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Unequal Births: Unveiling Obstetric Violence and Sociodemographic Disparities in Mexico – A Cross-Sectional Analysis

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Abstract

Obstetric violence (OV) represents a significant public health concern, conceptualised as a form of violence against women that originates from structural and gender-based violence and is perpetuated within the healthcare system. The objective of this study was to ascertain the prevalence of OV and its association with sociodemographic characteristics in Mexico. This cross-sectional study employed data from a national survey conducted in 2021 (n = 19,322) among women aged 15 and 49 years. The analysis was conducted using frequency tables and regression techniques. The prevalence of OV was found to be 31%, and notably high among adolescent mothers, women with disabilities, those who had experienced violence in other contexts, and indigenous women. The findings of this study may inform improvements in maternity care, particularly with regard to the removal of obstacles to respectful maternity care in both healthcare and non-healthcare settings.

Keywords

Obstetric Violence, Mexico, Reproductive justice, Violence against women, Structural Violence, Social inequalities.

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Dedication

In the sincere hope and intention that no woman is ever violated in giving life.

En la sincera esperanza y el esfuerzo de que ninguna mujer sea violentada al dar vida.

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List of abbreviations

aOR	Adjusted odds ratio
C-section	Caesarean section
CI	Confidence interval
GBV	Gender-based violence
HS	Health system
HP	Healthcare professionals
HR	Human rights
ISSSTE	Institute for Social Security and Services for State Workers
IMSS	Mexican Social Security Institute
LA	Latin America
LR	Likelihood ratio
MoH	Ministry of Health
INEGI	National Institute of Statistics and Geography
ENDIREH	National Survey on the Dynamics of Household Relationships
ReHuNa	Network for the Humanisation of Labour
OV	Obstetric violence
OR	Odds ratio
PTSD	Post-traumatic stress disorder
PH	Public health
QoC	Quality of care
SD	Standard deviation
VIF	Variance Inflation Factor
VaW	Violence against women
WHO	World Health Organisation

Introduction

Background

For nearly half a century there have been notable efforts to enhance the protection of women's rights in obstetric care. Since the 1980s, concerns have been expressed about the lack of humanised childbirths, particularly in Latin America (LA) (Sen, Reddy, and Iyer 2018). Since 1985, the World Health Organization (WHO) has advocated for the appropriate standards of care in childbirth and the central role of women during labour ("Appropriate Technology for Birth" 1985). This has proved pivotal in the development of policy and evaluation concerning childbearing (Mena-Tudela et al. 2020). However, the necessity for documentation of the suboptimal treatment of women during childbirth remained unmet (ibid.).

The issue of violence and harassment during childbirth was first acknowledged in 1993 with the establishment of the Network for the Humanisation of Labour and Birth (ReHuNa) (Diniz et al. 2018; Sadler et al. 2016). Since that time, scholars have described various forms of violence during labour (Berger et al. 2021; Bohren et al. 2014; Bohren et al. 2015; Bohren et al. 2019; Bowser et al. 2010; Diniz et al. 2018; Freedman and Kruk 2014). The term 'obstetric violence' (OV) has been coined to describe the dehumanised treatment of women during childbirth as a form of violence against women (VaW) (Sadler et al. 2016). It elucidates the underlying dimensions of this issue, which span from the roots of structural gender-based violence (GBV) to the medical specialty and encompass more modern forms of education and power imbalances (Castro 2014; Castro and Frias 2020; Chadwick 2021; Freedman and Kruk 2014, Jardim and Modena 2018; Jewkes and Penn-Kekana 2015; Sadler et al. 2016).

A number of studies have documented high rates of OV in Mexico (Castro and Erviti 2003; Castro and Frias 2019; De Los Ángeles Iglesias Ortuño 2022; Grupo de Información en Reproducción Elegida [GIRE] 2023; Sadler et al. 2016; Savage and Castro 2017). It has been proposed that these findings can be attributed to the epiphenomenon of the power structure inherent to the medical field, and that it is in fact, a consequence of the maintenance of the existing gendered social order (Castro and Erviti 2003). In light of Castro and Frias' (2019) investigation of OV in Mexico, based on data from the National Survey on the Dynamics of Household Relationships (ENDIREH) 2016, it is notable that new data from the ENDIREH 2021 has yet to be analysed. Furthermore, no investigation has been undertaken to determine

the behaviour of the phenomenon across different sociodemographic characteristics in the country.

Rationale

This study is motivated by the WHO's (World Health Organization 2015) assertion that OV is a pervasive public health (PH) and human rights (HR) issue, that violates the right of every woman to access dignified and respectful healthcare. This study is aligned with the Sustainable Development Goals, specifically goals three and five, which aim to achieve healthy lives and well-being for all; gender equality and the empowerment of women and girls; the elimination of all forms of discrimination and VaW; the guarantee of access to quality maternal health services; and the safeguarding of the reproductive autonomy of women and girls ("Sustainable Development Goals," n.d.). The positive experiences of obstetric care are associated with an increased preference for facility-based childbirth, which in turn facilitates the reduction of maternal and newborn mortality rates (Freedman et al. 2014). This research aims to contribute to this understanding, providing a foundation for targeted prevention and intervention strategies for enhanced maternal healthcare.

Research Questions and Hypotheses

The objective of this study is to examine the prevalence and determinants of OV among Mexican women. In order to address this issue, the following central research question is proposed for investigation:

1. *How are sociodemographic characteristics associated with the prevalence of OV among Mexican women?*

The following research questions are intended to provide further insight and understanding:

2. *How do different sociodemographic characteristics influence the odds of experiencing OV in Mexican healthcare settings?*
3. *What is the nature of the interaction between sociodemographic characteristics and structural forms of violence in obstetric care?*

The following hypotheses are presented for consideration:

H_1: In light of prior research (Castro and Frias 2019; Fuentes, Arteaga, and Sebastián 2022; Kotni 2018) and the WHO's (World Health Organization 2015) statement on respectful maternity care, it is postulated that women of younger ages, unmarried, and from ethnic and social minorities are at an elevated risk of experiencing OV during childbirth in Mexico.

H_0: No significant association is identified between sociodemographic factors and the prevalence of obstetric violence.

Theoretical Framework

This study is informed by the theoretical framework of reproductive justice, and is approached through an intersectional and feminist lens. The concept of reproductive justice provides a comprehensive framework that extends beyond the scope of individual rights (Morison 2021). The framework emphasises the social, economic, and structural conditions that impact women's reproductive autonomy (Keedle, Keedle, and Dahlen 2022). An intersectional lens is employed to acknowledge the intertwined nature of various forms of oppression and their collective impact on women's experiences of obstetric care (Bauer 2014; Carbado 2013; Muñoz García and Berrio Palomo 2020; Smith-Oka, Rubin, and Dixon 2021). Moreover, the feminist lens serves to further inform the analysis by prioritising women's lived experiences and challenging the power dynamics that exist within health systems (HS) and the wider social structure, which contribute to OV (Espinosa Reyes 2022; Sadler et al. 2016; Shabot 2015). It would be an error of academic judgement to ignore the value of a feminist lens when examining OV, which is an issue with inherent feminist dimensions (Chadwick 2021; Sadler et al. 2016; Shabot 2015). This framework not only shapes the methodological approach but also guides the interpretation of findings, ensuring that the complexity of this phenomenon is addressed.

Literature Review

This chapter sets forth the principal themes that facilitate the comprehension of OV. The initial section presents an overview of the conceptualisation of the phenomenon as presented in the existing literature. Subsequently, the historical and legal context of OV is outlined, with particular emphasis on the Mexican case. Finally, this chapter provides an overview of the Mexican HS, including an examination of medical education and obstetric care within the country.

The conceptual apparatus of OV, as articulated within the reproductive justice discourse, provides a means of reconciling disparate struggles to violence across the full spectrum of reproductive life events (Chadwick 2021). It should be noted, however, that the definition and conceptualisation of OV in the context of this study refers exclusively to violations that occur during childbirth. Moreover, this study recognises the limitations of the prevailing discourse on OV, particularly with regard to the utilisation of trans-inclusive language (Chadwick 2021). However, the terminology employed in this study, which characterises childbearing women as victims of OV, is aligned with the necessity to move beyond the concept of 'birthing bodies' (Caffieri and Margherita 2023; Dahan and Shabot 2022) and with the cisnormative characteristics of ENDIREH 2021.

Obstetric Violence: Building Up the Concept

The initial compendium of evidence on mistreatment and abuse in institutional childbirth identified seven categories of disrespect, namely "physical abuse, non-consented care, non-confidential care, non-dignified care, discrimination, abandonment of care (and) detention in facilities" (Bowser and Hill 2010, p.8). Freedman and Kruk (2014) identified that the phenomenon of OV is pervasive and deeply entrenched, extended beyond the context of institutional births and individual interactions between health professionals (HP) and women. The authors delineated the perpetuation of OV through the national laws and policies, standards of care, infrastructure, the distribution of resources, service delivery and the behaviour of HP (Bowser et al. 2010; Freedman and Kruk 2014). The underlying dimensions of OV encompass both the deliberate utilisation of violence and the negligent withholding of care (Jewkes and Penn-Kekana 2015). Additionally, structural disrespect plays a pivotal role (ibid.). These factors collectively impact the quality of care (QoC) experienced by patients (Smith-Oka 2015;

Smith-Oka, Rubin, and Dixon 2021). In this sense, OV has its roots in individual actions and systemic conditions that sustain them (Freedman and Kruk 2014).

Bohren and colleagues (2015) put forth a distinct typification of mistreatment, acknowledging the multifaceted nature of the phenomenon (Sadler et al. 2016), and its manifestation at the interpersonal, systemic and structural levels (Freedman and Kruk 2014). The authors identified seven categories of mistreatment, namely "physical abuse, sexual abuse, verbal abuse, stigma and discrimination, failure to meet professional standards of care, poor rapport between women and providers (and) health system conditions and constraints" (Bohren et al. 2015, p.7). Moreover, the literature underscores that OV cannot be addressed in the same manner as other forms of medical violence, iatrogenesis or negligence (Sadler et al. 2016). OV represents a distinctive feminist concern, given its status as a form of GBV, which necessitates a nuanced analytical approach (Sadler et al. 2016; Shabot 2015). Therefore, although there are isolated instances that reflect subjective biases, these may be manifestations of deeply entrenched violence that is shaped by societal, institutional and gender norms (Jewkes and Penn-Kekana 2015; Sadler et al. 2016; Shabot 2015). OV constitutes a form of VaW that reflects structural gender inequalities and patriarchal power dynamics (Akik 2023; Jardim and Modena 2018; Jewkes and Penn-Kekana 2015; Keedle, Keedle, and Dahlen 2022; La Torre et al. 2023; Sadler et al. 2016; Shabot 2015; Diaz-Tello 2016).

The historical social preference for masculine physiognomy, coupled with the underlying structural gender inequalities and patriarchal oppression, may result in the undervaluation and objectification of the female body, thereby limiting women's power and potential for expression (Jardim and Modena 2018). The objectification of female bodies in the medical management of childbirth reflects the asymmetric distribution of gender powers (Sadler et al. 2016). This can be conceptualised as a process of "being transformed from a *Leib*, a living body infused with freedom and the possibility of transcendence, into a *Körper*, a passive body-object with no embodied agency and no possibility of active engagement with the world" (Shabot 2015, p. 235).

The portrayal of women as a mere reproductive medium gives rise to interpersonal GBV that is validated and perpetuated by the medical system (Caffieri and Margherita 2023). The appropriation of reproductive processes is itself historical and has been ongoing for centuries (Chadwick 2021). This has involved the policing and regulation of fertility, as well

as the criminalisation of abortion and contraception, among other trends (Chadwick 2021). In various interpretations, OV can even be likened to sexual violence, and has been referred to as "birth rape" (Chadwick 2021, p. 106). This reflects the violent control over women's reproductive bodies, the overly sexual aspect of labour, and the use of language of rape in acts of OV (Chadwick 2021; Shabot 2015).

The reification of the female body during labour is not only a consequence of patriarchal oppressions and gender inequalities in social structures, but also part of a process of pathologizing childbirth and pregnancy (Pozzio 2016; Sadler et al. 2016; Shabot 2015). This devaluation of the female body and of women's capabilities (Jardim and Modena 2016) may also originate from the concept that during labour the body loses its femininity, and thus, violence is required to restore the body to its perceived state of femininity, submissiveness and passivity (Sadler et al. 2016; Shabot 2015). The coercive control over women's reproductive agency and the pathologizing of natural childbirth processes serve to illuminate that OV constitutes a violation of women's HR, bodily autonomy and agency over their maternal processes (Diaz-Tello 2016; La Torre et al. 2023; Martínez-Galiano et al. 2021; Shrivastava and Sivakami 2019). Furthermore, the systematic devaluation of women's bodies, lives and position allows for the inappropriate allocation of resources to maternity care (Jewkes and Penn-Kekana 2015), which further disempowers women and enables the use of violence against them.

The term OV is not merely a description or legal concept, it represents an "epistemic intervention" (Chadwick 2021, p.105), whereby normalised forms of harm and violations are contested through the incorporation of *violence* (ibid.). The specific forms of harm in which OV is manifested vary depending on the contextual setting in which it occurs (Akik 2023; Chadwick 2021). A multiplicity of factors, including local cultures, politics, resources, racism and inequalities, consolidate specific settings in which OV may be displayed in different forms (ibid.).

The experience of OV has been found to have significant implications for women's physical, mental, and emotional health, with the potential to result in adverse outcomes such as birth trauma, postnatal depression, post-traumatic stress disorder (PTSD), and disrupted mother-child bonding (Keedle, Keedle, and Dahlen 2022; Mena-Tudela et al. 2020b; Olza 2013).

Historical and Legal Context of Obstetric Violence

The international mechanisms that were established with the intention of promoting and ensuring the provision of quality and respectful obstetric care and services for women date back to 1979, when the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) was founded (*Convención Sobre La Eliminación De Todas Las Formas De Discriminación Contra La Mujer* 1979). In 1993, ReHuNA was founded in Brazil, where the issue of violence and harassment within obstetric care was brought to the fore (Sadler et al. 2016). Subsequently, in 1994, the Inter-American Convention on the Prevention, Punishment and Eradication of Violence against Women, Belém do Pará, constituted the inaugural mechanism to recognise OV as a HR violation (Canadian International Development Agency, Organización de los Estados Americanos, and mesecvi, n.d.). The First International Conference for the Humanization of Birth was established in Brazil in 2000 under the auspices of the Latin American and Caribbean Network for the Humanization of Childbirth (RELACAHUPAN) (Sadler et al. 2016). The conference highlighted the prevalence of unnecessary medical interventions and mistreatment of women during labour, underscoring the need for improved care standards (ibid.).

The inaugural formal and legal articulation of the concept of OV occurred in 2007 in Venezuela, when the term was introduced in the Organic Law on the Right of Women to a Life Free of Violence (Pickles 2024). This movement encouraged other countries to include legal recognitions of OV (Chadwick 2021; Vacaflor 2016). Scholars, activists, advocates and HP have battled to legally conceptualise OV (D'Gregorio 2010), as failure to adequately address it can result in the normalisation of the phenomenon and a sense of entitlement to unacceptable behaviour (Jewkes and Penn-Kekana 2015).

With regard to Mexico, neither the Federal General Health Law nor the General Law on Women's Access to a Life Free of Violence (LGAMVLV) provide an explicit definition of OV (Cobo Armijo, Sáenz, and Flores Subias 2023). Nevertheless, 24 of the 32 states in the country have incorporated recognition of this type of violence in their LGAMVLV, with seven states typifying it as a crime: Aguascalientes, Chiapas, Guerrero, State of Mexico, Veracruz, Yucatan and Quintana Roo (Grupo de Información en Reproducción Elegida [GIRE] 2021). The LGAMVLV of Mexico City defines OV as "all acts or omissions by medical and health

professionals that damage, harm, denigrate, or cause the death of the woman during pregnancy, birth, and the postpartum period" (Williams et al. 2018, p.1209).

The Mexican Healthcare System

By 2021, the population of Mexico reached 126 million, with women accounting for 51% of this figure (Gobierno Federal 2022). The current demographic patterns indicate that Mexico is undergoing an epidemiological transition characterised by a decline in mortality and fertility rates, and an increase in the double burden of disease (Stevens et al. 2008). The fertility rate declined from seven children per woman in 1970 to two in 2021 (Castro 2014; Consejo Nacional de Población 2021). The proportion of births occurring in institutional settings in Mexico is high, with estimates suggesting a figure of approximately 95 to 98% (Lazcano-Ponce et al. 2013).

The Mexican HS is characterised by fragmentation between the public and private sectors (Castro 2014). It is notable for its heterogeneity and disparity, both in terms of financial resources and the population it serves (ibid.). The public sector comprises the Ministry of Health (MoH) and its decentralised departments in the various states, the Mexican Social Security Institute (IMSS), the Institute for Social Security and Services for State Workers (ISSSTE), and the health services of the National Ministry of Defence, the Navy and Mexican Petroleum (ibid.). The MoH is the national government agency responsible for PH and the coordination of health policies (Lazcano-Ponce et al. 2013). The private sector comprises a network of hospitals and outpatient clinics, accessible through private health insurance or pay-as-you-go services (Castro 2014).

As of 2023, the proportion of Mexican population with health coverage was below 90% (OECD 2023). Mexico's health expenditure is relatively low, accounting for only 0.1% of its gross domestic product in 2018 (Lomelí Vanegas 2021). This has led to a significant proportion of household spending (41%) on healthcare (ibid.). A plethora of constraints within the Mexican HS have been identified, including significant disparities in health coverage and services, infrastructure in marginalised areas; the lack of comprehensive policies to address existing health inequalities, and disparities in the distribution of resources and quality of services (Lazcano-Ponce et al. 2013; Smith-Oka 2015; UNIR 2023).

Obstetric care is regulated and guided by the Official Mexican Norm for Pregnancy, Childbirth and Puerperium, as well as by documents published by the MoH and Clinical Practice Guidelines (Secretaría de Salud 2018). The confirmation, assessment, and follow-up of pregnancy are conducted at the first-level of care, which may be a primary care centre within the public sector or an outpatient clinic within the private sector (Secretaría de Gobernación 2016). The standard recommendation of prenatal consults in Mexico is five (ibid.). The majority of births occur in a second-level healthcare facility, where women are directed to labour rooms and subsequently transferred to expulsion rooms or operating rooms for the birth (ibid.). In the absence of complications, it is recommended that the mother and baby be placed in skin-to-skin contact immediately after delivery, followed by admission to the recovery room and joint accommodation (ibid.).

Obstetric Violence: The Case of Mexico

From 2000 to 2012, the National Commission for Medical Arbitration published a number of complaints pertaining to medical malpractice, the majority of which were related to the field of obstetrics and gynaecology, shedding light of OV in Mexican healthcare facilities (Castro and Erviti 2014; Secretaría de Salud 2010). Initially, the issue was addressed from a QoC perspective, however, as OV gained visibility, the reproductive justice approach has become increasingly valid (ibid.).

Experiences of OV in Mexico have been documented particularly among women from lower-income social sectors or who are indigenous (Castro and Erviti 2003, Castro and Erviti 2014; Santiago et al. 2018; Sesia 2020; Smith-Oka 2015; Villanueva-Egan 2010). The intertwined representation of hegemonic social differences, namely class and ethnicity, has resulted in the establishment of essentialist conceptions of lower-class and indigenous pregnant women as passive and submissive (Sesia 2020).

The infringement of HR within the context of obstetric care has prompted further investigation into the authoritarian medical *habitus* -defined as the set of generative predispositions that result from the incorporation of the objective structures of the medical field- (Castro 2014). A substantial body of research posits that OV is a consequence of the challenging working circumstances faced by HP in Mexico; characterised by a high patient load in a limited time frame, a lack of ethical training, and ineffective resource allocation

(Gómez-Dantés et al. 2011; Villanueva-Egan 2010). However, other authors have described modern medicine as a patriarchal institution that reproduces and naturalises the domination of women through the medicalisation and appropriation of their bodies (Murguía, Ordorika, and Lendo 2016). This may assist in elucidating why OV is not only perpetuated by male HP (Jardim and Modena 2018).

Castro (2014) posits that the medical *habitus* in Mexico is characterised by a high degree hierarchy, a foundation in gender inequality and the use of punishments as a means of maintaining power and survival among HP. The biomedical field is constructed by internal beliefs, rules and practices, that respond to and reproduce gender ideologies and hierarchical systems across the health professions, the legal system and the state (Sadler et al. 2016). Consequently, the structural hierarchies present in the social fabric of the country have an impact on interactions in clinical settings, resulting in microaggressions of varying degrees (Smith-Oka 2015).

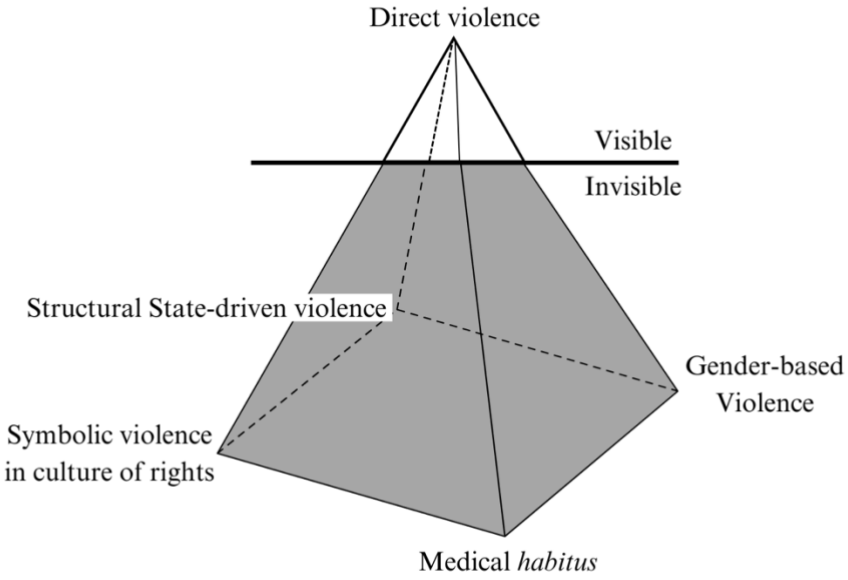
In this regard, childbirth is frequently influenced by a complex network of patriarchal forces (Perrotte, Chaudhary, and Goodman 2020). The medical practice is not immune to the influence of societal relations of power, systemic prejudices, HR violations, legacies of colonialism and political, social and ideological inscriptions (Chadwick 2021; Saville 2019). OV is a consequence of the interaction of multiple power structures, which not only reflect gender inequality but also the hegemonic medical model that governs childbirth care (Jewkes and Penn-Kekana 2015; La Torre et al. 2023; Sadler et al. 2016; Sadler 2020). This hegemonic dominance may result in women unconsciously submitting to the authority of HP, thereby reinforcing these long-standing power dynamics (Jewkes and Penn-Kekana 2015).

Obstetric Violence as an Iceberg Phenomenon

The conceptualisation of violence as a cyclical phenomenon comprising direct, structural and cultural components (Galtung and Fischer 2013), with the direct component representing merely the pinnacle of the iceberg, facilitates comprehension of OV, given the intricate nature of the factors underlying this phenomenon (Figure 1) (Espinoza Reyes 2022). It can be observed that violence has the potential to originate at any vertex and subsequently be transmitted to each of the remaining vertices, thereby reinforcing a vicious cycle (ibid.).

OV elucidates the intertwined nature of gender violence and underlying structural violence that shape the medical specialty, the hidden curriculum, education and the structures of power (Akik 2023; Sadler et al. 2016). This manifests as dehumanised treatment of women during childbirth, whereby the labouring body challenges the patriarchal understanding of femininity and thus must be 'tamed' through violence (Sadler et al. 2016; Shabot 2015; Perrotte, Chaudhary, and Goodman 2020; Chadwick 2021).

Figure 1. Obstetric violence: the iceberg phenomenon.



Own creation based on Espinoza Reyes 2022, p.109.

Research Design and Methodology

Study Design

In light of the intricate endorsement of an operational definition of OV (Freedman and Kruk 2014) and the dearth of quantitative research in the field (Bohren et al. 2019), the range of methods for assessing the phenomenon quantitatively is constrained. Nevertheless, researchers have demonstrated the feasibility of regression techniques as tools for a nuanced understanding of patterns of OV that may contribute to inform evidence-based practices (Castro and Frias 2019; Fuentes, Arteaga, and Sebastián 2022; Mena-Tudela et al. 2020b; Sethi et al. 2022). Regression techniques have been demonstrated to be an effective means of quantifying the contribution of explanatory variables to an outcome in social and demographic studies (Stoltzfus 2011), which aligns with the research question posed in this study.

Data Sources

This cross-sectional study represents a secondary analysis of data collected through the ENDIREH survey in Mexico in 2021 (accessed through Instituto Nacional de Estadística y Geografía 2021). The data is made publicly accessible by the National Institute of Statistics and Geography. The fifth issue of the statistical series, ENDIREH 2021, reports on the situation of VaW in Mexico (Instituto Nacional de Estadística y Geografía 2022b). Since 2016, the survey has inquired about experiences of violence in obstetric care, particularly during childbirth (Instituto Nacional de Estadística y Geografía 2017).

A three-stage, stratified and clustered sampling methodology was employed to obtain national population estimates, comprising 140,784 urban and rural households (Instituto Nacional de Estadística y Geografía 2022a). The survey was representative of women aged 15 years and older residing in the 32 states that comprise Mexico at the time (ibid.). The survey was conducted between October and November 2021 (ibid.).

The section of ENDIREH pertaining to obstetric care was administered to women between the ages of 15 and 49. The sample for this study constituted those women who had answered affirmatively to having a pregnancy and their most recent childbirth in the period comprising 2016 to the day of the interview (N= 19,386). A total of 64 women reported they had not received any assistance during childbirth and were therefore excluded from the final sample for this study (N= 19,322*).*

Dependent Variable

The respondents were posed a series of questions relevant to their most recent childbirth (Table 3). As observed in previous studies (Fuentes, Arteaga, and Sebastián 2022), women who responded affirmatively to having experienced at least one instance of mistreatment during their childbirth were classified as having been exposed to OV. The binary outcome *OV* was assigned a value of 1, indicating the occurrence of the phenomenon in question, and a value of 0 was assigned to instances where the phenomenon was absent.

Independent Variables

The selection of independent variables was based on two primary considerations: firstly, the availability of data and secondly, the theoretical framework of reproductive justice. This alignment ensured that the variables were not only empirically accessible but also theoretically relevant, thereby providing a solid foundation for addressing the research question.

The survey collected information regarding the age of the women at the time of the interview. However, since this was not necessarily the age at which they gave birth, a proxy for the age at childbirth (*age*, from here onwards) was estimated based on the year in which the childbirth occurred. *Age* was categorised according to the WHO's definition of adolescence, as the period between 10 and 19 years (World Health Organization: WHO 2019). The categories comprised age at childbirth of '12 to 19 years', '20 to 24 years', '25 to 29 years', '30 to 34 years' and '35 and more years'. This categorisation was informed by previous studies of OV, in which similar age groups have been employed (Irinyenikan et al. 2022; Liu et al. 2024; Vedam et al. 2019).

The following variables provide information regarding the women's characteristics at the time of the survey. The variable *education level* was categorised according to the International Standard Classification of Education (UNESCO 2012), which defines the following categories: 'none or early childhood', 'completed primary', 'completed secondary', 'post-secondary non-tertiary education', and 'completed tertiary'. This variable serves as a proxy for the education level at the time of childbirth, given the well-documented educational gap after pregnancy observed among Mexican women (Flores-Valencia, Nava-Chapa, and Arenas-Monreal 2017; Villalobos-Hernández et al. 2015).

Marital status was categorised as follows: ‘married or cohabiting’; ‘separated, divorced or widowed’, and ‘single’, as observed in previous studies (Balde et al. 2020; Castro and Frias 2019; Maung et al. 2021). The available evidence from research conducted in LA indicates that women’s marital status is not typically significantly affected by childbirth (Salazar-Arango et al. 2008). Mena-Tudela et al. (2020b) propose that literacy is a relevant variable potentially associated with OV, and thus it was included in the present study. The variable *literacy* was categorised as ‘literate’ and ‘illiterate’. The dichotomous variable *indigenous background* is a proxy variable, estimated by whether a woman spoke an indigenous language in addition to or other than Spanish, and considered herself to be indigenous, as outlined by Castro and Frias (2019). *Language* was categorised as either ‘Spanish’ or ‘no Spanish’, and was included given the significant barrier it presents to healthcare access and QoC (Shamsi et al. 2020).

Given the documented divide between urban and rural populations in Mexico (Salinas et al. 2010), the variable *area* was included, as observed in Castro and Frias (2019), Fuentes, Arteaga, and Sebastián (2022), Sethi et al. (2022) and Ismail, Ismail, and Hirst (2023). The variable *place of residence* denotes the state in which women resided at the time of the survey. This variable was coded from 1 to 32, with each state in the country represented by a unique code. Prior studies in Mexico have sought to compare and describe the prevalence of OV in specific states (Castro and Erviti 2014; Castro and Frias 2019; Zamudio 2016). Notwithstanding the fact that the data on *place of residence* and *area* were collected at the time of the survey, evidence indicates the existence of latent mobilisation patterns among women during the period preceding and following childbirth (Martínez De La Peña et al. 2022).

The dichotomous variable *employment* refers to whether women were employed or not at the time the survey was conducted, as seen in Castro and Frias (2020). The literature indicates that the loss of employment due to childbirth is typically not recovered for women in Mexico (Campos-Vazquez et al. 2021). Therefore, the variable serves as a proxy for employment at the time of childbirth. Information on the exposure of women to violence in other settings, including school, family, the workplace, the community and intimate partner violence, was captured in the dichotomous variable *violence*, as observed in Lukasse et al. (2015). The variable serves as a proxy for VaW (Cepeda, Lacalle-Calderon, and Torralba 2021).

The number of studies examining OV among women with disabilities is increasing (De Miranda Valverde Terra and Matos 2019; Wudneh et al. 2022), therefore the dichotomous variable *disability* was included, referring to women who identify themselves as having a disability since birth. Disabilities acquired from accidents or other forms were excluded on the grounds that it could not be guaranteed that the disability would have been present at the time of obstetric care and therefore, any association would be a mere assumption.

In a recent publication, Batram-Zantvoort et al. (2023) put forth a compelling argument for incorporating the drivers of the care environment, including the culture and provision of care, as well as maternal expectations of childbirth, into reproductive justice research on maternal experiences of childbirth. Accordingly, variables pertaining to the childbirth and the pregnancy, including *prenatal control, place of childbirth, type of birth* and *birth year* were included. The first variable is dichotomous, indicating whether women had prenatal control during their pregnancy, as observed in studies conducted by Ismail, Ismail, and Hirst (2023) and Martinez-Galiano et al. (2021). The variable *place of childbirth* refers to the type of facility in which the birth occurred and was coded into seven categories: 'community primary care health centre', 'IMSS', 'ISSSTE', 'other public health centre', 'private healthcare facility', 'home birth with midwife or healer', or 'other'. The *type of birth,* refers to whether it was a vaginal delivery or caesarean section (c-section), in accordance with the findings of Martinez-Galiano et al. (2021), Akik (2023), La Torre et al. (2023) and Lukasse et al. (2015). Lastly, the variable *birth year* was categorised in two groups: '2016-2019' and '2020-2021'. This allowed for an investigation of potential associations between OV and the SARS-CoV-2 pandemic, as previously done by Caffieri and Margherita (2023) and Abu-Rmelieh et al. (2022).

Statistical Analysis

A descriptive analysis utilising frequency tables and percentages was initially conducted to investigate the characteristics of the sample population and the experiences of OV. Cross-tabulations and chi-squared (X^2) tests were conducted to evaluate data distribution and facilitate an initial insight into the potential associations between the variables and the outcome (Bruhl 2018b).

Subsequently, covariates that were statistically significant (p-value$\leq$0.05) were included in bivariate logistic regressions. The relationship between each explanatory variable

and the outcome was examined in order to assess individual impact (Osborne 2015a). The category of each independent variable with the fewest observations in the population that experienced OV was selected as the reference category for the bivariate logistic regression analyses, as proposed by Ranganathan, Pramesh, and Aggarwal (2017). In the case of the variables *education level* and *place of childbirth*, the reference category was selected on the basis of the desire to facilitate interpretation, as proposed by Osborne (2015b). Consequently, the categories of 'no education' and 'private hospital or clinic' were selected. The same rationale was employed in selecting the reference categories for the variables *violence, indigenous background, disability* and *type of birth*. The categories selected were 'no experience of violence in other settings', 'no indigenous background', 'no disability' and 'c-section', respectively. The Events Per Variable criterion was employed to ascertain the exclusion of the variable *language* from the bivariate analysis. The criterion dictates that a variable with fewer than 10 observations in the outcome should not be incorporated into the analysis (Van Smeden et al. 2018).

Furthermore, statistically significant explanatory variables were incorporated into a multivariable logistic regression model to assess the independent effect of each variable and the outcome, while controlling for the others (Kalan et al. 2020). The model aimed to identify the equation that best predicted the probability of the outcome OV for the values of several explanatory variables (X). This was achieved by taking the form of:

$$log(\frac{\pi_i}{1-\pi_i}) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta n Xn$$

where π(x) represents the binary independent variable OV (Kalan et al. 2020).

The model was refined using a backward elimination method and Likelihood Ratio (LR) tests. The method is based on the principle of significance, whereby variables are included or excluded in a model according to their level of statistical significance, until no further effect meets the threshold for removal (p-value≥0.05) (Bursac et al. 2008; Dunkler et al. 2014; Lewis, Butler, and Gilbert 2010). The final model was adjusted for *place of residence, age, violence, disability, place of childbirth* and *type of birth.*

The presence of multicollinearity was investigated to ascertain that there was no intercorrelation between the explanatory variables, which is a common occurrence in models comprising a large number of variables, and may result in erroneous outcomes (Kim 2019;

Upton and Brawn 2023). For this, the Variance Inflation Factor (VIF) was employed, whereby a VIF value exceeding five indicates the existence of multicollinearity (Kim 2019). No evidence of multicollinearity was identified. The odds ratio (OR) and the adjusted OR (aOR) were calculated as measures of association, along with their 95% confidence intervals (95% CI). The data were analysed using the statistical software Stata (StataCorp, version 18).

Strengths and Limitations

This approach ensures not only consistency with prior research but also permits a comprehensive analysis of the data. This methodology enables the precise quantification of the relationships between variables and the outcome, which is crucial for adequate explanatory research (Bruhl 2018a). Another strength of this study is the large sample size and the survey's internal validity, which are enhanced by the comprehensive training provided to interviewers, thereby reducing the potential for interviewer bias (Instituto Nacional de Estadística y Geografía 2022b). ENDIREH makes inquiries about particular occurrences during childbirth. This approach circumvents the potential for misinterpretation and the need to investigate how perceptions of OV differ on an individual basis, given that definitions may vary due to cultural and linguistic differences across surveys (Akik 2023; La Torre et al. 2023; Shrivastava and Sivakami 2019).

One limitation of this study is that regression techniques may not fully capture the complexity of social phenomena as OV, which are often influenced by non-linear, dynamic and context-specific factors (Spicer 2005). A significant proportion of the structural dimensions and social discourse of OV remain, to a certain extent, under-researched and not adequately incorporated when utilising quantitative methods (Batram-Zantvoort et al. 2023). Suitable alternatives to the present study include participatory approaches, given their value as a means of prioritising feminist ethics in research, and mixed-methods approaches, which permit a combination of positivist and interpretivist concepts in addition to the triangulation of quantitative and qualitative data (ibid.).

Furthermore, survey data is not without limitations, with the potential for mode-related bias (Ornstein 2013). The subject matter of childbirth may be susceptible to recall bias, and the sensitivity of the participants may introduce an element of emotional-state bias (ibid.). Literature indicates that negative experiences during childbirth may contribute to reduced recall

of events, particularly among women who develop PTSD (Cobo Gutiérrez 2016). This may result in under-reporting (Vogel and Schwabe 2016). The issue of socioeconomic status was not addressed in this study, as it was not included among the questions posed by ENDIREH. This is a limitation that should be considered in future research.

Ethical Considerations

All women who participated in the ENDIREH 2021 survey did so with their consent. The present study makes use of publicly accessible and anonymised data, thereby obviating the necessity for ethical considerations to be taken into account in its conduct.

Results and Interpretation

Descriptive Analysis

The characteristics of the women who were subjects of this study, that yielded statistically significant associations with OV, are presented in Tables 1 and 2. Columns two and three present the characteristics of the total sample and of those who experienced OV, respectively. The mean age at childbirth was 27 years. The majority of the women had completed secondary education (65%), were married or cohabiting (86%), resided in urban areas (69%) and were unemployed (58%). It is noteworthy that a significant proportion of the women surveyed had experienced VaW in other settings (69%). With regard to the characteristics of childbirth, it was found that 96% of births were attended in health facilities. The most frequent place of birth were public healthcare facilities (34%), followed by IMSS (28%) and private hospitals (23%). Additionally, nearly half of the women underwent a c-section (47%).

In total, 5,902 women reported at least one experience of OV in their most recent childbirth. This represents 31% of the study sample. The prevalence of OV among women aged 12 to 19 years at the time of childbirth was the highest (38%), followed by women aged 20 to 24 (34%) and 25 to 29 (30%). With regard to marital status, 38% of single women and 30% of married women had experienced OV. Furthermore, the prevalence of OV among women with an indigenous background (27%) was comparable to that observed among non-indigenous women (31%). A noteworthy discrepancy exists between the prevalence of OV among women with disabilities (42%) and those without (30%). The prevalence of OV among women with

other experiences of violence (36%) was twofold that of women without such experiences (18%).

Moreover, 28% of women who gave birth during the SARS-CoV-2 pandemic exhibited exposure to OV, compared to 32% of women who gave birth between 2016 and 2019. The prevalence of the phenomenon was observed to be slightly higher among women residing in urban areas (32%) than those in rural regions (28%). Furthermore, the highest prevalence of OV was observed in IMSS facilities and public health centres (39% and 36%, respectively). The prevalence of OV was reported in 15% of births that occurred in private hospitals, while the lowest prevalence was observed in home births assisted by midwives or healers (3%). The prevalence of OV among women who underwent c-sections (33%) was more frequently reported than among those who gave birth vaginally (29%). The highest prevalence of OV was found among women who gave birth in Tlaxcala (38%) and the lowest in Chiapas (18%).

The results of the experiences of acts comprising OV can be found in Table 3. In total, 13,179 instances of OV were recorded among 5,902 women. The most frequently reported act of violence was being shouted at or scolded, with a prevalence of 34%. Almost one-third of women who reported OV indicated that they had been coerced into accepting contraception or sterilisation (31%) and ignored when expressing concerns regarding the birth or baby (29%). One in five women who reported OV indicated that delayed treatment was meted out as a form of punishment for yelling or complaining (26%). Furthermore, 12% of women who underwent a c-section had the procedure performed without informed consent. Physical violence, manifested as pinching and pulling, was the least frequently reported form of violence (3%).

Regression Analyses

The results of the regression analyses are presented in the fourth and final columns in Tables 1 and 2. All explanatory variables except for *education level* and the specific subgroup of women aged 30 to 34 years at childbirth yielded highly significant associations ($p \leq 0.01$) with OV (see Appendix 2). After controlling for relevant variables, it was found that adolescent women were almost twice as likely to have been exposed to OV (aOR 1.76, 95% CI 1.54-2.00) compared to women aged 33 years or older. The odds of experiencing OV decreased with age, indicating that younger age groups were more susceptible to the phenomenon. The findings reveal that women with disabilities were at a significantly elevated risk of experiencing OV. This group

was found to be 42% more likely to have experienced OV than women without disabilities (aOR 1.42, 95% CI 1.23-1.64). Women who had experienced violence in other settings exhibited an aOR of 2.51 (95% CI: 2.32-2.71), signifying that they were more than two and a half times more prone to encountering further violence in comparison to those who had not confronted such adversities.

Significant discrepancies were observed in the odds of experiencing OV across different types of facilities where births occurred. The aOR for women giving birth in IMSS facilities was 4.34 (95% 3.91-4.82), indicating that they were more than four times as likely to suffer OV compared to those who gave birth in private facilities. The analysis revealed that women who gave birth in public health centres (aOR 3.76, 95% CI 3.39-4.17), community primary care health centres (aOR 3.58, 95% CI 3.11-4.13) and ISSSTE facilities (aOR 3.14, 95% CI 2.60-3.87) were found to be over three times as likely to be exposed to OV than women who gave birth in private hospitals. In contrast, women who gave birth at home with the assistance of a midwife or healer exhibited a 73% reduction in the odds of experiencing violence (aOR 0.27 95% CI 0.15-0.51) than women birthing in private facilities.

The exposure to OV was markedly higher for women who gave birth via c-section. In particular, these women were 51% more likely (aOR 1.51, 95% CI 1.41-1.62) to have experienced OV than those who had vaginal deliveries. With regard to place of residence, 16 out of the 31 states (not including the reference category ‘Mexico City’) were found to be statistically significantly associated with OV in the adjusted analysis. The risk of exposure to OV was found to be between 49 and 28% lower among women who resided in these states compared to those in Mexico City. Women who resided in Sinaloa (aOR 0.51, 95% CI 0.33-0.71), Chiapas (aOR 0.52, 95% CI 0.38-0.72) or Tabasco (aOR 0.52, 95% CI 0.38-0.72) exhibited the least odds of exposure to OV.

Table 1. Results from the Descriptive and Regression Analyses of Sociodemographic Characteristics of Women and the Prevalence of Obstetric Violence in Mexico 2016-2021.

	Descriptive Analysis		Regression Analyses	
	Total (N=19,322)	**Experienced OV in most recent childbirth (N=5,902)**		
	n (%)	**n (%)**	**OR (95% CI)**	**aOR (95% CI)**
Age at childbirth (years)†				
12 - 19	2,287 (11.84)	874 (14.81)	**1.81 (1.60-2.05)**	**1.76 (1.54-2.00)**
20 - 24	4,910 (25.41)	1,683 (28.52)	**1.53 (1.37-1.70)**	**1.48 (1.32-1.65)**
25 - 29	5,524 (28.59)	1,657 (28.08)	**1.26 (1.13-1.40)**	**1.24 (1.11-1.39)**
30 - 34	4,094 (21.19)	1,050 (17.79)	1.01 (0.90-1.13)	1.04 (0.92-1.17)
≥35*	2,507 (12.97)	638 (10.81)		
Education level†				
None or early childhood*	225 (1.16)	68 (1.15)		
Completed primary	2,221 (11.49)	617 (10.45)	0.89 (0.67-1.20)	
Completed secondary	12,539 (64.89)	3,946 (66.86)	1.06 (0.80-1.43)	
Post secondary non tertiary	439 (2.27)	147 (2.49)	1.16 (0.82-1.64)	
Completed tertiary	3,898 (20.17)	1,124 (19.04)	0.94 (0.70-1.25)	
Marital status†				
Married or cohabiting	16,529 (85.54)	4,919 (83.34)	**0.70 (0.62-0.79)**	
Separated, divorced or widowed	1,649 (8.77)	568 (9.62)	**0.83 (0.71-0.97)**	
Single*	1,099 (5.69)	415 (7.03)		
Literacy				
Illiterate	339 (1.75)	91 (1.54)		
Literate	18,983 (98.25)	5,811 (98.46)		
Indigenous background†				
Yes	1,567 (8.11)	423 (7.17)	**0.83 (0.74-0.93)**	
No*	17,755 (91.89)	5,479 (92.83)		
Language†				
No Spanish	77 (0.40)	7 (0.12)		
Spanish	19,245 (99.60)	5,895 (99.88)		
Area†				
Urban	13,362 (69.15)	4,232 (71.70)	**1.19 (1.11-1.27)**	
Rural*	5,960 (30.85)	1,670 (28.30)		
Disability†				
Yes	925 (4.79)	388 (6.57)	**1.69 (1.48-1.93)**	**1.42 (1.23-1.64)**
No*	18,397 (95.21)	5,514 (93.43)		
Employment				
Employed	8,104 (41.94)	2,524 (42.77)		
Unemployed	11,218 (58.06)	3,378 (57.23)		
Experience of violence in setting other than obstetric care†				
Yes	13,269 (68.67)	4,785 (81.07)	**2.49 (2.31-2.68)**	**2.51 (2.32-2.71)**
No*	6,053 (31.33)	1,117 (18.93)		
Year of childbirth†				
2016-2019*	12,585 (65.13)	4,014 (68.01)		
2020-2021	6,737 (34.87)	1,888 (31.99)	**0.83 (0.78-0.59)**	
Prenatal control				
Yes	19,188 (99.31)	5,865 (99.37)		
No	134 (0.69)	37 (0.63)		
Place of childbirth†				
Community primary care health centre	1,528 (7.91)	517 (8.76)	**2.91 (2.54-3.33)**	**3.58 (3.11-4.13)**
IMSS	5,400 (27.95)	2,089 (35.39)	**3.59 (3.25-3.96)**	**4.34 (3.91-4.82)**
ISSSTE	539 (2.79)	171 (2.9)	**2.64 (2.17-3.22)**	**3.14 (2.60-3.87)**
Public health centre	6,659 (34.46)	2,367 (40.11)	**3.14 (2.85-3.42)**	**3.76 (3.39-4.17)**
Private hospital or clinic*	4,487 (23.22)	671 (11.37)		
Home birth with midwife or healer	386 (2.00)	11 (0.19)	**0.17 (0.09-0.31)**	**0.27 (0.15-0.51)**
Other	323 (1.67)	76 (1.29)	**1.75 (1.35-2.29)**	**2.07 (1.57-2.74)**
Type of birth†				
Vaginal delivery*	10,233 (52.96)	2,923(49.53)		
Caesarean section	9,089 (47.04)	2,979 (50.47)	**1.22 (1.15-1.30)**	**1.51 (1.41-1.62)**

† Significant X^2 at $p \leq 0.05$. * Reference category. **Bold** = Statistically significant at $p \leq 0.05$. 95% CI = 95% confidence interval
Own creation based on data from Instituto Nacional de Estadística y Geografía (2021).

Table 2. Place of residence of total study population and with experience of OV, Mexico 2021

	Descriptive Analysis		Regression Analyses	
	Total (N=19,322)	**Experienced OV in most recent childbirth (N=5,902)**		
	n (%)	**n (%)**	**OR (95% CI)**	**aOR (95% CI)**
State†				
Aguascalientes	641 (3.32)	192 (3.25)	**0.74 (0.55-1.00)**	**0.72 (0.53-1.00)**
Baja California	541 (2.80)	135 (2.29)	**0.57 (0.42-0.79)**	**0.59 (0.42-0.83)**
Baja California Sur	506 (2.63)	152 (2.58)	0.73 (0.54-1.00)	**0.61 (0.44-0.85)**
Campeche	661 (3.42)	202 (3.54)	0.76 (0.56-1.02)	**0.68 (0.50-0.94)**
Coahuila de Zaragoza	708 (3.66)	209 (3.54)	**0.72 (0.54-0.97)**	**0.65 (0.47-0.89)**
Colima	542 (2.81)	167 (2.83)	0.77 (0.56-1.05)	**0.62 (0.45-0.86)**
Chiapas	858 (4.44)	155 (2.63)	0.38 (0.28-0.52)	**0.52 (0.38-0.72)**
Chihuahua	556 (2.88)	174 (2.95)	0.79 (0.58-1.07)	0.81 (0.59-1.12)
Mexico City*	267 (1.38)	98 (1.66)		
Durango	735 (3.80)	222 (3.76)	0.75 (0.56-1.00)	**0.67 (0.49-0.92)**
Guanajuato	700 (3.62)	200 (3.39)	**0.69 (0.51-0.93)**	**0.66 (0.48-0.91)**
Guerrero	683 (3.53)	237 (4.02)	0.92 (0.68-1.23)	0.96 (0.70-1.31)
Hidalgo	574 (2.97)	190 (3.22)	0.85 (0.63-1.16)	0.83 (0.60-1.14)
Jalisco	616 (3.19)	181 (3.07)	**0.72 (0.53-0.97)**	0.76 (0.55-1.05)
Mexico (State of)	526 (2.72)	169 (2.86)	0.82 (0.60-1.11)	0.78 (0.57-1.09)
Michoacan de Ocampo	773 (4)	241 (4.08)	0.78 (0.58-0.96)	0.93 (0.68-1.27)
Morelos	455 (2.35)	157 (2.66)	0.91 (0.66-1.25)	0.88 (0.63-1.23)
Nayarit	662 (3.43)	195 (3.30)	**0.72 (0.53-0.97)**	**0.66 (0.48-0.91)**
Nuevo Leon	504 (2.61)	155 (2.63)	0.77 (0.56-1.05)	0.84 (0.60-1.18)
Oaxaca	663 (3.43)	205 (3.47)	0.77 (0.57-1.04)	0.79 (0.57-1.08)
Puebla	612 (3.17)	206 (3.49)	**0.87 (0.65-1.18)**	1.01 (0.73-1.38)
Queretaro	599 (3.10)	221 (3.74)	1.01 (0.75-1.36)	0.95 (0.69-1.30)
Quintana Roo	542 (2.810	171 (2.90)	0.79 (0.58-1.08)	**0.70 (0.51-0.98)**
San Luis Potosi	611 (3.16)	217 (3.68)	0.95 (0.70-1.28)	0.97 (0.71-1.33)
Sinaloa	574 (2.97)	137 (2.32)	**0.54 (0.39-0.74)**	**0.51 (0.33-0.71)**
Sonora	532 (2.75)	179 (3.03)	0.87 (0.64-1.19)	**0.70 (0.50-0.97)**
Tabasco	659 (3.41)	163 (2.76)	**0.57 (0.42-0.77)**	**0.52 (0.38-0.72)**
Tamaulipas	569 (2.94)	137 (2.32)	**0.55 (0.40-0.75)**	**0.57 (0.41-0.79)**
Tlaxcala	648 (3.35)	247 (4.19)	1.06 (0.79-1.42)	1.12 (0.82-1.53)
Veracruz	542 (2.81)	196 (3.32)	0.98 (0.72-1.32)	0.98 (0.71-1.36)
Yucatan	555 (2.87)	207 (3.51)	1.03 (0.76-1.39)	0.84 (0.61-1.15)
Zacatecas	705 (3.65)	185 (3.13)	**0.61 (0.45-0.83)**	**0.63 (0.45-0.86)**

† Significant X^2 at $p \leq 0.05$. * Reference category. **Bold** = Statistically significant at $p \leq 0.05$.

95% CI = 95% confidence interval

Own creation based on data from Instituto Nacional de Estadística y Geografía (2021).

Table 3. Reported Experiences of Acts Comprising Obstetric Violence, Mexico 2016-2021.

	Total (*N*=5,902)	
	n	**%**
Unnecesarily forced to stay in a position that was uncomfortable or awkward		
Yes	**1,387**	**23.5**
No	4,515	76.5
Shouted at or reprimanded		
Yes	**2,107**	**34.17**
No	3,885	65.83
Pinched or pulled		
Yes	**193**	**3.27**
No	5,709	96.73
Subjected to offensive, humiliating and demeaning remarks		
Yes	**1,206**	**20.43**
No	4,696	79.57
Ignored when expressing concerns about the birth or baby		
Yes	**1,722**	**29.18**
No	4,180	70.82
Denied anaesthesia or pain relief measures without explanations		
Yes	**747**	**12.66**
No	5,155	87.34
Delayed treatment for being reprimanded for yelling or complaining		
Yes	**1,561**	**26.45**
No	4,341	73.55
Underwent unconsented contraceptive procedures or sterilisation		
Yes	**747**	**12.66**
No	5,155	87.34
Coerced into accepting contraceptive devices or sterilisation surgery		
Yes	**1,858**	**31.48**
No	4,044	68.52
Coerced or threatened into signing documents without explanation		
Yes	**254**	**4.15**
No	5,657	95.85
Prevented from seeing, holding or breastfeeding their baby for over 5 hours without explanation		
Yes	**439**	**7.44**
No	5,463	92.56
Unconsented caesarean section*		
Yes	**1,057**	**17.91**
No	4,845	82.09

* Only assessed among women who gave birth by c-section.

Own creation based on data from Instituto Nacional de Estadística y Geografía (2021).

Discussion

This study aimed to ascertain the prevalence of OV in Mexico and to determine whether any association exists between the phenomenon and potentially associated sociodemographic factors. The findings of this study indicate that young women, women with disabilities, those exposed to violence in other settings, women who gave birth in public or social security health facilities, and those who underwent a c-section were at an elevated risk of experiencing OV. In light of the aforementioned findings, the null hypothesis is rejected, thereby demonstrating an association between OV and sociodemographic factors pertaining to women experiencing social disadvantage. Moreover, the analysis demonstrated that 31% of women who gave birth in Mexico between 2016 and November 2021 experienced OV. Therefore, the methodology was effective in addressing the research question.

The prevalence of OV observed in this study is comparable to that reported in previous studies conducted in Mexico and elsewhere. Castro and Frias (2020) estimated a prevalence of 33% among Mexican women based on ENDIREH 2016. Additionally, studies based on national surveys in other countries have reported prevalences of OV of 21% in Italy (Skoko and Battisti 2017) and 33% in Ecuador (Fuentes, Arteaga, and Sebastián 2022). In a large-sample survey conducted by Van der Pijil et al. (2022) in the Netherlands, 54% of women reported at least one experience of OV. Moreover, smaller studies have reported prevalences of OV ranging from 15-74% in Tanzania (Kruk et al. 2018), Spain (Martinez-Galiano et al. 2021; Mena-Tudela et al. 2020a), Brazil (De Oliveira Nascimento Andrade et al. 2016), Ethiopia (Sheferaw et al. 2019), the United States of America (Vedam et al. 2019), Guatemala (Sethi et al. 2022); Ghana, Guinea, Nigeria and Myanmar (Bohren et al. 2019; Maung et al. 2021) India (Bhattacharya and Ravindran 2018), Palestine (Abu-Rmeileh et al. 2022; Ismail, Ismail, and Hirst 2023) and Venezuela (Terán et al. 2013).

The fact that OV is incidental in contexts that differ in many social, cultural, linguistic and systematic characteristics to that of the Mexican HS and social structure, highlights the existence of underlying and intricate structural and inhumane precursors that propagate the phenomenon (Akik 2023; Batram-Zantvoort et al. 2023; Fuentes, Arteaga, and Sebastián 2022; Freedman et al. 2014; Ismail, Ismail, and Hirst 2023; Lukasse et al. 2015; Mena-Tudela et al. 2020a; Sen, Reddy, and Iyer 2018; Shrivastava and Sivakami 2019). The findings of this study

underscore the gravity of this public health concern (De Los Ángeles Iglesias Ortuño 2022; Castro and Erviti 2003; Castro and Erviti, 2014).

Previous studies have similarly identified verbal violence as the most prevalent form of abuse (Abu-Rmeileh et al. 2022; Castro and Frias 2020; Ismail, Ismail, and Hirst 2023; Sethi et al. 2022). The second most frequently reported form of violence were acts of coercion to accept contraceptive devices or sterilisation surgery. This finding highlights the extent to which the assumption that women can make decisions freely regarding their bodies and fertility is merely an assumption (Sadler et al. 2016). Women's sexual and reproductive health rights are violated in a moment of vulnerability and potentially, fear (Dwekat et al. 2021; Lukasse et al. 2015). The use of coercion in healthcare settings, whereby women are subjected to unconsented care and delayed treatment, serves to illustrate how women are rendered secondary elements in the birthing scenario (Jardim and Modena 2018). Women are subjected to a form of interpersonal gendered violence (Sadler et al. 2016), whereby their identity, autonomy, agency and the recognition of their birthing capability are nullified (Jardim and Modena. 2018; Shabot 2015). The birthing woman is effectively reduced to a mere reproductive medium (Caffieri and Margherita 2023); her needs, concerns and emotions are disregarded (Mena-Tudela et al. 2020b).

The exposure to OV is associated with the age of the mother at the time of childbirth. Previous studies have documented a correlation between younger maternal age and increased risk of experiencing OV (Bohren et al. 2019; Castro and Frias 2020; Dwekat et al. 2021; Lukasse et al. 2015; Stanton and Gogoi 2022; Terán et al. 2013). Adolescents and young women have been found to be less likely to receive the maternal healthcare support they require in health facilities (Irinyenikan et al. 2022). Research has highlighted how institutional and HP's views on what constitutes 'good motherhood', which are shaped by societal norms, result in microaggressions against subgroups that do not align with their visions (Smith-Oka 2015). The findings of this study further highlight the potential for sociocultural and provider prejudices to contribute to the suboptimal treatment of adolescents during childbirth (Irinyenikan et al. 2022).

The value of an intersectional analysis of OV lies in the intricate web of social relationships within the even more complex HS. The prevailing model of the Mexican HS posits that social relationships are structured around hierarchies of power that establish

dominant and subordinate groups (Castro 2014). This model frames violence as a natural and expected aspect of life (ibid.). Historically and traditionally, women have been marginalised within the social power structure (Shabot 2015), even more so when pertaining to socially disadvantaged groups such as adolescents, people with disabilities, and belonging to ethnic minorities (Espinoza Reyes 2022; Sesia 2020). The findings of this study align with the existing discourse, indicating that women who have experienced violence in other settings and women with disabilities are at an elevated risk of experiencing OV compared to their counterparts. This is indicative of the pervasive nature of GBV in the country (Mendoza 2023). Lukasse and colleagues (2015) put forth that women with a history of childhood abuse were at an elevated risk of experiencing violence during childbirth. Furthermore, the researchers found that experiences of violence throughout a woman's life contribute to the normalisation of abusive and disrespectful treatment, and of OV (ibid.).

It has been previously established that women with disabilities are perceived as socially disadvantaged and experience further impediments to their agency, as well as being exposed to mistreatment (Stanton and Gogoi 2022). The findings of this study lends support to this and the argument put forth by Sen and colleagues that "gender does not operate alone" (Sen, Reddy, and Iyer 2018, p.10). The relationships and perceptions between HP and women are shaped by the interplay of intersecting inequalities, giving rise to differences in interactions between specific subgroups (Amroussia et al. 2017). Discrimination is continually reproduced or redefined as groups renegotiate the webs of power that define their identity (Sen, Reddy, and Iyer 2018).

It is therefore concerning that, in a supposed culture of care, there is a notable absence of care in practice. The significant associations between facilities and OV, as evidenced in previous studies (Castro and Frias 2020; Martinez-Galiano et al. 2021; Pozzio 2016), indicate that no institutional childbirth, whether in a public or a private facility, is free from the risk of exposure to OV. The saturation of services due to high demand, and the lack of supplies, personnel and financial resources, in the vast majority of Mexican public and social security institutions (Lazcano-Ponce et al. 2013; Sesia 2020), give rise to significant disparities in the culture of care received and have the potential to perpetuate OV (Castro 2014; Ismail, Ismail, and Hirst 2023; Lukasse et al. 2015). The nature of medical interactions has been found to construct an environment that is both class-differentiated and discriminatory (Smith-Oka 2015). This is shaped by an authoritarian and patriarchal *habitus*, entrenched gender inequality and

punishments (Castro 2014). It is therefore unsurprising that in a culture where violence is inherently prevalent, there is a tendency to perpetuate violent behaviour within the context of care. In this sense, OV reflects the roots of the medical education and profession, addressing the structural dimensions of violence that lie within (Castro 2014; Castro and Erviti 2014; Morales, Chaves, and Delgado 2018; Sadler et al. 2016).

The findings of this study demonstrate the existence of the "triad of vulnerability" (Amroussia et al. 2017, p.6), which is characterised by the presence of three interrelated factors: stigma, social challenges and HS challenges. The female gender is perceived as 'fragile' and is therefore subjected to patriarchal authority (Jadem and Modena 2018; Sadler et al. 2016). Factors that facilitate OV include a detrimental social environment, harmful cultural practices, systemic barriers, and the historical normalisation of VaW (Shrivastava and Sivakami, 2019). However, cultural and social norms, biases, personal prejudices, and ethical commitments have also been identified as playing a significant role (Stanton and Gogoi, 2022). The occurrence of OV in states where it is criminalised (Grupo de Información en Reproducción Elegida 2018), indicates that legal barriers are ineffective in preventing the phenomenon. The social structures and relationships that exist between HP and women, described as being characterised by a "dominant and dominated" (Sadler et al. 2016, p. 6) dynamic, may serve to normalise OV. This normalisation may, in turn, facilitate the reproduction of OV within the system.

Implications

The findings of this study lend support to the proposition that OV is "the symptom of fractured health systems and locally expressed power dynamics that conspire against both patients and providers" (Freedman and Kruk 2014, p. e43). A HS that tolerates OV is one that devalues women (ibid.). The system does not empower patients, particularly women, to assert their autonomy and access resources to overcome structural and social restrictions (Mena-Tudela et al. 2020b). OV operates within the institutional and structural context, thereby reinforcing an underlying gender bias in the shaping of maternity care (Sadler et al. 2016). Invisible manifestations of violence are embedded within the social fabric, thereby contributing to the perpetuation of social inequalities (Sadler et al. 2016; Smith-Oka 2015).

To address these issues, it is necessary to implement systemic changes that empower women, facilitate avenues for denunciation and accountability, and challenge the deeply

entrenched social norms that perpetuate violence (Castro 2014). The implementation of comprehensive training programmes for HP on respectful maternity care (Fuentes, Arteaga, and Sebastián 2022), the enhancement of oversight mechanisms, and the fostering of a culture of accountability are essential steps towards the mitigation of OV (Jewkes and Penn-Kekana 2015). Any efforts to combat OV must be part of a broader initiative aimed at achieving gender equality and the eradication of all forms of VaW. If the improvement of women's livelihoods is a goal, it is essential to address the mechanisms through which these livelihoods are experienced (A. Sen, 2001). Efforts must account for the specific needs and desires of women in different contexts (Freedman and Kruk 2014).

Concluding Remarks

The findings of this study underscore the substantial PH implications of OV in Mexico. By addressing the research question '*how are sociodemographic characteristics associated with the prevalence of OV among Mexican women?',* this study has revealed a significant prevalence of obstetric violence in Mexico. Moreover, the study has identified a correlation between this phenomenon and the sociodemographic characteristics of the women who experience it. These factors may contribute to the social disadvantage of women, thereby increasing their vulnerability to OV.

OV affects a substantial proportion of women, with critical implications for their HR, sexual and reproductive health rights, autonomy, bodily agency, and their experiences of motherhood. OV represents a broader, structural, and often invisible form of violence that oppresses women within a patriarchal, hierarchical, and hegemonic health system (Bowser et al 2010; Castro 2014; Freedman and Kruk 2014;; Jardim and Modena 2018; Sadler et al. 2016). It is a multifaceted and complex phenomenon that necessitates a multidimensional approach and input from various disciplines (Sadler et al. 2016).

As evidenced by this study, OV is the result of a complex network of factors, including the limitations of healthcare facilities; subjective factors influenced by provider bias and perception; the perceptions and subjectivity of women themselves; and barriers within the community and health system (Jardim and Modena 2018; Sadler et al. 2016). These factors are intertwined within the social fabric that consolidates them. OV is the tangible representation of

this complex network of factors, shaped by asymmetric gender relations in a setting of potential domination.

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Appendix

Appendix 1. List of variables

Variable	Type	Description
Age_childbirth	Categorical	Age at most recent childbirth. Estimated given the age at the time of survey and the year when the childbirth occurred. Categorised according to the following age groups: 12-19, 20-24, 25-29, 30-34, ≥35
Education_level	Ordinal	Level of education completed 1-None or early childhood 2-Completed primary 3-Completed secondary 4-Post secondary non-tertiary 5-Completed tertiary
Illiteracy	Dichotomous	Cannot read or write. 1-yes, 0-no
Indigenous_ethnicity	Dichotomous	Given her culture, she identifies herself as indigenous. 1-yes, 0-no
Indigenous_language	Dichotomous	Speaks an indigenous language instead of or additional to Spanish. 1-yes, 0-no
No_Spanish	Dichotomous	Does not speak Spanish. 1-yes, 0-no
Marital_status	Categorical	Marital status at time of survey. 1-Married or cohabitin, 2-separated, divorced, or widow, 3-single
Indigenous_background	Dichotomous	Proxy of indigenous ethnicity and speaking an indigenous language. 1-yes, 0-no
Employed	Dichotomous	Employed at time of survey. 1-yes, 0-no
School_violence	Dichotomous	Answered affirmative (at time of survey) to having experienced any type of violence in the school setting. 1-yes, 0-no
Workplace_violence	Dichotomous	Answered affirmative (at time of survey) to having experienced any type of violence in the workplace setting. 1-yes, 0-no
Family_violence	Dichotomous	Answered affirmative (at time of survey) to having experienced any type of violence in the family setting. 1-yes, 0-no
Community_violence	Dichotomous	Answered affirmative (at time of survey) to having experienced any type of violence in the community setting. 1-yes, 0-no
Intimatepartner_violence	Dichotomous	Answered affirmative (at time of survey) to having experienced any type of intimate partner violence. 1-yes, 0-no
Violence	Dichotomous	Having experienced any type of VAW at time of survey (school, workplace, community, intimate partner). 1-yes, 0-no
Disability	Dichotomous	Identifies herself as having a disability since birth. 1-yes, 0-no
Prenatal_control	Categorical	Place where most prenatal control vistis took place. 1-Primary care health centre, 2-IMSS, 3-ISSSTE, 4-Other public State hospital or clinic, 5-Medical clinic or dispensary, 6-Private hospital or clinic, 7-Midwife or healer, 8-DAPP, 9-other, 10-none

Birth_year	Categorical	Year last childbirth took place. Categorised according to the following year groups: 2016-2019, 2020-2021.
Place_birth	Categorical	Place where last childbirth took place. 1-Primary care health centre, 2-IMSS hospital or clinic, 3-ISSSTE hospital or clinic, 4-Other public State hospital or clinic, 5-Private hospital or clinic, 6-Private medical office, 7-Home birth with midwife or healer, 8-other
Position	Dichotomous	Answered affirmative to the question "During labor, were you unnecessarily forced to stay in a position that was uncomfortable or awkward for you?" 1-yes, 0-no
Harsh_language	Dichotomous	Answered affirmative to the question "Were you yelled at or scolded?" 1-yes, 0-no
Use_force	Dichotomous	Answered affirmative to the question "Were you pinched or pulled?" 1-yes, 0-no
Discrimination	Dichotomous	Answered affirmative to the question "Did they say offensive, humiliating or demeaning things to you (e.g., "Is that how you screamed when you were doing it?", "But you didn't have trouble opening your legs while doing it, right? or "You are too old to have children")?" 1-yes, 0-no
Ignored	Dichotomous	Answered affirmative to the question "Were you ignored when asking about your childbirth or your baby?" 1-yes, 0-no
Pain_relief	Dichotomous	Answered affirmative to the question "Did they refuse to give you anesthesia or apply a block to reduce your pain, without giving explanations?" 1-yes, 0-no
Long_waiting	Dichotomous	Answered affirmative to the question "Did they take a long time to give you treatment because you were told you were yelling or complaining too much?" 1-yes, 0-no
Contraception	Dichotomous	Answered affirmative to the question "Were you given a contraceptive method or had an operation or sterilization to prevent you from having further children (tubal ligation-BOT) without asking or them telling you?" 1-yes, 0-no
Pressure_contraception	Dichotomous	Answered affirmative to question "Were you pressured into agreeing to have them put a device or have surgery to stop having further children?" 1-yes, 0-no
Threats	Dichotomous	Answered affirmative to the question "Did they force or threaten you to sign any paper without informing you what it was it or what it was for?" 1-yes, 0-no
Prevented_contact	Dichotomous	Answered affirmative to the question "Were you prevented from seeing, holding, or breastfeeding your baby for more than 5

		hours, without informing you the cause?" 1-yes, 0-no
Csection	Dichotomous	Answered affirmative to the question "Was your last child born by cesarean section?" 1-yes, 0-no
Nonconsented_csection	Dichotomous	Answered affirmative to the question "Was your last child born by cesarean section?" and negative to questions a) "Were you informed in a way you could understand why was it necessary to have the cesarean section?" and b) " Did you give permission or authorization for the cesarean section?" 1-yes, 0-no
OV	Dichotomous	Experience of any form of obstetric violence. Having at least one "1" in variables: Position, Yelled, Pinching_pulling, Offensive, No_analgesia, Ignored, Waiting, Contraception, Pressure_contraception, Forced_consent, Prevented_contact, Nonconsented_csection. 1-yes, 0-no
Urban_rural	Dichotomous	1-urban, 0-rural
State	Categorical	1 to 32 according to each State of the Mexican Republic