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Labor Room Violence in India: Levels and Determinants

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Title: Labor Room Violence in India: Levels and Determinants

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Abstract

Objectives The major objective of this study was to investigate the prevalence of labor room violence [LRV] (one of the forms of obstetric violence) faced by the women during the time of delivery in Uttar Pradesh [UP] (the largest populous state of India which is also considered to be a microcosm of India). Further, this study also analyses the association between prevalence of obstetric violence and socio-economic characteristics of the respondents.

Design Longitudinal study consisting of three waves to collect pregnancy related information from women in early stages of pregnancy to post-delivery period.

Settings Urban and rural areas of UP, India.

Participants Sample of 504 pregnant women was selected from the Integrated Child Development Scheme (ICDS) Register of pregnant women.

Outcome We aimed to assess the levels and determinants of LRV using data collected from 504 pregnant women in a longitudinal survey conducted in UP, India. The dataset comprised of three-waves of survey from the inception of pregnancy to child-birth and postnatal-care. Logistic Regression model has been used to assess the association between prevalence of LRV faced by the women at the time of delivery and their background characteristics.

Result About 15.12% of women are facing LRV in UP, India. Results from logistic regression model (Odds Ratio [OR]) show that LRV is higher among Muslim women (OR = 1.8, 95% CI [Confidence Interval] 0.7-4.3) relative to Hindu women (OR = 1). The prevalence of LRV is higher among lower castes relative to General category, and is higher among those women who have no mass media exposure (OR=4.7, 95% CI 1.7-12.8) compared to those who have (OR=1).

Conclusion In comparison with global evidence, the level of LRV in India is high. Women from socially disadvantaged communities are facing higher LRV than their counterparts.

Keywords: Labor room violence, women, institutional delivery, quality of health care.

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Article Summary

Strengths and limitations of this study

- For the first time, the study measures LRV experienced by women in health facilities in India and factors associated with it.
- In comparison with global evidence, the level of LRV in India is high. Women from socially disadvantaged communities are facing higher LRV than their counterparts.
- The estimated LRV in the survey setting may be lower than actual because of under reporting due to lack of awareness about forms of obstetric violence.
- The smaller sample size prevents us from presenting LRV estimates at the greater disaggregated levels.
- However, in the absence of information on LRV in existing large scale surveys, the contribution of this study is significant.

Introduction

One of the major targets of the Sustainable Development Goals (SDGs) is to reduce maternal mortality to 70 per 100,000 live births by 2030[1]. Significant strides have been made in increasing life expectancy and reducing some of the common killers associated with child and maternal mortality, but working towards achieving the target of less than 70 maternal deaths per 100,000 live births by 2030 would require significant improvements in the quality of delivery care. Skilled birth attendance (SBA) has been a cornerstone of international efforts to reduce maternal mortality and is often measured by the indicators such as institutional deliveries or deliveries with skilled birth attendance. Recently, the United Nations Educational, Scientific and Cultural Organisation (UNESCO), in its Universal Declaration of Bioethics and Human Rights, declared that "health does not depend solely on scientific and technological research developments, but also on psychosocial and cultural factors."[2] Thus, a tacit effort has been made world-wide (including in India) to encourage institutional deliveries and SBA to ensure good quality of care during child-birth. Yet despite this, India still continues to contribute disproportionally to the global estimates of maternal morbidity and mortality. Globally, about 800 women die every day of preventable causes related to pregnancy and childbirth, 20 per cent of these women are from India.[3] The figures for institutional deliveries (78.9) and skilled birth attendance deliveries (81.4) in 2015-16 are also much lower than 100 percent as envisioned by SDGs. India has also failed to meet the

MDG targets related to institutional deliveries and SBA by 2015. There is increasing attention and wide recognition that many women are deterred from facility-based delivery because the intrapartum care provided in the facilities does not satisfy the interpersonal and emotional aspects of this biosocial event. Others believe that the differences in quality of intrapartum care which arise from a broader aspect social, cultural and economic discrimination and exclusion, are important for maternal health outcomes.[4-5]

Poor quality care includes disrespectful and abusive care, patient-blaming, purposeful neglect, verbal or physical abuse, disregard for traditional beliefs, and the non-use of Indigenous languages for patient communication. This type of behavior has been classified as Obstetric/ Labour Room Violence (LRV) [6]. Worldwide, many women experience disrespectful and abusive treatment during childbirth in facilities, although evidence is limited in developing countries like India. Further, according to WHO reports "such conduct not only violates the rights of women to respectful care, but can also threaten their rights to life, health, bodily integrity, and freedom from discrimination".[6] This statement invites greater action, dialogue, research and advocacy on this important public health and human rights problem.

LRV: Global Evidence

Prevalence of obstetric violence on women is a shockingly common phenomena for developing countries (>70% in Tanzania, Brazil). Increasingly, a number of studies on obstetric violence have focused widely on defining the term obstetric violence and the mistreatment associated with it. This involves determining forms of obstetric violence, measurement of different forms of obstetric violence, identifying challenges to maternity care, the emergent of laws to combat this problem and identifying systematic failures at the health system level and providing health facility. [7-15] LRV is often associated with adverse effects on pregnancy outcome. For instance, LRV may lead to issues such as maternal post-partum depression and post-traumatic stress disorders, particularly if the abuse is extreme. It is the most cited reason in Latin American countries for women to not return to health facilities for subsequent pregnancies, which consequently leads to an increase in maternal and child mortality and morbidities. A body of research mainly concentrated in Latin America and Europe specifically discusses obstetric violence, its determinants and forms.[7] [16-20] However, it is critical to generate data relating to disrespectful and abusive care practices

over the pregnancy period and at the time of childbirth, particularly in developing countries such as India.

Methods

Study design and setting

This study is based on a unique survey conducted under the Project 'Understanding pregnancy nutrition and health care among women in rural and urban slums of Uttar Pradesh: A longitudinal study'. Data was collected during the period June 2016 to July 2016 from a systematically selected sample of 504 pregnant women from the Integrated Child Development Scheme (ICDS) Register of pregnant women in selected villages. The study adopted a two-stage sampling design for both urban and rural areas. In the first stage, PSUs were selected from the chosen blocks in two districts of survey based on the number of pregnant women in the villages, where importance was given to villages with the largest number of pregnant women from diverse social groups. In the identified village, pregnant women were selected from the register, maintained by the Accredited Social Health Activist (ASHA) (the community health workers instituted by the Government of India's Ministry of Health and Family Welfare as part of the National Rural Health Mission (NRHM) and Anganwadi workers (AWWs) - appointed as functionaries to support health, education and rural development under ICDS of Ministry of Women and Child Development).

The sample size (n=504) is calculated using parameters such as the total number of pregnancies (n) obtained in each district through Annual Health Survey (2014) and Z values for getting the estimates representative at 95% confidence interval and design effect at 2%. The sample is self-weighted where each woman has the equal chance of getting selected. This study used the information from the first and third wave of the above-mentioned longitudinal survey. We used the socio-economic and demographic characteristics of women collected in the first wave and LRV information from the third wave which was conducted after child birth for all 504 women.

Definitions

The definition and coding of both outcome and predictor variables are given in appendix table 1.

Data analysis

The interview schedule comprised of structured questions in both in Hindi (local language) and English for the purpose of data collection. The respondents were asked the following question regarding labor room violence- "At the time of delivery, have the doctor/nurse/other health workers/staff of the hospital shouted/abused/hit you?" We have used bivariate tables to analyse the prevalence of LRV with socio-economic characteristics of the respondents. Further, logistic regression models were performed to assess the association between prevalence of LRV faced by women at the time of delivery and their background characteristics, which includes place of residence, religion, caste, education of the mother, age of the mother, partner's occupation, any mass media exposure and wealth quintiles. The statistical analyses have been performed in STATA-14.0 software.

Patient and public involvement
No patients were involved in the research design, and no patients were directly involved in the study.

Results

Prevalence

Despite the known under-reporting of violence against women in India, about 15.12% of women reported LRV in our sample (Table 1).

Table 1: Bivariate analysis: Factors associated with labour room violence.

Background Characteristics	Labour Room Violence Prevalence	Chi-Square	95% Confidence Interval		No of Samples
Place of Residence			Lower Limit (LL)	Upper Limit (UL)	n
Rural	15.87	0.3779	11.29	21.86	344
Urban	19.11		11.28	30.53	160
Religion					
Hindu	16.23	0.1341	11.62	22.22	363
Islam	18.18		10.47	29.70	141
Caste					
SC/ST	20.62	1.8627	13.60	29.99	190
OBC	15.18		9.58	23.21	227
General	12.50		5.56	25.76	87
Education of the Mother					
No Education	20.0	1.1504	12.87	29.74	183
1-8 Years of Schooling	15.6		9.85	23.81	209
Above Secondary	13.79		6.90	25.67	112
Age of the Mother					

20 and below	12.0		3.60	33.27	69
21-29	17.62	0.5610	12.83	23.71	368
30 and Above	15.38		6.82	31.12	67
Partner's occupation					
Primary/Secondary	20.12	4.0636*	14.69	26.91	330
Tertiary/Quaternary	10.23		5.34	18.71	174
Any Mass Media Exposure					
Yes	12.72	6.1235**	8.49	18.63	330
No	25.0		16.76	35.56	174
Wealth Quintiles					
Poor	16.88		9.94	27.21	168
Middle	16.84	0.0063	10.49	25.93	168
Rich	16.47		9.90	26.14	168

The prevalence of LRV is more pronounced in urban areas (19%) as relative to rural (16%). Similarly, the prevalence of LRV is more among Muslim (18%) as compared to Hindu (16%) women. Further, there is significant variation in prevalence of LRV among different caste groups i.e., Scheduled Castes (SCs) (20.6 %), OBC (15.2 %) and general category (12.5 %). The educational status of the mother also plays a significant role in determining the prevalence of LRV. Prevalence of LRV is higher for those whose mothers with no education (20%) compared to those whose mothers with few years of schooling. Furthermore, the variable partner's occupation also showed some variation in the prevalence of LRV. Specifically, LRV is more common among women whose husband is employed in Primary/Secondary activities (20.1%) compared to those involved in Tertiary activities (10.2 %). The wealth gradient is also important in assessing the prevalence of LRV. The most significant predictor of LRV is mass media exposure, with women who have any mass media exposure facing less violence (12.7%) as compared to women who have no mass media exposure (25%).

Correlates

Logistic regression model (Table 2) shows that the variables- religion, caste, partner's occupation and mass media exposure are statistically significant and associated with the prevalence of LRV faced by women, after controlling for other confounders.

Table 2: Logistic Regression estimates: Factors affecting labor room violence

	Odds Ratio	95% Confidence Interval	
Place of Residence		LL	UL
Urban	1		

Rural	1.126	0.464	2.732
Religion			
Hindu	1		
Islam	1.753*	0.722	4.255
Caste			
SC/ST	1		
OBC	0.619	0.262	1.462
General	0.473*	0.149	1.504
Education of the Mother			
No Education	1		
1-8 Years of Schooling	0.817	0.358	1.866
Above Secondary	0.661	0.217	2.016
Age of the Mother			
20 and below	1		
21-29	1.303	0.345	4.923
30 and Above	0.970	0.197	4.782
Partner's occupation			
Primary/Secondary	1		
Tertiary/Quaternary	0.402**	0.169	0.959
Any Mass Media Exposure			
Yes	1		
No	4.688***	1.713	12.831
Wealth Quintiles			
Poor	1		
Middle	0.923	0.356	2.395
Rich	0.654	0.165	2.598

Note: Significance levels p<0.05*, p < 0.01**, p < 0.001***

The odds of the occurrence of LRV is higher among Muslim women (Odds Ratio [OR] = 1.8, 95% CI [Confidence Interval] 0.7-4.3) relative to Hindu women (OR = 1). Among social groups, with reference to SCs (OR = 1), the odds of occurrence of violence faced by women is half among General category (OR = 0.5, 95% CI 0.1-1.5) and Other Backward Class (OBC) (OR = 0.6, 95% CI 0.3-1.5). In terms of partner's occupation, the odds of violence is less than half for women those partners were engaged in Tertiary activities (OR = 0.4, 95% CI 0.2-1) in comparison to Primary/Secondary activities (OR = 1). The occurrence of violence for the women those who have no mass media exposure (OR = 4.7, 95% CI 1.7-12.8) is about five times higher than those who have mass media exposure (OR = 1).

Discussion

Main Findings of this study

Given the context of the WHO pledge, that every woman has the right to the highest attainable standard of health which also includes the right to dignified, respectful health care. This paper, for the first time, empirically reports the occurrence of LRV and its socioeconomic correlates in India. The findings are important in the Indian context where health care delivery is dominated by the social hierarchies, and disadvantaged communities struggle to have a place in the health system and receive appropriate health care with dignity. Therefore, the findings of this study underpin the need to explore more on the issue of LRV with more in-depth and large scale studies. Despite significant under-reporting of violence in India, the estimate of LRV in this study is high and varies according to the socio-economic characteristics of the female respondent. Although, caste, religion, place of residence and partner's occupation emerged as significant factors associated with LRV; it is the exposure to mass media which shows the highest disparity in the occurrence of LRV. Thus, it particularly highlights the importance of awareness and knowledge about reproductive rights and entitlements of women in the health system. This can play significant role in determining the rate of LRV.

Limitations of the study

Although the results of the survey indicate a high prevalence of LRV relative to studies from other developed countries[7], but this study suffers from the issue of under-reporting due to lack of awareness about forms and nature of obstetric violence in the survey setting. Further, as with other micro studies, the study suffers from the short-coming of small sample size. However, in the absence of information on LRV in existing large scale surveys, the contribution of this study is significant.

What is already known on this topic

In developing countries like India where maternal and child health indicators are far from satisfactory with poor medical and public health ethics in health care delivery system, the high prevalence of LRV raises an important policy question. To date the major concern for policy makers has been to increase the demand for health care services; so less attention is paid to the supply side barriers including the quality of health care services and related ethical standards. Due to the lack of availability of data, in-depth studies on LRV are absent for India.

In India, given the hierarchal nature of the society, it is imperative to study the access to health facilities and women's experience of receiving health care with dignity within a socio-economic framework. Studies based on experiences of Latin American women of Indigenous origin insist that women from poor, indigenous or socially backward classes receive "triple discrimination" i.e., by being female, being an ethnic minority and of lower socio-economic status.[19] Even in egalitarian European societies, women facing economic hardships and negative life events with the least social support have higher chance of experiencing LRV than their counterparts.[21, 22]

What this study adds

Although obstetric violence on women has received increasing global attention, developing countries have yet to address deficiencies in this area. The Government of India has already implemented several policies and interventions aimed towards providing adequate maternal health care services to all. The quality of maternal health care services is one of the major components integral to the improvement of maternal and child health, a long neglected area for policy-makers. With the emergence of various government interventions, the number of service providers has increased, but assuring quality and dignity in health care delivery remains a major concern. However, contemporary studies in India [23-26] with regards to maternal health care are mainly based on large population-level datasets focusing on availability and accessibility of maternal health care services. However, there is a research gap in the assessment of quality of those services and evaluating the nature of treatment provided by the health care workers, which is critically needed to improve public health care delivery system. Given this context, our study fills a critical knowledge gap by providing robust quantitative evidence on LRV experienced by pregnant women at health facilities. Issues such as LRV raise concerns not only on medical or hospital ethical standards in India but also on the violation of the reproductive rights of women.

Conclusions

In comparison to global evidence, the level of LRV in India is high. Women from socially disadvantaged communities are facing higher LRV than their counterparts. For any further progress in pregnancy outcomes in India, policy makers should focus not only on the availability and accessibility of services, but also on ensuring quality of care and dignity of the receivers. Countries such as India must improve its ethical standards in health care

delivery where people from all sections of society, especially those from marginalised communities receive quality services with dignity.

Footnotes

Author Contributions SG & AR generated the idea for the survey and the paper, SG and MZS prepared an analytical plan along with conducting all data analyses. DG and SC worked on drafting the paper. SG, DG and SC prepared the first draft of the manuscript on which all co-authors commented.

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Competing interests None declared.

Patient consent Written and verbal consent were obtained from women and guardians accompanying them, which explained the purpose and content of the survey and that confidentiality of the information would be maintained.

Ethics approval Ethical Approval for the study has been taken from King Gorge Medical University, Lucknow, UP, India.

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Appendix Table 1 Description of study variable: Definition/Coding

Name of the variable	Definition/Coding
Outcome variables	
Labor room violence	Labor room violence was measured as a binary variable using two categories (Yes & No) to the question asked in survey "At the time of delivery, have the doctor/nurse/other health workers/staff of the hospital shouted/abused/hit you?":
Predictor variables: Socio-economic	
Place of residence	Place of residence is recoded into Urban and Rural area.
Religion	The presence of other religions in Uttar Pradesh is nearly negligible which is also reflected in our sample. Therefore, we have classified our sample into Hindu and Muslim.
Caste	The social groups are recoded into three groups: Scheduled Caste (SC)/Schedule Tribe (ST), Other Backward Castes (OBCs) and General Castes. A system that allows social hierarchal division of people in India.
Education of the Mother	The educational status of women is coded into three categories: No Education, 1-8 years of schooling and above secondary. These groups are classified in such as way that they have a distinct effect on the nature and level of labor room violence experienced by women.
Age of the Mother (in years)	Age of the mother is categorised into three groups: less than 20 years, 21-29 years and above 30 years. This classification was done by keeping in the mind both the distribution of the sample across the ages and also considering the ideal ages of childbearing.
Partner's Occupation	Partner's occupation has been recoded into two broad groups: Primary/Secondary and Tertiary/Quaternary. These groups are classified in such a way that they have a distinct effect on the nature and level of labor room violence experienced by women.
Any mass media exposure	Mass media exposure is a composite variable. It is computed based on women's exposure to print media (newspaper/magazine), and electric media (television, radio, and cinema). Exposure to any of these media sources was denoted "Yes" Otherwise "No".
Wealth Quintile	The wealth index is based on a variety of household characteristics and assets that are relevant for that country. The wealth index in the survey included 30 household assets. Individuals in the sample were assigned a score based on how their families rank on ownership of assets and other household characteristics using PCA. Following this, we extracted the factor weights for each variable. We then calculated wealth index scores based on these factor weights for each respondent in the national survey dataset. Finally, the population into wealth quintiles based on the wealth index scores was separated to observe the range of wealth index scores for each of the five quintiles. This was further grouped into three categories "Poor", "Middle", "Rich" for analysis purpose.

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Abstract

Objectives The major objective of this study was to investigate the prevalence of labor room violence [LRV] (one of the forms of obstetric violence) faced by the women during the time of delivery in Uttar Pradesh [UP] (the largest populous state of India which is also considered to be a microcosm of India). Further, this study also analyses the association between prevalence of obstetric violence and socio-economic characteristics of the respondents.

Design The study was longitudinal in design with the first visit to women made at the time of first trimester. The second visit was made at the time of second trimester and the last visit was made after the delivery. However, we have continuously tracked women over phone to keep record of developments and adverse consequences.

Settings Urban and rural areas of UP, India.

Participants Sample of 504 pregnant women was systematically selected from the Integrated Child Development Scheme (ICDS) Register of pregnant women.

Outcome We aimed to assess the levels and determinants of LRV using data collected from 504 pregnant women in a longitudinal survey conducted in UP, India. The dataset comprised of three-waves of survey from the inception of pregnancy to child-birth and postnatal-care. Logistic Regression model has been used to assess the association between prevalence of LRV faced by the women at the time of delivery and their background characteristics.

Result About 15.12% of women are facing LRV in UP, India. Results from logistic regression model (Odds Ratio [OR]) show that LRV is higher among Muslim women (OR = 1.8, 95% CI [Confidence Interval] 0.7-4.3) relative to Hindu women (OR = 1). The prevalence of LRV is higher among lower castes relative to General category, and is higher

among those women who have no mass media exposure (OR=4.7, 95% CI 1.7-12.8) compared to those who have (OR=1).

Conclusion In comparison with global evidence, the level of LRV in India is high. Women from socially disadvantaged communities are facing higher LRV than their counterparts.

Ethical Approval and Consent

The study was approved by expert body of Indian Council for Social Science Research. The pre-testing and instrument were duly processed through Fatima Hospital, Dr. Ram Manohar Lohia Institute of Medical Sciences and King George's Medical University. Further, written and verbal consent was taken from respondents and guardians.

Keywords: Labor room violence, women, institutional delivery, quality of health care.

Word Count: 2343

Article Summary

Strengths and limitations of this study

- For the first time, the study measures LRV experienced by women in health facilities in India and factors associated with it.
- In comparison with global evidence, the level of LRV in India is high. Women from socially disadvantaged communities are facing higher LRV than their counterparts.
- The estimated LRV in the survey setting may be lower than actual because of under reporting due to lack of awareness about forms of obstetric violence.
- The smaller sample size prevents us from presenting LRV estimates at the greater disaggregated levels.
- However, in the absence of information on LRV in existing large scale surveys, the contribution of this study is significant.

Introduction

One of the major targets of the Sustainable Development Goals (SDGs) is to reduce maternal mortality to 70 per 100,000 live births by 2030[1]. Significant strides have been made in increasing life expectancy and reducing some of the common killers associated with child and maternal mortality, but working towards achieving the target of less than 70 maternal

deaths per 100,000 live births by 2030 would require significant improvements in the quality of delivery care. Skilled birth attendance (SBA) has been a cornerstone of international efforts to reduce maternal mortality and is often measured by the indicators such as institutional deliveries or deliveries with skilled birth attendance. Recently, the United Nations Educational, Scientific and Cultural Organisation (UNESCO), in its Universal Declaration of Bioethics and Human Rights, declared that "health does not depend solely on scientific and technological research developments, but also on psychosocial and cultural factors."[2] Thus, a tacit effort has been made world-wide (including in India) to encourage institutional deliveries and SBA to ensure good quality of care during child-birth. Yet despite this, India still continues to contribute disproportionally to the global estimates of maternal morbidity and mortality. Globally, about 800 women die every day of preventable causes related to pregnancy and childbirth, 20 per cent of these women are from India.[3] The figures for institutional deliveries (78.9) and skilled birth attendance deliveries (81.4) in 2015-16 are also much lower than 100 percent as envisioned by SDGs. India has also failed to meet the MDG targets related to institutional deliveries and SBA by 2015. There is increasing attention and wide recognition that many women are deterred from facility-based delivery because the intrapartum care provided in the facilities does not satisfy the interpersonal and emotional aspects of this biosocial event. Others believe that the differences in quality of intrapartum care which arise from a broader aspect social, cultural and economic discrimination and exclusion, are important for maternal health outcomes.[4-5]

Poor quality care includes disrespectful and abusive care, patient-blaming, purposeful neglect, verbal or physical abuse, disregard for traditional beliefs, and the non-use of Indigenous languages for patient communication [6, 7]. This type of behavior has been classified as Obstetric/ Labour Room Violence (LRV) [8]. Worldwide, many women experience disrespectful and abusive treatment during childbirth in facilities, although evidence is limited in developing countries like India. Further, according to WHO reports "such conduct not only violates the rights of women to respectful care, but can also threaten their rights to life, health, bodily integrity, and freedom from discrimination".[9] This statement invites greater action, dialogue, research and advocacy on this important public health and human rights problem especially in terms of providing respectful maternity care. According to recent recommendation suggested by WHO, "Respectful maternity care – which refers to care organized for and provided to all women in a manner that maintains their dignity, privacy and

confidentiality, ensures freedom from harm and mistreatment, and enables informed choice and continuous support during labour and childbirth" [10].

LRV: Global Evidence

Prevalence of obstetric violence on women is a shockingly common phenomena for developing countries (>70% in Tanzania, Brazil). Increasingly, a number of studies on obstetric violence have focused widely on defining the term obstetric violence and the mistreatment associated with it. This involves determining forms of obstetric violence, measurement of different forms of obstetric violence, identifying challenges to maternity care, the emergent of laws to combat this problem and identifying systematic failures at the health system level and providing health facility. [11-19]LRV is often associated with adverse effects on pregnancy outcome. For instance, LRV may lead to issues such as maternal post-partum depression and post-traumatic stress disorders, particularly if the abuse is extreme. It is the most cited reason in Latin American countries for women to not return to health facilities for subsequent pregnancies, which consequently leads to an increase in maternal and child mortality and morbidities. A body of research mainly concentrated in Latin America and Europe specifically discusses obstetric violence, its determinants and forms.[11, 20-24] However, it is critical to generate data relating to disrespectful and abusive care practices over the pregnancy period and at the time of childbirth, particularly in developing countries such as India.

Methods

Study design and setting

This study is based on a unique survey conducted under the Project 'Understanding pregnancy nutrition and health care among women in rural and urban slums of Uttar Pradesh: A longitudinal study'. Data was collected during the period June 2016 to July 2016 from a systematically selected sample of 504 pregnant women from the Integrated Child Development Scheme (ICDS) Register of pregnant women in selected villages. The study adopted a two-stage sampling design for both urban and rural areas. In the first stage, PSUs were selected from the chosen blocks in two districts of survey based on the number of pregnant women in the villages, where importance was given to villages with the largest number of pregnant women from diverse social groups. In the identified village, pregnant women were selected from the register, maintained by the Accredited Social Health Activist (ASHA) (the community health workers instituted by the Government of India's Ministry of

Health and Family Welfare as part of the National Rural Health Mission (NRHM) and Anganwadi workers (AWWs) - appointed as functionaries to support health, education and rural development under ICDS of Ministry of Women and Child Development).

The sample size (n=504) is calculated using parameters such as the total number of pregnancies (n) obtained in each district through Annual Health Survey (2014) and Z values for getting the estimates representative at 95% confidence interval and design effect at 2%. The sample is self-weighted where each woman has the equal chance of getting selected. This study used the information from the first and third wave of the above-mentioned longitudinal survey. We used the socio-economic and demographic characteristics of women collected in the first wave and LRV information from the third wave which was conducted after child birth for all 504 women.

Definitions

The definition and coding of both outcome and predictor variables are given in appendix table 1.

Data collection and analysis

The interview schedule comprised of structured questions in both in Hindi (local language) and English for the purpose of data collection. The respondents were asked the following question regarding labor room violence- "At the time of childbirth, have the doctor/nurse/other health workers/staff of the hospital shouted/abused/hit you?" We have used bivariate tables to analyse the prevalence of LRV with socio-economic characteristics of the respondents. Further, logistic regression models were performed to assess the association between incidence of LRV faced by women at the time of childbirth and their background characteristics, which includes place of residence, religion, caste, years of schooling of the women, age of the women, partner's occupation, any mass media exposure and wealth quintiles. The statistical analyses have been performed in STATA-14.0 software.

Patient and public involvement

No patients were involved in the research design, and no patients were directly involved in the study.

Results

Prevalence

Despite the known under-reporting of violence against women in India, about 15.12% of women reported LRV in our sample (Table 1).

Table 1: Bivariate analysis: Prevalence and Factors associated with labour room violence.

Background Characteristics	n	LRV Prevalence (%)	95% C.I		Chi-Square Value
Place of Residence			LL	UL	
Rural	344	15.87	11.29	21.86	0.3779
Urban	160	19.11	11.28	30.53	
Religion					
Hindu	363	16.23	11.62	22.22	0.1341
Islam	141	18.18	10.47	29.70	
Caste					
SC/ST	190	20.62	13.60	29.99	
OBC	227	15.18	9.58	23.21	1.8627
General	87	12.50	5.56	25.76	
Years of schooling of women					
0	183	20.0	12.87	29.74	
1-8	209	15.6	9.85	23.81	1.1504
9 and above	112	13.79	6.90	25.67	
Age of the Women					
Youngest - 20	69	12.0	3.60	33.27	
21-29	368	17.62	12.83	23.71	0.5610
30 - oldest	67	15.38	6.82	31.12	
Partner's occupation					
Primary/Secondary	330	20.12	14.69	26.91	4.0636*
Tertiary/Quaternary	174	10.23	5.34	18.71	
Any Mass Media Exposure					
Yes	330	12.72	8.49	18.63	6.1235**
No	174	25.0	16.76	35.56	
Wealth Quintiles					
Poor	168	16.88	9.94	27.21	
Middle	168	16.84	10.49	25.93	0.0063
Rich	168	16.47	9.90	26.14	

Note: Significance levels p<0.05*, p < 0.01**, p < 0.001***; LL: Lower Limit, UL: Upper Limit; C.I: Confidence Interval

The prevalence of LRV is more pronounced in urban areas (19%) as relative to rural (16%). Similarly, the prevalence of LRV is more among Muslim (18%) as compared to Hindu (16%) women. Further, there is significant variation in prevalence of LRV among different caste groups i.e., Scheduled Castes (SCs) (20.6 %), OBC (15.2 %) and general category (12.5 %). The educational status of the women also plays a significant role in determining the prevalence of LRV. Prevalence of LRV is higher for those women with no education (20%)

compared to those women with few years of schooling. Furthermore, the variable partner's occupation also showed some variation in the prevalence of LRV. Specifically, LRV is more common among women whose husband is employed in Primary/Secondary activities (20.1%) compared to those involved in Tertiary activities (10.2 %). The wealth gradient is also important in assessing the prevalence of LRV. The most significant predictor of LRV is mass media exposure, with women who have some mass media exposure facing less violence (12.7%) as compared to women who have no mass media exposure (25%).

Correlates

Logistic regression model (Table 2) shows that the variables- religion, caste, partner's occupation and mass media exposure are statistically significant and associated with the prevalence of LRV faced by women, after controlling for other correlates.

Table 2: Logistic Regression estimates: Factors affecting labor room violence

	Odds Ratio	95% C.I	
Place of Residence		LL	UL
Urban	1		
Rural	1.126	0.464	2.732
Religion			
Hindu	1		
Islam	1.753*	0.722	4.255
Caste			
SC/ST	1		
OBC	0.619	0.262	1.462
General	0.473*	0.149	1.504
Years of schooling of women			
0	1		
1-8	0.817	0.358	1.866
9 and above	0.661	0.217	2.016
Age of the Women			
Youngest - 20	1		
21-29	1.303	0.345	4.923
30 - oldest	0.970	0.197	4.782
Partner's occupation			
Primary/Secondary	1		
Tertiary/Quaternary	0.402**	0.169	0.959
Any Mass Media Exposure			
Yes	1		
No	4.688***	1.713	12.831
Wealth Quintiles			
Poor	1		
Middle	0.923	0.356	2.395

Rich	0.654	0.165	2.598

Note: Significance levels p<0.05*, p < 0.01**, p < 0.001***; LL: Lower Limit, UL: Upper Limit, C.I: Confidence Interval

The odds of the occurrence of LRV is higher among Muslim women (Odds Ratio [OR] = 1.8, 95% CI [Confidence Interval] 0.7-4.3) relative to Hindu women (OR = 1). Among social groups, with reference to SCs (OR = 1), the odds of occurrence of violence faced by women is half among General category (OR = 0.5, 95% CI 0.1-1.5) and Other Backward Class (OBC) (OR = 0.6, 95% CI 0.3-1.5). In terms of partner's occupation, the odds of violence is less than half for women those partners were engaged in Tertiary activities (OR = 0.4, 95% CI 0.2-1) in comparison to Primary/Secondary activities (OR = 1). The occurrence of violence for the women those who have no mass media exposure (OR = 4.7, 95% CI 1.7-12.8) is about five times higher than those who have mass media exposure (OR = 1).

Discussion

Main Findings of this study

Given the context of the WHO pledge, that every woman has the right to the highest attainable standard of health which also includes the right to dignified, respectful health care. This paper, for the first time, empirically reports the occurrence of LRV and its socioeconomic correlates in India. The findings are important in the Indian context where health care delivery is dominated by the social hierarchies, and disadvantaged communities struggle to have a place in the health system and receive appropriate health care with dignity. Therefore, the findings of this study underpin the need to explore more on the issue of LRV with more in-depth and large scale studies. Despite significant under-reporting of violence in India, the estimate of LRV in this study is high and varies according to the socio-economic characteristics of the female respondent. Although, caste, religion, place of residence and partner's occupation emerged as significant factors associated with LRV; it is the exposure to mass media which shows the highest disparity in the occurrence of LRV. Thus, it particularly highlights the importance of awareness and knowledge about reproductive rights and entitlements of women in the health system. This can play significant role in determining the rate of LRV.

Limitations of the study

Although the results of the survey indicate a high prevalence of LRV relative to studies from other developed countries[11], but this study suffers from the issue of under-reporting due to lack of awareness about forms and nature of obstetric violence in the survey setting. Further, as with other micro studies, the study suffers from the short-coming of small sample size. However, in the absence of information on LRV in existing large scale surveys, the contribution of this study is significant.

What is already known on this topic

In developing countries like India where maternal and child health indicators are far from satisfactory with poor medical and public health ethics in health care delivery system, coupled with other barriers such as gender and social inequality, lack of accountability by the service providers and health system inefficiencies, the high prevalence of LRV raises an important policy question. To date the major concern for policy makers has been to increase the demand for health care services; so less attention is paid to the supply side barriers including the quality of health care services and related ethical standards. Due to the lack of availability of data, in-depth studies on LRV are absent for India.

In India, given the hierarchal nature of the society, it is imperative to study the access to health facilities and women's experience of receiving health care with dignity within a socio-economic framework. Studies based on experiences of Latin American women of Indigenous origin insist that women from poor, indigenous or socially backward classes receive "triple discrimination" i.e., by being female, being an ethnic minority and of lower socio-economic status.[19] Even in egalitarian European societies, women facing economic hardships and negative life events with the least social support have higher chance of experiencing LRV than their counterparts.[25, 26]

What this study adds

Although obstetric violence on women has received increasing global attention, developing countries have yet to address deficiencies in this area. The Government of India has already implemented several policies and interventions aimed towards providing adequate maternal health care services to all. The quality of maternal health care services is one of the major components integral to the improvement of maternal and child health, a long neglected area for policy-makers. With the emergence of various government interventions, the number of service providers has increased, but assuring quality and dignity in health care delivery

remains a major concern. However, contemporary studies in India [27-29] with regards to maternal health care are mainly based on large population-level datasets focusing on availability and accessibility of maternal health care services. However, there is a research gap in the assessment of quality of those services and evaluating the nature of treatment provided by the health care workers, which is critically needed to improve public health care delivery system. Given this context, our study fills a critical knowledge gap by providing robust quantitative evidence on LRV experienced by pregnant women at health facilities. Issues such as LRV raise concerns not only on medical or hospital ethical standards in India but also on the violation of the reproductive rights of women.

Conclusions

In comparison to global evidence, the level of LRV in India is high. Women from socially disadvantaged communities are facing higher LRV than their counterparts. For any further progress in pregnancy outcomes in India, policy makers should focus not only on the availability and accessibility of services, but also on ensuring quality of care and dignity of the receivers. Countries such as India must improve its ethical standards in health care delivery where people from all sections of society, especially those from marginalised communities receive quality services with dignity.

Footnotes

Author Contributions SG & AR generated the idea for the survey and the paper, SG, MZS and HR prepared an analytical plan along with conducting all data analyses. DG and SC worked on drafting the paper. SG, DG and SC prepared the first draft of the manuscript on which AR & SA provided critical comments after careful review.

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Competing interests None declared.

Patient consent Written and verbal consent were obtained from women and guardians accompanying them, which explained the purpose and content of the survey and that confidentiality of the information would be maintained.

Ethics approval The study was approved by expert body of Indian Council for Social Science Research. The pre-testing and instrument were duly processed through Fatima Hospital, Dr. Ram Manohar Lohia Institute of Medical Sciences and King George's Medical University. Further, written and verbal consent was taken from respondents and guardians.

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Appendix Table 1 Description of study variable: Definition/Coding

Name of the variable	Definition/Coding
Outcome variables	
Labor room violence	Labor room violence was measured as a binary variable using two categories (Yes & No) to the question asked in survey "At the time of delivery, have the doctor/nurse/other health workers/staff of the hospital shouted/abused/hit you?":
Predictor variables: Socio-economic	
Place of residence	Place of residence is recoded into Urban and Rural area.
Religion	The presence of other religions in Uttar Pradesh is nearly negligible which is also reflected in our sample. Therefore, we have classified our sample into Hindu and Muslim.
Caste	The social groups are recoded into three groups: Scheduled Caste (SC)/Schedule Tribe (ST), Other Backward Castes (OBCs) and General Castes. A system that allows social hierarchal division of people in India.
Education of the Mother	The educational status of women is coded into three categories: No Education, 1-8 years of schooling and above secondary. These groups are classified in such as way that they have a distinct effect on the nature and level of labor room violence experienced by women.
Age of the Mother (in years)	Age of the mother is categorised into three groups: less than 20 years, 21-29 years and above 30 years. This classification was done by keeping in the mind both the distribution of the sample across the ages and also considering the ideal ages of childbearing.
Partner's Occupation	Partner's occupation has been recoded into two broad groups: Primary/Secondary and Tertiary/Quaternary. These groups are classified in such a way that they have a distinct effect on the nature and level of labor room violence experienced by women. Activities related to primary activities include agriculture (both commercial and subsistence), forestry, mining, farming, grazing, fishing, hunting and gathering, and quarrying. It also includes packaging and processing of the raw material related to these activities. Example for secondary occupation are- textile production, metal working and smelting, automobile production, aerospace manufacturing, chemical and engineering industries, engineering, construction, shipbuilding, energy utilities, breweries and bottlers. Activities includes in this sector are- transportation and distribution, restaurants, clerical services, retail and wholesale sales, entertainment (television, movies, theater, radio, music, etc.), media, tourism, law, insurance, banking and healthcare.
Any mass media exposure	Mass media exposure is a composite variable. It is computed based on women's exposure to print media (newspaper/magazine), and electric media (television, radio, and cinema). Exposure to any of these media sources was denoted "Yes" Otherwise "No".
Wealth Quintile	The wealth index is based on a variety of household characteristics and assets that are relevant for that country. The wealth index in the survey included 30 household assets. Individuals in the sample were assigned a score based on how their families rank on ownership of assets and other household characteristics using PCA. Following this, we extracted the factor weights for each variable. We then calculated wealth index scores based on these factor weights for each respondent in the national survey dataset. Finally, the population into wealth quintiles based on the wealth index scores was separated to observe the range of wealth index scores for each of the five quintiles. This was further grouped into three categories "Poor", "Middle", "Rich" for analysis purpose.

Reporting checklist for cohort study.

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von Elm E, Altman DG, Egger M, Pocock SJ, Gotzsche PC, Vandenbroucke JP. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) Statement: guidelines for reporting observational studies.

		Reporting Item	Page Number
Title	#1a	Indicate the study's design with a commonly used term in the title or the abstract	1
Abstract	#1b	Provide in the abstract an informative and balanced summary of what was done and what was found	2-3
Background / rationale	#2	Explain the scientific background and rationale for the investigation being reported	3-5
Objectives	#3	State specific objectives, including any prespecified hypotheses	2
Study design	#4	Present key elements of study design early in the paper	5-6
Setting	#5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	5-6
Eligibility criteria	#6a	Give the eligibility criteria, and the sources and methods of	5-6

		selection of participants. Describe methods of follow-up.	
	#6b	For matched studies, give matching criteria and number of exposed and unexposed	
Variables	#7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	6 & Appendix table
Data sources / measurement	#8	For each variable of interest give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group. Give information separately for exposed and unexposed groups if applicable.	
Bias	#9	Describe any efforts to address potential sources of bias	
Study size	#10	Explain how the study size was arrived at	6
Quantitative variables	#11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen, and why	
Statistical methods	#12a	Describe all statistical methods, including those used to control for confounding	6
	#12b	Describe any methods used to examine subgroups and interactions	
	#12c	Explain how missing data were addressed	
	#12d	If applicable, explain how loss to follow-up was addressed	
	#12e	Describe any sensitivity analyses	
Participants	#13a	Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed. Give information separately for for exposed and unexposed groups if applicable.	
	#13b	Give reasons for non-participation at each stage	
	#13c	Consider use of a flow diagram	
Descriptive data	#14a	Give characteristics of study participants (eg demographic,	

		clinical, social) and information on exposures and potential confounders. Give information separately for exposed and unexposed groups if applicable.	
	#14b	Indicate number of participants with missing data for each variable of interest	
	#14c	Summarise follow-up time (eg, average and total amount)	
Outcome data	#15	Report numbers of outcome events or summary measures over time. Give information separately for exposed and unexposed groups if applicable.	
Main results	#16a	Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	
	#16b	Report category boundaries when continuous variables were categorized	
	#16c	If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	
Other analyses	#17	Report other analyses done—e.g., analyses of subgroups and interactions, and sensitivity analyses	
Key results	#18	Summarise key results with reference to study objectives	6-9
Limitations	#19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias.	9-10
Interpretation	#20	Give a cautious overall interpretation considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence.	9-11
Generalisability	#21	Discuss the generalisability (external validity) of the study results	10-11
Funding	#22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	11

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Labor Room Violence in Uttar Pradesh, India: Evidence from Longitudinal Study of Pregnancy and Childbirth

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Labor Room Violence in Uttar Pradesh, India: Evidence from Longitudinal Study of Pregnancy and Childbirth

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Abstract

Objectives The major objective of this study was to investigate the prevalence of labor room violence [LRV] (one of the forms of obstetric violence) faced by the women during the time of delivery in Uttar Pradesh [UP] (the largest populous state of India which is also considered to be a microcosm of India). Further, this study also analyses the association between prevalence of obstetric violence and socio-economic characteristics of the respondents.

Design The study was longitudinal in design with the first visit to women made at the time of first trimester. The second visit was made at the time of second trimester and the last visit was made after the delivery. However, we have continuously tracked women over phone to keep record of developments and adverse consequences.

Settings Urban and rural areas of UP, India.

Participants Sample of 504 pregnant women was systematically selected from the Integrated Child Development Scheme (ICDS) Register of pregnant women.

Outcome We aimed to assess the levels and determinants of LRV using data collected from 504 pregnant women in a longitudinal survey conducted in UP, India. The dataset comprised of three-waves of survey from the inception of pregnancy to child-birth and postnatal-care. Logistic Regression model has been used to assess the association between prevalence of LRV faced by the women at the time of delivery and their background characteristics.

Result About 15.12% of women are facing LRV in UP, India. Results from logistic regression model (Odds Ratio [OR]) show that LRV is higher among Muslim women (OR = 1.8, 95% CI [Confidence Interval] 0.7-4.3) relative to Hindu women (OR = 1). The prevalence of LRV is higher among lower castes relative to General category, and is higher among those women who

have no mass media exposure (OR=4.7, 95% CI 1.7-12.8) compared to those who have (OR=1).

Conclusion In comparison with global evidence, the level of LRV in India is high. Women from socially disadvantaged communities are facing higher LRV than their counterparts.

Ethical Approval and Consent

The study was approved by expert body of Indian Council for Social Science Research. The pre-testing and instrument were duly processed through Fatima Hospital, Dr. Ram Manohar Lohia Institute of Medical Sciences and King George's Medical University. Further, written and verbal consent was taken from respondents and guardians.

Keywords: Labor room violence, women, institutional delivery, quality of health care.

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Article Summary

Strengths and limitations of this study

- For the first time, the study measures LRV experienced by women in health facilities in India and factors associated with it.
- In comparison with global evidence, the level of LRV in India is high. Women from socially disadvantaged communities are facing higher LRV than their counterparts.
- The estimated LRV in the survey setting may be lower than actual because of under reporting due to lack of awareness about forms of obstetric violence.
- The smaller sample size prevents us from presenting LRV estimates at the greater disaggregated levels.
- However, in the absence of information on LRV in existing large scale surveys, the contribution of this study is significant.

Introduction

One of the major targets of the Sustainable Development Goals (SDGs) is to reduce maternal mortality to 70 per 100,000 live births by 2030[1]. Significant strides have been made in increasing life expectancy and reducing some of the common killers associated with child and maternal mortality, but working towards achieving the target of less than 70 maternal deaths

per 100,000 live births by 2030 would require significant improvements in the quality of delivery care. Skilled birth attendance (SBA) has been a cornerstone of international efforts to reduce maternal mortality and is often measured by the indicators such as institutional deliveries or deliveries with skilled birth attendance. Recently, the United Nations Educational, Scientific and Cultural Organisation (UNESCO), in its Universal Declaration of Bioethics and Human Rights, declared that "health does not depend solely on scientific and technological research developments, but also on psychosocial and cultural factors."[2] Thus, a tacit effort has been made world-wide (including in India) to encourage institutional deliveries and SBA to ensure good quality of care during child-birth. Yet despite this, India still continues to contribute disproportionally to the global estimates of maternal morbidity and mortality. Globally, about 800 women die every day of preventable causes related to pregnancy and childbirth, 20 per cent of these women are from India.[3] The figures for institutional deliveries (78.9) and skilled birth attendance deliveries (81.4) in 2015-16 are also much lower than 100 percent as envisioned by SDGs. India has also failed to meet the MDG targets related to institutional deliveries and SBA by 2015. There is increasing attention and wide recognition that many women are deterred from facility-based delivery because the intrapartum care provided in the facilities does not satisfy the interpersonal and emotional aspects of this biosocial event. Others believe that the differences in quality of intrapartum care which arise from a broader aspect social, cultural and economic discrimination and exclusion, are important for maternal health outcomes.[4-5]

Poor quality care includes disrespectful and abusive care, patient-blaming, purposeful neglect, verbal or physical abuse, disregard for traditional beliefs, and the non-use of Indigenous languages for patient communication [6, 7]. This type of behavior has been classified as Obstetric/ Labour Room Violence (LRV) [8]. Worldwide, many women experience disrespectful and abusive treatment during childbirth in facilities, although evidence is limited in developing countries like India. Further, according to WHO reports "such conduct not only violates the rights of women to respectful care, but can also threaten their rights to life, health, bodily integrity, and freedom from discrimination".[9] This statement invites greater action, dialogue, research and advocacy on this important public health and human rights problem especially in terms of providing respectful maternity care. According to recent recommendation suggested by WHO, "Respectful maternity care – which refers to care organized for and provided to all women in a manner that maintains their dignity, privacy and confidentiality, ensures freedom

from harm and mistreatment, and enables informed choice and continuous support during labour and childbirth" [10].

LRV: Global Evidence

Prevalence of obstetric violence on women is a shockingly common phenomena for developing countries (>70% in Tanzania, Brazil) [11,12]. Increasingly, a number of studies on obstetric violence have focused widely on defining the term obstetric violence and the mistreatment associated with it. This involves determining forms of obstetric violence, measurement of different forms of obstetric violence, identifying challenges to maternity care, the emergent of laws to combat this problem and identifying systematic failures at the health system level and providing health facility. [13-21]LRV is often associated with adverse effects on pregnancy outcome. For instance, LRV may lead to issues such as maternal post-partum depression and post-traumatic stress disorders, particularly if the abuse is extreme. It is the most cited reason in Latin American countries for women to not return to health facilities for subsequent pregnancies, which consequently leads to an increase in maternal and child mortality and morbidities. A body of research mainly concentrated in Latin America and Europe specifically discusses obstetric violence, its determinants and forms.[13, 22-26] However, it is critical to generate data relating to disrespectful and abusive care practices over the pregnancy period and at the time of childbirth, particularly in developing countries such as India.

Methods

Study design and setting

This study is based on a unique survey conducted under the Project 'Understanding pregnancy nutrition and health care among women in rural and urban slums of Uttar Pradesh: A longitudinal study'. Data was collected during the period June 2016 to July 2016 from a systematically selected sample of 504 pregnant women from the Integrated Child Development Scheme (ICDS) Register of pregnant women in selected villages. The study adopted a two-stage sampling design for both urban and rural areas. In the first stage, PSUs were selected from the chosen blocks in two districts of survey based on the number of pregnant women in the villages, where importance was given to villages with the largest number of pregnant women from diverse social groups. In the identified village, pregnant women were selected from the register, maintained by the Accredited Social Health Activist (ASHA) (the community health workers instituted by the Government of India's Ministry of Health and Family Welfare as part of the National Rural Health Mission (NRHM) and Anganwadi workers (AWWs) -

appointed as functionaries to support health, education and rural development under ICDS of Ministry of Women and Child Development).

The sample size (n=504) is calculated using parameters such as the total number of pregnancies (n) obtained in each district through Annual Health Survey (2014) and Z values for getting the estimates representative at 95% confidence interval and design effect at 2%. The sample is self-weighted where each woman has the equal chance of getting selected. This study used the information from the first and third wave of the above-mentioned longitudinal survey. We used the socio-economic and demographic characteristics of women collected in the first wave and LRV information from the third wave which was conducted after child birth for all 504 women.

Definitions

The definition and coding of both outcome and predictor variables are given in appendix table 1.

Data collection and analysis

The interview schedule comprised of structured questions in both in Hindi (local language) and English for the purpose of data collection. The respondents were asked the following question regarding labor room violence- "At the time of childbirth, have the doctor/nurse/other health workers/staff of the hospital shouted/abused/hit you?" We have used bivariate tables to analyse the prevalence of LRV with socio-economic characteristics of the respondents. Further, logistic regression models were performed to assess the association between incidence of LRV faced by women at the time of childbirth and their background characteristics, which includes place of residence, religion, caste, years of schooling of the women, age of the women, partner's occupation, any mass media exposure and wealth quintiles. The statistical analyses have been performed in STATA-14.0 software.

Patient and public involvement

No patients were involved in the research design, and no patients were directly involved in the study.

Results

Prevalence

Despite the known under-reporting of violence against women in India, about 15.12% of women reported LRV in our sample (Table 1).

Table 1: Bivariate analysis: Prevalence and Factors associated with labour room violence.

Background Characteristics	n	LRV Prevalence (%)	95% C.I		Chi-Square Value
Place of Residence			LL	UL	
Rural	344	15.87	11.29	21.86	0.3779
Urban	160	19.11	11.28	30.53	
Religion					
Hindu	363	16.23	11.62	22.22	0.1341
Islam	141	18.18	10.47	29.70	
Caste					
SC/ST	190	20.62	13.60	29.99	
OBC	227	15.18	9.58	23.21	1.8627
General	87	12.50	5.56	25.76	
Years of schooling of women					
0	183	20.0	12.87	29.74	
1-8	209	15.6	9.85	23.81	1.1504
9 and above	112	13.79	6.90	25.67	
Age of the Women					
Youngest - 20	69	12.0	3.60	33.27	
21-29	368	17.62	12.83	23.71	0.5610
30 - oldest	67	15.38	6.82	31.12	
Partner's occupation					
Primary/Secondary	330	20.12	14.69	26.91	4.0636*
Tertiary/Quaternary	174	10.23	5.34	18.71	
Any Mass Media Exposure					
Yes	330	12.72	8.49	18.63	6.1235**
No	174	25.0	16.76	35.56	
Wealth Quintiles					
Poor	168	16.88	9.94	27.21	
Middle	168	16.84	10.49	25.93	0.0063
Rich	168	16.47	9.90	26.14	

Note: Significance levels p<0.05*, p < 0.01**, p < 0.001***; LL: Lower Limit, UL: Upper Limit; C.I: Confidence Interval

The prevalence of LRV is more pronounced in urban areas (19%) as relative to rural (16%). Similarly, the prevalence of LRV is more among Muslim (18%) as compared to Hindu (16%) women. Further, there is significant variation in prevalence of LRV among different caste groups i.e., Scheduled Castes (SCs) (20.6 %), OBC (15.2 %) and general category (12.5 %). The educational status of the women also plays a significant role in determining the prevalence of LRV. Prevalence of LRV is higher for those women with no education (20%) compared to those women with few years of schooling. Furthermore, the variable partner's occupation also showed some variation in the prevalence of LRV. Specifically, LRV is more common among

women whose husband is employed in Primary/Secondary activities (20.1%) compared to those involved in Tertiary activities (10.2 %). The wealth gradient is also important in assessing the prevalence of LRV. The most significant predictor of LRV is mass media exposure, with women who have some mass media exposure facing less violence (12.7%) as compared to women who have no mass media exposure (25%).

Correlates

Logistic regression model (Table 2) shows that the variables- religion, caste, partner's occupation and mass media exposure are statistically significant and associated with the prevalence of LRV faced by women, after controlling for other correlates.

Table 2: Logistic Regression estimates: Factors affecting labor room violence

	Odds Ratio	95% C.I	
Place of Residence		LL	UL
Urban	1		
Rural	1.126	0.464	2.732
Religion			
Hindu	1		
Islam	1.753*	0.722	4.255
Caste			
SC/ST	1		
OBC	0.619	0.262	1.462
General	0.473*	0.149	1.504
Years of schooling of women			
0	1		
1-8	0.817	0.358	1.866
9 and above	0.661	0.217	2.016
Age of the Women			
Youngest - 20	1		
21-29	1.303	0.345	4.923
30 - oldest	0.970	0.197	4.782
Partner's occupation			
Primary/Secondary	1		
Tertiary/Quaternary	0.402**	0.169	0.959
Any Mass Media Exposure			
Yes	1		
No	4.688***	1.713	12.831
Wealth Quintiles			
Poor	1		
Middle	0.923	0.356	2.395
Rich	0.654	0.165	2.598

Note: Significance levels p<0.05*, p < 0.01**, p < 0.001***; LL: Lower Limit, UL: Upper Limit, C.I: Confidence Interval

The odds of the occurrence of LRV is higher among Muslim women (Odds Ratio [OR] = 1.8, 95% CI [Confidence Interval] 0.7-4.3) relative to Hindu women (OR = 1). Among social groups, with reference to SCs (OR = 1), the odds of occurrence of violence faced by women is half among General category (OR = 0.5, 95% CI 0.1-1.5) and Other Backward Class (OBC) (OR = 0.6, 95% CI 0.3-1.5). In terms of partner's occupation, the odds of violence is less than half for women those partners were engaged in Tertiary activities (OR = 0.4, 95% CI 0.2-1) in comparison to Primary/Secondary activities (OR = 1). The occurrence of violence for the women those who have no mass media exposure (OR = 4.7, 95% CI 1.7-12.8) is about five times higher than those who have mass media exposure (OR = 1).

Discussion

Main Findings of this study

Given the context of the WHO pledge, that every woman has the right to the highest attainable standard of health which also includes the right to dignified, respectful health care. This paper, for the first time, empirically reports the occurrence of LRV and its socioeconomic correlates in India. The findings are important in the Indian context where health care delivery is dominated by the social hierarchies, and disadvantaged communities struggle to have a place in the health system and receive appropriate health care with dignity. Therefore, the findings of this study underpin the need to explore more on the issue of LRV with more in-depth and large scale studies. Despite significant under-reporting of violence in India, the estimate of LRV in this study is high and varies according to the socio-economic characteristics of the female respondent. Although, caste, religion, place of residence and partner's occupation emerged as significant factors associated with LRV; it is the exposure to mass media which shows the highest disparity in the occurrence of LRV. Thus, it particularly highlights the importance of awareness and knowledge about reproductive rights and entitlements of women in the health system. This can play significant role in determining the rate of LRV.

Limitations of the study

Although the results of the survey indicate a high prevalence of LRV relative to studies from other developed countries[13], but this study suffers from the issue of under-reporting due to lack of awareness about forms and nature of obstetric violence in the survey setting. Further, as with other micro studies, the study suffers from the short-coming of small sample size. However, in

the absence of information on LRV in existing large scale surveys, the contribution of this study is significant.

What is already known on this topic

In developing countries like India where maternal and child health indicators are far from satisfactory with poor medical and public health ethics in health care delivery system, coupled with other barriers such as gender and social inequality, lack of accountability by the service providers and health system inefficiencies, the high prevalence of LRV raises an important policy question. To date the major concern for policy makers has been to increase the demand for health care services; so less attention is paid to the supply side barriers including the quality of health care services and related ethical standards. Due to the lack of availability of data, in-depth studies on LRV are absent for India.

In India, given the hierarchal nature of the society, it is imperative to study the access to health facilities and women's experience of receiving health care with dignity within a socio-economic framework. Studies based on experiences of Latin American women of Indigenous origin insist that women from poor, indigenous or socially backward classes receive "triple discrimination" i.e., by being female, being an ethnic minority and of lower socio-economic status.[21] Even in egalitarian European societies, women facing economic hardships and negative life events with the least social support have higher chance of experiencing LRV than their counterparts.[27, 28]

What this study adds

Although obstetric violence on women has received increasing global attention, developing countries have yet to address deficiencies in this area. The Government of India has already implemented several policies and interventions aimed towards providing adequate maternal health care services to all. The quality of maternal health care services is one of the major components integral to the improvement of maternal and child health, a long neglected area for policy-makers. With the emergence of various government interventions, the number of service providers has increased, but assuring quality and dignity in health care delivery remains a major concern. However, contemporary studies in India [29-31] with regards to maternal health care are mainly based on large population-level datasets focusing on availability and accessibility of maternal health care services. However, there is a research gap in the assessment of quality of those services and evaluating the nature of treatment provided by the health care workers,

which is critically needed to improve public health care delivery system. Given this context, our study fills a critical knowledge gap by providing robust quantitative evidence on LRV experienced by pregnant women at health facilities. Issues such as LRV raise concerns not only on medical or hospital ethical standards in India but also on the violation of the reproductive rights of women.

Conclusions

In comparison to global evidence, the level of LRV in India is high. Women from socially disadvantaged communities are facing higher LRV than their counterparts. For any further progress in pregnancy outcomes in India, policy makers should focus not only on the availability and accessibility of services, but also on ensuring quality of care and dignity of the receivers. Countries such as India must improve its ethical standards in health care delivery where people from all sections of society, especially those from marginalised communities receive quality services with dignity.

Footnotes

Author Contributions SG & AR generated the idea for the survey and the paper, SG, MZS and HR prepared an analytical plan along with conducting all data analyses. DG and SC worked on drafting the paper. SG, DG and SC prepared the first draft of the manuscript on which AR & SA provided critical comments after careful review.

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Competing interests None declared

Patient consent Written and verbal consent were obtained from women and guardians accompanying them, which explained the purpose and content of the survey and that confidentiality of the information would be maintained.

Ethics approval The study was approved by expert body of Indian Council for Social Science Research. The pre-testing and instrument were duly processed through Fatima Hospital, Dr. Ram Manohar Lohia Institute of Medical Sciences and King George's Medical University. Further, written and verbal consent was taken from respondents and guardians.

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Data sharing statement Data can be made available on reasonable request. For any further queries regarding data availability kindly contact Dr. Srinivas Goli, sirispeaks2u@gmail.com

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Appendix Table 1 Description of study variable: Definition/Coding

Name of the variable	Definition/Coding
Outcome variables	
Labor room violence	Labor room violence was measured as a binary variable using two categories (Yes & No) to the question asked in survey "At the time of delivery, have the doctor/nurse/other health workers/staff of the hospital shouted/abused/hit you?":
Predictor variables: Socio-economic	
Place of residence	Place of residence is recoded into Urban and Rural area.
Religion	The presence of other religions in Uttar Pradesh is nearly negligible which is also reflected in our sample. Therefore, we have classified our sample into Hindu and Muslim.
Caste	The social groups are recoded into three groups: Scheduled Caste (SC)/Schedule Tribe (ST), Other Backward Castes (OBCs) and General Castes. A system that allows social hierarchal division of people in India.
Education of the Mother	The educational status of women is coded into three categories: No Education, 1-8 years of schooling and above secondary. These groups are classified in such as way that they have a distinct effect on the nature and level of labor room violence experienced by women.
Age of the Mother (in years)	Age of the mother is categorised into three groups: less than 20 years, 21-29 years and above 30 years. This classification was done by keeping in the mind both the distribution of the sample across the ages and also considering the ideal ages of childbearing.
Partner's Occupation	Partner's occupation has been recoded into two broad groups: Primary/Secondary and Tertiary/Quaternary. These groups are classified in such a way that they have a distinct effect on the nature and level of labor room violence experienced by women. Activities related to primary activities include agriculture (both commercial and subsistence), forestry, mining, farming, grazing, fishing, hunting and gathering, and quarrying. It also includes packaging and processing of the raw material related to these activities. Example for secondary occupation are- textile production, metal working and smelting, automobile production, aerospace manufacturing, chemical and engineering industries, engineering, construction, shipbuilding, energy utilities, breweries and bottlers. Activities includes in this sector are- transportation and distribution, restaurants, clerical services, retail and wholesale sales, entertainment (television, movies, theater, radio, music, etc.), media, tourism, law, insurance, banking and healthcare.
Any mass media exposure	Mass media exposure is a composite variable. It is computed based on women's exposure to print media (newspaper/magazine), and electric media (television, radio, and cinema). Exposure to any of these media sources was denoted "Yes" Otherwise "No".
Wealth Quintile	The wealth index is based on a variety of household characteristics and assets that are relevant for that country. The wealth index in the survey included 30 household assets. Individuals in the sample were assigned a score based on how their families rank on ownership of assets and other household characteristics using PCA. Following this, we extracted the factor weights for each variable. We then calculated wealth index scores based on these factor weights for each respondent in the national survey dataset. Finally, the population into wealth quintiles based on the wealth index scores was separated to observe the range of wealth index scores for each of the five quintiles. This was further grouped into three categories "Poor", "Middle", "Rich" for analysis purpose.

Reporting checklist for cohort study.

Based on the STROBE cohort guidelines.

Instructions to authors

Complete this checklist by entering the page numbers from your manuscript where readers will find each of the items listed below.

Your article may not currently address all the items on the checklist. Please modify your text to include the missing information. If you are certain that an item does not apply, please write "n/a" and provide a short explanation.

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In your methods section, say that you used the STROBE cohort reporting guidelines, and cite them as:

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		Reporting Item	Page Number
Title	#1a	Indicate the study's design with a commonly used term in the title or the abstract	1
Abstract	#1b	Provide in the abstract an informative and balanced summary of what was done and what was found	2-3
Background / rationale	#2	Explain the scientific background and rationale for the investigation being reported	3-5
Objectives	#3	State specific objectives, including any prespecified hypotheses	2
Study design	#4	Present key elements of study design early in the paper	5-6
Setting	#5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	5-6
Eligibility criteria	#6a	Give the eligibility criteria, and the sources and methods of	5-6

		selection of participants. Describe methods of follow-up.	
	#6b	For matched studies, give matching criteria and number of exposed and unexposed	
Variables	#7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	6 & Appendix table
Data sources / measurement	#8	For each variable of interest give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group. Give information separately for exposed and unexposed groups if applicable.	
Bias	#9	Describe any efforts to address potential sources of bias	
Study size	#10	Explain how the study size was arrived at	6
Quantitative variables	#11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen, and why	
Statistical methods	#12a	Describe all statistical methods, including those used to control for confounding	6
	#12b	Describe any methods used to examine subgroups and interactions	
	#12c	Explain how missing data were addressed	
	#12d	If applicable, explain how loss to follow-up was addressed	
	#12e	Describe any sensitivity analyses	
Participants	#13a	Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed. Give information separately for for exposed and unexposed groups if applicable.	
	#13b	Give reasons for non-participation at each stage	
	#13c	Consider use of a flow diagram	
Descriptive data	#14a	Give characteristics of study participants (eg demographic,	

		clinical, social) and information on exposures and potential confounders. Give information separately for exposed and unexposed groups if applicable.	
	#14b	Indicate number of participants with missing data for each variable of interest	
	#14c	Summarise follow-up time (eg, average and total amount)	
Outcome data	#15	Report numbers of outcome events or summary measures over time. Give information separately for exposed and unexposed groups if applicable.	
Main results	#16a	Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	
	#16b	Report category boundaries when continuous variables were categorized	
	#16c	If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	
Other analyses	#17	Report other analyses done—e.g., analyses of subgroups and interactions, and sensitivity analyses	
Key results	#18	Summarise key results with reference to study objectives	6-9
Limitations	#19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias.	9-10
Interpretation	#20	Give a cautious overall interpretation considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence.	9-11
Generalisability	#21	Discuss the generalisability (external validity) of the study results	10-11
Funding	#22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	11