association*, 05 2005, *3* (2-3), 639–647.

Basu, Deepankar, "Majoritarian politics and hate crimes against religious minorities: Evidence from India, 2009–2018," *World Development*, 2021, *146*, 105540.

BBC, "Timeline: Ayodhya holy site crisis," https://www.bbc.com/news/world-south-asia-11436552 2012. Accessed: 2023-12-23.

Bessone, Pedro, Gautam Rao, Frank Schilbach, Heather Schofield, and Mattie Toma, "The Economic Consequences of Increasing Sleep Among the Urban Poor," *The Quarterly Journal of Economics*, 04 2021, *136* (3), 1887–1941.

Bhogale, Saloni, Sudheendra Hangal, Francesca Refsum Jensenius, Mohit Kumar, Basim U Nissa, and Gilles Verniers, "TCPD Indian Elections Data v1," https://lokdhaba.ashoka.edu.in/browse-data 2019.

Biasi, Barbara, Michael S Dahl, and Petra Moser, "Career Effects of Mental Health," Working Paper 29031, National Bureau of Economic Research July 2021.

Biddle, Jeff E. and Daniel S. Hamermesh, "Sleep and the Allocation of Time," *Journal of Political Economy*, 1990, *98* (5, Part 1), 922–943.

Blakeslee, David, "Propaganda and ethno-religious politics in developing countries: Evidence from India," Technical Report, May 2013. mimeo, Columbia 2013.

Bloom, David E, TV Sekher, and Jinkook Lee, "Longitudinal Aging Study in India (LASI): new data resources for addressing aging in India," *Nature Aging*, 2021, *1* (12), 1070–1072.

Calonico, Sebastian, Matias D. Cattaneo, Max H. Farrell, and Rocío Titiunik, "Rdrobust: Software for Regression-discontinuity Designs," *The Stata Journal*, 2017, *17* (2), 372–404.

Camacho, Adriana, "Stress and Birth Weight: Evidence from Terrorist Attacks," *American Economic Review*, May 2008, *98* (2), 511–15.

Cappuccio, Francesco P., Lanfranco D'Elia, Pasquale Strazzullo, and Michelle A. Miller, "Sleep Duration and All-Cause Mortality: A Systematic Review and Meta-Analysis of Prospective Studies," *Sleep*, 05 2010, *33* (5), 585–592.

Carod-Artal, Francisco Javier, *Social Determinants of Mental Health*, Cham: Springer International Publishing,

Carothers, Thomas and Andrew O'Donohue, *Democracies divided: The global challenge of political polarization*, Brookings Institution Press, 2019.

Cattaneo, Matias D., Michael Jansson, and Xinwei Ma, "Manipulation Testing Based on Density Discontinuity," *The Stata Journal*, 2018, *18* (1), 234–261.

_ , _ , and _ , "Simple Local Polynomial Density Estimators," *Journal of the American Statistical Association*, 2020, *115* (531), 1449–1455.

_ , _ , and _ , "lpdensity: Local Polynomial Density Estimation and Inference," *Journal of Statistical Software*, 2022, *101* (2), 1–25.

_ , Nicolás Idrobo, and Rocío Titiunik, *A Practical Introduction to Regression Discontinuity Designs: Foundations* Elements in Quantitative and Computational Methods for the Social Sciences, Cambridge University Press, 2020.

Clark, Andrew E, Orla Doyle, and Elena Stancanelli, "The Impact of Terrorism on Individual Well-Being: Evidence from the Boston Marathon Bombing," *The Economic Journal*, 05 2020, *130* (631), 2065–2104.

Clothey, Fred W, *Religion in India: A Historical Introduction*, Routledge, 2007.

Costa-Font, Joan, Sarah Fleche, and Ricardo Pagan, "The labour market returns to sleep," *Journal of Health Economics*, 2024, *93*, 102840.

Das, Joyjeet, "General Elections 2019: Whose voice and which issues matter," https://www.downtoearth.org.in/news/agriculture/general-elections-2019-whose-voice-and-which-issues-matter-63534 March 2019. Accessed: 2023-12-22.

Deccan Chronicle, "I am waging a dharm-yudh against those who maligned Sanatan Dharma'," https://www.deccanchronicle.com/nation/current-affairs/120519/i-am-waging-a-dharm-yudh-against-those-who-maligned-sanatan-dharma.html May 2019. Accessed: 2023-12-09.

Deschenes, Olivier, Huixia Wang, Si Wang, and Peng Zhang, "The effect of air pollution on body weight and obesity: Evidence from China," *Journal of Development Economics*, 2020, *145*, 102461.

Ellis, Jason G., Philip Gehrman, Colin A. Espie, Dieter Riemann, and Michael L. Perlis, "Acute insomnia: Current conceptualizations and future directions," *Sleep Medicine Reviews*, 2012, *16* (1), 5–14.

Fang, Yu, Daniel B Forger, Elena Frank, Srijan Sen, and Cathy Goldstein, "Day-to-day variability in sleep parameters and depression risk: a prospective cohort study of training physicians," *NPJ digital medicine*, 2021, *4* (1), 28.

Farbmacher, Helmut, Maximilian Hartmann, and Heinrich Kögel, "Economic Hardship, Sleep, and Self-Rated Health: Evidence from the Supplemental Nutrition Assistance Program (SNAP)," *American Journal of Health Economics*, 2022, *8* (2), 216–251.

Fava, Maurizio, "Daytime Sleepiness and Insomnia as Correlates of Depression.," *The Journal of Clinical Psychiatry*, 2004.

Finke, Roger, "Presidential Address Origins and Consequences of Religious Freedoms: A Global Overview," *Sociology of Religion*, 03 2013, *74* (3), 297–313.

Fruehwirth, Jane Cooley, Sriya Iyer, and Anwen Zhang, "Religion and Depression in Adolescence," *Journal of Political Economy*, 2019, *127* (3), 1178–1209.

Funke, Manuel, Moritz Schularick, and Christoph Trebesch, "Populist Leaders and the Economy," *American Economic Review*, December 2023, *113* (12), 3249–88.

Gerard, François, Miikka Rokkanen, and Christoph Rothe, "Bounds on treatment effects in regression discontinuity designs with a manipulated running variable," *Quantitative Economics*, 2020, *11* (3), 839–870.

Ghoshal, Devjyot, "Amit Shah vows to throw illegal immigrants into Bay of Bengal," https://www.reuters.com/article/idUSKCN1RO1YC/ April 2019. Accessed: 2023-12-09.

Gibson, Matthew and Jeffrey Shrader, "Time Use and Labor Productivity: The Returns to Sleep," *The Review of Economics and Statistics*, 12 2018, *100* (5), 783–798.

Giuntella, Osea and Fabrizio Mazzonna, "Sunset time and the economic effects of social jetlag: evidence from US time zone borders," *Journal of Health Economics*, 2019, *65*, 210–226.

Glaeser, Edward L., "The Political Economy of Hatred," *The Quarterly Journal of Economics*, 02 2005, *120* (1), 45–86.

Gulek, Ahmet, "Driving while hungry: The effect of fasting on traffic accidents," *Journal of Development Economics*, 2024, *168*, 103260.

Hersbach, Hans, Bill Bell, Paul Berrisford, Shoji Hirahara, András Horányi, Joaquín Muñoz-Sabater, Julien Nicolas, Carole Peubey, Raluca Radu, Dinand Schepers, Adrian Simmons, Cornel Soci, Saleh Abdalla, Xavier Abellan, Gianpaolo Balsamo, Peter Bechtold, Gionata Biavati, Jean Bidlot, Massimo Bonavita, Giovanna De Chiara, Per Dahlgren, Dick Dee, Michail Diamantakis, Rossana Dragani, Johannes Flemming, Richard Forbes, Manuel Fuentes, Alan Geer, Leo Haimberger, Sean Healy, Robin J. Hogan, Elías Hólm, Marta Janisková, Sarah Keeley, Patrick Laloyaux, Philippe Lopez, Cristina Lupu, Gabor Radnoti, Patricia de Rosnay, Iryna Rozum, Freja Vamborg, Sebastien Villaume, and Jean-Noël Thépaut, "The ERA5 global reanalysis," *Quarterly Journal of the Royal Meteorological Society*, 2020, *146* (730), 1999–2049.

Heyes, Anthony and Mingying Zhu, "Air pollution as a cause of sleeplessness: Social media evidence from a panel of Chinese cities," *Journal of Environmental Economics and Management*, 2019, *98*, 102247.

Hillman, David R, Anita Scott Murphy, Ral Antic, and Lynne Pezzullo, "The Economic Cost of Sleep Disorders," *Sleep*, 03 2006, *29* (3), 299–305.

Iyengar, Shanto, Yphtach Lelkes, Matthew Levendusky, Neil Malhotra, and Sean J. Westwood, "The Origins and Consequences of Affective Polarization in the United States," *Annual Review of Political Science*, 2019, *22* (1), 129–146.

Iyer, Sriya, "The New Economics of Religion," *Journal of Economic Literature*, June 2016, *54* (2), 395–441.

__ , *The economics of religion in India*, Harvard University Press, 2018.

__ **and Anand Shrivastava**, "Religious riots and electoral politics in India," *Journal of Development Economics*, 2018, *131*, 104–122.

__ **and Giovanni Rosso**, *Religion and Mental Health*, Springer International Publishing,

Jafarov, Jafar, Tejendra P. Singh, and Soham Sahoo, "Air Pollution and Time Use: Evidence from India," https://docs.iza.org/dp16552.pdf 2023. Accessed: 2023-11-27.

Jaffrelot, Christophe, "India's Democracy at 70: Toward a Hindu State?," *Journal of Democracy*, 2017, *28* (3), 52–63.

Jagnani, Maulik, "Children's Sleep and Human Capital Production," *The Review of Economics and Statistics*, 07 2024, *106* (4), 983–996.

Jha, Saumitra, "'Unfinished business': Historic complementarities, political competition and ethnic violence in Gujarat," *Journal of Economic Behavior & Organization*, 2014, *104*, 18–36. Economics, Religion, and Culture.

Kim, Eui-Joong and Joel E. Dimsdale, "The Effect of Psychosocial Stress on Sleep: A Review of Polysomnographic Evidence," *Behavioral Sleep Medicine*, 2007, *5* (4), 256–278. PMID: 17937582.

Kolesár, Michal and Christoph Rothe, "Inference in Regression Discontinuity Designs with a Discrete Running Variable," *American Economic Review*, August 2018, *108* (8), 2277–2304.

Krueger, Alan B, *What makes a terrorist: Economics and the roots of terrorism*, Princeton University Press, 2008.

Kumar, Sanjay and Pranav Gupta, "Where Did the BJP Get Its Votes from in 2019?," https://www.livemint.com/politics/news/where-did-the-bjp-get-its-votes-from-in-2019-1559547933995.html June 2019. Accessed: 2023-12-09.

Lauderdale, Diane S., Kristen L. Knutson, Lijing L. Yan, Paul J. Rathouz, Stephen B. Hulley, Steve Sidney, and Kiang Liu, "Objectively Measured Sleep Characteristics among Early-Middle-Aged Adults: The CARDIA Study," *American Journal of Epidemiology*, 06 2006, *164* (1), 5–16.

Mani, Anandi, Sendhil Mullainathan, Eldar Shafir, and Jiaying Zhao, "Poverty Impedes Cognitive Function," *Science*, 2013, *341* (6149), 976–980.

Maulik, P. K., S. Devarapalli, S. Kallakuri, A. Tewari, S. Chilappagari, M. Koschorke, and G. Thornicroft, "Evaluation of an anti-stigma campaign related to common mental disorders in rural India: a mixed methods approach," *Psychological Medicine*, 2017, *47* (3), 565–575.

Meaklim, Hailey, Moira F Junge, Prerna Varma, Wendy A. Finck, and Melinda L. Jackson, "Beyond Stress: Altered Sleep-Wake Patterns are a Key Behavioral Risk Factor for Acute Insomnia During Times of Crisis," *Behavioral Sleep Medicine*, 2023, *21* (2), 208–225. PMID: 35604338.

Mellor, Jennifer M. and Beth A. Freeborn, "Religious participation and risky health behaviors among adolescents," *Health Economics*, 2011, *20* (10), 1226–1240.

Metcalfe, Robert, Nattavudh Powdthavee, and Paul Dolan, "Destruction and Distress: Using a Quasi-Experiment to Show the Effects of the September 11 Attacks on Mental Well-Being in the United Kingdom," *The Economic Journal*, 02 2011, *121* (550), F81–F103.

Mitra, Anirban and Debraj Ray, "Implications of an Economic Theory of Conflict: Hindu-Muslim Violence in India," *Journal of Political Economy*, 2014, *122* (4), 719–765.

Mullins, Jamie T. and Corey White, "Temperature and mental health: Evidence from the spectrum of mental health outcomes," *Journal of Health Economics*, 2019, *68*, 102240.

Narisawa, Hajime, "Anxiety and Its Related Factors at Bedtime Are Associated with Difficulty in Falling Asleep," *The Tohoku Journal of Experimental Medicine*, 2013, *231* (1), 37–43.

Neckelmann, Dag, Arnstein Mykletun, and Alv A. Dahl, "Chronic Insomnia as a Risk Factor for Developing Anxiety and Depression," *Sleep*, 07 2007, *30* (7), 873–880.

Nellis, Gareth, Michael Weaver, and Steven C. Rosenzweig, "Do Parties Matter for Ethnic Violence? Evidence From India," *Quarterly Journal of Political Science*, 2016, *11* (3), 249–277.

Ochsner, Christian and Felix Roesel, "Activated History: The Case of the Turkish Sieges of Vienna," *American Economic Journal: Applied Economics*, July 2024, *16* (3), 76–112.

O'Brien, Daniel Kay Joseph M Dzierzewski Erin M and Christina S McCrae, "Tackling sleeplessness: psychological treatment options for insomnia in older adults," *Nature and Science of Sleep*, 2010, *2*, 47–61. PMID: 22323897.

Posner, Daniel N., "The Political Salience of Cultural Difference: Why Chewas and Tumbukas Are Allies in Zambia and Adversaries in Malawi," *American Political Science Review*, 2004, *98* (4), 529–545.

Ramachandran, Sudha, "Hindutva Violence in India: Trends and Implications," *Counter Terrorist Trends and Analyses*, 2020, *12* (4), 15–20.

Rao, Gautam, Susan Redline, Frank Schilbach, Heather Schofield, and Mattie Toma, "Informing sleep policy through field experiments," *Science*, 2021, *374* (6567), 530–533.

Sahoo, Niranjan, "Political Polarization in South and Southeast Asia: Old Divisions, New Dangers," Technical Report, Carnegie Endowment for International Peace 2020. Accessed: 2023-11-27.

Sardesai, Shreyas, "The Religious Divide in Voting Preferences and Attitudes in the 2019 Election," *Studies in Indian Politics*, 2019, *7* (2), 161–175.

Scott, Alexander J., Thomas L. Webb, Marrissa Martyn-St James, Georgina Rowse, and Scott Weich, "Improving sleep quality leads to better mental health: A meta-analysis of randomised controlled trials," *Sleep Medicine Reviews*, 2021, *60*, 101556.

Sedigh, Golnaz, Rose Anne Devlin, Gilles Grenier, and Catherine Deri Armstrong, "Revisiting the relationship between wages and sleep duration: The role of insomnia," *Economics & Human Biology*, 2017, *24*, 125–139.

Sender, Henny, "How Modi won India's elections but paralyzed the economy," https://asia.nikkei.com/Spotlight/The-Big-Story/How-Modi-won-India-s-elections-but-paralyzed-the-economy March 2020. Accessed: 2023-12-22.

Shanahan, Lilly, William E. Copeland, Adrian Angold, Carmen L. Bondy, and E. Jane Costello, "Sleep Problems Predict and Are Predicted by Generalized Anxiety/Depression and Oppositional Defiant Disorder," *Journal of the American Academy of Child & Adolescent Psychiatry*, 2014, *53* (5), 550–558.

Singhal, Saurabh, "Early life shocks and mental health: The long-term effect of war in Vietnam," *Journal of Development Economics*, 2019, *141*, 102244.

Slater, Joanna, "Exit polls in India indicate victory for Narendra Modi and the BJP," https://www.washingtonpost.com/world/asia_pacific/exit-polls-in-india-indicate-victory-for-narendra-modi-and-his-bj 2019/05/19/8d7fbb14-79eb-11e9-a7bf-c8a43b84ee31_story.html May 2019. Accessed: 2023-12-16.

Smith, Austin C., "Spring Forward at Your Own Risk: Daylight Saving Time and Fatal Vehicle Crashes," *American Economic Journal: Applied Economics*, April 2016, *8* (2), 65–91.

Sridharan, Eswaran, "India's Watershed Vote: Behind Modi's Victory," *Journal of Democracy*, 2014, *25* (4), 20–33.

Tsai, Alexander C. and Atheendar S. Venkataramani, "Communal bereavement and resilience in the aftermath of a terrorist event: Evidence from a natural experiment," *Social Science & Medicine*, 2015, *146*, 155–163.

Vaishnav, Milan, "The BJP in Power: Indian Democracy and Religious Nationalism," https://carnegieendowment.org/2019/04/04/bjp-in-power-indian-democracy-and-religious-nationalism-pub-78677 March 2019. Accessed: 2023-12-16.

__ **and Jamie Hintson**, "The Dawn of India's Fourth Party System," https://carnegieendowment.org/research/2019/09/the-dawn-of-indias-fourth-party-system?lang=en September 2019. Accessed: 2024-07-31.

Varshney, Ashutosh, "Modi Consolidates Power: Electoral Vibrancy, Mounting Liberal Deficits," *Journal of Democracy*, 2019, *30* (4), 63–77.

__ **and Steven Wilkinson**, "Varshney-Wilkinson Dataset on Hindu-Muslim Violence in India, 1950-1995, Version 2," 2006.

Walsh, James K, "Clinical and socioeconomic correlates of insomnia.," *The Journal of Clinical Psychiatry*, 2004.

Wilkinson, Steven, *Votes and violence: Electoral competition and ethnic riots in India*, Cambridge University Press, 2006.

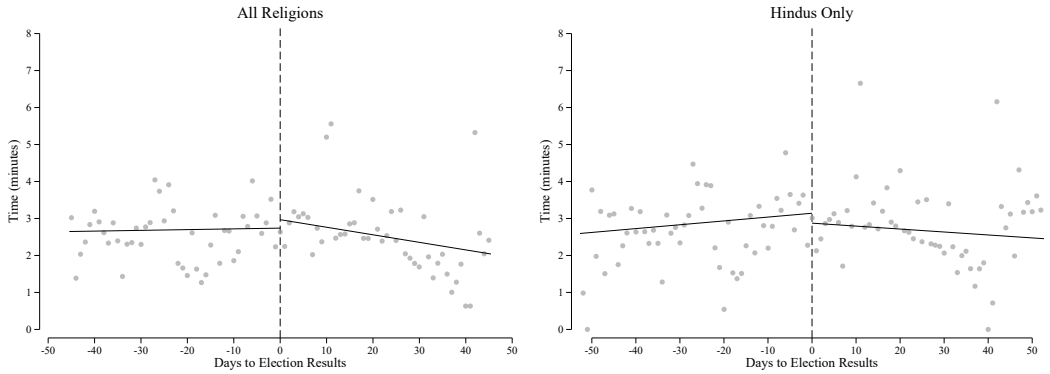
Yaniv, Gideon, "Insomnia, biological clock, and the bedtime decision: an economic perspective," *Health Economics*, 2004, *13* (1), 1–8.

Figures and Tables

Figure 1: Effect of Election Results on Sleeplessness

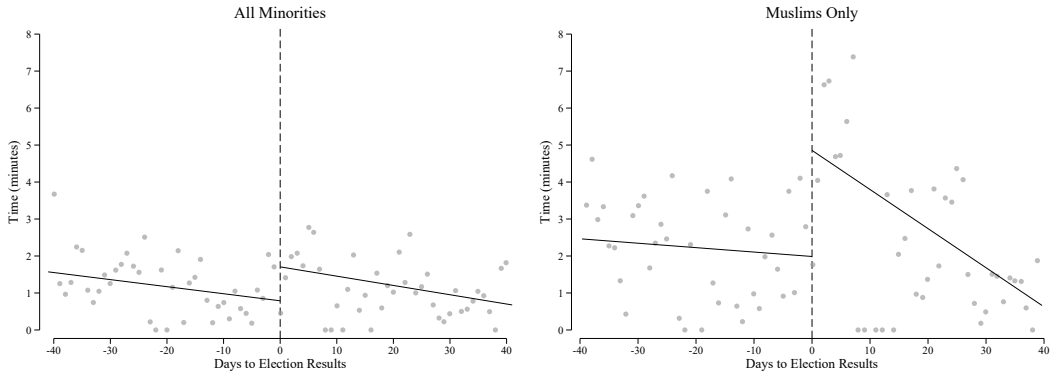
(a) All Religions

(b) Hindus Only

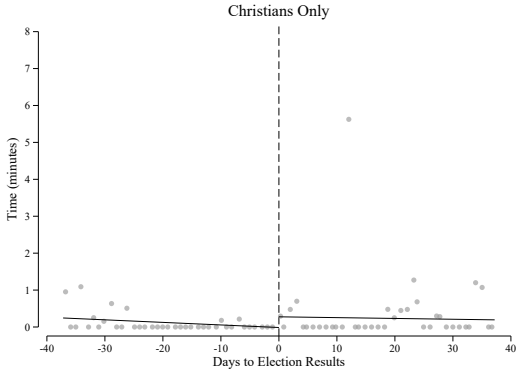


(c) All Minorities

(d) Muslims Only

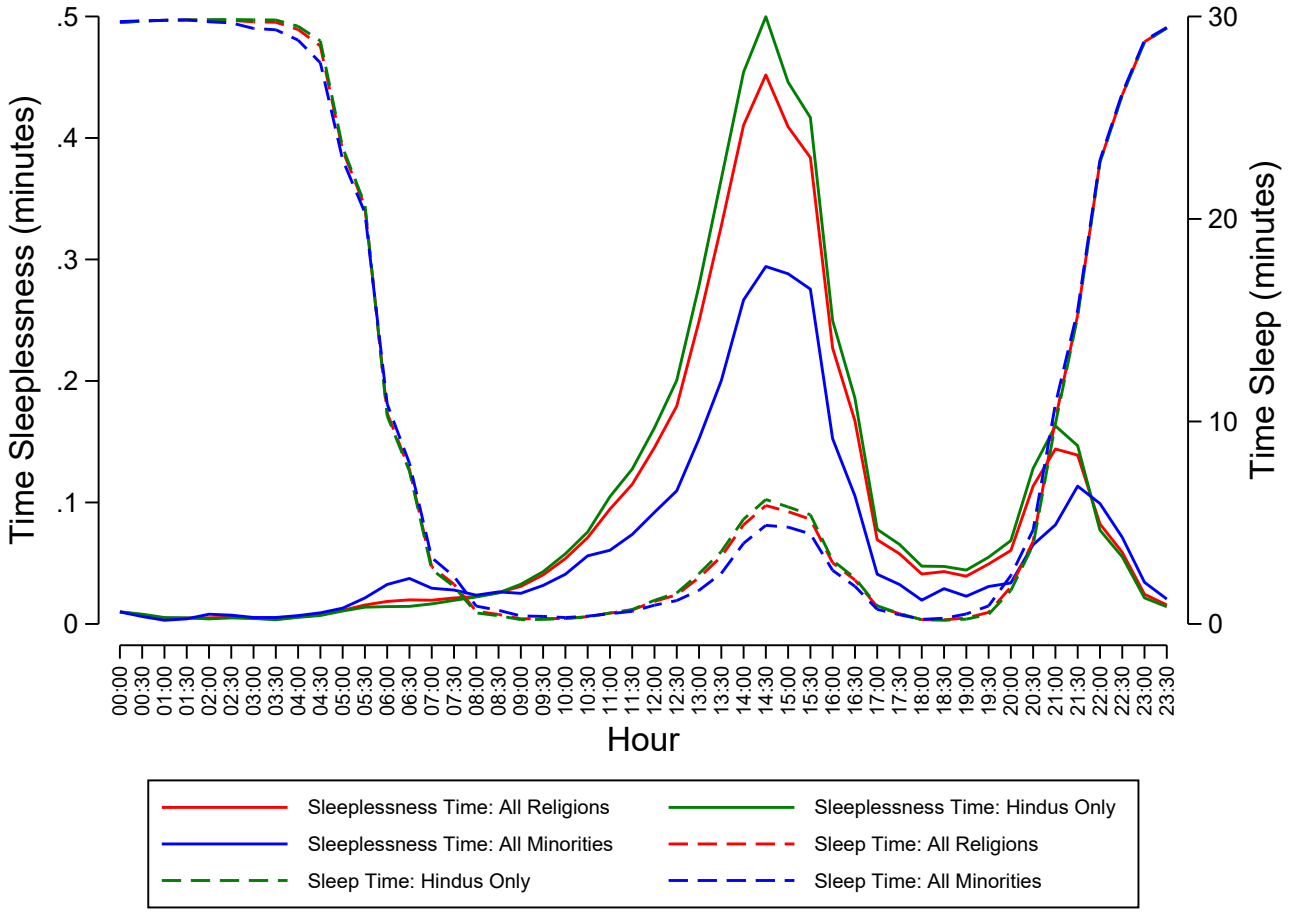


(e) Christians Only



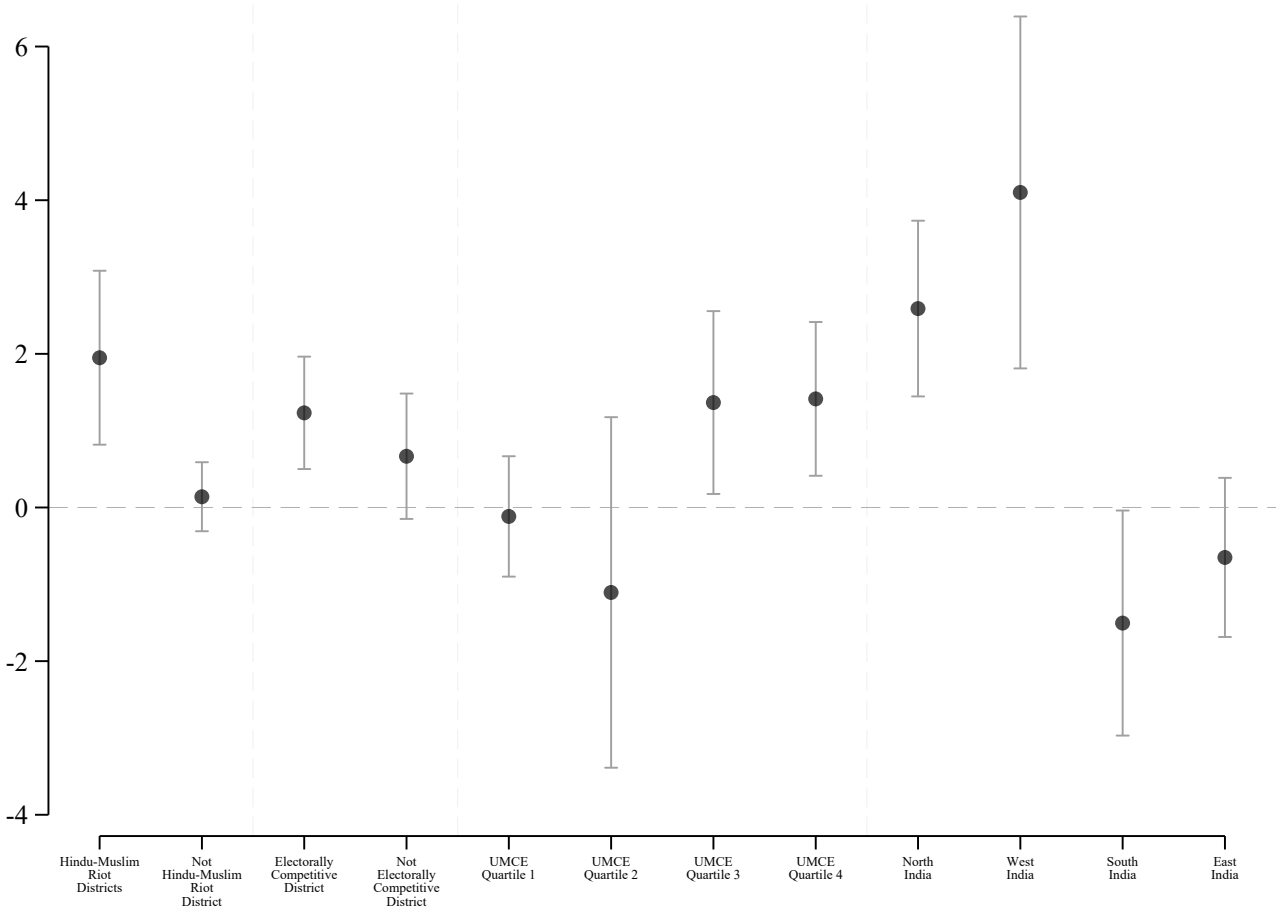
Notes: Authors' calculations. The data comes from the India Time-Use Survey (ITUS) 2019. The polynomial order for conditional expectations functions on either side of the cutoff is one. A triangular kernel is used for local polynomial estimation. The optimal bandwidth for each subpopulation is calculated using default settings of Calonico et al. (2017). Daily bins; the first bin after the value 0 refers to May 23, 2019.

Figure 2: Time on Sleep and Sleeplessness



Notes: The data comes from the India Time-Use Survey (ITUS) 2019. The sample is restricted to those respondents who were interviewed before May 23, 2019. Time on sleeping and sleeplessness activities within each 30-minute interval is averaged over all the respondents.

Figure 3: Heterogeneity



Notes: The dependent variable is the time spent experiencing sleeplessness in minutes for minorities. Estimates from the estimator in Calonico et al. (2017) with default options are reported. 95% confidence intervals are constructed using bias-corrected standard errors. The data on electoral competition are derived from Bhogale et al. (2019). The data on historical Hindu-Muslim riots are from Varshney and Wilkinson (2006).

Table 1: Effect of Election Results on Sleeplessness – Main Effect

Sample	Optimal	RD	Robust Inference		Number of	Dep. Var.	Dep. Var.
	Bandwidth	Estimator	p-value	95% CI	Observations	Mean	SD
Panel A: Sleeplessness							
All Religions	45.43	0.228	0.19	[-0.14, 0.70]	117,753	2.48	14.18
Hindus Only	52.68	-0.268	0.19	[-0.78, 0.16]	97,505	2.69	14.79
All Minorities	40.99	0.917	0.00	[0.42, 1.51]	24,812	1.13	8.10
Muslims Only	39.65	2.868	0.00	[1.69, 4.34]	14,275	2.30	13.64
Christians Only	37.20	0.290	0.04	[0.02, 0.64]	5,155	0.11	1.74
All Minorities Ext. Margin	34.22	0.024	0.00	[0.01, 0.04]	22,010	0.02	0.15
Panel B: Sleep							
All Religions	16.49	-2.320	0.17	[-7.05, 1.21]	42,264	539.75	93.56
Hindus Only	29.93	7.477	0.00	[3.75, 11.09]	61,116	540.88	93.74
All Minorities	15.94	-16.304	0.00	[-27.60, -8.11]	9,443	536.04	92.88
Muslims Only	16.01	-14.434	0.01	[-29.67, -3.37]	5,685	532.45	97.42
Christians Only	31.59	-17.102	0.02	[-31.28, -3.11]	4,283	540.03	83.08
All Minorities Ext. Margin	39.17	0.000	0.74	[-0.00, 0.00]	24,531	1.00	0.01

Notes: Each row corresponds to a different sample. Rows indicate the estimating sample. In Panel A, the dependent variable in all rows except the last row is the time spent experiencing sleeplessness in minutes. The dependent variable in the last row indicates whether any time is spent experiencing sleeplessness. Sleeplessness activity is discussed in Section 3. In Panel B, the dependent variable in all rows except the last row is the time spent sleeping in minutes. The dependent variable in the last row indicates whether any time is spent sleeping. The optimal bandwidth is calculated using default settings of Calonico et al. (2017). The sample contains data from the India Time-Use Survey (ITUS) 2019.

Table 2: Effect of Election Results on Sleeplessness – Additional Events

Sample	Optimal	RD	Robust Inference		Number of	Dep. Var.	Dep. Var.
	Bandwidth	Estimator	p-value	95% CI	Observations	Mean	SD
Cutoff: Election Results							
Minorities Only	40.99	0.917	0.00	[0.42, 1.51]	24,812	1.13	8.10
Cutoff: Ayodhya Dispute Verdict							
All Religions	28.39	0.155	0.56	[-0.30, 0.56]	78,134	2.32	13.56
Hindus Only	30.25	0.006	0.85	[-0.44, 0.53]	66,875	2.54	14.16
All Minorities	26.04	0.170	0.60	[-0.51, 0.88]	14,643	1.01	7.58
Muslims Only	26.94	1.696	0.00	[0.61, 3.13]	8,655	2.14	13.00
Christians Only	22.56	-1.075	0.00	[-1.93, -0.36]	2,835	0.14	1.94
Cutoff: State Legislative Elections							
All Minorities	15.83	7.377	0.13	[-2.61, 19.85]	691	5.46	24.50

Notes: Each row corresponds to a different sample. Rows indicate the estimating sample. The dependent variable in all rows is the time spent experiencing sleeplessness in minutes. Sleeplessness activity is discussed in the main text. Cutoff in the second panel is the date of the Ayodhya Dispute Verdict, i.e., November 9, 2019. Cutoff in the third panel is the date of the state legislative election announcement, i.e., October 24, 2019. The optimal bandwidth is calculated using default settings of Calonico et al. (2017). The sample contains data from the India Time-Use Survey (ITUS) 2019.

Appendices

Appendix A Sleeplessness and Mental Health in India

To ensure that sleeplessness is indeed associated with worse mental health in our population of the study, we draw upon detailed mental health information in the Longitudinal Aging Study in India (LASI) (Bloom et al., 2021). It is worth highlighting that the lack of information on the interview date in the LASI data precludes us from examining some of these health outcomes. Additionally, the 75^{th} round of the National Sample Survey is conducted between 2017 and 2018. Therefore, we cannot use these publicly available data to answer the research question posed in this paper.

LASI data, however, provide information on the extent of sleeplessness and feelings associated with mental stress, such as feeling worried or stressed. Raw correlations suggest that approximately 11% of respondents who experienced sleeplessness on the day before the interview felt worried or stressed and that medium-term sleeplessness is positively correlated with a clinical diagnosis of depression.

The low level of correlation between sleeplessness and self-reported worsened mental health could be due to the stigma attached to mental health in India (Maulik et al., 2017), or due to the fact that the depression (clinically diagnosed health condition) involves prolonged sadness and loss of interest, whereas shorter, intense episodes of worry and fear characterize anxiety. Overall, the LASI data analysis confirms that sleeplessness is negatively correlated with mental health outcomes for the Indian population.

Appendix B Quantifying the Monetary Cost of Sleeplessness

In this section, we monetize the effects of sleeplessness due to the landslide victory of the incumbent party in the 2019 general elections in India.

Our estimate of how sleeplessness may affect wages comes from Costa-Font et al. (2024). Costa-Font et al. (2024) estimate that each hour of sleep increases hourly wages by 4.2%. To convert these estimates to a minute of sleep, we make parametric assumptions. We assume that each additional minute of sleep affects hourly wage through a concave function. In other words, the marginal return to each additional minute of sleep in terms of hourly wage decreases as sleep duration increases. We assume that each additional minute of sleep increases hourly wage by $\left(\frac{4.2}{60x}\right)$, where x determines the rate at which additional minute of sleep affects hourly wage. As x increases, each additional minute of sleep exerts a smaller influence on hourly wage.

We use data from Periodic Labor Force Survey (PLFS) 2017-18 to obtain estimates for the working population and their annual daily wages. We use population estimates only for those respondents who report Islam as their religion. Population estimates along with annual daily wages are used for respondents whose usual principal activity status is either salaried/regular wage, self-employed, or casual wage labor. As PLFS provides wages for four different quarters, we use the minimum wages across these four quarters for each of the three principal activity statuses.

The population estimate for respondents with self-employed as their usual principal activity status is $20,797,500$. The daily wage for these respondents is estimated to be 396 rupees. Population and daily wage for salaried/regular wage respondents are 8,279,800 and 528 rupees, respectively. Finally, the population and daily wage for casual labor respondents are 10,454,000 and 243.11 rupees, respectively.[25]

We combine these estimates for population and wages with our marginal effect of sleep time in minutes for Muslim respondents in Table 1. In Table 3, we report lost hourly wages due to reduced sleep for multiple values of x. These estimates are calculated using 80 rupees as the conversion rate for each USD assuming that each respondent works for eight hours, and is measured as follows:

$$\left(\left(\frac{0.042}{60x}\right) \times 8\right) \quad \times \quad \left(\left(20797500 \times \left(\frac{11884.60}{30}\right)\right) + \left(8279800 \times \left(\frac{15844.77}{30}\right)\right) + (10454000 \times 243.11)\right) \quad \times (-14.434) \times \left(\frac{1}{80}\right) \times \left(\frac{1}{1000000}\right).$$

[25] These estimates are derived from the annual report of PLFS 2017-18 available at https://mospi.gov.in/sites/default/files/publication_reports/Annual%20Report%2C%20PLFS%202017-18_31052019.pdf?download=1. Tables 42 and 54 are used for wage and population estimates.

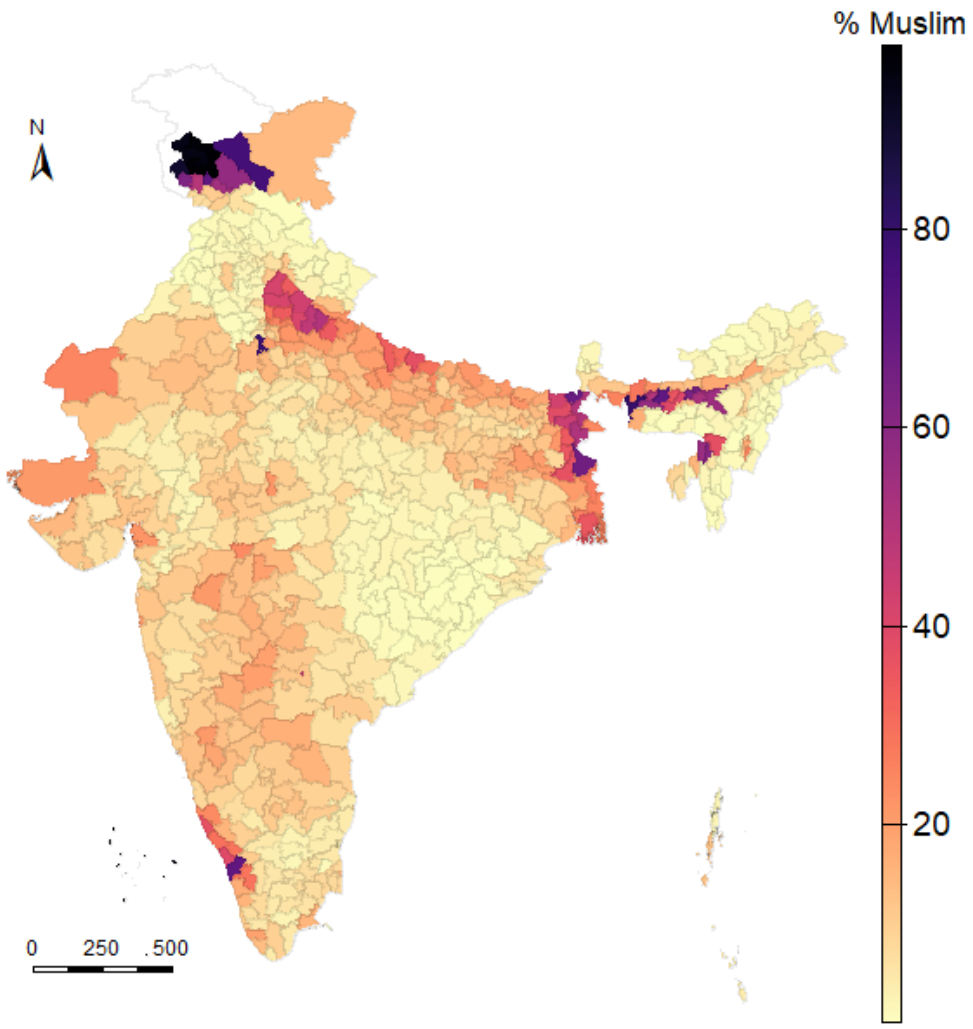
Table 3: Quantification Estimates

x	Estimate (US $)
1	-15
2	-8
3	-5
4	-4
5	-3

Notes: See Section B for details about the Quantification estimates.

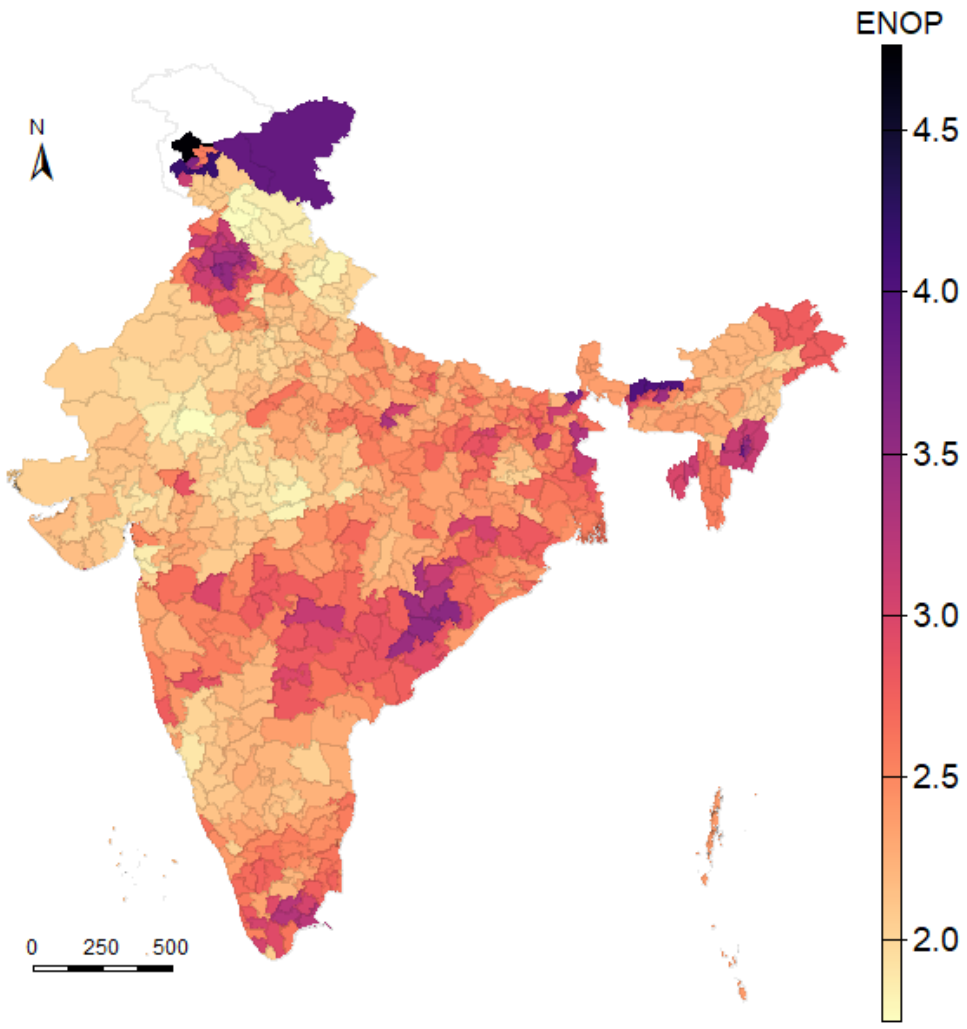
Appendix C Figures and Tables

Figure C1: Muslim Population at the District-level



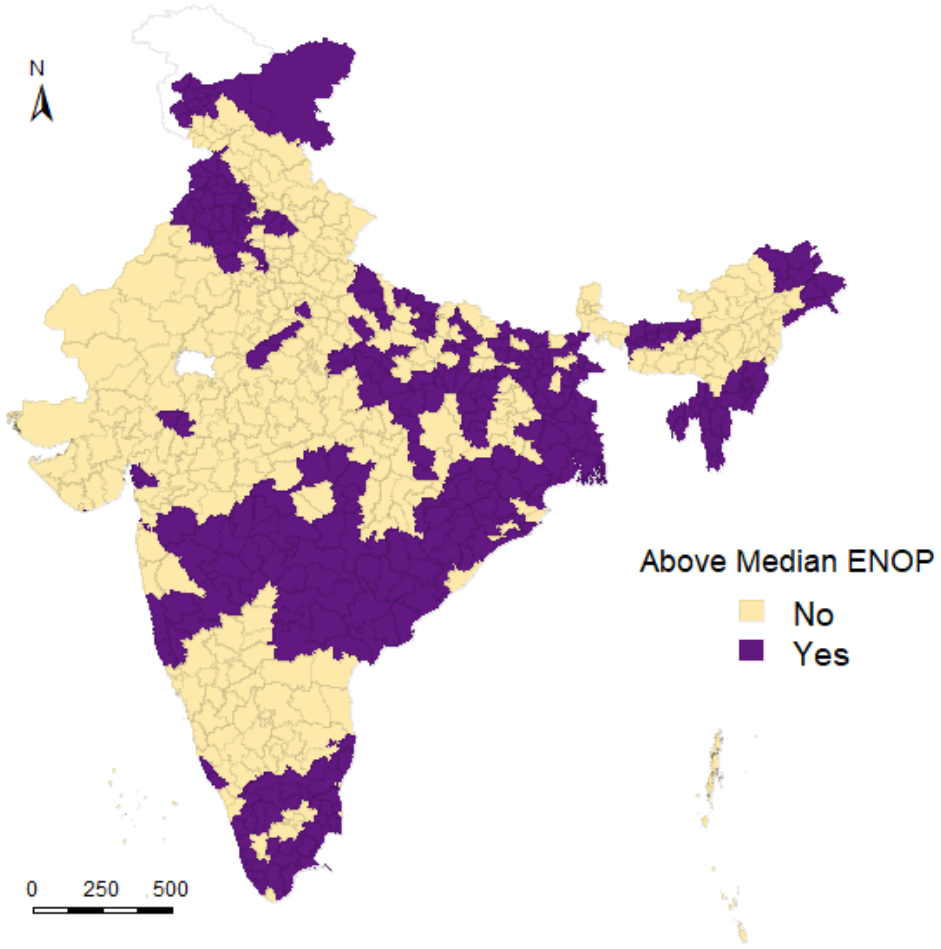
Notes: The district polygons are derived from the 2011 Census of India. Data on population is derived from the 2011 Census of India's Table C-01.

Figure C2: Effective Number of Parties at the District-level



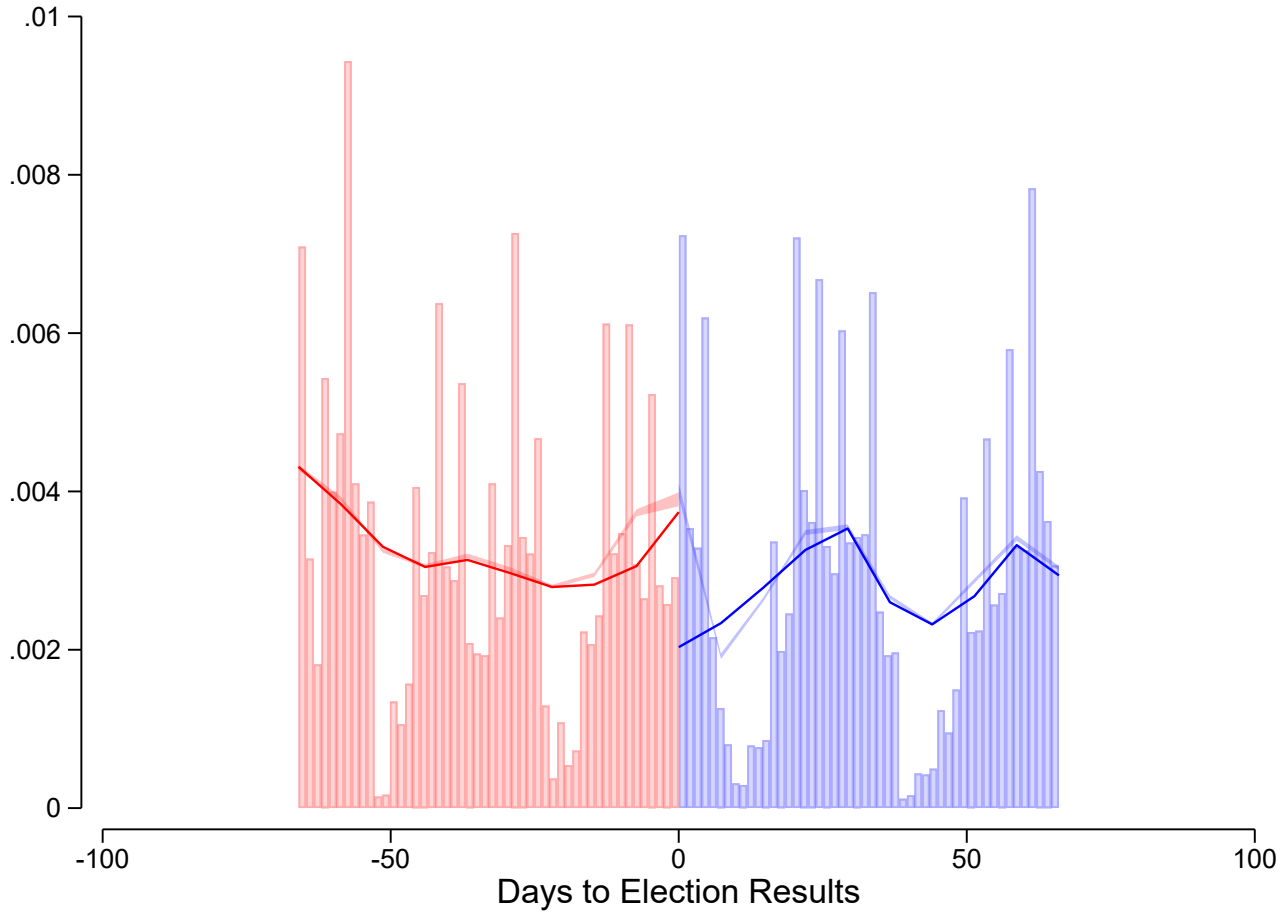
Notes: The district polygons are derived from the 2011 Census of India. The district-level effective number of parties (ENOP) is constructed using the ENOP for each parliamentary constituency in the district and using their arithmetic mean. ENOP for parliamentary constituencies is constructed using 2019 Lok Sabha election results derived from Bhogale et al. (2019).

Figure C3: Dichotomized Effective Number of Parties



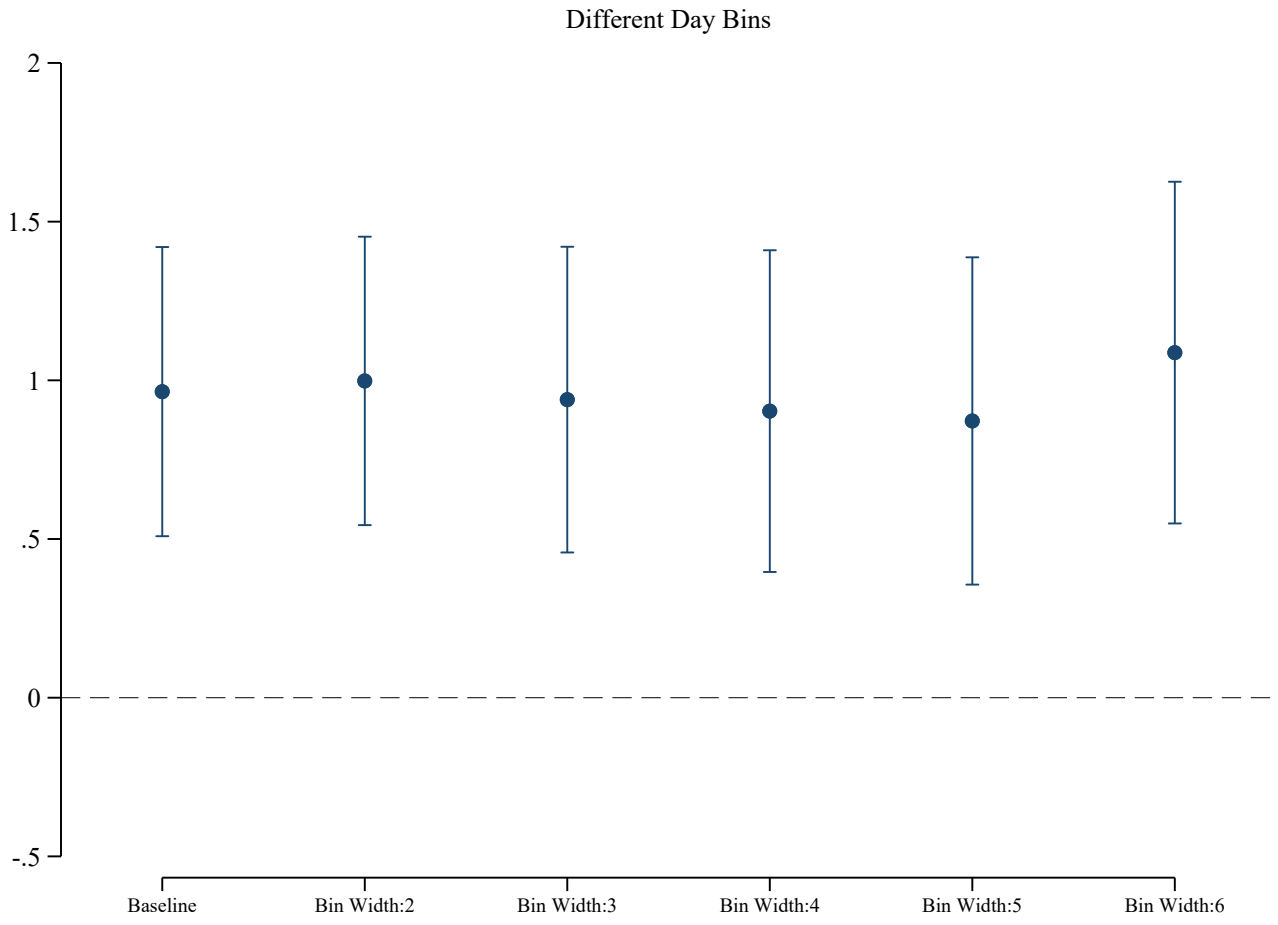
Notes: Notes: The district polygons are derived from the 2011 Census of India. The district-level effective number of parties (ENOP) is constructed using the ENOP for each parliamentary constituency in the district and using their arithmetic mean. ENOP for parliamentary constituencies is constructed using 2019 Lok Sabha election results derived from Bhogale et al. (2019). The 2019 Lok Sabha election results' effective number of parties (ENOP) is used to determine the median.

Figure C4: Distribution of Running Variable



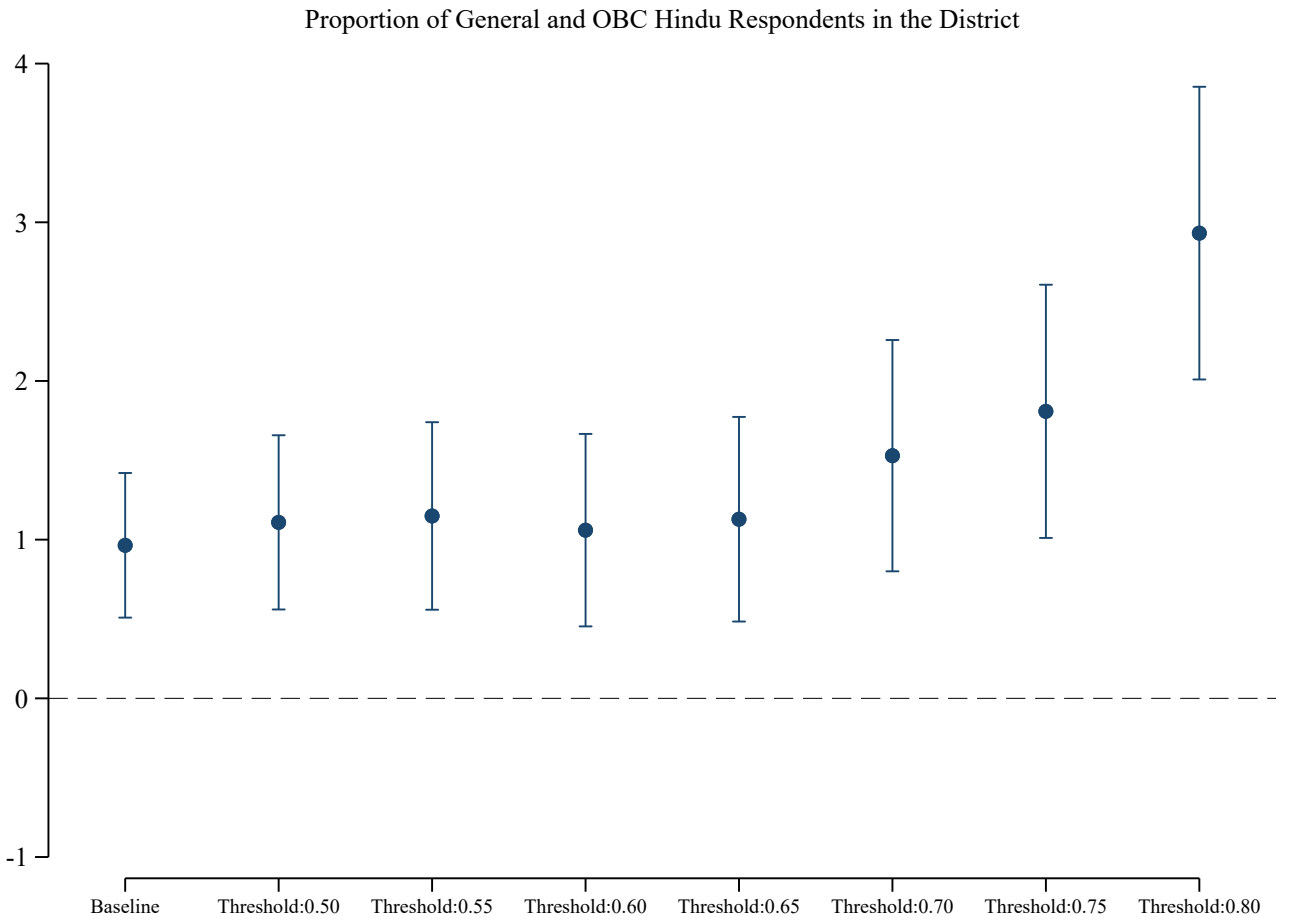
Notes: The data comes from the India Time-Use Survey (ITUS) 2019. The optimal bandwidth used for density estimators is 22.00. Default options, as documented in Cattaneo et al. (2018) and Cattaneo et al. (2022), are used except for the local polynomial order, which is one. Daily bins; the first bin after the value 0 refers to May 23, 2019. Solid lines are density estimates, and 95% confidence intervals are bands.

Figure C5: Aggregating Daily Bins



Notes: The data comes from the India Time-Use Survey (ITUS) 2019. The dependent variable is sleeplessness time (in minutes) for minorities. Estimates from the estimator in Calonico et al. (2017) with default options are reported. 95% confidence intervals constructed using bias-corrected standard errors are reported. The bin width on the horizontal axis is the number of days used for bin construction.

Figure C6: Heterogeneity by Proportion of Hindu Respondents whose reported Caste Category is either "General" or "OBC" in the District



Notes: The data comes from the India Time-Use Survey (ITUS) 2019. The dependent variable is sleeplessness time (in minutes) for minorities. Estimates from the estimator in Calonico et al. (2017) with default options are reported. 95% confidence intervals constructed using bias-corrected standard errors are reported. The threshold on the horizontal axis refers to the threshold used for determining the districts that constitute the analytical sample. The respondents who report their religion to be Hinduism are used for district selection. The caste category is from the self-reported information in ITUS.

Table C1: Effect of Election Results on Sleep

Sample	Optimal	RD	Robust Inference		Number of	Dep. Var.	Dep. Var.
	Bandwidth	Estimator	p-value	95% CI	Observations	Mean	SD
All Religions	16.49	-2.320	0.17	[-7.05, 1.21]	42,264	539.75	93.56
Hindus Only	29.93	7.477	0.00	[3.75, 11.09]	61,116	540.88	93.74
All Minorities	15.94	-16.304	0.00	[-27.60, -8.11]	9,443	536.04	92.88
Muslims Only	16.01	-14.434	0.01	[-29.67, -3.37]	5,685	532.45	97.42
Christians Only	31.59	-17.102	0.02	[-31.28, -3.11]	4,283	540.03	83.08
All Minorities Ext. Margin	39.17	0.000	0.74	[-0.00, 0.00]	24,531	1.00	0.01

Notes: Each row corresponds to a different sample. Rows indicate the estimating sample. The dependent variable in all rows except the last row is the time spent sleeping in minutes. The dependent variable in the last row indicates whether any time is spent sleeping. The sample contains data from the India Time-Use Survey (ITUS) 2019.

Table C2: Summary Statistics

	Mean	SD	Min	Max
Age (in years)	34.317	18.024	6.00	116.00
Usual Monthly Consumption Expenditure (10,000 Rupees)	1.014	0.783	0.00	30.12
Sleeplessness Time (minutes)	2.396	13.563	0.00	120.00
Any Sleeplessness	0.041	0.199	0.00	1.00
Sex				
Male	0.508	0.500	0.00	1.00
Female	0.492	0.500	0.00	1.00
Religion				
Follow Hinduism	0.814	0.389	0.00	1.00
Follow Islam	0.129	0.335	0.00	1.00
Follow Christianity	0.027	0.161	0.00	1.00
All Minority Religion Follower	0.186	0.389	0.00	1.00
Highest Education Level				
Illiterate	0.222	0.416	0.00	1.00
Primary School	0.440	0.496	0.00	1.00
Secondary School or above	0.338	0.473	0.00	1.00
Usual Principal Activity				
Self-Employed	0.197	0.398	0.00	1.00
Salaried/Regular Wage	0.099	0.298	0.00	1.00
Casual Wage Labor	0.125	0.331	0.00	1.00
Domestic Duties	0.269	0.443	0.00	1.00
In School or College	0.237	0.425	0.00	1.00
Unemployed or Not in Labor Force	0.073	0.260	0.00	1.00
Caste				
Upper Caste	0.280	0.449	0.00	1.00
Not Upper Caste	0.720	0.449	0.00	1.00
Region				
North	0.385	0.487	0.00	1.00
West	0.143	0.350	0.00	1.00
South	0.212	0.409	0.00	1.00
East	0.260	0.438	0.00	1.00
Rural-Urban Status				
Urban	0.303	0.459	0.00	1.00
Rural	0.697	0.459	0.00	1.00

Notes: The sample contains data from the India Time-Use Survey 2019. The number of observations in each row is 442,607. Survey weights are used to account for complex survey design.

Table C3: Effect of Election Results on Sleeplessness – Validity Check

Variable	Optimal	RD	Robust Inference		Number of	Dep. Var.	Dep. Var.
	Bandwidth	Estimator	p-value	95% CI	Observations	Mean	SD
Male	23.13	0.002	0.87	[-0.03, 0.04]	13,367	0.51	0.50
Age	19.88	-0.214	0.72	[-1.61, 1.10]	11,117	32.88	17.56
Household Size	17.06	0.093	0.24	[-0.07, 0.27]	10,297	4.71	1.97
Upper Caste	18.23	-0.005	0.86	[-0.04, 0.03]	10,691	0.33	0.47
Usual Monthly Cons. Exp.	20.80	-331.809	0.31	[-1045.39, 331.51]	11,707	11562.88	7644.40
Education							
Illiterate	26.66	-0.020	0.16	[-0.05, 0.01]	15,657	0.18	0.39
Primary School	15.92	0.018	0.29	[-0.02, 0.06]	9,532	0.29	0.45
Secondary School or College	20.87	0.005	0.84	[-0.03, 0.04]	11,707	0.35	0.48
Usual Principal Activity							
Self-Employed	14.75	-0.027	0.10	[-0.06, 0.01]	9,113	0.20	0.40
Salaried/Regular Wage	15.95	-0.002	0.95	[-0.03, 0.02]	9,532	0.10	0.30
Domestic Duties	25.98	0.023	0.13	[-0.01, 0.05]	14,825	0.28	0.45
Casual Wage Labor	15.12	0.009	0.41	[-0.01, 0.04]	9,532	0.10	0.29
In School or College	18.52	0.021	0.21	[-0.01, 0.06]	10,691	0.26	0.44

Notes: Each row corresponds to a different dependent variable. Rows indicate the dependent variable. In each row, the sample is restricted to respondents who do not report their religion as Hinduism. The bandwidth is selected to be coverage-error optimal (Cattaneo et al., 2020b). The sample contains data from the India Time-Use Survey (ITUS) 2019.

Table C4: Number of Interviews in the District

Sample	Optimal	RD	Robust Inference		Number of	Dep. Var.	Dep. Var.
	Bandwidth	Estimator	p-value	95% CI	Observations	Mean	SD
All Religions	18.31	0.071	0.61	[-0.61, 1.04]	4,932	9.46	6.79
Hindus Only	23.01	-0.261	0.72	[-0.89, 0.61]	5,354	8.40	6.08
All Minorities	24.79	0.177	0.47	[-0.49, 1.06]	2,341	6.24	4.94
Muslims Only	31.12	0.547	0.14	[-0.22, 1.55]	1,994	5.86	4.03

Notes: Each row corresponds to a different sample. Rows indicate the estimating sample. The dependent variable in all rows is the number of interviews conducted in the district. The sample contains data from the India Time-Use Survey (ITUS) 2019.

Table C5: Effect of Election Results on Sleeplessness – Alternate Cutoffs

Cutoff	Optimal Bandwidth	RD Estimator	Robust Inference p-value	Robust Inference 95% CI	Number of Observations	Dep. Var. Mean	Dep. Var. SD
Cutoff = -6	15.92	-0.043	0.81	[-0.54, 0.43]	6,515	0.81	6.14
Cutoff = -5	15.70	0.139	0.80	[-0.45, 0.59]	6,441	0.81	6.14
Cutoff = 0	40.99	0.917	0.00	[0.42, 1.51]	24,812	1.13	8.10
Cutoff = 5	19.22	-0.542	0.58	[-1.61, 2.89]	6,413	0.67	5.38
Cutoff = 6	24.40	-1.257	0.47	[-2.83, 1.30]	8,863	0.67	5.38

Notes: Each row corresponds to a different cutoff. Rows indicate the cutoff. In each row, the sample is restricted to respondents who do not report their religion as Hinduism. The sample contains data from the India Time-Use Survey (ITUS) 2019. For each alternate cutoff, observations on the opposite side of the running variable value corresponding to the actual cutoff are dropped. Thus, for all alternate cutoffs where the running variable takes negative values, all observations with the positive value of the running variable are dropped from the analytical sample and vice versa.

Table C6: Effect of Election Results on Sleeplessness – Donut-Hole Approach

Donut-Hole Radius	Optimal Bandwidth	RD Estimator	Robust Inference p-value	Robust Inference 95% CI	Number of Observations	Dep. Var. Mean	Dep. Var. SD
Baseline	40.99	0.917	0.00	[0.42, 1.51]	24,812	1.13	8.10
1	30.08	1.432	0.00	[0.68, 2.27]	17,671	1.12	8.08
2	24.92	1.806	0.00	[1.03, 2.85]	11,841	1.11	8.03
3	22.76	2.132	0.00	[1.13, 3.47]	9,828	1.12	8.03
4	18.93	3.408	0.00	[1.97, 5.36]	7,078	1.12	8.03
5	20.41	2.564	0.01	[0.72, 4.76]	7,429	1.12	8.06

Notes: Each row corresponds to a different interval around the cutoff from which the observations are excluded. Rows indicate the interval. In each row, the sample is restricted to respondents who do not report their religion as Hinduism. The sample contains data from the India Time-Use Survey (ITUS) 2019.

Table C7: Alternate Bandwidths

Bandwidth	Optimal Bandwidth	RD Estimator	Robust Inference p-value	Robust Inference 95% CI	Number of Observations	Dep. Var. Mean	Dep. Var. SD
h_{MSE}	40.99	0.917	0.00	[0.42, 1.51]	24,812	1.13	8.10
$2h_{MSE}$	81.98	0.533	0.00	[0.62, 1.58]	50,257	1.13	8.10
h_{CER}	23.09	0.371	0.12	[-1.75, 0.21]	13,138	1.13	8.10
$2h_{CER}$	46.18	0.937	0.11	[-0.12, 1.17]	27,743	1.13	8.10

Notes: Each row corresponds to a different bandwidth. Rows indicate the bandwidth. h_{MSE} and h_{CER} refer to MSE and CER optimal bandwidths (Cattaneo et al., 2020b). In each row, the sample is restricted to respondents who do not report their religion as Hinduism. The sample contains data from the India Time-Use Survey (ITUS) 2019.

Table C8: Effect of Election Results on Sleeplessness – Robustness Tests

Sample	Optimal	RD	Robust Inference		Number of	Dep. Var.	Dep. Var.
	Bandwidth	Estimator	p-value	95% CI	Observations	Mean	SD
Baseline	40.99	0.917	0.00	[0.42, 1.51]	24,812	1.13	8.10
HH Without Infants	39.61	0.905	0.00	[0.45, 1.53]	23,632	1.12	8.07
States Without Elections	38.68	1.039	0.00	[0.52, 1.68]	21,993	1.10	8.02
Normal Day Only	36.98	0.959	0.00	[0.29, 1.57]	20,016	1.15	8.22
Weekdays Only	42.48	0.730	0.03	[0.06, 1.50]	16,204	1.14	8.15
Include Covariates	37.07	0.720	0.00	[0.29, 1.36]	23,553	1.13	8.10
Aggregate Data	41.69	0.639	0.02	[0.11, 1.37]	83	1.16	1.15
Only Major Activity	34.90	1.761	0.00	[0.73, 2.62]	22,151	1.73	11.95
Include Outlier Obs.	49.27	1.923	0.01	[0.49, 3.69]	29,471	3.17	21.74
Remove Ramadan Begin and End	40.96	0.926	0.00	[0.44, 1.52]	24,714	1.13	8.09

Notes: Each row corresponds to a different sample. Rows indicate the estimating sample. In each row, the sample is restricted to respondents who do not report their religion as Hinduism. The sample contains data from the India Time-Use Survey (ITUS) 2019. The second row drops households who have any members less than one year of age at the time of the survey. The third row drops states where state legislative assembly elections are held concurrently with the Lok Sabha elections. The fourth row drops all days which are reported as in the ITUS. The fifth row drops respondents who are interviewed either on Saturday or Sunday. The sixth row includes individual, household, and weather controls. Individual controls include age, sex, highest education level, and usual principal activity status. Household controls include number of members in the household, whether a household is an upper caste or not, usual monthly consumption expenditure, and whether the household uses a clean fuel as a primary source of energy for cooking. Weather controls include temperature and precipitation. The seventh row aggregates data for each day of the interview using arithmetic mean. The eighth row assigns all the time within each 30-minute interval to the activity reported by the respondent. The ninth row includes observations that are above the 99th percentile of the sample distribution. The tenth row drops observations at the Ramadan beginning and end, i.e., May 5th and June 3rd, 2019.

Table C9: Robustness Tests for Muslims Only

Sample	Optimal	RD	Robust Inference		Number of	Dep. Var.	Dep. Var.
	Bandwidth	Estimator	p-value	95% CI	Observations	Mean	SD
Baseline	39.65	2.868	0.00	[1.69, 4.34]	14,275	2.30	13.64
HH Without Infants	38.26	2.705	0.00	[1.66, 4.26]	13,576	2.29	13.64
States Without Elections	37.87	2.854	0.00	[1.62, 4.34]	13,387	2.24	13.55
Normal Day Only	37.68	3.549	0.00	[1.88, 5.09]	12,174	2.27	13.57
Weekdays Only	39.26	2.413	0.00	[0.86, 4.24]	9,078	2.23	13.43
Include Covariates	35.98	2.477	0.00	[1.33, 3.97]	13,153	2.30	13.64
Aggregate Data	47.30	2.688	0.01	[0.74, 5.82]	95	2.38	2.24
Only Major Activity	39.07	2.962	0.00	[1.84, 4.45]	14,267	2.22	13.59
Include Outlier Obs.	38.86	2.486	0.20	[-1.01, 4.77]	14,244	4.18	25.46
Remove Ramadan Begin and End	39.38	2.873	0.00	[1.71, 4.35]	14,227	2.29	13.63

Notes: Each row corresponds to a different sample. Rows indicate the estimating sample. In each row, the sample is restricted to respondents who report their religion as Islam. The sample contains data from the India Time-Use Survey (ITUS) 2019. The second row drops households who have any members less than one year of age at the time of the survey. The third row drops states where state legislative assembly elections are held concurrently with the Lok Sabha elections. The fourth row drops all days which are reported as in the ITUS. The fifth row drops respondents who are interviewed either on Saturday or Sunday. The sixth row includes individual, household, and weather controls. Individual controls include age, sex, highest education level, and usual principal activity status. Household controls include number of members in the household, whether a household is an upper caste or not, usual monthly consumption expenditure, and whether the household uses a clean fuel as a primary source of energy for cooking. Weather controls include temperature and precipitation. The seventh row aggregates data for each day of the interview using arithmetic mean. The eighth row assigns all the time within each 30-minute interval to the activity reported by the respondent. The ninth row includes observations that are above the 99th percentile of the sample distribution. The tenth row drops observations at the Ramadan beginning and end, i.e., May 5th and June 3rd, 2019.

Table C10: Robustness Tests for Christians Only

Sample	Optimal	RD	Robust Inference		Number of	Dep. Var.	Dep. Var.
	Bandwidth	Estimator	p-value	95% CI	Observations	Mean	SD
Baseline	37.20	0.290	0.04	[0.02, 0.64]	5,155	0.11	1.74
HH Without Infants	37.44	0.290	0.04	[0.02, 0.65]	5,029	0.11	1.75
States Without Elections	45.80	0.293	0.08	[-0.04, 0.66]	5,488	0.08	1.51
Normal Day Only	38.55	0.352	0.04	[0.02, 0.77]	4,335	0.12	1.83
Weekdays Only	45.38	0.131	0.29	[-0.13, 0.42]	3,767	0.12	1.82
Include Covariates	33.70	0.317	0.02	[0.05, 0.68]	4,758	0.11	1.74
Aggregate Data	55.67	0.331	0.18	[-0.14, 0.78]	110	0.11	0.40
Only Major Activity	41.85	0.147	0.33	[-0.16, 0.48]	5,619	0.09	1.63
Include Outlier Obs.	36.07	-0.485	0.66	[-1.71, 1.07]	5,144	1.11	12.40
Remove Ramadan Begin and End	37.03	0.291	0.04	[0.02, 0.65]	5,128	0.11	1.74

Notes: Each row corresponds to a different sample. Rows indicate the estimating sample. In each row, the sample is restricted to respondents who report their religion as Christianity. The sample contains data from the India Time-Use Survey (ITUS) 2019. The second row drops households who have any members less than one year of age at the time of the survey. The third row drops states where state legislative assembly elections are held concurrently with the Lok Sabha elections. The fourth row drops all days which are reported as in the ITUS. The fifth row drops respondents who are interviewed either on Saturday or Sunday. The sixth row includes individual, household, and weather controls. Individual controls include age, sex, highest education level, and usual principal activity status. Household controls include number of members in the household, whether a household is an upper caste or not, usual monthly consumption expenditure, and whether the household uses a clean fuel as a primary source of energy for cooking. Weather controls include temperature and precipitation. The seventh row aggregates data for each day of the interview using arithmetic mean. The eighth row assigns all the time within each 30-minute interval to the activity reported by the respondent. The ninth row includes observations that are above the 99th percentile of the sample distribution. The tenth row drops observations at the Ramadan beginning and end, i.e., May 5th and June 3rd, 2019.

Table C11: Heterogeneity by Activity Type

Variable	Optimal	RD	Robust Inference		Number of	Dep. Var.	Dep. Var.
	Bandwidth	Estimator	p-value	95% CI	Observations	Mean	SD
Baseline	40.99	0.917	0.00	[0.42, 1.51]	24,812	1.01	7.56
Broad Activity							
Employment and related activities	31.96	11.794	0.12	[-3.41, 28.63]	19,666	175.77	232.37
Unpaid Care	53.95	-6.345	0.16	[-17.93, 3.04]	30,687	161.47	198.61
Leisure, Learning, Self-care, and Socializing	32.27	-6.759	0.33	[-24.86, 8.44]	20,459	1102.76	247.87
Outdoor Activity Duration	41.27	-10.893	0.05	[-18.86, -0.04]	25,287	123.67	162.08

Notes: Each row corresponds to a different dependent variable. Rows indicate the dependent variable. Time spent on various activities is in minutes. In each row, the sample is restricted to respondents who do not report their religion as Hinduism. Outdoor activities are defined using the classification of Jafarov et al. (2023). The sample contains data from the India Time-Use Survey (ITUS) 2019.

Table C12: Heterogeneity

Sample	Optimal	RD	Robust Inference		Number of	Dep. Var.	Dep. Var.
	Bandwidth	Estimator	p-value	95% CI	Observations	Mean	SD
Baseline	40.99	0.917	0.00	[0.42, 1.51]	24,812	1.13	8.10
Sex							
Male	40.24	1.134	0.00	[0.51, 1.98]	12,598	0.99	7.42
Female	42.16	0.703	0.04	[0.04, 1.56]	12,688	1.27	8.75
Age							
Age $<$ 18	41.40	1.238	0.02	[0.24, 2.60]	5,445	0.87	7.07
18 $\leq$ Age $\leq$ 35	43.14	1.298	0.00	[0.62, 2.16]	10,437	1.05	7.91
36 $\leq$ Age $\leq$ 60	38.67	0.742	0.08	[-0.09, 1.67]	7,455	1.15	8.00
Age $\geq$ 61	36.93	-1.029	0.38	[-4.43, 1.69]	1,782	2.21	11.58
Highest Education Level							
Illiterate	45.35	0.098	0.94	[-1.37, 1.48]	5,240	1.72	10.13
Primary School	34.52	1.553	0.00	[0.74, 2.37]	10,419	1.09	7.87
Secondary School and Above	50.25	0.596	0.12	[-0.18, 1.50]	9,944	0.88	7.16
Usual Principal Activity							
Self-Employed	42.33	1.653	0.00	[0.88, 2.66]	5,395	0.98	7.27
Salaried/Regular Wage	51.85	0.616	0.29	[-0.65, 2.16]	2,912	0.56	5.47
Casual Wage Labor	31.62	1.816	0.03	[0.17, 3.92]	1,933	1.32	8.55
Domestic Duties	42.56	0.843	0.10	[-0.17, 2.06]	6,939	1.45	9.51
In School or College	42.38	0.816	0.05	[-0.02, 1.93]	6,526	0.87	6.93
Usual Monthly Consumption Expenditure							
First Quartile	33.08	-0.148	0.77	[-0.90, 0.67]	5,494	1.25	8.54
Second Quartile	18.97	-0.774	0.34	[-3.39, 1.18]	2,479	1.24	8.57
Third Quartile	38.34	1.240	0.02	[0.18, 2.56]	5,793	0.99	7.40
Fourth Quartile	41.58	1.243	0.01	[0.41, 2.41]	6,593	1.04	7.87
Region							
North	32.20	2.386	0.00	[1.45, 3.73]	6,412	1.51	9.29
West	43.18	3.856	0.00	[1.81, 6.39]	2,980	2.11	11.05
South	38.21	-1.318	0.04	[-2.97, -0.04]	3,665	0.88	6.75
East	23.87	-0.618	0.22	[-1.69, 0.39]	5,428	0.71	6.63
Rural-Urban Status							
Urban	23.79	0.686	0.43	[-0.78, 1.83]	6,169	1.19	8.31
Rural	19.20	-0.121	0.50	[-0.98, 0.48]	5,755	1.08	7.93
Political Climate							
BJP Ruled States Only	42.39	1.647	0.00	[0.81, 2.58]	14,369	1.18	8.40
Non-BJP Ruled States Only	37.04	0.338	0.30	[-0.31, 0.98]	10,491	1.06	7.67
Electorally Competitive District	39.06	1.117	0.00	[0.50, 1.96]	12,067	1.05	7.55
Not Electorally Competitive District	41.55	0.736	0.11	[-0.15, 1.48]	12,736	1.21	8.62
Muslim Population Density							
Above Median Muslim Percentage District	39.94	1.609	0.00	[0.86, 2.45]	15,092	1.31	8.68
Below Median Muslim Percentage District	29.95	-0.501	0.10	[-1.38, 0.12]	6,680	0.84	7.10
Hindu-Muslim Riots							
Hindu-Muslim Riot District	39.56	1.732	0.00	[0.82, 3.08]	8,812	1.56	9.53
Non-Hindu-Muslim Riot District	41.60	0.148	0.54	[-0.31, 0.59]	16,237	0.90	7.25

Notes: Each row corresponds to a different sample. Rows indicate the estimating sample. In each row, the sample is restricted to respondents who do not report their religion as Hinduism. The optimal bandwidth is calculated using default settings of Calonico et al. (2017). The sample contains data from the India Time-Use Survey (ITUS) 2019.