

Ghatak, Subhasree; Dutta, Meghna

## Article

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## Article

# Negotiating Autonomy: The Linkages between Intimate Partner Violence, Women's Paid Work Status and Birth Outcomes

Subhasree Ghatak  and Meghna Dutta \* 

Department of Humanities and Social Sciences, Indian Institute of Technology, Patna 801106, Bihar, India

\* Correspondence: meghna@iitp.ac.in

**Abstract:** Maternal and child health is severely impacted by adverse birth outcomes leading to a public health concern. A whole host of socioeconomic factors are instrumental in determining birth outcomes. Importantly, there is an intricate relationship between women's autonomy, the perpetration of intimate partner violence in households, women's paid work status and their consequent impact on birth outcomes. Noting this, we ask how intimate partner violence and women's work status interact and how women's 'autonomy' is negotiated to mitigate adverse birth outcomes such as miscarriage, abortion, stillbirth, low birth weight and preterm birth. We use the nationally representative NFHS-5 data for India and use multiple correspondence analyses to create an index of women's autonomy, and multinomial logistic regression has been used to determine the relation. Women's working status in association with the perpetration of intimate partner violence contributes significantly to adverse birth outcomes. The study found that mitigation of adverse birth outcomes, which is necessary for bringing about improvements in maternal and child health, is contingent on a multiplicity of social factors, which requires redressal in association to ensure a reduction in adverse birth outcomes.

**Keywords:** adverse birth outcomes; women's autonomy; intimate partner violence; maternal health; India



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## 1. Introduction

Women's autonomy, as defined in academic literature, is derived from measures such as decision-making capacity in the household, freedom of mobility and financial stability. Such autonomy is thought to contribute towards a woman's enhanced status in the household, and such women are more likely to be aware of and responsible for their reproductive healthcare needs (Bloom et al. 2001; Fikree and Pasha 2004). Thus, it is not surprising that the utilisation of maternal healthcare services and pregnancy care is found to be contingent upon the extent of autonomy that women enjoy (Ghosh and Ghosh 2020; Rizkianti et al. 2020). The potential importance of women's autonomy in influencing their healthcare-seeking behaviour, particularly reproductive health, which can lead to adverse birth outcomes, is important from both an economic and developmental perspective. The prevalent gendered social and health disparities typically work across multiple socioeconomic levels; however, the constraints imposed by the partner are particularly critical for women's reproductive autonomy and hence birth outcomes. While supportive partners tend to augment women's health and well-being, non-supportive, controlling, or violent partners can impede it. When it comes to partner-related constraints on women's reproductive autonomy, the focus of studies has largely been on the most severe limitations and outcomes, such as intimate partner violence (IPV)<sup>1</sup>, where worldwide, one in three women is known to experience IPV during their lives (WHO 2018). However, women's autonomy—both economic as well as partner-related, are by and large studied in separate contextual frames, with little attention being given to analysing the interactive effect of partner-related constraints on women's reproductive health and birth outcomes.

Adverse birth outcomes such as spontaneous abortion (generally referred to as a miscarriage), induced abortion, stillbirth, low birth weight (henceforth, LBW) and preterm

birth (henceforth, PTB) are major threats to both maternal and child health. Apart from being a major cause of long-term morbidity and mortality for women (Yokoe et al. 2019)<sup>2</sup>, these have consequences for long-term growth, health, and developmental outcomes of the children too (Bailey 2010; Rao et al. 2016). Globally, a higher burden of adverse birth outcomes is borne by developing countries on account of their insufficient healthcare systems, flailing infrastructure and sociocultural norms (WHO 2018)<sup>3</sup>. Moreover, these pregnancy outcomes eventually snowball into public health problems which entail high healthcare costs for the household. In fact, LBW and PTB together contribute to being the leading causes of neonatal deaths in under-five mortality (Campbell et al. 1999; Beck et al. 2010; Sigalla et al. 2017) and characterise over 60% of births that take place in the middle and low-income countries (Frey and Klebanoff 2016; Dadi et al. 2020).

Adverse birth outcomes are contingent on a wide spectrum of alterable and non-alterable exposures. Sociodemographic factors such as maternal age, maternal nutrition, area of residence, educational status, experiences of health, abusive behaviours, and utilisation of maternal healthcare services play an instrumental role in determining the reproductive health of a woman, thereby leading to disparities in pregnancy outcomes. Some of the above sets of factors have been extensively dealt with in the literature (see Babu and Kar 2009; Dalal and Lindqvist 2012; Dhar et al. 2018; Silverman et al. 2019; Avanigadda and Kulasekaran 2021 for more on the impact of these factors). However, partner-related constraints such as perpetration of violence<sup>4</sup>, reproductive coercion etc., that are likely to impact women's health and birth outcomes have not been extensively dealt with, especially for countries like India where one in every three women is subjected to IPV (Krishnamoorthy et al. 2020). As a matter of fact, evidence from the National Family Health Survey-5 suggests that 32% of ever-married women aged between 18–49 years have lifetime experiences of IPV in India. Physical violence has the highest prevalence (28%), followed by emotional violence (14%) and sexual violence (6%). Women with lifetime experiences of IPV invariably report poor health outcomes, and cross-country analyses confirm that the prevalence of IPV and its strong impact on poor reproductive outcomes are observed across both high-income (Zorrilla et al. 2010; Costa et al. 2016) as well as low-income countries (Garcia-Moreno et al. 2005; Sarkar 2008; Pallitto et al. 2013) with disproportionately more adverse outcomes among the South Asian countries<sup>5</sup>.

An important aspect related to women's autonomy is women's paid work status and its association with the perpetration of IPV. The gender identity framework proposed by (Akerlof and Kranton 2000) suggests that maximum utility is conferred in the household upon following gendered norms. A woman's paid work participation outside the household can be viewed as a deviation from the gendered roles. This can have twofold implications. Drawing upon the economic theory of household bargaining, a woman's paid work status enhances her bargaining power in the household (Agarwal 1997), which is implicative of reduced IPV (Aizer 2010; Majlesi 2016). On the other hand, it can also lead to a compensatory masculine display of violence (Atkinson et al. 2005). This implies that a deviation from gendered roles and an increase in bargaining power can induce a 'male backlash channel' wherein the prevalence of violence towards working women increases (Macmillan and Gartner 1999; Luke and Munshi 2011). Consequently, studying the impact of lifetime experiences of violence on adverse birth outcomes is instrumental in shaping an understanding of the possible areas of interventions necessary to reduce such adverse outcomes. Again, India represents a pertinent case to study in this context, given its deeply entrenched patriarchal values and social norms, which are known to heavily curtail women's freedom of mobility and decision-making capacity even within the household (Jejeebhoy 2000). Such norms and practices inhibit the conditions around which women can take healthcare decisions for themselves. Therefore, a diversion of research attention to the perpetration of IPV and reduced women's autonomy is necessary on account of its strong association with poor health outcomes, reproductive vulnerabilities and maternal health concerns. In order to address the deficiency of research in studying the interactive role of the aforementioned factors in determining birth outcomes, this paper attempts to underline

the role that women's autonomy plays in impacting birth outcomes. Apart from the existing metrics of traditionally measuring women's autonomy, we also consider women's perception regarding IPV as another metric serving as a measure of their autonomy. Including the perpetration of IPV into the study presents a unique dimension that helps capture how women negotiate these dynamics to make their participation in decision-making possible and whether it results in a transformation of their health conditions. Furthermore, we add to this literature by examining the 'male backlash channel' through the interactive effect of women's paid work status and their lifetime experience of IPV on birth outcomes. The increased household cash flow generated from women's work while reducing conflict over money and resources may threaten to alter the power dynamics in the relationship resulting in more IPV and, thus, increased adverse birth outcomes. What now follows from the above discussion is that the existing literature has accounted for all of the factors, namely: women's autonomy, lifetime experience of IPV and paid working status on birth outcomes individually. While IPV adversely impacts birth outcomes, exercising autonomy and a paid working status might reduce the chances of an adverse birth outcome. What has remained unaddressed is the need to look into the interactive association between these factors in impacting birth outcomes. This paper fills the gap by employing an interaction term between the perpetration of IPV and a women's paid work status to further understand the 'male backlash channel' and its impact on adverse birth outcomes. It aims at understanding the role of paid working status in the presence of IPV to further devise ways to mitigate adverse birth outcomes.

The rest of the study is organised as below. Section 2 provides a brief review of the literature, Section 3 deals with the data source and study variables, Section 4 presents the estimation and elaborately discusses the results, while Section 5 concludes the study.

## 2. Review of Literature

Existing literature provides evidence that women's autonomy is intricately linked to their power and agency and plays an instrumental role in their reproductive health decisions (Bloom et al. 2001; Ram et al. 2022). This implies that there are increased chances for them to avert an adverse birth outcome. For women lacking reproductive autonomy, the risk of unsafe and self-managed pregnancies increases (Goemans et al. 2021). Whereas women exercising reproductive autonomy are able to access safe abortion services for mistimed or unwanted pregnancies (Pallitto et al. 2013). The lack of reproductive autonomy also has implications for sex-based coercive miscarriages. The chances of LBW and PTB are significantly reduced with access to maternal healthcare utilisation (Shome et al. 2018).

The documented evidence on the association between IPV and poor reproductive outcomes such as miscarriage and abortion at a global scale is robust (Garcia-Moreno et al. 2005; Sarkar 2008; Devries et al. 2014). Studies by Lee-Rife (2010) and Stephenson et al. (2016) on married Indian women concluded strong associations between IPV and abortion, whereas the study by Dhar et al. (2018) in Bihar, India, showed no significant association between IPV and abortion.

Bramhankar and Reshmi (2021) found that women exposed to physical violence by their spouses had greater chances of miscarriage on account of physical assault. Perinatal stress causes deregulations in the neuroendocrine, neural and immune systems, thereby disrupting biological mechanisms. The exposure to perinatal stress is heightened with incidences of intimate partner violence in an abusive environment. This in turn increases the chances of adverse birth outcomes, notably LBW and PTB. IPV induces restrictive foetal growth (Alemu et al. 2019; Rahman et al. 2021). Sigalla et al. (2017) found that women with previous adverse pregnancy outcomes such as miscarriages or abortions and with current experience of IPV have increased chances of LBW and PTB. This brief discussion of previous studies concludes that IPV invariably causes adverse birth outcomes.

The economic theories of household bargaining (Agarwal 1997) state that a woman's autonomy in the household increases her bargaining power which has implications for intra-household dynamics. Being engaged in paid employment is one channel through

which women exercise an increase in bargaining power within the household (Aizer 2010; Majlesi 2016). The extensive literature on the perpetration of IPV propounds that women who lack paid employment opportunities are at higher risk of domestic violence. (Oceean et al. 2021; Rayhan and Akter 2021). Alternatively, paid employment should invariably reduce the chances of perpetration of IPV (Eswaran and Malhotra 2011). Studies in cross-country contexts have examined the association between IPV and women's autonomy and have highlighted that engagement in paid work outside the household might be regarded as a violation of traditional gender roles and thus induce partner violence (Gracia et al. 2018; Sanawar et al. 2018; Islam et al. 2021; Dhanaraj and Mahambare 2021). This is indicative of the fact that increased economic opportunities for women outside the household might not necessarily prevent them from IPV. In certain instances, women themselves defend the IPV inflicted on them (Islam et al. 2021; Dhanaraj and Mahambare 2021). The impact of women's involvement in paid work on birth outcomes has also been previously studied. Studies have concluded that financial autonomy, which is brought about by a paid work status, increases access to safe abortion services, while certain kinds of occupational exposures might lead to an increase in the chances of a miscarriage (Kant et al. 2015; Dhar et al. 2018; Kumar et al. 2019).

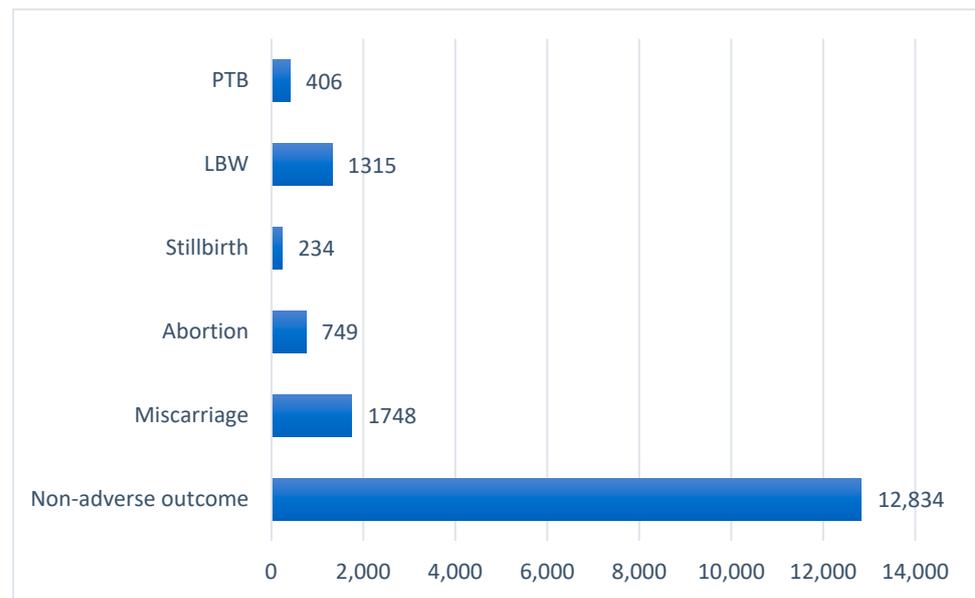
Based on a brief discussion of the extensive literature that traces the socioeconomic determinants of adverse birth outcomes, this paper tries to culminate the possible causes that contribute towards adverse birth outcomes that, in turn, are gradually magnifying as a public health problem. Since none of the factors can be singularly traced for their impact on maternal and child health, it necessitates the need to account for multiple factors and their interactive effects in determining health outcomes. This study takes into account women's perception towards IPV as a measure of autonomy to further interrogate its impact on birth outcomes. The effect that a woman's paid work status in interaction with the perpetration of IPV has on birth outcomes will also be studied.

### 3. Data Source and Study Variables

This paper uses secondary data from the National Family Health Survey-5 (henceforth, NFHS), which is a nationally representative, large-scale household survey done by the Ministry of Health and Family Welfare, Government of India. The present set of data pertains to 2019–2021. The total sample of NFHS-5 comprises 724,115 women and 101,839 men. The women interviewed were in the age bracket of 15–49 years, which corresponds to the reproductive age for women. As per the WHO (2011) guideline "Putting Women First: Ethical and Safety Recommendations for Research on Domestic Violence against Women", only one eligible woman per household is selected for answering the domestic violence module. In our study, only those women who have answered the domestic violence schedule have been taken into account. Of these women, we considered only those who had births in the last five years only. This brings down the sample size to 17,286 women. Adverse birth outcomes considered for this study included abortion, miscarriage, stillbirth, LBW and PTB.

#### 3.1. Variables Studied

This study determines the impact of women's autonomy on birth outcomes. To that extent, the explained variable, i.e., birth outcomes, is classified as either adverse or non-adverse. Adverse birth outcomes include miscarriage, abortion, stillbirth, LBW and PTB. The coding has been done as follows: Live birth, which is the reference category, has been coded as '0'. Adverse birth outcomes in the nature of miscarriage have been coded as '1', followed by abortion, coded as '2', stillbirth coded as '3', LBW coded as '4' and PTB coded as '5'. Of our total sample, 12,834 women have a non-adverse birth outcome constituting 74% of the study, followed by 10% of women who have faced a miscarriage, 4% an abortion, 2% a stillbirth, 8% LBW and 2% PTB, accounting for a total of 4452 women who have faced an adverse outcome as shown in Figure 1.



**Figure 1.** Number of women in different birth outcome categories.

The independent variables for this study are discussed in detail below, and their summary statistics are elaborated in Table 1. A correlation matrix is presented in Appendix A as Table A1. Among the respondents, about 21% are illiterate, and about 26% belong to the poorest household. Close to 26% of women who had been pregnant in the last five years have reported adverse birth outcomes, and a whopping 29% of women have said they faced some form of violence from their partners.

**Table 1.** Summary statistics of variables studied.

| Variables                            | Frequency | Percentage |
|--------------------------------------|-----------|------------|
| <b>Birth outcomes</b>                |           |            |
| Non-adverse                          | 12,834    | 74.25      |
| Adverse                              | 4452      | 25.75      |
| Total                                | 17,286    | 100.00     |
| <b>Perpetration of IPV</b>           |           |            |
| No experience of IPV                 | 12,252    | 70.88      |
| Faced some form of IPV               | 5034      | 29.12      |
| <b>Marital controlling behaviour</b> |           |            |
| No marital control                   | 9650      | 55.83      |
| Somewhat control                     | 4866      | 28.15      |
| Full marital control                 | 2770      | 16.02      |
| <b>Residential site</b>              |           |            |
| Urban                                | 4029      | 23.31      |
| Rural                                | 13,257    | 76.69      |
| <b>Educational attainment</b>        |           |            |
| No education                         | 3628      | 20.99      |
| Primary                              | 2242      | 12.97      |
| Secondary                            | 9123      | 52.78      |
| Higher                               | 2293      | 13.27      |

Table 1. Cont.

| Variables           | Frequency | Percentage |
|---------------------|-----------|------------|
| <b>Wealth index</b> |           |            |
| Poorest             | 4437      | 25.67      |
| Poorer              | 3957      | 22.89      |
| Middle              | 3372      | 19.51      |
| Richer              | 3103      | 17.95      |
| Richest             | 2417      | 13.98      |
| <b>Age group</b>    |           |            |
| 15–19               | 339       | 1.96       |
| 20–24               | 4073      | 23.56      |
| 25–29               | 6649      | 38.46      |
| 30–34               | 3996      | 23.12      |
| 35–39               | 1715      | 9.92       |
| 40–44               | 411       | 2.38       |
| 45–49               | 103       | 0.6        |

Source: Authors' calculations.

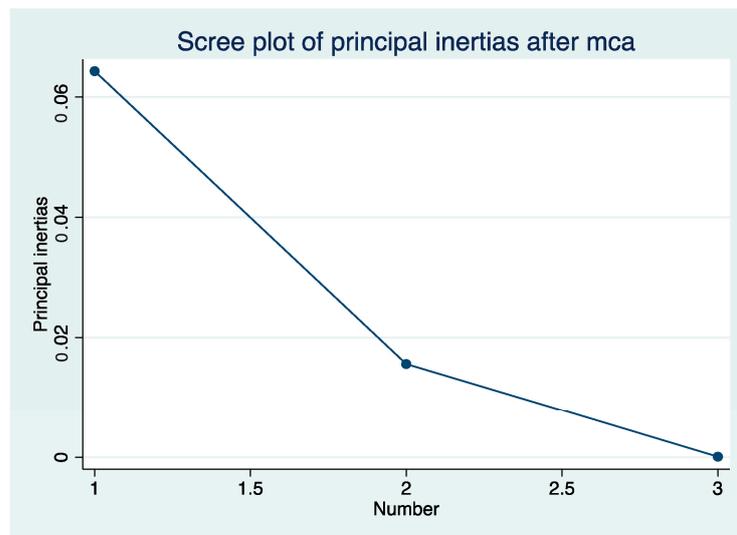
### 3.1.1. Women's Autonomy (Autonomy)

Considering that the indicators we use to measure women's autonomy are categorical variables, we use a Multiple Correspondence Analysis to create a composite index (Greenacre and Blasius 2006). Technically MCA is obtained by using a standard correspondence analysis on an indicator matrix. The 10 variables that have been used to create the composite index of women's autonomy can be classified under four broad categories—a woman's decision-making power, freedom of mobility, financial stability and her attitude towards IPV, as explained in Table 2. The scale reliability coefficient of Cronbach's alpha is 0.73, which is sufficient to group the items together.

Table 2. Item description and coding criteria.

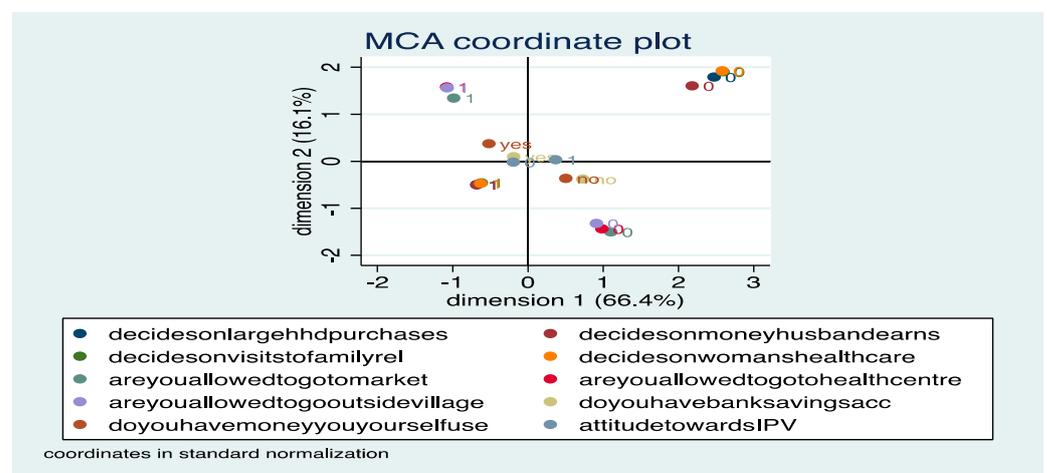
| Items   | Coding Criteria   |
|---|---|
| <b>Decision-Making Power</b>  |   |
| 1. Who decides on the woman's healthcare?<br>2. Who decides on large household purchases?<br>3. Who decides on visits to family or relatives?<br>4. Who decides what is to be done with the money the respondent's husband earns? | If answered 'respondent alone' or 'jointly with husband', it is coded as '1'. If answered anything otherwise, it is coded as '0'. |
| <b>Freedom of Mobility</b>  |   |
| 5. Are you usually 'allowed' to go to the market?<br>6. Are you usually 'allowed' to go to the health facility?<br>7. Are you usually 'allowed' to go the outside the village?  | If answered 'alone', coded as '1'; 'not at all' and 'with someone else only', coded as '0'.                                       |
| <b>Financial Stability</b>  |   |
| 8. Do you own money that you yourself can use?<br>9. Do you have a bank or savings account that you can use?  | If answered 'Yes', coded as '1'; 'No' coded as '0'.   |
| <b>Attitude Towards IPV</b>   |   |
| 10. Justifies IPV on grounds:<br>She goes out without telling her husband, neglects children, argues with the husband, refuses to have sex with the husband, burns the food.  | Does not justify is coded as '0';<br>Justifies is coded as '1'.   |

MCA is conducted on these 10 questions with Burt/Adjusted Inertias. The principal inertia is used as a criterion to retain the axes that will be analysed. Following the Kaiser criterion, dimensions 1 and 2 are retained, which in combination explains 82.5% of the variance. The scree plot is presented in Figure 2 and confirms that for two dimensions, the eigen value achieved significance.



**Figure 2.** Scree plot of principal inertias obtained from MCA. Source: Authors' calculations.

We now calculate the women's autonomy index by generating scores based on standardisation to row coordinates (Blasius and Greenacre 2014). The MCA coordinate plot presented in Figure 3 shows the association between the items used to create the index. The cluster of the variables on the decision-making power of the woman in her household on the top right indicates its slight dissociation from the other items in the index.



**Figure 3.** MCA coordinate plot in standard normalisation. Source: Authors' calculations.

### 3.1.2. Lifetime Experience of Intimate Partner Violence (pofipv)

Lifetime experience of IPV has been categorised into emotional, physical, and sexual violence. To quantify emotional violence, questions such as whether the husband humiliated the respondent or threatened her with harm or insulted her or made her feel bad were asked. The prevalence of physical violence was measured by asking if the respondent was pushed, shaken, slapped, punched, kicked, strangled or burnt or threatened with a weapon by the husband. Instances of sexual violence included being forced into unwanted sex by the husband or being physically forced to perform sexual acts. Having faced none of the above has been coded as '0', indicating no lifetime experience of intimate partner violence. Having faced any emotional, physical or sexual violence has been coded as '1', having faced any two of the three has been coded as '2' and having faced all three forms of violence has been coded as '3'. This captures the different degrees to which each woman has suffered from IPV.

### 3.1.3. Marital Controlling Behaviour (mcb)

The marital controlling behaviour imposed by the male partner on his spouse is identified using six indicators. The questions are in the nature of authority imposition and ask if the husband gets jealous if the respondent talks to other men, accuses her of unfaithfulness, doesn't permit the respondent to meet her female friends, tries to limit contact with the respondent with her natal family, insists on knowing the respondent's whereabouts and doesn't trust her with money. Each of these questions, if answered in affirmation, is coded as 1 and 0 otherwise. The degree of marital controlling behaviour is then grouped into three categories: no marital control if none of the questions are answered in affirmation, which is then indicative of marital autonomy for the respondent; less marital control if not more than two questions are answered with a 'yes'; and high marital control if three or more specified behaviours are answered in 'yes'.

### 3.1.4. Working Status of the Respondent (ws)

The respondent's working status has been coded as '1' if she was working at the time of the survey and '0' otherwise.

### 3.1.5. Residence (res)

The residential site of the household has been categorised as 'urban' and 'rural'. Urban has been coded as '0' and rural as '1'.

### 3.1.6. Educational Attainment (educ)

The educational attainment levels have been coded as '0' for no formal education, '1' for having attained primary education, '2' for having attained secondary education and 3 for higher education.

### 3.1.7. Wealth Index (wi)

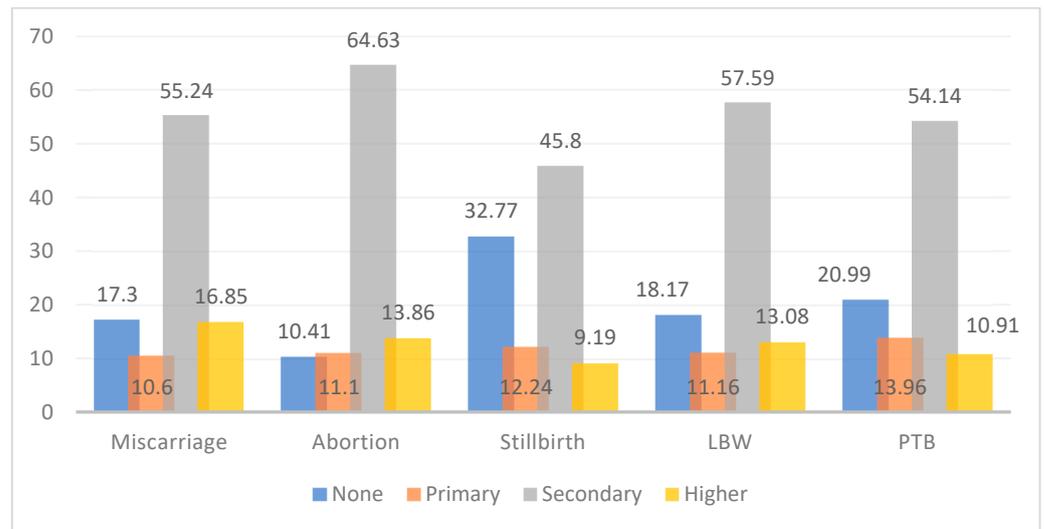
The wealth index has been presented in quintiles. There are five wealth categories—"poorest", "poorer", "middle", "richer", and "richest".

### 3.1.8. Present Age (Agegroup)

The woman's age has been classified into the following groups: 15–19, 20–24, 25–29, 30–34, 35–39, 40–44 and 45–49.

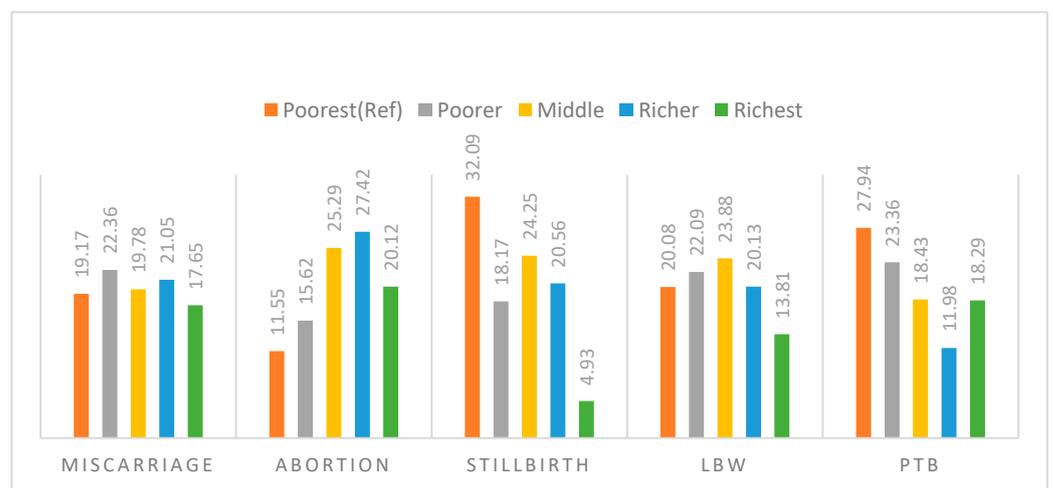
## 3.2. Patterns of Adverse Birth Outcomes

In studying the incidences and patterns of birth outcomes spread across various categories of the respondents, we find that the proportion of women with at least one form of adverse birth outcome, classified by their educational attainments, is highest for those having a secondary level of education (Figure 4). Among women with no education, incidences of stillbirth are the highest at 32.77%, and for women having attained higher levels of education, incidences of miscarriages and abortions seem to be more frequent.



**Figure 4.** Percentage of women in each adverse birth outcome category, classified by their educational attainment levels. Source: Authors’ calculations.

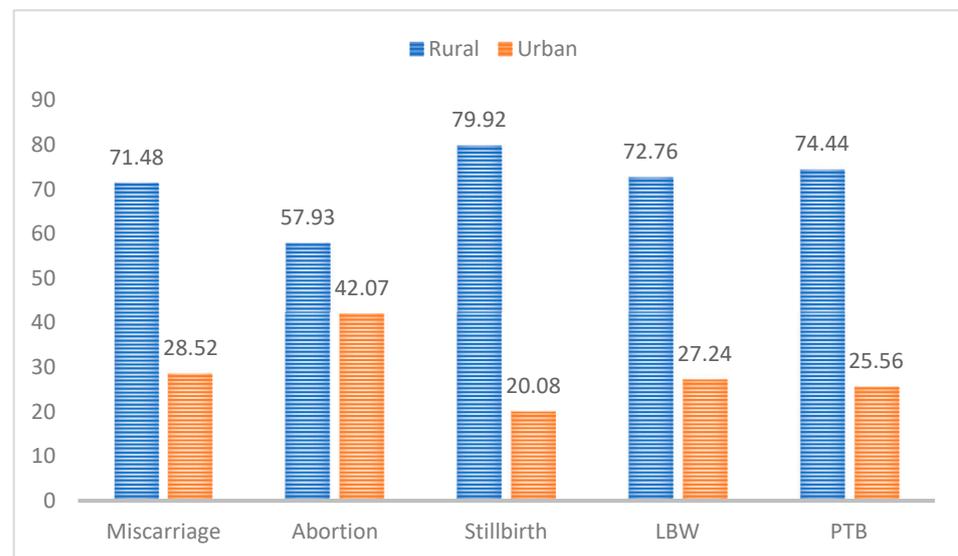
The percentage of women in each adverse birth outcome category, classified according to the wealth quintile of the household, shows that the poorest households have an overwhelming incidence of stillbirths, LBW and PTB. This is implicative of the lack of access to adequate, timely and safe health services among poor households, which is an important factor in minimising adverse health outcomes (Figure 5). For households in the middle wealth quintile, abortion has the highest incidence. Incidences of LBW and PTB are less among richer households. For the richest households, incidences of abortion are the highest, indicating that the richest households have greater access to safe abortion services. It is also likely that richer households have more educated and/or working women who have a greater say with respect to the decisions of their pregnancies.



**Figure 5.** Percentage of women in each adverse birth outcome category by household wealth quintile. Source: Authors’ calculations.

Figure 6 shows the percentage of women in each adverse outcome category classified according to their residential area. In rural areas, the incidences of adverse birth outcomes are far higher than in urban areas. The higher vulnerability of rural women to adverse birth outcomes is a significant indicator of poor access to healthcare facilities, and they can benefit from heightened clinical vigilance and better healthcare access. Interestingly, for women residing in urban areas, the proportion of abortion has the highest incidence

compared to all other adverse birth outcomes implying safe abortion is largely dependent on the provision of adequate healthcare services, which is more developed in urban areas.



**Figure 6.** Percentage of women in each adverse birth outcome category by residential area. Source: Authors' calculations.

#### 4. Results and Discussion

To assess the socioeconomic causes of adverse birth outcomes, we first ran a survey weight-adjusted bivariate logistic regression followed by a survey weight-adjusted multinomial logistic regression represented by Equation (1).

$$adverse\_bo_i = \alpha_i + \beta_1 autonomy_i + \beta_2 pofipv_i + \beta_3 mcb_i + \beta_4 educ_i + \beta_5 res_i + \beta_6 wi_i + \beta_7 agegroup_i + \beta_8 ws_i + \beta_9 pofipv_i * ws_i + \varepsilon_i \quad (1)$$

where,  $\varepsilon_i$  is the idiosyncratic error term.

The results in Col. (1) of Table 3 are from the bivariate model, where we consider all adverse birth outcomes together. Women's autonomy doesn't seem to significantly impact birth outcomes in this model. The results in turn highlight that the perpetration of IPV increases the chances of adverse birth outcomes by 17% and 48%, respectively, depending upon the degree of IPV inflicted. The existence of a 'male backlash channel' is confirmed, whereby in the presence of paid employment, the perpetration of IPV increases the likelihood of an adverse birth outcome. To understand the impact of women's autonomy as a factor influencing birth outcomes in greater detail, we further undertake a multinomial logistic regression considering each adverse birth outcome separately. The results in Col. 2 to 6 of Table 3 present results from the multinomial logistic regression. The results reveal that women's autonomy exhibits statistically significant results only in the case of a stillbirth. Women's autonomy reduces the chances of having a stillbirth by 51%. These results, in line with the results from the previous model, establish that women's autonomy doesn't significantly impact miscarriage, abortion, LBW and PTB.

**Table 3.** Estimation Results for adverse birth outcomes <sup>#</sup>.

| Variables                                   | All Adverse Birth Outcomes (1) | Miscarriage (2) | Abortion (3) | Stillbirth (4) | LBW (5)  | PTB (6)                     |
|---|--------------------------------|-----------------|--------------|----------------|----------|-----------------------------|
| <b>Autonomy</b>                             | 1.06                           | 1.14            | 0.8          | 0.49 *         | 1.12     | 1.44                        |
| <b>IPV</b>                                  |                                |                 |              |                |          |                             |
| 0 (Ref)                                     |                                |                 |              |                |          |                             |
| 1   | 1.17 *                         | 1.29 *          | 1.33         | 1.23           | 0.93     | 1.08                        |
| 2   | 1.22                           | 1.05            | 1.6          | 0.97           | 1.26     | 1.32                        |
| 3   | 1.48 *                         | 1.01            | 1.89 *       | 0.75           | 1.62     | 2.93 **                     |
| <b>Working Status</b>                       |                                |                 |              |                |          |                             |
| No (Ref)                                    |                                |                 |              |                |          |                             |
| Yes   | 1.20 *                         | 1.29 *          | 1.56 **      | 0.69           | 0.99     | 1.34                        |
| <b>Perpetration of IPV * Working Status</b> |                                |                 |              |                |          |                             |
| 0 * Yes (Ref)                               |                                |                 |              |                |          |                             |
| 1 * Yes                                     | 1.14                           | 0.75            | 1.1          | 2.23           | 1.81 **  | 0.86                        |
| 2 * Yes                                     | 0.64 *                         | 0.65            | 0.34 *       | 1.35           | 0.69     | 0.86                        |
| 3 * Yes                                     | 0.94                           | 1.24            | 0.86         | 1.2            | 0.94     | 0.46                        |
| <b>Marital Controlling Behaviour</b>        |                                |                 |              |                |          |                             |
| 0 (Ref)                                     |                                |                 |              |                |          |                             |
| 1   | 0.94                           | 0.99            | 0.98         | 0.78           | 0.83     | 1.06                        |
| 2   | 0.82 **                        | 0.94            | 0.72         | 0.6            | 0.88     | 0.54 **                     |
| <b>Residential Site</b>                     |                                |                 |              |                |          |                             |
| Urban (Ref)                                 |                                |                 |              |                |          |                             |
| Rural                                       | 0.96                           | 1.06            | 0.69 *       | 1.16           | 1.03     | 1.01                        |
| <b>Educational Attainment</b>               |                                |                 |              |                |          |                             |
| None (Ref)                                  |                                |                 |              |                |          |                             |
| Primary                                     | 1.01                           | 1.05            | 1.46         | 0.7            | 0.78     | 1.5                         |
| Secondary                                   | 1.02                           | 1.15            | 1.39         | 0.60 **        | 0.75 *   | 1.54 *                      |
| Higher                                      | 0.92                           | 1.28            | 0.82         | 0.57           | 0.70 *   | 1.01                        |
| <b>Wealth Quintile</b>                      |                                |                 |              |                |          |                             |
| Poorest (Ref)                               |                                |                 |              |                |          |                             |
| Poorer                                      | 1.22 **                        | 1.35 *          | 1.46 *       | 0.8            | 1.17     | 0.98                        |
| Middle                                      | 1.50 ***                       | 1.47 **         | 2.69 ***     | 1.5            | 1.37 *   | 0.92                        |
| Richer                                      | 1.48 ***                       | 1.59 ***        | 3.04 ***     | 1.37           | 1.24     | 0.62                        |
| Richest                                     | 1.38 **                        | 1.58 *          | 2.82 ***     | 0.43           | 1.11     | 1.18                        |
| <b>Age Group</b>                            |                                |                 |              |                |          |                             |
| 15–19 (Ref)                                 |                                |                 |              |                |          |                             |
| 20–24                                       | 0.57 **                        | 0.51 **         | 0.34 **      | 4.28           | 0.67     | 1.08                        |
| 25–29                                       | 0.52 ***                       | 0.47 ***        | 0.32 **      | 4.1            | 0.6      | 1.08                        |
| 30–34                                       | 0.57 **                        | 0.43 ***        | 0.51         | 2.67           | 0.64     | 1.3                         |
| 35–39                                       | 0.64 *                         | 0.57 *          | 0.54         | 6.04 **        | 0.49 *   | 1.91                        |
| 40–44                                       | 0.73                           | 0.6             | 0.87         | 4.65           | 0.5      | 2.14                        |
| 45–49                                       | 0.87                           | 0.5             | 1.04         | 14.88 **       | 1.05     | 8.72 × 10 <sup>-7</sup> *** |
| <b>Constant</b>                             | 0.26 ***                       | 0.10 ***        | 0.02 ***     | 0.00 ***       | 0.12 *** | 0.00 ***                    |
| <b>State Dummies</b>                        | Included                       | Included        | Included     | Included       | Included | Included                    |
| <b>No. of Observations</b>                  | 17,286                         | 17,286          | 17,286       | 17,286         | 17,286   | 17,286                      |

Note: Significance level: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$  <sup>#</sup> Adjusted Odds Ratio reported in columns (1–6). Source: Authors' calculation.

Perpetration of IPV significantly impacts miscarriage, abortion and PTB, as is evident from the above results. Women having experienced any form of IPV are 29% more likely to face a miscarriage and 89% more likely to have an abortion. The possibility of PTB significantly increases in the case of women who have faced all three forms of IPV. This confirms that violence in any of its forms lead to perinatal stress, increases the possibility of injury and accidents and might also lead to unintended pregnancies, which are most likely to result in an adverse birth outcome. IPV is also a contributing factor towards a maternal preference for sex-selective abortion, thus establishing the derived result.

Working women are 29% more likely to face a miscarriage and 56% more likely to abort a baby. This can be explained by underscoring the economic drivers. Abortion services are more likely to be accessed by wealthier and employed women exercising bodily autonomy. The opportunity costs of pregnancy is higher for employed women, thus enabling them with abortion options. Working women might also have a tendency to delay

their pregnancy or abort a mistimed one which most likely could increase their maternal age for pregnancy. They are also less likely to take sufficient care of themselves on account of time constraints. All of these could increase the chances of an adverse birth outcome. This argument has also found credibility among rural women who were found to access abortion services (Kant et al. 2015; Dhar et al. 2018) in the wake of the possibility of lost earnings due to a pregnancy. There is also evidence that certain occupational exposure that working women might be subjected to increases their chances of facing an adverse birth outcome, most notably a miscarriage (Kumar et al. 2019).

To further analyse the effect of a 'male backlash channel' on working women, we employ an interaction term between the perpetration of IPV and the working status of the woman. We found that it significantly impacts adverse birth outcomes, particularly abortion and LBW. The results indicate that in the presence of paid employment, the prevalence of IPV in impacting abortion is reduced by 56%. This is likely attributable to the fact that a woman's working status, which ensures financial stability, allows her to exercise bodily autonomy, and she is in a better position to decide about her own healthcare needs, thus preventing the chances of spontaneous abortion. Meanwhile, the perpetration of IPV while being in paid employment increases the chances of LBW by 81%, as exhibited by the results. IPV that might have caused a previous miscarriage or abortion also increases the chances of LBW<sup>6</sup>.

Residing in rural areas reduces the chances of abortion by 31%. This is attributed to the fact that women in rural areas have less exposure to safe abortion services and may not exercise sufficient bodily autonomy to make abortion decisions<sup>7</sup>. The chances of stillbirth, LBW and PTB drastically reduce with an increase in women's educational levels. Women having attained a secondary level of education have 40%, 25% and 46% reduced chances, respectively, of facing a stillbirth, LBW and PTB.

The wealth quintile the household falls into also depicts a significant association with adverse birth outcomes in this study. As the wealth quintile of the household improves, the chances of adverse birth outcomes as miscarriage progressively increase. The chances of induced abortion are heightened with an improvement in wealth indices and socioeconomic standing of the household, which increases access to healthcare services, including abortion services, as also evidenced in prior literature (Kant et al. 2015; Yogi et al. 2018; Dhar et al. 2018). Our results show that moving from the poorest wealth quintile to the poorer quintile increases the chances of abortion by 46%. Expectedly, instances of stillbirth tend to be lower for the richest households.

The age group the woman falls into is an important factor in determining birth outcomes. This study has considered the age bracket 15–19 years of age as the reference category, which is a vulnerable age bracket in terms of reproductive health and birth outcomes. With a shift in the age bracket to (20–24) and (25–29) from the reference category, the chances of an adverse birth outcome reduce to a certain extent. The results confirm that age contributes as a factor towards increasing the probability of adverse birth outcomes at higher age brackets, such as 35–39 and 40–44, classified as Advanced Maternal Age and 45–49, classified as Very Advanced Maternal Age. Cross-country literature also stands as evidence of this phenomenon (Mehari et al. 2020 for Ethiopia; Lin et al. 2021 for China). Advanced maternal age increases the chances of pregnancy-induced hypertension, perinatal stress and other related medical conditions, which invariably increase the risk of adverse birth outcomes.

## 5. Robustness Checks

We further undertake two subsample regressions to check for the robustness of our results. The results from the subsample regressions presented in Table 4 are obtained by dividing the entire data into groups based on a residential area and women's working status. The adverse birth outcome categories have been clubbed together, and bivariate logistic regression has been applied to each subsample. The results for the subsample split based on the residential area (see Col.1 and 2, Table 4) depict that women's autonomy

doesn't significantly impact birth outcomes; however, the results reinstate that perpetration of IPV increases the chances of adverse birth outcomes. Women's working status in rural areas increases their likelihood of having an adverse birth outcome by 24%, which can be attributed to higher opportunity costs in the form of lost income for bearing a child. The presence of paid employment in the face of IPV in rural areas enables women to seek healthcare for themselves, thereby reducing the chance of an adverse birth outcome by 60%. In addition to the other factors, marital controlling behaviour exercised by the spouse in urban areas is likely to reduce the chances of facing an adverse birth outcome by 43%, which is indicative of the fact that spousal control reduces the access women might have to abortion services otherwise. The wealth quintile of the household and the age group of the woman exhibit similar results as before the sample split. For the sample split on the basis of women's working status (see Col. 3 and 4, Table 4), women's autonomy significantly impacts birth outcomes for working women. The likelihood of facing an adverse birth outcome reduces by 41%, which implies that working women are able to secure their healthcare and maternal nutrition needs, which is expected to reduce the chances of LBW and PTB. Perpetration of IPV, the wealth quintile the household falls into, and the age group of the women exhibit similar pre-sample-split results.

**Table 4.** Subsample estimation results for adverse birth outcomes, based on residential area and women's working status #.

| Variables       | Rural (1) | Urban (2)                                   | Working (3) | Non-Working (4) |
|-----------------|-----------|---|-------------|-----------------|
| <b>Autonomy</b> | 1.07      | 0.98  | 0.59 *      | 1.19            |
|                 |           | <b>IPV</b>                                  |             |                 |
| 0 (Ref)         |           |   |             |                 |
| 1               | 1.29 **   | 0.91  | 1.44 **     | 1.15            |
| 2               | 1.33 *    | 1.03  | 0.89        | 1.19            |
| 3               | 1.52 *    | 1.29  | 1.75 *      | 1.42            |
|                 |           | <b>Working Status</b>                       |             |                 |
| No (Ref)        |           |   |             |                 |
| Yes             | 1.24 **   | 1.2   | -           | -               |
|                 |           | <b>Perpetration of IPV * Working Status</b> |             |                 |
| 0 * Yes (Ref)   |           |   |             |                 |
| 1 * Yes         | 0.95      | 1.83  | -           | -               |
| 2 * Yes         | 0.40 ***  | 1.53  | -           | -               |
| 3 * Yes         | 0.84      | 1.66  | -           | -               |
|                 |           | <b>Marital Controlling Behaviour</b>        |             |                 |
| 0 (Ref)         |           |   |             |                 |
| 1               | 1.11      | 0.57 ***                                    | 0.89        | 0.95            |
| 2               | 0.86      | 0.77  | 0.79        | 0.83            |
|                 |           | <b>Educational Attainment</b>               |             |                 |
| None (Ref)      |           |   |             |                 |
| Primary         | 1.14      | 0.72  | 0.91        | 1.03            |
| Secondary       | 1.05      | 1.06  | 1.06        | 1.02            |
| Higher          | 0.96      | 0.88  | 0.82        | 0.95            |
|                 |           | <b>Wealth Quintile</b>                      |             |                 |
| Poorest (Ref)   |           |   |             |                 |
| Poorer          | 1.26 **   | 0.8   | 1.19        | 1.21 *          |
| Middle          | 1.39 ***  | 1.32  | 1.61 **     | 1.45 ***        |
| Richer          | 1.81 ***  | 0.79  | 1.86 **     | 1.41 **         |
| Richest         | 1.63 **   | 0.9   | 1.62        | 1.38 *          |
|                 |           | <b>Age Group</b>                            |             |                 |
| 15–19 (Ref)     |           |   |             |                 |
| 20–24           | 0.66 *    | 0.28 **                                     | 1.06        | 0.54 **         |
| 25–29           | 0.62 **   | 0.25 ***                                    | 1.07        | 0.49 ***        |
| 30–34           | 0.7       | 0.26 ***                                    | 0.94        | 0.56 **         |
| 35–39           | 0.79      | 0.26 **                                     | 1.32        | 0.59 **         |
| 40–44           | 1.04      | 0.21 ***                                    | 1.64        | 0.65            |
| 45–49           | 0.91      | 0.6   | 5.03 **     | 0.48            |

Table 4. Cont.

| Variables           | Rural (1)               | Urban (2) | Working (3) | Non-Working (4) |
|---------------------|-------------------------|-----------|-------------|-----------------|
|                     | <b>Residential Site</b> |           |             |                 |
| Urban (Ref)         |                         |           |             |                 |
| Rural               | -                       | -         | 0.92        | 0.96            |
| Constant            | 0.20 ***                | 0.65      | 0.13 ***    | 0.28 ***        |
| State Dummies       | Included                | Included  | Included    | Included        |
| No. of Observations | 13,257                  | 4021      | 3845        | 13,438          |

Note: Significance level: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ ; # Adjusted Odds Ratio reported in columns (1–4). Source: Author's calculations.

## 6. Conclusions

Adverse birth outcomes pose a serious threat to public health on account of their multifaceted implications for both maternal and child health. The goals of reducing maternal mortality have to take into account the debilitating impact of adverse birth outcomes. The unremarkable results of public policy in action make it important to shift the focus to the socioeconomic conditions surrounding adverse birth outcomes. The perpetration of IPV, as elaborately discussed, has implications for women's health, reproductive outcomes and intergenerational transfer of trauma and disability. In a patriarchal setup such as India, there is an increased risk on account of the culmination of several hindrances that inhibits women's bodily autonomy and household participation. The lack of empowerment in women is indicated by the prevalence of IPV. To that extent, this paper has been instrumental in contributing to the literature that considers the intricate web of associations among socioeconomic factors that further impact maternal and child health. It examines the role of women's autonomy in ensuring that the chances of adverse birth outcomes are reduced. It further interrogates the association between lifetime experience of IPV and women's paid work status on birth outcomes. The results show that women's autonomy significantly impacts only stillbirth among the other adverse birth outcomes. The chances of stillbirth are reduced by 51% in cases of women exercising autonomy. Women's working status in interaction with the perpetration of IPV contributes adversely to birth outcomes. In the presence of IPV, a woman's paid work status can reduce the chances of abortion by 56% while increasing the chances of LBW by 81%. The robustness checks, as discussed above, also exhibit similar results. These findings underline the critical position that partners play in women's healthcare-seeking behaviours with regard to pregnancies. In societies where men are viewed as the custodians of women and the ultimate decision-makers within the family unit, women may not feel comfortable seeking care without their partners' full support and encouragement. This is true even though some research has suggested that men do not want to be involved in women's sexual and reproductive health because they feel these are "women's issues" (Karp et al. 2020). These issues are made even more pressing in countries where women usually lack financial independence and must rely on their partners for financial support in order to access care. This necessitates the shift of research attention to the possible ways to bring about a gradual change in the sociocultural norms that are likely to reduce the perpetration of violence against women and enhance their autonomy. The mitigation of adverse birth outcomes and consequent improvements in maternal and child health requires systematic planning and the eventual implementation of feasible policies.

This paper, to its extent, suffers from certain limitations that could not have been accounted for. The analysis has relied on nationally representative survey data, which suffers from possible shortcomings. There could be ambiguity and recall bias on the part of the respondents who have answered the survey questions and therefore limiting our concrete understanding. Additionally, the traditional metric of autonomy, as used in similar studies, mostly focuses on the decision-making and mobility aspect of a woman, which could be restrictive in understanding autonomy. This study considers a few of the non-traditional measures of women's autonomy as per data availability. Herein lies the future

scope of research to examine autonomy in its redefinition and study its implications on birth outcomes.

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**Conflicts of Interest:** The authors declare no conflict of interest.

## Appendix A

**Table A1.** Correlation matrix of the studied variables.

|                               | Adverse Birth Outcome | Woman's Autonomy | IPV     | Working Status | Marital Controlling Behaviour | Residence | Education | Wealth Index | Age Group |
|-------------------------------|-----------------------|------------------|---------|----------------|-------------------------------|-----------|-----------|--------------|-----------|
| Adverse birth outcome         | 1                     |                  |         |                |                               |           |           |              |           |
| Woman's autonomy              | 0.0035                | 1                |         |                |                               |           |           |              |           |
| IPV                           | 0.025                 | 0.1305           | 1       |                |                               |           |           |              |           |
| Working status                | 0.0125                | -0.0929          | 0.742   | 1              |                               |           |           |              |           |
| Marital controlling behaviour | 0.0002                | 0.1328           | 0.3936  | 0.0159         | 1                             |           |           |              |           |
| Residence                     | 0.0017                | 0.0627           | 0.0392  | 0.0572         | 0.0456                        | 1         |           |              |           |
| Education                     | 0.0064                | -0.0808          | -0.1255 | -0.0543        | -0.1105                       | 0.2147    | 1         |              |           |
| Wealth index                  | 0.0023                | -0.04            | -0.1261 | -0.0881        | -0.1115                       | 0.4562    | 0.4852    | 1            |           |
| Age group                     | 0.0151                | -0.1187          | 0.0165  | 0.109          | -0.0436                       | 0.0656    | -0.124    | 0.047        | 1         |

Source: Authors' calculations.

## Notes

- IPV is characterised by derogatory behaviour, acts of physical aggression, sexual coercion, psychological triggers etc., that potentially lead to physical, sexual, and psychological harm in an intimate relationship (Garcia-Moreno et al. 2005).
- The extent of the problem can be ascertained from the fact that adverse birth outcomes result in maternal deaths of about 810 women every day, and between 20 and 30 more women suffer short- and long-term disabilities for every such death (Tadese et al. 2022).
- For reference, the prevalence of adverse birth outcomes is to the tune of 27.8% in Nepal (Khanal et al. 2016), 29.7% in Sub-Saharan Africa (Tamirat et al. 2021), 15.61% in Zimbabwe (Chaibva et al. 2019), 1/3rd of reproductive-age women in Uganda reported at least one adverse pregnancy outcome (Asiki et al. 2015).
- Even though IPV can harm either of the partners, the overwhelming global burden is mostly borne by women (WHO 2012).
- The region reports excessively higher poor pregnancy outcomes while maintaining the highest rates of IPV (Devries et al. 2014).
- Similar results have been derived in other cross-country analyses as well (Sigalla et al. 2017 for Tanzania; Dhar et al. 2018 for India; Mehari et al. 2020 for Ethiopia).
- Similar results have been confirmed in previous studies as Singh et al. (2018); Chandrasekaran et al. (2020).

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