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THE WEIGHT OF GENDER AT BIRTH: EVIDENCE FOR THE GENDER CONSTRAINTS IN OBSTETRIC SETTINGS

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RESUMEN / ABSTRACT

Utilizing a mixed-methods approach, including random forest and logistic regression, this paper examines Obstetric Violence as a manifestation of structural gender violence. Focused on public hospitals in Nuevo León, findings reveal that one in four women experience OBV. Qualitative analysis highlights complaints regarding resource scarcity and agency violations. Significantly, the likelihood of experiencing OBV increases by 64.69 percent when a male doctor attends the pregnant person. These findings provide robust evidence for the gender component of OBV and bring to light how a deeply misogynistic structure subjugates women at any moment possible. While limited to public institutions, this study exposes how medical structures subjugate women, emphasizing the intersection of gender and healthcare.

Keywords: Obstetric Violence, Gender-based Violence, Reproductive Rights, Mexico, Feminist phenomenology.

Declaración de contribución de los autores / Authors' contribution statement:

Margarita Evangelina Peña Castillo: Conceptualization, Project administration, Supervision, Writing – review & editing.

Aylen Elizabeth Flores Rodriguez: Formal analysis, Methodology, Writing – original draft.

Alexis Chávez Treviño: Resources, Investigation, Data curation, Writing – review & editing.

Declaración de conflicto de interés / Conflict of interest statement:

Los autores declaran que no existe ningún conflicto de intereses. / The authors declare no potential conflicts of interest.

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El conjunto de datos que apoya los resultados de este estudio no está disponible al público. / The dataset that supports this study's results isn't available to the public.

Declaración de aprobación del comité de ética/ Ethics committee aproval statement:

The research protocol was reviewed and approved by the Ethics Committee and received institutional authorization from the Secretariat for Women of the State of Nuevo León, under whose jurisdiction the study was conducted. Informed consent was obtained from all participants, guaranteeing their anonymity and confidentiality in accordance with current regulations.

El protocolo de investigación fue revisado y recibió la aprobación del Comité de Ética y la autorización institucional de la Secretaría de las Mujeres del Estado de Nuevo León, bajo cuya jurisdicción se realizó el estudio. Se obtuvo el consentimiento informado de todas las participantes, garantizando su anonimato y confidencialidad conforme a la normativa vigente

INTRODUCTION

The conditions through which we‘re born are not all made equal, and yet we are born. Oftentimes, however, the single most important person for this outstanding achievement is ignored, abused or violated. On what is the pinnacle of a heavy endeavor, women (and other gender diverse people) are subject to several forms of violence, either consciously or not. From casual bigotry to institutionalized discrimination, the effects of being an “other” remain throughout pregnancy, birth and maternity care. This is particularly visible in Mexico, where feminist movements continue to fight against a highly patriarchal society scarred by femicide and sexual harassment. Still Obstetric Violence (OBV) remains one of the most ignored forms of gender violence. Often with similar effects to sexual violence, OBV relies on the institutionalization of birth as a painful and dangerous process. Where being pregnant becomes something pathological, rather than a sexual event where the woman’s wishes to conceive are coming to fruition. Women are treated as secondary actors to their own pregnancy, transforming their agency and preferences to mere consideration for the healthcare providers.

Mexico is one of the few countries to track OBV on a regular basis, even if labelled “obstetric mistreatment” in the official records. This study focuses on Nuevo Leon, a high-income industrial hub that would suggest a better system than the national average. Here, over half of birthcare is given by public hospitals (INEGI, 2022a), with the majority of births being C-sections, reflecting a high demand for hospital intervention (OCDE, 2023). Considering that, public hospitals tend to compromise quality to attend to the maximum number of persons due to their limited resources, assessing the current standard of quality offers an indication of medical institutional priorities.

Although the many manifestations of OBV have been deeply explored, there is a fundamental gap on how it is perpetuated: in an era of supposed gender equity, how can OBV still be reproduced? Cohen Shabot's (2015) framework provides a compelling hypothesis: women are abused not merely as patients, but as a feature of patriarchy in its mechanism to maintain women as incapable of agency. This structural approach sustains that aggressors act as an extension of a gendered society rather than holding ill intent towards women.

Through this framework, this study set out to look for evidence of gendered violence within the Mexican OB-GYN setting. Specifically, it's concerned on whether there's a difference in the perception of OBV according to the gender of their main healthcare provider. With an aim that intends to determine if OBV functions beyond the medicalization and works as a tool in a patriarchal society to enforce "femininity" and subjugation in birthing bodies.

LITERATURE REVIEW

The following review will manage the concept of Obstetric Violence as it is recognized in Mexico and as the contemporary literature presents it. It will not cover the ongoing debate on whether it should be named as violence or not. However, it was considered relevant to the comprehension of the topic's nature to mention that, after reviewing the existing literature, the OBV approach was considered more useful and accurate to describe pregnant people's experiences over Obstetric "Mistreatment" or "Abuse". Denying the violence in these practices denies the gender and structural dimensions to the violation pregnant people encounter in their birthing process.

Understanding Obstetric Violence

The concept of Obstetric Violence, while relatively new as a formal term (as women-focused studies in healthcare tend to be), encompasses practices that are as old as the field of Obstetrics itself. Research has laid the groundwork for contemporary conceptualizations, ranging from the colonization of women's bodies (Borges Ladeira & Borges, 2022) to the domination of Western biomedicine over the natural process of childbirth (Arney & Neill, 1982), to set the modern understanding of OBV. Additionally, one of the earliest studies interested in its evidence originated in Mexico in the 1980s, exposing the issue of uninformed family planning and forced sterilization of women (a common OBV practice) as a result of public health initiatives enacted at the time (Bronfman & Castro, 1989).

OBV's contemporary conceptualization, both legally and academically, emerged from the "Humanized Birth" movement in Latin America (GIRE, 2022). Its first legal formalization occurred in Venezuela, defining OBV as the "…the appropriation of the body and reproductive processes of women by health personnel…" (Pérez D'Gregorio, 2015). This perspective classifies OBV as a manifestation of institutional violence, recognizing its structural nature. It posits that modern medicine, born from a patriarchal system, has historically treated pregnancy pathologically shifting the central role of childbirth from the woman to the health professional.

Some earlier analyses are able to recognize the individual traits, as the aggressor or the victim, when perpetuating violence. The manifestations of mistreatment often vary with the study at hand, given methodological disparities, however categories like physical abuse and non-consensual care were the most commonly identified (Bowser & Hill, 2010; Bohren et

al., 2015). Whereas sexual abuse, poor interaction between patients and providers, non-confidential or non-dignified care, discrimination (stigma or verbal abuse), abandonment of care or detention in facilities and systemic limitations of the health system varied more (Bowser & Hill, 2010; Bohren et al., 2015). Studies tend to oversee some form of abuse when using only quantitative or qualitative methods, considering the victimized people's coping mechanisms. The lack of a unified consensus on OBV's measuring also plays into the overlapping categorization.

One of the core qualities of OBV is its structural nature, how it has been standardized, accepted and encouraged. The suggested factors that foster OBV are individual and community normalization, national laws and policies, governance, and the behavior of healthcare providers (Bowser & Hill, 2010). Furthermore, these factors can be integrated into different spheres, as proposed by Freedman et al. (2014), corresponding to the individual, structural and public policy levels. When abuse is recognized on one block, the latter must identify it as violence as well, releasing a chain reaction. Therefore, OBV becomes a multidimensional issue, rooted in the cultural ramifications of the biomedical model of healthcare in modern services (Sadler et al., 2016). These implications make OBV a form of gender violence with plenty of blind spots for its detection, stemming from both local and international gaps in knowledge or bigotry. In order to address these deficiencies, the best outlook would be to adequately integrate every viewpoint, allowing for the pregnant people to decide what a transgression to them is and from that build to respond to societal factors.

This viewpoint from multiple agents was consolidated in the work of Pickles (2024), where not only the victim's standpoint is taken into account, but a third-party spectator as well. Working off Bufacchi's (2007) trilateral relationship of violence, where the input from an

external agent (both inside and outside the cultural context of where the violence is taking place) can help identify better the aggressions. By correctly identifying how pregnant people are abused, what Salinero (2021) calls an "earthquake" is prevented: the rupture of pregnant people's identity after being subjected to OBV. This shattering of the self stems from becoming objects for medical practice once pregnant people begin their care (Borges Ladeira & Borges, 2022), where their experiences are treated as "symptoms" that must be cured. They cease being considered independent and capable people, relegated to "patients" incapable of taking informed decisions on their well-being or their babies'.

However, focusing on its manifestations has left one crucial question unattended, how does OBV happen in the first place? Is there evidence of a system that abuses women to this extent, with only a few witnesses able to talk about it? This phenomenological understanding of OBV can be seen through Cohen Shabot's (2015) work. Following this line of analysis, the intention of the attending health professionals are but a secondary consideration, framing them as unaware victims of the patriarchal and biomedical systems. The author argues that women are subjugated through two superposed societal expectations: as patients and as women. As patients, they are expected to remain immobile, silenced and obedient — someone to be cured. Whereas women are always subjected to femininity, perform as the object of desires, constricted in the space, unable to use their bodies for their own purpose but the others'. OBV is not merely an issue of isolated bad actors but deeply seated patriarchal medical practices and systemic inequalities. Models of care that leave behind the hegemonic biomedical attention, and rely on midwives and a continuous relationship between the provider and the patient, have been found to reduce the likelihood of OBV by as much as 60

percent (Hakimi et al., 2025); sustaining the notion that it's due to receiving gendered, misogynistic "care" that pregnant and laboring people suffer OBV.

Obstetric Violence in Nuevo León

OBV saw its birth in Mexico through the institutionalization of childbirth, a process that moved along with the founding of modern hospitals in the early 20th century, transitioning birth giving from a vital and community based event to a risky clinical procedure that must be assessed and controlled by medical professionals (Menéndez, 2003). Thus, the system in place, though successful in reducing perinatal complications, also gave rise to dehumanized practices that ignored the will and autonomy of women. This was facilitated through the imposition of a biomedical model that, reinforced by public health policies, privileged technology and the newly created (men-dominated) medical profession over traditional knowledge coming from midwifery, as well as the emotional and cultural needs of women (Castro & Erviti, 2014; OMS, 2014). This gave way to the current paradigm, which minimizes the role of pregnant women and midwives during childbirth, along with impersonal, hierarchical, inadequate and abusive "care".

Medicalization has positioned Mexico in a particularly high position of cesarean sections, with a national rate of 46 percent in 2021 (UNFPA, 2022) and the highest rate in the world in 2023 (OCDE, 2023). Many of these interventions are performed without clinical justification or appropriately informed consent, reflecting a system that often prioritizes the convenience of medical staff over the autonomy and well-being of the birthing woman. Findings from the ENDIREH 2021 data for Nuevo León (INEGI, 2022b), reported a slightly higher prevalence of OBV (31.8 percent) compared to the national average, a significant

change from previous findings (26.9 percent in 2016) where it was ranked lower; despite the national average being reduced on that same period. This suggests that the risk factors and structural dynamics in Nuevo León interact differently when compared to the national average. One contributing factor could be the colonization in the region, where the northern populations in colonial present day Mexico had deeper connections to Eurocentric practices than the south, given that indigenous communities there had preserved their place and knowledge largely.

Now, the quantitative study by Castro and Frías (2019) is paramount. The most prevalent forms of OBV discovered were verbal abuse (20.1 percent) and non-consensual medical procedures (15.9 percent), such as episiotomies and unjustified cesarean sections. The paper also identified specific risk factors and vulnerable groups in Mexico. Adolescents, women with low educational attainment, and those giving birth in public hospitals were found to be more susceptible to mistreatment. Indigenous women, in particular, face higher rates of discrimination, often receiving negligent or contemptuous treatment from medical staff. These patterns underscore the existence of deep-seated structural inequalities within the Mexican health system, where patients with fewer resources and social power are more likely to suffer abuse.

Nowadays, the common understanding of OBV in Mexico is as violence perpetrated by health professionals towards pregnant people (usually women), framed by structural inequities and power dynamics within the medical system. Research in public health has shown that these practices are maintained by an institutional culture that validates control, obedience, and distrust towards patients; which in turn reproduces and reinforces gender stereotypes that promote the idea that women (and other birthing bodies) should tolerate pain,

be silent, and obey during childbirth (Castro & Erviti, 2014). OBV follows a historical pattern common in Latin American countries, where structural bigotry such as racism, classism, and misogyny are expressed in the daily treatment received by pregnant people in health services (Freedman et al., 2014; Sadler et al., 2016).

Despite Nuevo León legally recognizing OBV through a 2019 reform to the *Law on Access of Women to a Life Free of Violence* (H. Congreso, 2025) the gaps between the law and reality as experienced by patients in any health institution remain to be bridged. Data from the *National Survey on the Dynamics in Household Relationships* (ENDIREH) reveals a broad underreporting of the issue to the corresponding authorities. While the ENDIREH 2021 (INEGI, 2022a) reported that 31.8 percent of women in Nuevo León who gave birth between 2016 and 2021 experienced mistreatment (a figure on the tens of thousands), official records from the *State Bank of Data and Information on Cases and Crimes of Violence Against Women of Nuevo León* (BAESVIM) only registered a handful of cases around that same period (SEMUJERES, 2020; IEM, 2022). This jarring underreporting signals the lack of clear institutional protocols and training for medical personnel in reproductive rights and dignified treatment, as well as the normalization of OBV in local settings, which create a need for campaigns to inform women about their rights and how to report and identify violence abuse.

METHODS

The study employed a transversal non-experimental mixed-methods design to identify the presence of misogynistic discrimination and OBV in public hospital settings, through a survey applied to a significant sample of women being attended in public service hospitals. The target population comprised women of reproductive age, residing in Nuevo León, with

access to health services; and based on the data, statistical analyses were performed in order to describe the phenomenon and identify possibly associated factors.

Sample

The target population for this survey is women from 15 to 49 years old residing in the state of Nuevo León who have access to some health service. According to CONAPO's (2023) population estimates for the beginning of 2025, there are projected to be 1,679,618 women within this range[1]. Whereas, the results from the "Así Vamos 2024" (CVNL, 2025) survey indicate that 14.5 percent of Nuevo León's population is not affiliated to any public health services, leaving an estimated 85.5 percent with some form coverage.

Based on a simple random sampling design a finite population, initial target sample was calculated to be 385. After an exhaustive review of the data, significant inconsistencies in some answers were found, leading to 44 observations being eliminated from the database, resulting in a final analytical sample of $n=341$. Recalculating the standard error for the associated sample size n=341 (CI of 0.95, *p-value* $= 0.5$) yielded an error margin of 0.0531, considered adequate for this investigation's diagnostics purpose, without compromising the validity of the results.

Tools for detecting OBV

The survey consists of 13 structured questions, disaggregated in 24 items. The questions are distributed in the next format: 16 binary choice questions, 3 open-ended questions, two of which are to detect alternatives not present in listed options; 4 multiple-choice questions and 1 numeric question, where they should answer an integer number. These questions were

[1] By June 2025, these projections are no longer available. Newer projections show a variation of 0.5 percent against the original figures.

originally formulated in Spanish and then translated to English for this study. The survey was applied in person by personnel with gender sensitivity training through respectful, tactful and empathetic communication that, considering the delicate nature of experiences of abuse or violence and their right to refrain from answering any item with which they felt uncomfortable. The survey also captured demographic information such as age and schooling level, as well as an open question to share their experiences freely.

In order to build the response variable Y, 16 "Yes/No" questions were considered as manifestations of OBV. If the person answered "Yes" to any of them, the variable was coded as 1; on the contrary, as 0. After that, these 16 variables were eliminated from the model to avoid redundancy and information leakage. The remaining categorical variables were transformed in binary through the $get\_dummies$ method from the $Pandas$ library in *Python*, omitting a category per variable to avoid collinearity and facilitate the convergence of models. Finally, the empty entries were coded as 0, so as to avoid mistakes when implementing the predictive models.

[Table 1 about here]

For this analysis, the variables that did not contribute to the predictive modelling were discarded, like the identification variables for both the hospitals in which the care was given or where the survey was applied and the participants. This decision intended to preserve institutional and personal anonymity. The free text variables were omitted from the quantitative models.

Multi-method quantitative analysis

In total, 3 quantitative methodologies were used in order to assess risk of OBV. A z-proportions test, logistical regression and a random forest classification model. Next, the specifications used within each model are shown. All tests were developed in Python 3.12.6 using the Visual Studio Code IDE.

Z-proportions test

With the objective of estimating the proportion of women that have experimented an event of OBV, a point estimator $\hat{p}$ is used, along with its respective confidence interval. The random variable Y, which indicates whether a woman has suffered OBV, follows a *Bernoulli* distribution. Whereas the random variable Y^*, the total number of women that reported having lived OBV in the sample, follows a *Binomial* distribution.

Let p be the population's proportion of women who have been through an event of OBV, and p_0 the hypothetic proportion which is desired to contrast with. If the corresponding *p-value* is equal or lesser than α, the null Hypothesis H_0 is rejected in favor of the alternative H_1, which indicates that the observed proportion p is statistically greater than the hypothetical proportion p_0. This test can be applied iteratively as to identify a minimum value of p_0 that can be rejected with statistical evidence, thus allowing establishing the significant presence of OBV in the target population, based on the recollected data.

Logistic regression

For the analysis of the survey data, a simple random sampling design was used for both the sample size calculation and the data collection. It's assumed that the response variable, denoted by Y, follows a Bernoulli distribution, with probability p of success. A logistic

regression model is used, which transforms the probability p using the $logit$ function. This model allows the relationship between the binary dependent variable and a set of explanatory variables to be expressed through a log-linear relationship.

This specification ensures that $0 < p_i < 1$, respecting the probability domain, while maintaining a linear relationship between the $logit$ transformation and the regressors. In a logit model, the estimated coefficients β_j represent the change in the *log-odds* of success for each additional unit in the variable x_j, holding other variables constant. This quantity is known as the *Odds Ratio* (OR) and represents the multiplicative change in the odds of success of the dependent variable for each unitary increase in x_j, controlling for the other variables. The ORs allow for the interpretation of the effect of each explanatory variable on the probability of the event of interest occurring. In this study, both the ORs and their respective confidence intervals will be considered in order to evaluate the relative importance and significance of each independent variable in relation to the presence of OBV, the dependent variable of the model.

Random forest

Random Forest, a supervised machine learning algorithm, was used to predict the occurrence of OBV. This model builds multiple decision trees from random subsets of the dataset and predictor variables and combines their predictions using majority voting, which reduces the variance of the individual model and improves its generalization capacity.

The modeling procedure was implemented through a pipeline that included: preprocessing of categorical and numerical variables, partitioning the data into training and test sets, and

the systematic search for optimal hyperparameter combinations through cross-validation, using the *GridSearchCV* tool from the *scikit-learn* library.

The optimization metric selected was the $F1-score$, as it's appropriate in scenarios with class imbalance. This score represents the harmonic mean between the model's accuracy and sensitivity, and allows for finding an appropriate compromise between the two indicators.

Given the imbalance in the dependent variable (few positive cases compared to the total), and considering that misclassifying a woman as having suffered OBV constitutes a serious ethical error, the decision threshold used to classify a case as positive was adjusted. Instead of adopting the conventional threshold of 0.5, the model's performance was evaluated at different threshold values within the interval [0,1], selecting the one that maximized the F1 score on the validation set.

Limitations

This study acknowledges 4 key limitations. First, the data may not be generalized to rural or private healthcare contexts, as the dynamics in play may answer to different incentives. Second, the cross-sectional design prevents the assessment of long-term consequences. Third, underreporting is likely due to the normalization of violence and lack of patient awareness regarding their right. Finally, the study deals with the pregnant and laboring women's perception of violence first and externally identified experiences of OBV second. The health attendants, whose perception of violence may differ, were not surveyed.

RESULTS

Sample description

Out of the 341 answers obtained, the following characteristics are appreciated:

[Table 2 about here]

Figure 1 " details the distribution of the 16 indicators used to construct the dependent variable *Y*. The most frequently reported manifestations were having felt intimidation (q8, 17.3 percent) and being threatened in order to not complain (q11, 15.2 percent), while psychological aggression (q9, 15 percent), discrimination (q3.1, 13.5) and intimidation (q3.2, 12 percent) appeared less frequently. The remaining variables were below 12 percent. In total, 28.4 percent of the sample (n=97) reported having lived through at least 1 OBV event. Meaning that around 1 in 4 women receiving care by public health services suffers OBV.

[Figure 1 about here]

Thematic Analysis

The survey included an open-ended question that allowed women to freely share experiences related to their pregnancy, childbirth, or postpartum. From the 341 women included in the quantitative analysis, 176 free-text responses were received. Reports were found of events that reveal historical practices of inadequate care in previous pregnancies. Leading to 3 responses were eliminated due to time inconsistencies (before 2000's) containing serious medical consequences stemmed poor care. These responses, although excluded from the main analysis, demonstrate how these practices infringe rights, and have been present in the region for decades. Revealing their structural nature and they stand unchallenged in the medical sphere.

The remaining responses were organized in small batches of 15 answers in order to code for their main manifestations of OBV or positive experiences. Thus, allowing to identify three

major dimensions to the retelling of women's experiences: the perceived treatment quality, the perception of access to justice, and the graveness of the situations reported.

Perceived treatment quality

Positive experiences. Several women expressed satisfaction with the medical care expressing that *"The treatment has always been very good"*, *"Everyone was very kind and answered my questions"* and *"I have received very good care from the staff"* reflecting how, despite structural difficulties, there are professionals committed to providing humane care.

Criticisms and Areas for Improvement. Even though positive experiences exists, a significant portion of the responses reflects deficiencies in treatment and communication:

- **Lack of information and explanation:** Several women reported that their diagnosis, the procedures performed, or the available services were not adequately explained to them. Showing a clear lack of informed consent and disregard to their agency as people. Examples include: *"The doctor never examined me during my pregnancy; she just made decisions without explaining anything to me,"* and *"It would be nice if they explained more to us, if they gave us more information".*
- **Dehumanization and Lack of Empathy:** Scolding, mockery, and cold attitudes were reported, especially in sensitive situations such as pregnancy loss or complications. One case mentions: *"The nurse started scolding me not to be exaggerated... she started laughing and said, 'You see, it wasn't that bad.'"* This demonstrates how staff is desensitized from their patients to an extreme degree, where the women no longer are allowed to express their discomfort or hurt.
- **Inappropriate and Judgmental Comments:** Some responses reflect moralizing attitudes on the part of the staff, such as the question *"Who's going to take care of the*

baby?" directed at a single mother. Sustaining patriarchal ideas of a women's role, objective and functions.

- **Infrastructure and resources:** A lack of ultrasound equipment, a shortage of medications, and unhygienic facilities, such as dirty and poorly equipped bathrooms, were the main reported deficiencies. It's worth mentioning that the following codes are also consequence of a lack of resources.
- **Problems with staff attitude:** Nurses were mentioned as "rude," "sulky," and administrative staff were mentioned as "rude." One woman stated: *"If they don't like their job, they should move."* referring to the staff's disposition of service. In public healthcare services, medical, administrative and nursing staff are often overworked or underpaid, which in turn builds up fatigue that makes staff less willing to act empathically.
- **Waiting times and disorganization:** Long wait times and disorganized care were recurring themes, particularly affecting women with medical conditions requiring special care (such as sugar or insulin deficiencies). Furthering the evidence of a deep resource distribution inefficiency, where not even high risk cases may be attended safely and in a timely manner.

Legal Perception and Willingness to Report

Willingness to Report. Some women indicated that they would be willing to report if they were victims of violence: *"If I experienced it, I would report it", "If it happened, I would not hesitate to complain",* suggesting a growing awareness of the right to violence-free care.

Minimization of the Problem and Lack of Action. In contrast, other responses reflect resignation, ignorance, or normalization of violence: *"I haven't thought about reporting, 'Why?'", "I don't consider it that serious",* or simply *"I don't think it's necessary to report."* This demonstrates the perpetuation mechanism of OBV in Monterrey's setting, where the women themselves, even after recognizing the violence they went through, are still unwilling or unable to access restorative services. Denial is also one of the main coping mechanisms that women that experienced sexual violence use to deal with their ruptured integrity.

Unsuccessful Reporting Experiences. Some women expressed that, despite having reported, they received no response: *"There is a report (...), it was never pursued."* This type of testimony supports the perception from women that minimize or ignore their experience; they become discouraged from exercising their reproductive rights when facing impunity or negligence from authorities.

Severity of the Reported Situations

The experiences shared range from discomfort due to the treatment to cases of medical negligence with serious physical consequences for mother or baby:

- **Verbal and psychological abuse:** Scolding, laughter, indifference to pain or fear were repeatedly mentioned. In one case, a woman who lost her baby expressed fear that she would not receive care if she complained.
- **Medical Negligence:** Cases of lack of attention to relevant symptoms, misdiagnoses, and inadequate practices are documented. For example: *"During labor, they didn't cut her to help the baby deliver... her baby was born with a broken collarbone"* or

"My first delivery was a cesarean section because they said the baby was too big, but they didn't explain anything."

- **Violation of reproductive rights:** Some women reported attempts to force them to undergo forced sterilization procedures (tubal ligation) without their informed consent, which represents a direct violation of their bodily autonomy.

Z-test proportions Results

A proportions test was performed with a 0.95 confidence level, using an iterative process that sought the maximum p_0 value to reject H_0. This test considered only the response variable indicating the presence or absence of OBV.

The analysis yielded a p-value of 0.0497, which allows to statistically establish that at least 24.42 percent of women in the target population have experienced OBV, with a confidence interval of $p_0 \in (0.2366, 0.3323)$. Implying that, with 0.95 confidence, at least 1 in 4 women has experienced this type of violence during their obstetric care.

Logistic regression Results

A logistic regression model was used to estimate the probability of experiencing OBV. The dependent variable was the presence of OBV, and the independent variables included: *Age, Knowledge of the concept of OBV, Year of pregnancy, Weeks of gestation, Education, Type of follow-up, Gender of the medical personnel who attended the delivery.*

Categorical variables were coded as dummy variables, according to the model's requirements. The *sm.Logit* method from the *statsmodels* library, which uses maximum likelihood estimation, was applied. The model was generally significant, with an overall p-value less than 0.05.

Significant Results. The gender of the medical staff was found to be a significant factor: being cared for by a woman reduced the likelihood of experiencing OBV by 64.69 percent compared to being cared for by a man (OR=0.3531, 0.95 CI: 0.2062–0.6046).

Results to Consider. While other variables did not show robust statistical significance, some values suggest lines of future exploration. Regarding postgraduate education**,** the results were OR=3.0365. Even if not conclusive, the confidence interval indicates a possible substantial increase in risk compared to women with a bachelor's degree. Whereas the Primary education OR indicates a 24 percent increase in risk, with a confidence interval is slightly shifted to the right.

Random Forest Results

To improve the detection of OBV cases, a Random Forest model optimized to maximize *recall* was used, given the low proportion of positive cases in the sample.

To address the imbalance in the response variable, minority class overfitting was applied using the SMOTE method, integrated into a pipeline with 10-fold cross-validation and a 50/50 split for training and testing. This procedure allowed multiple combinations of hyperparameters to be evaluated until the configuration that offered the best performance was found. The final model was optimized using 100 estimators, a maximum depth of 5 and SMOTE for class balancing.

The decision threshold was selected based on the Precision-Recall curve, prioritizing maximizing the F1 score. Applying the optimal threshold (0.3361) resulted in the following confusion matrix and metrics:

[Table 3 about here]

These metrics indicate that the model correctly identifies the great majority of OBV (high *recall*), because of a greater proportion of false positives. This compensation is adequate in contexts where the priority is not to omit real cases. More so, the analysis of importance of variables showed that the gender of the medical personnel, the patient's age and the gestation weeks were factors relevant for the prediction.

[Table 4 about here]

Next, it has presented the variables' relevance table obtained from the *Random Forest*, next to its graphic representation. These elements allow visualizing which factors contribute in a greater measure to the prediction of OBV inside the adjusted model. The readers are invited to consider these results as an exploratory guide about the elements that might be associated to the occurrence of this kind of violence, recognizing that their interpretation must be complemented with additional statistical analysis and more empirical evidence.

FINDINGS AND DISCUSSION

In 2025, at least 24.42 percent of women aged 15 to 49 attended by public healthcare facilities in Nuevo León experienced some form of OBV during pregnancy, childbirth, or the postpartum period. Indicating that at least one in four women is affected by a highly traumatic experience (Ramallo Castillo et al., 2024), with psychological effects comparable to rape (Pickles, 2024; Hakimi, 2025). This prevalence is significantly lower than the figure of 31.8 percent in 2021 (INEGI, 2022a). The discrepancy likely stems from the sample composition; INEGI (2022a) reports that the majority of women (63 percent) use public healthcare, so the exclusion of private providers' data in this study may account for the difference. However, the decrease also coincides with structural shifts, such as the creation of the Department of Women (in 2021 for Nuevo León and in 2024 at the federal level), as well as the election of

the first female president, serving as a powerful institutional signals regarding women's rights, fruit of a long-drawn battle by feminist activism.

The most conclusive findings concerns the gender of the perpetrators of violence. While care was almost evenly distributed by gender, with a marginal advantage to female staff (50.4 percent), male personnel accounted for 59.8 percent of OBV cases, whereas female personnel accounted only 32.0 percent. Logistic regression confirms that being cared for by a woman reduces the likelihood of experiencing OBV by nearly 65 percent. This acts as conclusive evidence of a gendered activity from the physicians, supporting Cohen Shabot's (2015) feminist phenomenological approach. Suggesting that female medical, sharing the gendered experience of "womanhood", may have developed a greater awareness of childbirth as a complex bodily and emotional process, fostering horizontal relationships with patients, less prone to abuse. Conversely, the high incidence of abuse among male practitioners implies that gender-power relationships exist not only in the system's structure, but as a manifestation of patriarchal authority as well, reflecting the exercise of authority in a dictatorial, invasive, or dehumanizing manner and perpetuating historical roles of male domination.

At first glance, this appears to contradict Simeneh et al. (2024), who identified female birth attendants as a significant risk factor. However, viewing this through Sheferaw et al., (2017) the mechanism becomes clear: women, as patients and health services providers, are subject first to the expectation of "femininity". Choosing to submit these ideal often means accepting the violation to remain a "meek woman", perpetuating gender violence at the cost of their integrity and personhood. On the other hand, female physicians and midwives cannot submit to femininity themselves while exercising the power position the healthcare system leads them to, so in order to maintain the status quo they must subjugate other women through the

same system they are victims of. In Nuevo León, the gender binary remains a primary axis of power, where the male doctor represent the institutions dominances and the female patient is expected to submit.

These power dynamics are reinforced by patient vulnerability. Our analysis finds that women with lower education (often children and teenagers) face substantial risks, while women with post-secondary education can identify the violence better. Thi ssupports the notion that education is a key strategy in prevention, as seen in previous studies (Castro & Frías, 2019). However, across all demographics, OBV remains deeply normalized and seen as inherent to birth. Actions that violate their rights are not always identified as violence due to structural, cultural, and legal barriers to reporting. This aligns with Cohen Shabot's (2015) conclusion: women, having internalized the violence, suffer when adjusting to the "feminine" expectations, furthering self-blame. Uncovering how subjugation to the role of "patient" or "women" fails to protect them reveals the "I cannot" forced upon women.

This normalization creates a knowledge roadblock, another "I cannot", which works alongside a valid perception of institutional ineffectiveness, generating skepticism toward reporting mechanisms. Structural deficiencies in the health system, ranging from lack of resources to deficiencies in training in humane treatment, turn the "I cannot" to an external reality of inefficacy and impunity. Consequently, the silence surrounding OBV in Nuevo León is not just a failure of individual reporting, but a successful output of a system designed to keep women quiet.

CONCLUSION

The fight against gender violence continues to be one of the most pressing issues in contemporary society. While regulatory efforts continue to develop on women's rights

worldwide, a widening gap persists between the legal ideal and reality. Within this space of unfinished work lies women's health, where women and gender diverse people have historically marginalized, both as patients and as practitioners. This neglect by the modern medical institutions is a key factor in the perpetuation of the gender norm across the Americas, even more so in developing countries where these roles remain still subjugated (if partially so) to the patriarchal ideology.

The results demonstrate how women in labor are the main victims of the expectation from "womanhood". Beyond a biomedical model that strips people of their personhood as patients, cultural and societal expectations enhance the violence of the "feminine" body. While this study is limited by the lack of data from private institutions, it underscores the urgent need for structural change. By uncovering these normalized processes, we come closer to a more just society, where bigotry does not stand in light of genuine care and empathy.

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TABLES AND FIGURES

Table 1. OBV Variable Questions

Question number	Question (translated to English from Spanish)
q3.1	Judged by medical or nursing staff
q3.2	Treated through fear or intimidation
q3.3	Humiliated or ashamed
q3.4	Physically hurt
q3.5	Psychologically affected
q7.1	Were you discriminated against because of your gender?
q7.2	Were you discriminated against because of your health conditions?
q7.3	Were you discriminated against because of your educational level?
q7.4	Were you discriminated against for any other reason?
q8	At any point, did you feel intimidated, pressured, or treated aggressively by medical, administrative, or nursing staff?
q9	Have you felt psychologically violated throughout your pregnancy, childbirth, or postpartum period? For example, not being informed about your rights and/or the healthy development of pregnancy and postpartum care.
q10	At any point, did you experience any form of verbal or physical aggression during your care from medical, administrative, or nursing staff?
q11	Have you received threats or warnings from medical, administrative, or nursing staff to prevent you from expressing your complaints, discomfort, or concerns during your labor or postpartum process?
q12	Do you believe that, as part of the treatment you received, you have suffered obstetric violence? For example, having procedures imposed on you without your consent.
q13	If you consider yourself a victim, have you considered reporting or have you reported any incident of obstetric violence?

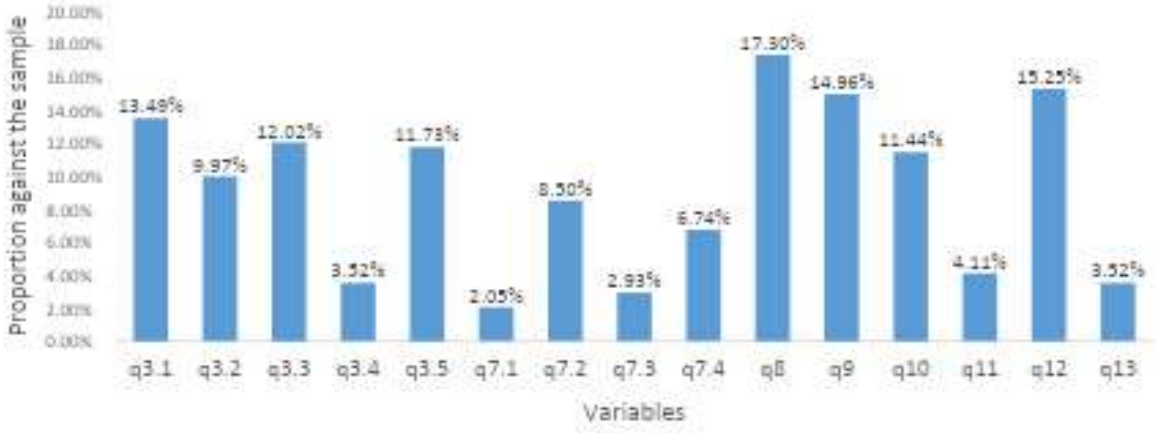
Sources: Self-made from survey data.

Table 2. Main characteristics comparison per variable.

Variable	Main finding	Complementary findings
Age	33.4% of the people ranged from ages 26 to 28 and 29 to 31 years old.	13.5% compromised the ages 20 to 22 years old. 12.9% compromised the ages 23 to 25 years old. The remaining ranges weigh below 12%.
Schooling level	34.3% of the sample reported High School (general and technical) as their schooling level.	29.3% reported Middle School level. 27.6% reported University level schooling. 1.2% did not answer.
Gestation weeks (at the moment of the survey)	46.4% were in their third trimester	36.2% in their second trimester. The remaining did not specify.
Pregnancy stage	77.1% were pregnant.	22.3% were in post-partum.
Previous knowledge of OBV	64.5% were unfamiliar with the concept of OBV.	30.5% were knew of the concept beforehand. The remaining did not specify.
Gender of the attending doctor	50.4% of the women received care from a female doctor.	43.7% were attended by a male doctor. 5.9% of the sample's answers were classified as "no data", including cases were they mentioned to be cared by personnel from various genders, given that this option does not allow for a univocal interpretation for the analysis.

Source: Self-made form survey data.

Figure 1. Affirmative Answer Proportion by Question



Source: Self-made figures from data collected by the survey.

Table 3. Random Forest Confusion and Metrics Matrix

Class Prediction	**Without OBV**	**With OBV**	**Precision**	**Recall**	**F1-score**
Without OBV	54 (TN)	68 (FP)	40.4%	93.9%	56.4%
With OBV	3 (FN)	(TP)	94.7%	44.3%	60.3%

Source: Self-made from survey data.

Table 4. Random Forest Variable Relevance

Variable	Relevance
Gestation weeks	34.0%
Age	15.9%
Female doctor	11.3%
Middle school education	9.5%
Pregnancy year	7.7%
High school education	6.7%
Post-partum stage	6.3%
Previous knowledge of OBV	6.0%
Elementary education	0.7%

Source: Self-made from survey data.

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