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Assessing different forms of structural violence against women in Mexico

A Dissertation submitted in partial satisfaction of the requirements for the degree
Doctor of Philosophy

in

Public Health (Global Health)

by

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2024

The Dissertation of Marian Marian is approved, and it is acceptable in quality and form for publication on microfilm and electronically.

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Epigraph

“Structural violence is silent, it does not show —it is essentially static, it is the tranquil waters”
-Johan Galtung

“La vida sería mucho más agradable si uno pudiera llevarse a donde quiera que fuera, los sabores y olores de la casa materna”
-Laura Esquivel

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List of Abbreviations

AOR	Adjusted Odds Ratio
C-section	Cesarean section
CCT	Conditional Cash Transfer
CI	Confidence Interval
COR	Crude Odds Ratio
ELCSA	Latin American and Caribbean Scale of Food Security
ENDIREH	National Survey on the Dynamics of Household Relationships
GBV	Gender-Based Violence
IMSS	Mexican Institute of Social Security
INEGI	National Institute of Statistics and Geography
INSP	National Institute of Public Health
ISSSTE	Institute for Social Security and Services for State Workers
NGO	Non-Governmental Organization
OECD	Organization for Economic Cooperation and Development
SDSU	San Diego State University
UCSD	University of California San Diego
U.S.	United States
WHO	World Health Organization

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BMC Pregnancy and Childbirth. Co-authors include Drs. Kathryn Barker, Elizabeth Reed, Amanda McClain, Rebecka Lundgren, Samantha Hurst, and Ramona L. Pérez. The dissertation author was the primary investigator and author of this paper.

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Abstract of the Dissertation

Assessing different forms of structural violence against women in Mexico

by

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Doctor of Philosophy in Public Health (Global Health)

San Diego State University, 2024

University of California San Diego, 2024

Professor Ramona L. Pérez, Chair

Background: Structural violence is a persistent but silent form of violence in Mexico. This dissertation evaluated two predominant health issues among women in Mexico that are a result of structural violence: access to nutrition for low-income women during pregnancy and different forms of gender-based violence (GBV), including obstetric violence.

Objectives: To assess the nutritional knowledge, education, and practices employed among Oaxacan women during their pregnancy, as well as their prenatal supplemental acquisition and use behaviors (Chapter 2); explore the themes covered by Mexican non-governmental organizations (NGOs) on X (formerly Twitter) during the 2020-2022 '16 Days of Activism Against GBV' annual campaigns, and to examine what types of messages related to GBV potentially resonated more with the public (Chapter 3); and measure the prevalence and assess change over time of non-consented care during childbirth in Mexico in 2016 and 2021, as well as examine the association of sociodemographic, pregnancy-, and childbirth-factors with this type of violence (Chapter 4).

Methods: This dissertation includes three studies. A qualitative study was carried out in Puerto Escondido and Oaxaca City in the state of Oaxaca through 25 semi-structured interviews (Chapter 2); a thematic content analysis of the most liked tweets published by Mexican-based NGOs for the 2020-2022 '16 Days of Activism Against GBV' campaigns (Chapter 3); and data from Mexico's cross-sectional National Survey on the Dynamics of Household Relationships (ENDIREH) for 2016 and 2021 was utilized for Chapter 4.

Results: Different social positions and relationships at the meso- and macro-levels guided the nutritional knowledge and practices during pregnancy, as life experiences, sociodemographic and health characteristics, family members, and health provided mainly influenced knowledge and practices (Chapter 2). For the thematic content analysis, themes covering both knowledge-sharing and activism-generating messages emerged (Chapter 3). The national prevalence of non-consented care and one of its variations, pressure to get a contraceptive method, increased from 2016 to 2021, while the rest of the variations decreased nationally and in most regions. (Chapter 4)

Conclusions: Findings from this dissertation advance the study of GBV, non-consented care during childbirth, and nutrition knowledge and practices during pregnancy in Mexico. Recommendations for future research are discussed.

Chapter 1. Introduction

While gender equality in Mexico has improved over time (1), progress has slowed in recent years, with the country's ranking on the United Nations' Gender Inequality Index dropping from 75th in 2021 to 86th in 2022 out of 191 countries and decreasing two spots on the 2023 Global Gender Gap Index compared to 2022. (2,3) According to the World Bank and UN Women, despite progress in strengthening national laws, stronger gender institutionalism, and increased public resources for gender equality, gender-based violence (GBV) and gender gaps against women and girls persist in Mexico. (4,5) Gender disparities affect women in Mexico across different aspects, such as the economy, health, education, government, and politics, to name a few. (1) Structural violence drives many forms of gender disparity in Mexico. (6,7) The primary goal of the research presented in this dissertation is to examine two public health issues that stem from the structural violence against women in Mexico: nutrition during pregnancy and gender-based violence (GBV). In this dissertation, I aim to examine (1) the nutrition education, knowledge, and practices of low-income women during pregnancy in the state of Oaxaca; (2) the public's engagement with messages posted on X (formerly Twitter) by Mexican-based NGOs for an annual campaign against GBV for the years 2020, 2021, and 2022; and (3) the prevalence of non-consented care during delivery, a form of obstetric violence, a specific type of GBV, in Mexico for the years 2016 and 2021.

Background

What is structural violence?

Structural violence is an indirect form of violence that occurs when social institutions, laws, or social structures disproportionally harm or disadvantage a group of people by preventing them from meeting their basic needs. (8,9) This concept was first introduced by sociologist Johan Galtung in 1969 (10). Along with the term structural violence, Galtung proposed "the triangle of violence" **(see Figure 1.1)**, in which he described that there is a relationship between three types of violence (structural, cultural, and direct violence), each reinforcing the other two, with structural and cultural violence being the base of that triangle and invisible to society, while only the tip of that triangle, which is direct violence, is visible. (11)

Direct violence can be physical or non-physical (emotional, financial, verbal, digital), and as its name describes, is directly perpetrated by an individual such as peers, family members, partners, strangers, and authority figures.(11,12) While structural violence is said to be invisible, as it is embedded and normalized among social structures, making it difficult to eradicate. (13) Due to the extensive scope of structural violence, compared to direct violence, its exponential growth is caused by the constant unequal power differences that create unequal social structures. (14) The structural violence framework states that individual health behavior is dependent on institutional inequities.(15) Because of this, health and access to healthcare are particularly affected by structural violence due to unequal access to resources and goods, which are controlled by powerful political, economic, and sociocultural actors that systematically affect marginalized populations.(16) Women are especially affected by structural violence as a consequence of the close relationship between gender, inadequate educational attainment opportunities, health care, and poor health.(9) Gender is embedded in social institutions and systems and therefore affected by the commonly driven gender-based social hierarchies.(17) Structural violence impacts all aspects of a woman's life, particularly their safety and health, with unequal access to determinants of health such as quality health care, housing, and employment, just to name a few.(9,18) Women in vulnerable social positions are at a greater risk of experiencing structural violence.(19) Research, interventions, and policy reforms that address social norms and gender inequities that perpetuate violence against women are needed to mitigate this structural issue. Transforming laws, cultural and economic structures, and family, religious, educational, workplace, and legal institutions that sustain and promote structural violence against women into ones that promote and protect women's rights and their equal access to the determinants of health are necessary to eliminate structural violence. (20)

Two health issues in women that are impacted by structural violence are the focus of this dissertation: nutrition and gender-based violence. In terms of nutrition, globally, 60% of the people without adequate food and nutrition are women and girls.(21) Food insecurity, which is the lack of nutritious food for an active and healthy life (22), is the result of complex and multifactorial determinants at micro, meso, and macro levels; however, socially disadvantaged groups are commonly affected by this health issue.(23,24) Food insecurity not only leads to physical hunger but also has consequences for physical, psychological, emotional, and social wellbeing.(25,26) Women are disproportionately affected by food

insecurity, as they are 27% more likely to be severely food insecure than males.(27) Evidence suggests that food insecurity is likely to increase gender inequalities and women's vulnerability to GBV.(28,29) Food insecurity has been associated with increased physical partner violence.(30) A potential bidirectional relationship between food insecurity and GBV has been proposed by some scholars, as research has found that food insecurity may trigger an increase in GBV perpetration as a result of household stress and the frustration of men in the inability to fulfill their expected gender role as providers.(28,29) Food insecurity has also been found to increase conflict in the household and alcohol consumption that may lead to GBV.(28) And women's inability to fulfill males' food requests due to food insecurity could lead to further abuse.(31) While women who have left their household due to GBV are at a greater risk of experiencing food insecurity.(28) GBV negative affects the ability of a woman to ensure food security by hindering their ability to participate in society and decreasing their access to social and economic resources and opportunities.(28,31,32) The systematic characteristics that lead to food insecurity and other gender-based nutrition-related inequities should be examined in order to understand the problem and be able to incorporate informed and evidence-based structural violence solutions into public health interventions.

Structural violence and GBV are interdependent, as the inequities that result from the former generate situations and increase the risk of direct violence in the form of interpersonal violence for women and girls in vulnerable positions.(18) GBV, also known as violence against women and girls, refers to any form of mental, sexual, or physical harm or suffering inflicted on women and girls.(33) Globally, 736 million women, which is equivalent to close to one-third of women in the world, have experienced some form of GBV in their lives.(34) Even after the period of violence has ended in a woman's life, GBV can have short- and long-term physical, sexual, reproductive, and mental health effects.(35) GBV violates the rights of females and limits their participation in society. Only by addressing the structural causes behind GBV can this form of violence be prevented.

Structural violence against women in Mexico

Many factors, such as gender stereotypes and discrimination, contribute to Mexico's structural violence against women.(36) Women in Mexico suffer more harm from neglect and violence than women

in most other Organization for Economic Cooperation and Development (OECD) countries, as Mexico has one of the highest rates of violence against women at home and in public settings.(36,37) Inequities and social norms are part of the structural violence in this country. Health disparities for women result from the inequities that arise from structural violence. These are particularly seen in reproductive health, nutrition, and GBV. In terms of reproductive health, while reproductive health services have improved in Mexico, there are still barriers in terms of sexual and reproductive health that have led to delivery complications and unwanted pregnancies.(38) Women with less educational attainment and from rural areas have higher fertility rates.(39) Maternal mortality in Mexico has decreased but is still high compared to other OECD countries.(39) Social inequities derived from structural violence are also seen here, as Indigenous, rural, and poor women have lower levels of access to care and obstetric services and higher maternal mortality rates.(39) The rate of adolescent pregnancy continues to be high in Mexico which has negative effects on educational attainment, women's empowerment, poverty reduction, and generational mobility.(39) While knowledge about contraceptives is high in Mexico, their use is low, particularly among Indigenous women and those living in Southern states.(39) Structural violence and health disparities for women in terms of nutrition and GBV are described next.

Structural Violence and Nutrition in Mexico

While to our knowledge the linkage between structural violence and food insecurity in women in Mexico has not been explored, as most of the literature on structural violence on women in Mexico focuses mainly on physical violence(40,41), food insecurity has been considered by scholars as an outcome of structural violence.(42) The double burden of malnutrition in women in Mexico can be considered a consequence of structural violence due to the persistent social, economic, and gender inequalities and their effect on the undernutrition in the country.(43) Gender inequities in malnutrition are a public health problem in Mexico.(44) For example, the prevalence of moderate and severe food insecurity in homes with a female head of household is higher compared to those with a male head of household.(45,46) The reasons suggested behind this include the current gender wage gap of 14% in the country, and Mexican women typically work fewer hours and have less formal employment than men.(39,45–47)

Mexico has one of the highest rates in the world for obesity in women.(39) Severe food insecurity has been positively associated with obesity in Mexican women.(48) Gender inequities have also been found to be associated with obesity, as the prevalence of obesity and overweight is higher among Mexican women with lower education levels.(44) Obesity has also been found to be higher among Mexican women living in rural communities, while research has found that women in rural areas are one of the groups who experience food insecurity the most in the country due to individual and structural factors.(44,45,49) Obesity-related discrimination against women in the labor market has also been found to exist in Mexico, but not against men.(39) As obesity is associated with poor diets and low levels of physical activity (39), the percentage of Mexican girls, teenage girls, and women who comply with the recommended levels of physical activity is lower than that of boys, teenage boys, and men, respectively.(39) Gender disparities in access to healthy food and physical activity for girls and women are exacerbated by a common barrier of insecurity in public spaces, which disproportionately affects low-income females who have fewer healthy food options available within reach.(50)

Women of childbearing age are one of the groups in Mexico that suffer the most from food insecurity; however, there is limited information on food insecurity and nutrition-related inequities during pregnancy in Mexican women.(44,45,49) Chapter 2 assessed how women from lower socioeconomic status in Oaxaca, one of the states with the highest levels of gender inequality and gender-based poverty for women in Mexico (51,52), acquire and use their nutrition knowledge and practices during pregnancy, including the use of nutritional supplements.

Gender-based violence in Mexico

Despite the fact that Mexico has a legal framework in place to protect girls and women from physical and psychological violence (53), the prevalence of GBV continues to increase. For example, nine to ten women are murdered in Mexico every day.(54) While globally, 33% of women have been affected by some form of GBV, in Mexico, 70% of women have experienced GBV at least once in their lives.(55) Intimate partner violence is the most common form of GBV in this country.(39) The social and cultural roots of this social problem make it more difficult to solve.(56) Non-profit organizations (NGOs) are important actors in combating structural violence by raising awareness, providing resources, and

promoting change. Non-profit organizations also work to strengthen the implementation of action plans, laws, and policies against GBV.(56) Chapter 3 explored the GBV topics that Mexican NGOs are focusing on during their annual campaign against GBV and the public's engagement on these topics.

A specific type of GBV is obstetric violence, which directly involves gender issues and human and reproductive rights and was first observed in Mexico in 1998.(57) Obstetric violence involves the abusive and/or dehumanizing treatment of women by health professionals during pregnancy and childbirth that negatively impacts the quality of life of women and their loss of autonomy.(58) This type of violence stems from both interpersonal and structural violence.(59) The former is due to isolated medical practices and individual cases, while the latter type comes from structural conditions in the health care system along with political and economic issues that disproportionally affect marginalized populations.(59) In Mexico, as well as many other countries worldwide, there are efforts to expand the focus on the management of obstetric services and access to skilled birth services to also include the improvement of the quality of maternal healthcare.(60,61) Chapter 4 focused on one variation of obstetric violence, non-consented care, which is the absence of providing a patient with informed consent or an information process before a childbirth procedure (8), and provided an insight into the prevalence of non-consented care during childbirth in Mexico and determined the characteristics of the women at greater risk of obstetric violence due to structural violence.

Dissertation overview

The overarching goal of this dissertation is to evaluate two predominant health issues among women in Mexico that are a result of structural violence in that country: access to nutrition for low-income women during pregnancy and different forms of gender-based violence. This dissertation will contribute to the literature on nutrition, maternal health, reproductive health, and different forms of gender-based violence in Mexico. This dissertation includes an introduction (Chapter 1), three original research manuscripts (Chapters 2, 3, and 4), and a discussion (Chapter 5). Each of the three chapters that report original research was written as a standalone manuscript. The specific aims of each manuscript chapter are:

Aim 1 (Chapter 2): To explore the nutritional practices, nutrition education, and knowledge, including prenatal supplement acquisition and use behaviors, of low-income women during pregnancy in the cities of Puerto Escondido and Oaxaca City, in the Southwestern state of Oaxaca.

Aim 2 (Chapter 3): To assess the GBV themes that Mexican non-governmental organizations posted on X (formerly Twitter) during the annual 16 Days of Activism Against Gender-Based Violence campaign for the years 2020, 2021, and 2022 that were frequently liked by the public and understand the types of messages related to GBV that resonated more with the public for these years.

Aim 3 (Chapter 4): To describe the prevalence of non-consented care during childbirth and three of its variations, forced cesarean section, forced sterilization or contraception after childbirth, and forced signing of hospital paperwork during childbirth, among Mexican women for the years 2016 and 2021 using data from Mexico's National Survey on the Dynamics of Household Relationships for 2016 and 2021.

Tables and Figures

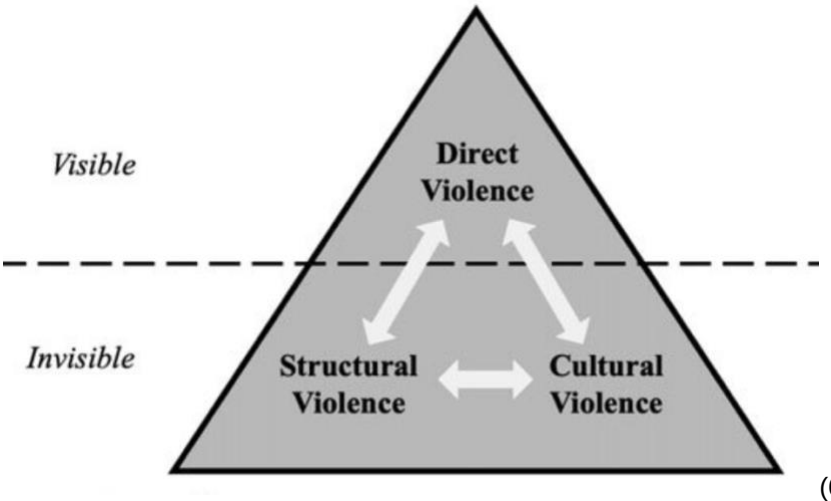

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Figure 1.1 Gestalt's Triangle of Violence

Chapter 2. Nutritional Knowledge and Practices of Low-Income Women During Pregnancy: A Qualitative Study in Two Oaxacan Cities

Introduction

Healthy maternal nutrition is vital for fetal development along with short- and long-term intergenerational health outcomes for the mother and the child.(63–66) Adequate nutrition can be challenging for women who do not have proper access to affordable food as they struggle to meet the increased nutrient and energy needs during the antenatal period.(67,68) Food insecurity during pregnancy affects several health outcomes for the mother and the developing child, including increasing the risk of low birth weight and certain birth defects in children and a greater risk of chronic diseases later in life for these children.(66,69,70) Food insecurity in the form of reduced variety or quality of food among expecting mothers is associated with poor physical and mental health and a reduced quality of life for women.(66) Other examples of health conditions in women that experience food insecurity during pregnancy include depression, anxiety, higher gestational weight gain, severe pregravid obesity, disordered eating, gestational diabetes mellitus, and higher dietary fat intake.(66,71,72) Food insecurity is also associated with pregnancy-related mortalities.(66) A healthy diet during pregnancy, along with the recommended daily dose of nutritional supplements, specifically iron and folic acid, is essential in decreasing the risk to maternal health and infant low birth weight, along with other short- and long-term health issues for mothers and newborns.(73,74)

Food insecurity is pervasive in Mexico, as almost 34% of the population experiences some form of food insecurity, and 6.4% are extremely food insecure.(75) Between the years 2018 and 2020, food insecurity in Mexico increased by more than 5% (76), with women of reproductive age being one of the most affected by food insecurity in this country.(49) The dietary transition in Mexico in the past few decades has resulted in people eating more foods of low nutritional value, such as highly processed foods, sugars, and saturated fats, rather than the historic *dieta de la milpa*, translated as a diet based on the triad of corn, beans, and squash along with chilies, fruit, and dark leafy greens.(77) These dietary shifts do not sufficiently meet the daily nutritional needs required during pregnancy.(78–80) According to recent research, the Mexican population consumes 25% of the recommended amount of legumes and 50% of the recommended amount of fruit and vegetables.(81) The dietary consequences of food

insecurity for pregnant women are typically illustrated by the prevalence of micronutrient deficiencies, primarily iron. The national prevalence of anemia, a health condition that develops due to insufficient iron, among pregnant women has been documented at 35%, compared to almost 18% among non-pregnant women.(82) At the state level, the prevalence of anemia goes as high as almost 48% in the southern state of Veracruz.(83) The World Health Organization (WHO) strongly recommends pregnant women take daily oral iron and folic acid supplements as part of their antenatal care to reduce the risk of low birth weight, maternal anemia, and iron deficiency.(84) In the early 2010s, 97% of women who received prenatal care in Mexico were prescribed folic acid, the highest among all services provided during prenatal care in the country(85), while 94% of women were prescribed iron, vitamins, or other nutritional supplements as well.(85) Up to 2019, national social programs such as *Prospera* (formerly *Oportunidades* (2002-2014) and *Progresa* (1997-2002)) provided nutritional supplements to pregnant and lactating women living in extreme poverty.(86) However, for the past five years, the country's political transition has reshaped the social program structure in Mexico and eliminated *Prospera* (2014-2019).(86)

The southwestern state of Oaxaca in Mexico is one of the states with a higher level of food insecurity and poverty in the country. Oaxaca is the third most economically marginalized state among the 32 federative entities that make up the country, with more people living in poverty (58%), as determined by the national poverty line.(87,88) Additionally, 20% of the people in Oaxaca live in extreme poverty, compared to 7% of the national population.(75,89,90) Oaxaca has the second-highest percentage of gaps in healthcare access and education in the country.(90) Almost 85% of the population in Oaxaca does not have access to health services, and more than 60% of the population in Oaxaca does not have access to basic housing services.(91) Oaxaca also had the lowest score of the country related to the 2021 social progress index.(90) Specific to food and nutrition, as of 2018, 57.4% of the population in Oaxaca experienced some form of food insecurity, with 27.9% experiencing moderate or severe food insecurity.(92) While lack of food access, which corresponds to constant moderate or severe persistent restrictions of sufficient food intake for an active and healthy life, in Oaxaca decreased by 0.7% between 2008 and 2018, this is a lower improvement rate compared to the national level for that same period of time (1.3%), and the lack of food access, defined as the population with moderate or severe food insecurity, is 7.5% higher in Oaxaca than at the national level.(92) The number of people who cannot

afford the national basic food basket in Oaxaca increased by 4.5% between 2008 and 2018, with a slight improvement from 2016 to 2018.(92)

To our knowledge, there are only a limited number of publications in the literature that have explored the socio-cultural contexts of pregnancy among Mexican women.(93) Limited research exists on the nutritional knowledge and practices of pregnant and postnatal women in Mexico, with existing literature mostly focusing on macronutrient intake and breastfeeding.(94–99) This results in a critical gap in the evidence base, limiting the understanding of the barriers that pregnant women may experience while trying to meet their dietary needs, as well as the nutritional resources and facilitators these women rely on during this important and critical period for the mother and child. In response to these gaps, we employed a qualitative research design to interview low-income women with a recent pregnancy (≤5 years) within two cities in the state of Oaxaca. The study aimed to identify and describe the nutrition behaviors and experiences during pregnancy among low-income women in two cities of the state of Oaxaca. The research focused on the prenatal supplemental acquisition and use behaviors during the prenatal period, nutritional practices during pregnancy, and the nutritional education and knowledge acquired during pregnancy, as well as understanding the similarities and differences in these nutritional knowledge and practices during pregnancy among low-income women residing in two different urban regions in Oaxaca.

Methods

Conceptual Framework

The Ecological Systems Theory (100) and the Intersectionality Framework (101) were used for this research to better understand how different relationship levels influence the nutritional knowledge and practices of the participants during pregnancy and to analyze the complexities that these women, as a result of their multiple social positions, experience in health, specifically related to nutrition during pregnancy. Using both frameworks together provides a more nuanced understanding of the intersection and interaction between individual-level characteristics and the multiple social identities in the nutritional knowledge and practices of pregnant Oaxacan women. **Figure 2.1** illustrates an adaptation of the socio-

ecological model and the intersectionality framework (102–104) depicting factors influencing nutritional knowledge and practices among Oaxacan women during pregnancy.

Study settings

This study was conducted in the cities of Oaxaca and Puerto Escondido, in the southwestern state of Oaxaca. Geographically, the state of Oaxaca is divided into seven regions. The city of Oaxaca, which is also the state capital, is located in Valles Centrales, while Puerto Escondido is in the Costa region. Oaxaca City and Puerto Escondido have the first and third highest population concentrations in the state, respectively.(105,106) The population in Oaxaca City is close to 271,000, with 8% of them speaking an Indigenous language (107), while 42,000 live and 3% speak an Indigenous language in Puerto Escondido.(108,109) The main economic source for both cities is tourism.(110) Oaxaca's cultural diversity, the different Indigenous cultures, and its post-colonial history have guided the local and regional state's culinary practices.(111–114) The primary diet of people in the state of Oaxaca is based on maize, beans, and peppers.(112,113) Specifically in the city of Oaxaca, vegetables are a main staple in their diet due to the high variety of these foods in the region.(112,113) While in Puerto Escondido, seafood, mainly fish and shellfish, is the main part of the diet of the people due to the geographic location next to the sea.(115) A recent study found that pregnant women who received their prenatal care at health centers in Puerto Escondido do not have adequate nutritional status and the most consumed foods during pregnancy by women in Puerto Escondido included tortillas (84%), maize derived products (85%), and dairy products (88%).(116) Compared with pregnant women from rural Oaxaca, women in Puerto Escondido consumed more meats, pizza, soda, and tortas.(116) While the typical diet in the state of Oaxaca, the *dieta de la milpa*, is nutritious and based on the regional characteristics and the culture of this region (117), the high levels of food insecurity in the state and the nutritional transition the country is facing (92,118) present a complex landscape to understand.

Participant Recruitment

A combination of opportunistic and snowball sampling —the identification and recruitment of new participants by other participants —was used in the city of Oaxaca to recruit participants for these

interviews. The primary recruitment techniques used were study flyers posted at local health centers and hospitals, in-person solicitation for potential participants at markets, hospitals, and health centers, solicitation via telephone of health center's patients, and word of mouth among participants. In Puerto Escondido, opportunistic sampling of women visiting a health center was used exclusively for recruitment. For most of the recruitment process in the city of Oaxaca, a brief telephone screening was completed to determine eligibility. An in-person meeting was then scheduled via phone call, text message, or WhatsApp message. Due to participants' convenience, some of the recruitment in the city of Oaxaca and all recruitment in Puerto Escondido consisted of back-to-back screening, consenting, and completion of the interview at the location of recruitment. The sampling criteria included women who were at least 18 years of age at the time of the interview, had at least one full-term pregnancy in the last five years, and had lived in the state of Oaxaca full-time during the last five years.

Ethical Consideration

This study was approved by the San Diego State University Institutional Review Board (Record Number HS-2023-0108). Written informed consent was obtained by all participants after a thorough explanation of the purpose of the study.

Data Collection

A semi-structured interview guide with open-ended questions and probes was used to explore the topics of focus on diet changes during pregnancy, nutrition education during pregnancy, food acquisition during pregnancy, consumption of nutritional supplements during pregnancy, and access and use of social services during pregnancy (**See Supplemental Table 2.1**). The development of the semi-structured interview guide was guided by the Ecological Systems Theory and the Intersectionality Framework (100,101) along with previous work with these populations by the primary investigators (MM and RLP).

The semi-structured interviews were completed between June and December 2023. The majority of interviews in the city of Oaxaca (n=6) were completed at the San Diego State University Oaxaca Center for Mesoamerican Studies, while the rest of interviews (n=3) in this city were completed at the

place where participants were recruited (e.g., markets, local events). The interviews in the city of Puerto Escondido (n=16) were completed at the Lázaro Cárdenas Health Center.

Before the interview, participants were asked to complete the 8-item adult version of the Latin American and Caribbean Scale of Food Security (ELCSA, is the Spanish acronym)(119) to determine their food security status and a short socio-demographic survey that collected information on age, marital status, highest educational attainment, employment status, Indigenous belonging, language spoken at home, place of birth, number of years living in Oaxaca City/Puerto Escondido, type of health insurance, number of pregnancies, and the years when they gave birth. All semi-structured in-depth interviews were conducted by the first author (MM), a native Spanish speaker with experience in qualitative data collection methods. Interviews were conducted in Spanish, and audio-recorded in the original language for transcription. Interviews lasted between 30 and 45 minutes and involved ice-breaker questions, followed by the interview questions from the guide, and finishing with member-checking and discussing any question or additional information the participant wanted to mention. Field notes were created by the interviewer after each interview was completed, and the notes were debriefed with another trained researcher (RLP). No new themes emerged after completing 25 in-depth interviews, suggesting saturation was reached.

Data Analysis

Interviews were transcribed verbatim (by the primary author, Microsoft teams, or a professional transcription services company), coded, and analyzed in Spanish to maintain the richness of the language and contribute to the trustworthiness of qualitative research.(120) Identifiers were removed by the primary author before analyses. Data collection and data analysis were completed concurrently. Data coding and analysis were completed independently by the first author (MM) and a graduate student researcher (LC), both fluent in Spanish and with experience in qualitative methods and nutrition research in the state of Oaxaca. Data analysis was also supported by two faculty members (RLP and SM), experts in qualitative methods. A grounded-theory approach (121,122) was used for the analysis through emic coding, as the codes used were derived from the data. An initial codebook was created by the first author after reviewing the data to identify emerging codes. This codebook evolved through the coding processes

of the two coders, as new codes were added with the consensus of the coders; however, no new codes emerged after half of the transcriptions were coded, suggesting saturation was reached. Frequent discussions between the two coders during the coding process were done in order to achieve inter-rater reliability. NVivo R1 was the software used for the coding and analysis of transcripts.

Results

Participant Characteristics

Twenty-five mothers completed semi-structured in-depth interviews. As shown in **Table 2.1** below, the majority of women were either married or living with a partner (n=22). Most women had an educational attainment of middle school or lower (n=19), were stay-at-home mothers (n=17), and reported having had between 1 and 3 pregnancies (n=23). Almost all participants were born in the state of Oaxaca (n=23) and the majority were food insecure (n=20).

Qualitative Findings

Driven by the Ecological Systems Theory and the Intersectionality Framework, we identified five themes linked to individual-level characteristics and the multiple social identities related to the social support for nutritional knowledge and practices among low-income Oaxacan women during pregnancy. The five themes that emerged were: 1) Life experiences, sociodemographic, and health characteristics that influence nutritional practices and knowledge during pregnancy; 2) Female family members as a primary source of nutritional knowledge and food support; 3) Support from husbands and other members of women's social network; 4) Medical guidance for nutrition during pregnancy; and 5) Quality and gaps in the broader health care system and social services. Each theme, along with supportive quotes, is presented next. See **Supplemental Table 2.2** for a table of additional quotes representative of each of the themes.

Theme 1. Life experiences, sociodemographic, and health characteristics that influence nutritional practices and knowledge during pregnancy

The first theme relates to what women ate during their pregnancy, how they obtained what they ate, their use of nutritional supplements, nutritional knowledge gained through education and life experience, and different decisions and experiences that shaped these practices during the prenatal period.

Related to nutrition practices, the food eaten during pregnancy among women in the cities of Oaxaca and Puerto Escondido were similar. Fruits, vegetables, beans, and lentils were the most common foods mentioned by participants that were consumed during pregnancy. Examples of vegetables included potatoes, broccoli, green beans, chayote, and carrots. In Oaxaca City, participants also mentioned eating vegetables, *guia* (tender stems from zucchinis and chayotes), *comidas caldosas* (brothy meals), chicken soup, and pasta soup during their pregnancies.

Health issues and changes in their appetite varied for women and affected the amount and types of food consumed during this period. While more than a quarter of the participants mentioned they would continue to eat the same types of food when they were pregnant as they would before pregnancy, others did mention changing their habits. There was a contrast between the amount of food eaten during pregnancy, as several participants in Oaxaca and Puerto Escondido mentioned being very hungry during their pregnancy, while some participants in Puerto Escondido mentioned having trouble eating or keeping food down due to nausea. Some participants from Oaxaca City mentioned not consuming meat during their pregnancy due to nausea. More than several of the participants in both cities mentioned that the food they ate was based on their pregnancy cravings, while several participants in Oaxaca City and Puerto Escondido mentioned eating food exclusively to have a healthy baby. Many of the participants from both Oaxaca City and Puerto Escondido mentioned eating what they refer to as "junk food" before getting pregnant, changing their eating habits during pregnancy, and continuing to eat healthy now that they have children. Only a few participants mentioned not following recommendations from physicians or family members on what to eat.

> "About three months or so, no, I hardly ate because he (the baby) made me very nauseous. Everything I ate, I would throw it up, I would throw it up and so on, so what, I did try, I tried to eat a little bit of fruit or drink some *atole* (traditional hot beverage made from ground corn dough), something like that so that it would more or less stay in my stomach, because even so I was vomiting" (Participant #12, age 31, Puerto Escondido)

Employment obligations and financial difficulties negatively impacted the nutrition practices of these women during pregnancy. Some of the participants in both locations mentioned that they worked during their first pregnancy, but because of work commitments, they were unable to eat during their work hours. Five of them mentioned eating during their pregnancy what they considered to be quickly prepared and consumed, such as sandwiches and smoothies. Nearly a quarter of participants from both locations mentioned having financial difficulties during their pregnancy that directly impacted their means to buy food. One of these participants lived in the countryside at the time and ate what was available, while the ones that lived in the city mentioned eating what was affordable at the time.

> "Well, (when pregnant) I would skip meals a bit, since I worked, I didn't have time to eat sometimes." (Participant #24, age 28, Puerto Escondido)
> "Well right now, right now I eat *chepiles* (a leafy vegetable) or sometimes when there is, well, like chicken, when there isn't, well, some eggs, beans...(Why I didn't eat that during pregnancy) Because sometimes I could not afford it." (Participant #19, age 41, Puerto Escondido)

Related to nutritional knowledge, some participants have gained information from their own educational experience. For example, two participants from Puerto Escondido obtained it when they were in high school or college, with one of them having experienced leading nutritional workshops at her previous job. More than several participants from both Oaxaca and Puerto Escondido mentioned that some of the nutritional knowledge comes from what their children are currently learning in school or what they themselves learned as students. A number of participants from Puerto Escondido mentioned using the internet to learn more about nutrition during pregnancy, such as by looking for new recipes.

When asked about nutritional supplement consumption, all participants mentioned they started consuming supplements, mostly folic acid and iron, after learning they were pregnant, with a number of participants learning about their pregnancy as late as the third to fifth month of gestation. All participants consumed nutritional supplements, in the form of iron, folic acid, or multivitamins, at least for one month. When the supplements were consumed, all participants mentioned they followed instructions and consumed them daily. Many participants, primarily from Puerto Escondido, took *Materna*, a multivitamin with folic acid, iron, calcium, and zinc, for pregnant and breastfeeding women, or switched to *Materna* half-way through the pregnancy. Most participants who took *Materna* would take it until the end of their

pregnancy. Excluding participants who consumed *Materna*, only a few participants consumed both iron and folic acid for their entire pregnancy, as nearly a quarter of the group would stop one or another after a few months. The main reasons for stopping nutritional supplement consumption during pregnancy were side effects or chronic health conditions (mainly vomit, constipation, and hemorrhoids), physician's recommendations, and personal decisions.

> "I followed very precisely all my supplements, including pregnancy vitamins." (Participant #20, age 34, Puerto Escondido)

Only a few participants mentioned that geographical distance or economic means were barriers to obtaining supplements. Some participants from both locations continued to consume some form of nutritional supplement, most commonly iron or vitamins, after giving birth, but one of the participants from Puerto Escondido reported stopping consumption, even when recommended by physicians, due to economic difficulties in acquiring the supplements.

> "Yes, because you have to come here because where we live there were no pharmacies and we had to come here to buy it… And if there is no car, you have to wait 2 hours." (Participant #6, age 24, Oaxaca City)

Theme 2. Female family members as primary source of nutritional knowledge and food support

For the majority of the participants in both locations, the main source of nutritional knowledge and practices during pregnancy came from their older family members, particularly their mothers, grandmothers, and mothers-in-law. Examples of guidance provided by elder female family members included drinking *atole* (a traditional Mexican hot beverage made from ground corn dough), recommendations on how to deal with cravings, and avoiding pork, spicy foods, and certain seafood. Particularly among participants who gave birth via cesarean section (C-section), nutritional guidance for the postpartum period came from their female family members. While recovering from a C-section, not eating pork for up to six months during the postpartum period was a practice mentioned by some participants, guided by their mothers, grandmothers, or mothers-in-law. For women who delivered via C-section, support from their mothers and mothers-in-law was constantly present by cooking special food for participants.

"Well, older adults always tell you to "eat this because it is very good"" (Participant #2, age 31, Oaxaca City)
"Sometimes (my mom) would tell me " don't eat that because it will make you sick" and sometimes I would be tempted but (I) said "no"... Because my baby comes first, my craving doesn't matter" (Participant #15, age 30, Puerto Escondido)

Mothers and grandmothers were also a support for many participants in food acquisition, as they cooked or brought food for participants during their pregnancy. Elder female family members also provided tips and recipes on what to cook with the ingredients available. Other examples of family support during pregnancy include reminding participants about taking nutritional supplements.

"Well, my grandmother was the one who lived with us, since (other family member) worked, my grandmother stayed with me. She was the one who would get food and then if we got to eat sometimes, we would cook together" (Participant #3, age 29, Oaxaca City)
“(our grandmother was) very attentive because she said (to prepare) an *enchilada pobre* (translated as enchilada for the poor), that is not expensive but is delicious… she taught us that food that you have always liked, that she doesn't have much, she only has garlic, tomato, onion and a little bit of cinnamon, and a guajillo chili, nothing more” (Participant #2, age 31, Oaxaca City)

Theme 3. Support from husbands and other members of women’s social network

The role and support from other members of the social network of these women during pregnancy were briefly described during the interviews. For example, participants’ partners or husbands were particularly mentioned regarding food acquisition. Food consumed by participants during pregnancy was mostly acquired by themselves or their partner. Most of the participants mentioned that while they were the ones who decided what to eat or buy, their partner was the one who would physically go grocery shopping or get takeout food.

"My husband is the one who has worked, he is the one who brought us the groceries." (Participant #1, age 38, Oaxaca City)

Some participants mentioned that their partners or former partners disliked the idea of them visiting health centers during the pregnancy, discouraging participants from attending a health facility to receive prenatal care and nutritional advice.

Participants' fathers were mentioned a few times by supporting them financially, to pay for private health care services during pregnancy, or by providing food to the participants. Only three participants, one from Puerto Escondido and two from Oaxaca City, mentioned consuming the food they or their fathers grew, as most participants mentioned acquiring food at local markets, local butcher shops, and local produce stores.

Participants also mentioned obtaining referrals or recommendations on medical services to receive or request during pregnancy from friends and neighbors. This was more frequently related to the suggestion of consuming *Materna*, a brand of nutritional prenatal supplement, as a number of participants used or switched to this brand after the recommendation from family members or friends. Family members and friends who were physicians or former midwives were also sources of information for some participants in relation to nutritional guidance and knowledge.

Theme 4. Medical guidance for nutrition during pregnancy

Participants discussed extensively the nutritional guidance they received from health care providers during their pregnancy. Participants who received prenatal care from private physicians were the ones who were told more information about nutrition by their provider through their one-on-one prenatal care appointments. The most common pieces of information received were examples of foods to eat. Some participants from Puerto Escondido mentioned that they received nutritional education through talks at the health center. Another participant from Puerto Escondido mentioned learning about nutrition through medical brigades when she lived in a small town in the state of Oaxaca.

> "(the doctor told me) about eating vegetables, eating a lot of vegetables, a lot of fruit. Gelatin, which is for bone calcification. A lot of legumes, um, drinking a lot of juices, a lot of liquids, so that both me and my baby, um, would get stronger. (Participant #1, age 38, Oaxaca City)

Participants in both cities mentioned that the knowledge taught by health professionals was around the *el plato del bien comer* ("the eatwell plate") (**see Supplemental Figure 2.1)**, a food guide used by the Mexican government for nutritional guidance. Many participants in Oaxaca City mentioned knowing about *el plato del bien comer* through visual information such as educational flyers at health

centers, while some participants from Puerto Escondido commented on how health professionals, specifically physicians and nurses, used *el plato del bien* comer to teach them about nutrition. Nearly a quarter of the participants also mentioned receiving materials about diets and foods to consume or not consume during their prenatal appointments without explanation about the diet or nutrition itself.

> "(the private doctor) taught me about the *plato del bien comer* (the eatwell plate). But it's up to me, then. Yes, I knew that I had to eat well." (Participant #24, age 28, Puerto Escondido)

Several participants from Puerto Escondido previously attended private nutritionists, when not pregnant, to lose weight and had gained nutritional knowledge from those appointments. While one participant from Puerto Escondido visited a dietitian during her pregnancy, due to her presenting gestational diabetes, while another participant from Oaxaca City received a nutritional orientation from a private endocrinologist during her pregnancy due to a thyroid condition.

> "I have thyroid (disease) and my son could have been born with some malformation or mental disability. So, they gave me a diet because I could not eat certain foods, coffee, I could not eat gluten." (Participant #3, age 29, Oaxaca City)

The COVID-19 pandemic affected the health services, including the nutritional guidance these women were provided during pregnancy and delivery. Between 2020 and 2021, a few participants had problems finding a location where to give birth, as public institutions were not completing deliveries due to the pandemic. This disconnection was also found in the nutrition education shared with the participants by physicians after delivery. Not all participants got nutritional guidance for their postpartum period. Participants who gave birth in a private setting and those who delivered via C-section expressed receiving nutritional guidance for their post-natal period.

> "First, rather, first, they transferred me to another clinic in Valles Centrales. They took me there but since it was the pandemic time no, there were not, there were no doctors or anything, and on top of that, my delivery wasn't normal, it was a cesarean section." (Participant #7, age 27, Oaxaca City)
> "The older one was born at a public hospital in Valles Centrales and the younger one at a private (facility). Because of the pandemic… they did not want to accept me at any health center" (Participant #15, age 38, Puerto Escondido)

Theme 5. Quality and gaps in the broader health care system and social services

The last theme identified corresponds to gaps in prenatal health services that directly or indirectly affected the nutritional knowledge and practices of women during pregnancy, which were common among participants. These include delayed care, difficulties obtaining nutritional supplements, and experience with different forms of social services. Delayed care in the public health care system was common, particularly in Oaxaca City, as more than several of the participants mentioned they would have to wait for the physician, who at times would not show up. Some participants mentioned that to avoid this, they would instead go to a pharmacy, where they did not receive nutrition education, or a private physician to receive services.

Several participants had to move from receiving services from public to private health institutions during one of their pregnancies due to health conditions developed during pregnancy. Some participants from Oaxaca City who started their prenatal care at a public health care setting switched during their pregnancy to receiving prenatal services from private physicians and facilities due to pregnancy complications. One participant in Oaxaca City who was in her second trimester with her second child at the time of the interview had recently started her prenatal care in a hospital that was hours away from her, as the staff from her local health center had been on leave and the participant had not received prenatal care for the first half of her pregnancy.

> "Well, at times, the doctor doesn't come or, no, or sometimes the doctor comes late. They make us wait a long time." (Participant #1,age 38, Oaxaca City)

Several participants who received prenatal care services in public health centers would have to buy nutritional supplements due to stock-outs at the health center. Some participants from both cities mentioned having to buy iron or folic acid at least once during their pregnancy due to stock-outs at the health center. Particularly in Oaxaca City, most women who had more than one pregnancy received their nutritional supplements without cost at a health center for their older child. For the participants in Oaxaca City who had a recent pregnancy, most had to buy their supplements, as these were no longer provided or were stocked out by the health center. In Puerto Escondido, nutritional supplement supply was almost

always available for women who received prenatal care in health centers, for recent pregnancies and earlier pregnancies.

> "Just (have to buy) the pill (supplement), the consultation is free and the pill when there is no (at the) clinic, they gave us a prescription to buy it." (Participant #5, age 21, Oaxaca City)

When asked about their experience with *Prospera*, Mexico's former Conditional Cash Transfer (CCT) program, some participants mentioned having received support from this program; however, they either received it after giving birth or when they were minors living with their parents. One participant from Oaxaca City who had previously received *Prospera* mentioned that the monetary support was not used for nutritional purposes and was rather used to pay for their children's school supplies. While former *Prospera* participants remember receiving education classes, they did not specifically remember the health and nutrition education provided by this CCT program. A few participants from Oaxaca City mentioned the difficulties of being able to join *Prospera* due to the paperwork required and the involvement of political parties in the decision on who could join this CCT program. One participant did suggest the need for *Prospera* to come back, as a lot of low-income people need this type of support.

> "Well, well, for the *Prospera* program to come back again...Yes, so that, well, more than anything, there are people who are low-income. Well, right now as now, a birth is expensive." (Participant #7, age 27, Oaxaca City)

In relation to other social services used by participants, very few had experience with them. The ones who had received some form of social service received it in monetary form and were unsure of the name of the social program they were enrolled in or called it a scholarship. A few participants from Puerto Escondido described receiving economic support in the past as working mothers.

Discussion

The objective of this qualitative study was to explore the nutritional practices of Oaxacan women during pregnancy, the nutritional education and knowledge obtained during this period, and their acquisition and use of prenatal supplements. We were able to put into context, using the Ecological

Systems Theory and the Intersectionality Framework, how the different social positions of these women during pregnancy and the different relationships at the meso- and macro-levels influence their nutritional knowledge and practices. The present study demonstrates of the lived nutritional realities of women during pregnancy, shaped by their decisions and experiences, as well as those around them. Our findings show that women in Oaxaca City and Puerto Escondido primarily get basic nutritional knowledge during their pregnancy from family members and healthcare providers. Our results suggest that during pregnancy, women in Oaxaca City and Puerto Escondido have strong social support from their mothers, grandmothers, mothers-in-law, and partners. Nutritional practices and knowledge varied among women based on their working status, education, living location (including geographical location), and health issues during pregnancy, while for some, their prenatal care access and services varied based on their marital status and living location. This study also shed light on the use of nutritional supplements during pregnancy, as well as the different ways these are obtained by women in Oaxaca, depending on the prenatal care location, recommendations from family and healthcare providers, as well as preference and experience taking a specific brand.

The lived experiences of women residing in Oaxaca and Puerto Escondido revealed that their nutritional practices during pregnancy varied based on the intersectionality of their multiple social positions. For example, several of the participants who were employed while pregnant mentioned skipping meals during their prenatal period because of work. This is consistent with prior research completed among the Mexican population that suggests that skipping meals is associated with lower socioeconomic status and lower levels of educational attainment, as well as an intergenerational cycle of poverty.(123) Our participants also mentioned having financial difficulties during their pregnancy to access food. Close to 45% of women in Mexico live in poverty (124), while specifically in the state of Oaxaca, almost 33% of women lack access to nutritious and quality food.(125) However, specific information about economic vulnerability among pregnant women in Mexico, and particularly in the state of Oaxaca, is unknown. Several of the participants also mentioned geographical distance as an issue in obtaining nutritional supplements and accessing health care services during the prenatal period. The distance to travel was also found to be a main barrier, primarily for women, to use health services in Central Mexico.(126) The literature shows that maternal outcomes are influenced and interconnected by

vulnerabilities, such as limited access to economic and healthcare resources.(127) While our results show that Oaxacan women are resilient and find ways to eat during pregnancy, such as growing their own food, finding ways to cook with the ingredients they have, and acquiring food from their family members, particularly their mothers, more research is needed to further understand how different vulnerabilities affect their pregnancy and the nutritional gaps these women have because of financial difficulties.

Themes one and two, in particular, informed what types of foods were eaten by Oaxacan women during their pregnancy and the reasons behind these practices. As described for theme two, pork, spicy food, and certain seafoods were some of the main foods that family members, particularly mothers and grandmothers, told participants not to consume during their pregnancy. Pork, fats, and coffee have also been mentioned in the literature to be considered by Mexican women as harmful foods that should not be consumed during pregnancy and the postnatal period.(128–130) *Atole* was a beverage recommended to participants by family members and health care professionals during pregnancy and after birth. A study found that pregnant women in Mexico City commonly practiced drinking *atole* to enhance breastmilk production.(131) The limited literature on nutritional habits in pregnant women in Mexico has found that beans, fruit, vegetables, bread, *sopa de pasta* (a broth-based pasta soup), and *atole* are commonly consumed during the prenatal period in the central states of Zacatecas and Jalisco.(128,130) Most of these foods were frequently mentioned by participants in Oaxaca City and Puerto Escondido as what they commonly consumed during their pregnancy. While that research focused specifically on women with high-risk pregnancies, these findings were similar to ours in terms of some women changing what they eat during pregnancy in order to have a healthy baby. Similar to our findings, a study among Mexican-born women living in the Northeastern United States (U.S.) also found that mothers who experienced their pregnancy in Mexico or the U.S. also transitioned their nutritional practices to foods of greater nutritional value. While the findings suggest that nutritional practices during pregnancy might be similar across the country and among Mexican women living in the U.S., future studies should be completed among the pregnant population in other states to better understand the dietary practices of women from different geographical regions during their prenatal period.(132) For example, while a recent study among men and women in Mexico suggests that people from Northern Mexico eat more fish, meat, and eggs and less maize and fruits than people from Southern and Central Mexico, this research excluded pregnant

women.(133) Understanding the nutritional practices of women during pregnancy and whether these are maintained or change by geographical region could help local, state, and national programs tailor programs that follow the nutritional practices of each population.

Our findings highlight the importance of female family members, particularly mothers and grandmothers, in the participants' pregnancies, related to guidance on nutritional practices as well as acquiring and preparing food. To our knowledge, this is the first study completed in the state of Oaxaca that studies the sources of nutritional knowledge during pregnancy, including knowledge and support from family members. Other studies in Mexico have also studied the support of mothers and grandmothers in maternal nutrition, but more particularly related to breastfeeding. Still, most of these results are similar to what we found in Oaxaca. For example, a mother-infant dyad study in the state of Yucatan found that receiving advice from grandmothers during the mothers' pregnancy was positively associated with child nutritional status, and mothers without that type of support reached for emotional and informational support from other female relatives.(134) Two studies, one in the central state of Morelos and another one in three rural unnamed communities in Mexico, found that grandmothers and mothers-in-law are the leaders in the family in terms of health advice and promotion.(135,136) A study in Indigenous communities in Central Mexico found that grandmothers provide nutritional knowledge gained from previous generations to their daughters and other women, regardless if they are part of their family or not.(137) The same study also found a difference in terms of breastfeeding and infant nutrition knowledge passed from grandmothers and health providers, which confuses mothers on what advice to use.(137) In our study, there were no contradictions between the nutritional information provided by mothers and grandmothers compared to healthcare providers. However, the objective of this research was not to compare nutritional knowledge between family members and healthcare professionals for pregnant women.

Related to the use of nutritional supplements during pregnancy, while all participants took some form of nutritional supplement for at least one month during their pregnancy, it was common for participants to stop consuming these after a few months. We believe this is the first qualitative study that explores nutritional supplement consumption during pregnancy in the state of Oaxaca. There are several quantitative studies that have been completed among Mexican pregnant women on either nutritional

supplements or their iron levels. For example, low iron consumption among pregnant women has been found in Mexico City.(138,139) These quantitative nutritional studies on pregnant women have been mostly completed in northern and central Mexico, while Oaxaca is located in southern Mexico, and the traditions among northern, central, and southern Mexico vary greatly.(78,128,138,139) A study found that most pregnant women know about the nutritional requirements in iron and fiber needed during gestation; however, only half know about the protein and calcium required during this period.(140) While in our study we did not ask specifically about knowledge and consumption of different vitamins and minerals, as all of our participants consumed nutritional supplements for at least one month, our results suggest that women in Oaxaca are aware of the higher nutrient requirements during the prenatal period. In our study, many participants from both Oaxaca City and Puerto Escondido did not comply with nutritional supplement consumption for their entire pregnancy, and many, particularly in Oaxaca City, struggled to get nutritional supplements from local health centers. Also, some participants mentioned not starting their prenatal care and nutritional supplement consumption until the third to fifth month of pregnancy. These results match recent quantitative data that found that in the state of Oaxaca, none of the health units comply with adequate vitamin supplementation for pregnant adolescents, while close to 20% of women in Oaxaca do not start their prenatal care during the first trimester of their pregnancy.(141,142)

From our results, women, particularly in Oaxaca City, had gaps in their health services during the prenatal period that directly or indirectly affected their nutrition knowledge and practices and the acquisition and use of nutritional supplements. The literature has found that Mexican women living in rural areas, Indigenous women, those without health insurance, and women with lower socio-economic levels have worse coverage of the antenatal and delivery continuum of care, and there are greater gaps in health services during the prenatal and postnatal periods.(85) A recent study found that 20% of health units in Oaxaca comply with adequate follow-up with patients during pregnancy, still higher than other states such as Veracruz and Yucatan.(141) Most of our participants in this study did not have health insurance, and all were from lower socio-economic levels, confirming, at least in the capital city, that there are health disparities in the coverage of antenatal care for women with these characteristics.

Several of the participants mentioned having delivered at least one of their children via C-section. This is not a surprise, as Mexico has one of the highest rates of C-sections in the world.(143) While there

is limited information on the high prevalence of C-sections in the state of Oaxaca, some of the reasons behind this include monetary incentives to perform unnecessary and excessive C-sections, which leads to obstetric violence.(144) Impatience from medical professionals and unjust training practices are other reasons that have been found to explain why C-sections are chosen to be performed over vaginal delivery.(144) Future research should further examine if there is a relationship between the high rates of C-sections and the nutrition knowledge and practices of women during the postnatal period in Oaxaca and the rest of the country. Also, public and private health care facilities should standardize the nutritional guidance given to women after C-section during the postnatal period to reach all women who need to follow additional nutritional guidance after the pregnancy. While many of our participants received nutritional guidance after a C-section, some did not receive nutritional information from health care professionals after this procedure. The state of Oaxaca has one of the highest percentages of deliveries attended by midwives in Mexico (7.1%), as well as being the state with the third lowest percentage of physician-based delivery (88%)(145); yet none of the participants from either of the locations where the interviews took place mentioned receiving any form of care by a midwife during pregnancy or delivery. As all of the recruitment and interviews completed in Puerto Escondido were in a health center, and all participants in both cities received their prenatal care from public or private health institutions in the state of Oaxaca, our results could add to the previous literature that has found that while professional midwifery is recognized in Mexico, it is still marginalized by organizational structures in healthcare.(144)

Strengths and Limitations

To our understanding, this is the first qualitative study to explore the nutritional knowledge and practices of Oaxacan women during pregnancy. A strength of this study was the use of different theoretical frameworks (Ecological Systems Theory and the Intersectionality Framework) and an inductive analytical methodology (Grounded Theory) to inform the interview guide, data coding and analysis, allowing for data collection and result analysis to be guided by different lenses grounded in participant experience. While there are some studies related to nutrition in Mexico using the Ecological Systems Theory, particularly related to breastfeeding (146,147), to our knowledge, this is the first research in Mexico that uses the Intersectionality Framework as well as an adaptation of both frameworks (the

Ecological Systems Theory and the Intersectionality Framework) in nutrition during pregnancy. While there is a vast literature related to food insecurity in Mexico (45,148,149), including specific to the state of Oaxaca (150), most research related to food accessibility and consumption excludes pregnant women from their measurement. Our research provides specific information based on the experience of women in their pregnancy and yields evidence to understand the nutritional inequities they suffer during the prenatal period based on their position in society, such as their working status, living location, and education.

One potential limitation of this study was the small number of participants interviewed in the city of Oaxaca due to recruitment challenges. However, data saturation was reached. Also, while interviews were completed in rooms to secure participant privacy, some of the women who participated had different distractions, such as having to take care of the children, which could have potentially led to under-reporting of nutrition knowledge and practices during pregnancy. While the study was conducted in two cities of the state of Oaxaca, recruitment in the city of Puerto Escondido was exclusive to women present at one health center, and results from this study might not be representative of other urban areas or in rural areas in the state of Oaxaca or in other regions in Mexico.

Conclusions

A healthy diet during pregnancy is necessary for the short- and long-term health outcomes of the mother and the child. It is essential to understand the nutrition knowledge and practices women follow during the prenatal period for policies and programs to address potential barriers and enhancers to achieving the daily nutritional requirements during pregnancy. The results of this study are consistent with the Intersectionality Framework and the Ecological Systems Theory, as the nutritional knowledge and practices of Oaxacan women during pregnancy are impacted by the multiple social positions and characteristics women have and the different factors at the individual, group, and structural level, respectively. While health care professionals provide nutritional information for women during pregnancy, our results highlight the strong support from family members, particularly mothers and grandmothers, in providing nutritional knowledge and helping obtain or prepare food during this period. While women in Oaxaca consume nutritional supplements during pregnancy, only some consume them for their entire

pregnancy. Future research should further examine the prevalence of micronutrient deficiency among Oaxacan women during pregnancy to better understand the effect of limited nutritional supplement intake during the prenatal period. Learning from the perspective of health care professionals in the public and private sectors about how nutrition education is delivered and the misconnections between provider and patient related nutrition during this important time is a critical aspect to further pursue. Finally, while women rely on the support of family and health care providers, their own life experiences and decisions shape their nutritional knowledge and practices during the prenatal period. Our study provides a foundation for the knowledge and practices of Oaxacan women during pregnancy; however, additional research is required to further understand the potential gender and social gaps to address the nutritional inequities these women present during pregnancy.

Acknowledgements

Chapter 2, “Nutritional Knowledge and Practices of Low-Income Women During Pregnancy: A Qualitative Study in Two Oaxacan Cities” in full, has been submitted for publication, to the Journal of Health, Population and Nutrition. Co-authors include Drs Kathryn M. Barker, Samantha Hurst, Rebecka Lundgren, Amanda C. McClain, Ramona L. Pérez, and Elizabeth Reed. The dissertation author was the primary investigator and author of this material.

Tables and Figures

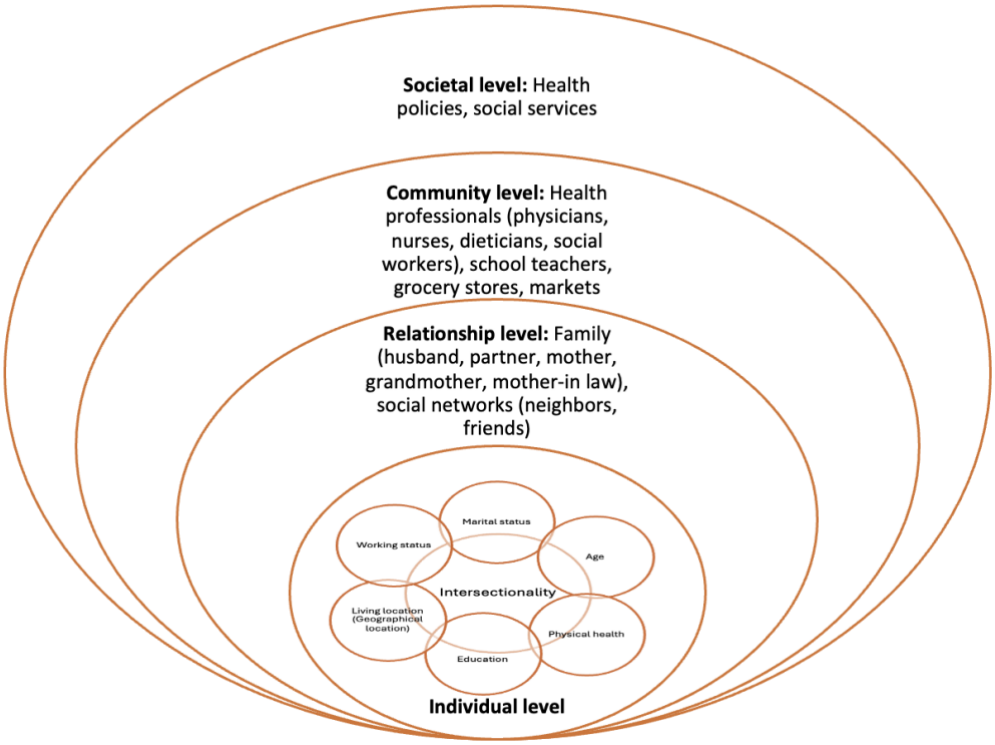


Figure 2.1 Adaptation from the socio-ecological model and intersectionality framework depicting the nutritional knowledge and practices among Oaxacan women during pregnancy

Table 2.1 Characteristics of women participating in semi-structured interviews in two cities in Oaxaca (n=25)

Characteristic	**n (%)**	**Characteristic**	**n (%)**
Age, y		**Place of birth**	
20-25	8 (32%)	State of Oaxaca	23 (92%)
26-30	5 (20%)	Mexico City	1 (4%)
31-35	6 (24%)	Baja California	1 (4%)
36-40	3 (12%)	**Current health insurance**	
40-42	3 (12%)	No	23 (92%)
Marital Status		Yes	2 (8%)
Lives with partner	12 (48%)	**Number of pregnancies**	
Married	10 (40%)	1	7 (28%)
Single	3 (12%)	2	9 (36%)
Highest Educational attainment		3	7 (28%)
No education	1 (4%)	5-7	2 (8%)
Elementary school	4 (16%)	**Food security status***	
Middle school	14 (56%)	Food secure	5 (20%)
High school	5 (20%)	Low food security	15 (60%)
University degree	1 (4%)	Moderate food security	4 (16%)
Current employment		Severe food insecurity	1 (4%)
Stay at home	17 (68%)	**Indigenous belonging**	
Employed	8 (32%)	Yes	14 (56%)
		No	11 (44%)

*Measured using the eight-item adult version of the Latin American and Caribbean Food Security Scale (ELCSA) survey.

Chapter 3. Use of Social Media for Activism by Mexican Non-Governmental Organizations: Thematic Content Analysis of Posts from the 16 Days of Activism Against Gender-Based Violence Campaign

Introduction

Violence against women and girls, also commonly referred to as gender-based violence (GBV), is one of the world's most persistent forms of human rights violations and a major problem in the public health and clinical health arenas.(151,152) Gender-based violence continues to be a serious problem in Mexico, as 70% of women aged 15 and older have experienced at least one incidence of GBV throughout their lives.(153) GBV takes many forms, and several of these are constant in Mexican society, with psychological (52%) and sexual violence (50%) being the most prevalent forms of GBV in this country.(153) Disappearances and femicide, which is the intentional murder of a female because of her sex, are also common forms of violence in Mexico. Female adolescents make up 80% of the total number of minors that have disappeared in this country, and girls and female adolescents make up 12% of the femicides in Mexico.(154,155) The COVID-19 pandemic increased the risk of violence against women, adolescents, and girls, as females in North, Central, and South America were disproportionately affected by GBV during the pandemic.(156) Particularly in Mexico, domestic violence, which encompasses physical, emotional, sexual, economic, and reproductive violence, as well as neglect, increased by more than 15% between 2020 and 2021.(157) In 2020, the number of emergency calls related to violence against women increased by more than 30% in this country.(158) For the year 2020, there was a 40% increase in requests for support due to GBV.(159) Less known forms of GBV, such as violence at the social and economic levels, were also impacted during the COVID-19 pandemic in Mexico, for example, by the continuous increase in unpaid domestic and care work.(160) While an increase of visibility in digital violence, which involves gender-based acts of violence through communication technology or digital in media such as image-based abuse, cyberstalking, blackmailing, and online harassment was also seen in Mexico in the years surrounding the limitations of social interactions.(160–163)

In Mexico, non-governmental organizations (NGOs) work to fill the gap in social care that governmental institutions leave in the fight against GBV by providing health care, psychosocial support, and legal aid for women, adolescents, and girls suffering from this type of violence.(56) As GBV and gender inequities became more visible during the COVID-19 pandemic, feminist movements, such as

hashtag activism, feminist social activism, and hashtag feminism, in which NGOs actively collaborate, also became more visible.(164) Hashtag activism can facilitate social change, policy formation, and the provision of resources for the public.(165) Feminist social activism, popular since the late 2000's and present in Mexico since 2011, involves feminist individuals and organizations using social media for online civic engagement to denounce GBV and related aspects (such as sexism and gender discrimination), initiate social movements, and connect to share experiences, support, and resources, to name a few.(166) Hashtag feminism is a form of activism that combines hashtag activism with feminist social activism by using specific hashtags across different digital platforms to call for action by sharing information and stories, connecting people, and organizing and mobilizing events against gender inequality.(167–169) NGOs have played a significant role in this by engaging stakeholders and the general public through dialogue and community-building practices, mainly through Facebook and X (formerly Twitter).(170) GBV has been a focus of NGOs campaigns through hashtag feminism in the past decade worldwide and in Mexico.(171–178) An example of this, is the 16 Days of Activism Against Gender-Based Violence, an annual international campaign led by civil society that runs from November 25th, the International Day for the Elimination of Violence Against Women, to December 10th, Human Rights Day.(179,180) The intention of this global campaign is to call for the prevention and elimination of violence against girls, adolescents, and women in all its different forms, including child marriage, sexual harassment, and intimate partner violence, to name a few.(180,181).

Social media is popular among the Mexican population. In 2021, 89.2% of internet users in Mexico connected to the internet daily, and 89.8% used it to access social media.(182) The age groups of 12-17 years (90%), 18-24 years (94%), and 25-34 years (90%) have the highest percentage of internet users in the country.(182) As of January 2022, Mexico ranked 9th in the world for most X users, with 13.9 million users.(183) As of 2021, 40% of the X users in Mexico were women.(184) Similar to what happened in other countries, digital interactions increased during the COVID-19 pandemic in Mexico, and the use of social media to promote strategies against violence, such as support groups, helplines, and screening for violence, became more popular.(185–187)

There is limited literature on hashtag activism and hashtag feminism through X on GBV, specifically on interpersonal and sexual violence (172,188–190) and to our knowledge, there are only a

few publications on feminist social activism in Mexico that are specific to GBV at the local level.(166,191) Further, the X content from campaigns that address the umbrella of different types of GBV by Mexican-based NGOs has not previously been explored. It is critical to understand the public's engagement on GBV hashtag feminist campaigns, as this could inform future GBV campaigns and provide valuable information to NGOs, governments, and researchers for tailored online and offline GBV prevention and intervention strategies. To fill this gap, this research aims to explore the GBV themes that Mexican NGOs posted on X during the annual 16 Days of Activism Against Gender-Based Violence campaign for the years COVID-19 has impacted, 2020 to 2022, and to have a better understanding of what types of messages related to GBV resonate more with the public. We sought to describe the GBV themes raised by Mexican-based NGOs on X during these global campaigns, and based on the public's engagement, how the main content themes of tweets compare between the three different years.

Methods

Data Collection

We used the Zeeschuimer and the 4CAT research tools to capture and download data from online social networks. Zeeschuimer is a browser extension that collects data from social media sites such as Instagram, TikTok, and X, while 4CAT is a research tool that can be connected to Zeeschuimer to store and download the data collected by the browser extension.(192) The advanced search option from X was used to filter based on the following study inclusion criteria: 1) only original content (no retweets); 2) included at least one of the previously mentioned hashtags; 3) published in Spanish; 4) posted by a public X user with "non-governmental and nonprofit organization" as the professional category in order to only collect tweets from local, state, national, or global NGOs; 5) the location of the X user should have been marked as Mexico or a city or state in that country; and 6) posted between November 25th and December 10th of 2020, 2021, and 2022, to align with the dates the campaign occurred.

Data Cleaning

Further data refinement occurred using the following four types of hashtags: 1) the overall name of the campaign: #16días/#16DiasdeActivismo/#16DíasdeActivismo (#16daysofactivism); 2) the first day of the campaign and the International Day for the Elimination of Violence Against Women (November 25): #25N/#25deNoviembre; 3) Orange Day, which occurs on the 25th of each month to create awareness and prevent violence towards girls and women: #DiaNaranja/#DíaNaranja (#OrangeDay); and 4) a related but broader hashtag: #PintaElMundoDeNaranja (#PaintTheWorldOrange). Given that the hashtag #10D, referring to December 10th, the last day of the campaign and Human Rights Day, is also used annually in Argentina for democratic campaigns, we excluded it from analysis as a strategy to ensure data focused on the GBV campaign.

Tweets that included videos (under one minute) and informational graphics were also included, and their information was coded. The tweets captured were downloaded from 4CAT into an Excel spreadsheet between August 21, 2023, and August 28, 2023. A total of 1914 tweets (662 for 2020, 654 for 2021, and 598 for 2022) were collected for the hashtags and time period selected. To avoid duplicates, identical tweets published during the same campaign year were collapsed and considered as one individual tweet.

As the study aims to better understand the diversity of topics tweeted by NGOs in this annual campaign and the engagement of the public, we use the number of likes received by a tweet as the metric to determine the public's interest in and engagement with a tweet.(193) The frequency of likes has been previously used in the literature, including studies on GBV and feminist activism, to measure the public's engagement.(171,189,194–198) Retweets, which have been considered another form of public engagement in which the public contributes and creates content through reposting or forwarding a tweet(172), are not be included in analysis in order to focus on an original and representative set of posts tweeted by Mexican-based NGOs that participated in the 16 Days of Activism Against Gender-Based Violence campaigns.

Based on the exploratory nature of this research, this analysis was limited to the top tweets, based on the number of likes, to investigate the messages that generated more attention and engagement. The sample size for this research was based on previously published literature that has demonstrated that at least 500 tweets are sufficient to identify themes and understand how individuals

engage in health behaviors on X.(199,200) As such, we limited the analysis to the top 200 tweets per year with the most likes (n=600 total tweets) to assess the messages that generated the most attention and engagement from the public. In the event where identical tweets were identified, the number of likes were collapsed and added together.

Data Coding and Analysis

After obtaining and cleaning the data, the final list of 600 tweets was uploaded into NVivo for coding and analysis in the original language. We completed a thematic content analysis to identify and categorize hashtags into themes, identify patterns or themes from tweets, and explore socially produced and reproduced experiences.(171,172,201) The tweets were coded and analyzed in the original language to capture the cultural connotations and local meaning of the messages.(202) An iterative inductive approach was followed for the creation of the codebook by the first author (MM) and two research assistants (YT and JG). Both research assistants are bilingual and were trained in thematic content analysis. Debriefing meetings between the primary author and the two research assistants took place during the coding and analysis process to refine the working codebook, discuss findings and emergent themes, resolve any coding discrepancies, and address any potential questions. The 6-step thematic analysis process, a systematic approach to interpreting qualitative research data involving transcription and familiarization of the data, selection of keywords, coding, theme development, interpretation of themes, and development of a conceptual model, was used throughout the process, as it has been previously used by other researchers in the thematic content analysis of X hashtags in GBV campaigns to familiarize themselves with the data, search for patterns, review, and define themes **(For codebook, see Supplemental Table 3.1)**.(188,203–205) NVivo 14 was the software used for coding and analysis of the data. After the initial analysis, these were translated from Spanish to English by the first author (MM), who is bilingual.

Ethical Considerations

This study used publicly available tweets and did not directly involve human subjects. Because of this, approval from a research ethics committee was not required or obtained. However, we adhered to

ethical guidelines for handling and analyzing publicly available data, ensuring user anonymity and data privacy throughout the research process.

Results

The 200 tweets with the most likes from each year came from 61 different Mexico-based organizations. The number of likes in the top 600 tweets ranged from 9 to 2095. As shown in **Table 3.1**, the hashtag using the campaign's name (16 Days of Activism Against GBV) was the most frequently used hashtag in all three campaign years.

From the thematic analysis of the 600 most frequently liked tweets, five themes emerged across the three campaign years: 1) activism and how to be an activist; 2) types of GBV most commonly tweeted about; 3) changing the narrative and increasing awareness; 4) GBV as a violation of human rights; and 5) the impact of the COVID-19 pandemic on GBV. Within some of these themes, several subthemes that connected with each other were identified. **Tables 3.2-3.6** present the lists of themes and subthemes, as well as supporting tweets in English and Spanish.

Theme 1. Activism and how to be an activist

The description of what the 16 Days of Activism Against GBV campaign is, along with what activism is and how to be an activist, was a main theme among the most frequently liked tweets for the 2020, 2021, and 2022 campaigns. Many of these tweets were invitations to join the campaign or be activists. Frequently liked tweets also stressed that activism to support the rights of women and girls does not stop when the campaign stops but should be practiced on a regular basis. Invitations, live updates, and links to different types of events, such as marches, podcasts, and webinars organized during the campaigns, were also among the most frequently liked.

Some of the most frequently liked tweets included different types of communication materials used by the different NGOs that explained what the campaign was for, why, and how to be an activist were included in the tweets, such as songs, videos, short capsules, and celebrity involvement. Particularly in the 2021 campaign, frequently liked tweets included attached images with quotes related to the campaign from musicians, politicians, ambassadors, NGO directors and representatives, and

presidents of private and sports industries were frequently liked. See **Figure 3.1** for examples of visuals used in frequently liked tweets for the 2020, 2021, and 2022 16 Days of Activism Against GBV campaigns.

While most frequently liked tweets from Mexican-based NGOs were generalized to the country or provided data at a national level, specific activities and examples of GBV cases that have occurred in different municipalities in Mexico, such as Mexico City, Tijuana, Tapachula, Huixquilucan, Naucalpan, Lerma, and Palenque, and at the state-level in places such as Chiapas and Estado de México, Tlaxcala, and Oaxaca, were commonly present in frequently liked tweets for the three campaign years. Three tweets with examples of GBV in Honduras, El Salvador, and the region of Latin America and the Caribbean were also found in this analysis. See **Table 3.2** for selected quotations representing this theme.

Theme 2. Types of GBV most commonly tweeted about

Many of the frequently liked tweets for the three campaign years were information about a specific type of violence. Sexual violence was the most common type of violence found in these tweets, followed by messages related to trafficking, disappearances, and femicide. Data on the number of femicides or women and girls who have disappeared in the country and advice on what needs to change to prevent trafficking are examples of the most common messages on the tweets related to these topics. Specific examples of women who have suffered from GBV, particularly sexual violence and torture, were also included. Violence at home, physical violence, and digital violence were other forms of GBV that were also commonly present in these tweets. The latter was particularly paired in 2020 with messages related to GBV and the COVID-19 pandemic. Data related to the increase in digital violence and tweets to describe what digital violence is were the most popular types of tweets related to this form of violence.

Other forms of violence, such as lack of access to sexual and reproductive resources, obstetric violence, vicarious violence, and precarious work, were part of frequently liked tweets, but they were not as common as sexual violence, femicide, and digital violence. Violence against women in the form of harassment in specific locations, such as school and at work, was also highlighted by the campaign. See **Table 3.3** for selected quotations representing this theme.

Theme 3. Changing the narrative and increasing awareness

One of the main aspects related to increasing awareness and engagement against GBV highlighted in these tweets involves changing the narratives surrounding GBV in Mexican society. These tweets called for the public to move from blaming the victim to actually believing the victim, changing the language, and who GBV perpetrators are. A description of how violence is not always physical but is structurally based in society was also frequently liked in these campaigns. Some of these examples included believing the victim, not excusing the perpetrator, and reporting any form of violence. Many of the tweets involved the message of having to change as a society, along with individual actions.

During the three campaign years, two big societal institutions were included in the frequently liked tweets as members of society with a responsibility to engagement and make changes towards GBV. These were health care professionals and people in leadership positions, particularly governments. The frequently liked tweets provided reasons for the importance of these groups in combating GBV while also providing examples of what these institutions can do.

Most tweets were not targeted at a specific gender; however, some did aim towards males and their role in eradicating GBV. Other frequently liked tweets were focused on the female public, and other tweets were specific to inviting both males and females to become activists and eradicate GBV. Throughout the three campaign years, the frequently liked tweets provided specific information about GBV towards women or women and younger girls, while a few frequently liked tweets included adolescents in the messages, and when included, the tweets were about violence against younger girls and adolescents, or against younger girls, adolescents, and women. See **Table 3.4** for selected quotations representing this theme.

Theme 4. GBV as a violation of human rights

Tweets related to GBV as a human rights concern that rooted in gender inequalities and power imbalances were also common in the three campaign years. Along these lines, tweets that stated the importance of equity and justice for girls and women were frequently liked in the three campaign years. Particularly for 2020 tweets related to justice and equity, many frequently liked tweets described real-life

events of women in Mexico who have experienced sexual violence, wrongful convictions, and unjust incarcerations.

Following the lines of GBV as a human rights violation and a form of discrimination, violence towards specific vulnerable groups, such as people with disabilities, migrants, and sexual minorities, was also found in the frequently liked tweets for the three campaign years, especially 2022. The two most common messages among tweets related to vulnerable groups were: 1) events to visualize the GBV that migrants suffer in Mexico; and 2) transmitting the message that vulnerable populations are at a higher risk of experiencing GBV. See **Table 3.5** for selected quotations representing this theme.

Theme 5. The impact of the COVID-19 pandemic on GBV

Finally, a common theme among 2020 tweets, but not common in the 2021 and 2022 campaign tweets, was the impact of the COVID-19 pandemic in GBV in Mexico. Related to GBV and the COVID-19 pandemic, the frequently liked tweets from the 2020 campaign mainly provided resources to people suffering from GBV or people providing support to victims of GBV, highlighted the importance of the resources for GBV victims during this time, and shared data or examples of how the pandemic increased GBV during the lockdown period in Mexico. See **Table 3.6** for selected quotations representing this theme.

Discussion

Using data from three years of social media activism by Mexican NGOs on X, we find that messaging surrounding the 16 Days of Activism Against GBV center on: types of GBV most commonly tweeted about, activism and how to be an activist, types of GBV most commonly tweeted about, changing the narrative and increasing awareness, GBV as a human rights violation, and the impact of COVID-19 pandemic on GBV. The tweets from this campaign that were frequently liked by the public reflect some of the biggest societal issues currently present in Mexico. Through this research, we not only expected to explore the main themes related to GBV in the frequently liked tweets for the three campaign years of the 16 Days of Activism against GBV but also compared themes across these years. However, three of the five main themes identified—the types of violence against girls and women, activism and how to be an

activist, and increasing the public's awareness and engagement—were present in the three campaign years. Only the themes on the impact of the COVID-19 pandemic on GBV and GBV as violation of human rights were more prevalent in a particular year. For example, tweets that included messages related to GBV as a human rights violation and a form of discrimination were particularly common among the tweets analyzed in 2021 and 2022. As this theme progressed in interest through the years, future research on the 2023 campaign and future campaigns could help better understand this topic and how it has progressed in Mexican society through the last few years.

Our results show that posts related to what activism is and how to be an activist were some of the most frequently liked tweets among X users for the 16 Days of Activism against GBV campaign. The activism done in this annual campaign educates the public on GBV through tweets that show the information in different ways, such as through videos, songs, data, infographics, and citing influential people, to name a few. Similar to what other studies have found related to digital activism, the tweets from this campaign provide information that makes the problem of GBV visible among the X population and helps denaturalize GBV in Mexico.(206,207) A mixed-methods study published in 2018 analyzed whether GBV activism through Facebook creates sisterhood among followers. (178) This study highlighted that the sisterhood created on Facebook through the interaction and creation of groups and communities is translated into activism online and offline on this platform, while specifying that the lack of groups and communities on the X platform does not allow this sisterhood to be created among X users.(178) However, we suggest further analysis on X is needed to understand the potential of activism developing a sisterhood on this social media platform through retweets, replies, and other communication tools present on this platform.

Related to the different forms of GBV, sexual violence was the main form of violence highlighted in the tweets analyzed. This resonates with the prevalence of sexual violence among the Mexican population, as this type of violence is the second most common form of GBV in Mexico.(153) Sexual violence prevalence among women ages 15 and older increased from 41.3% in 2016 to 49.7% in 2021.(153) Digital violence was another form of violence featured in the campaign tweets. Digital violence soared in 2020 as a consequence of the COVID-19 pandemic. (208) This type of violence has continued to increase after the pandemic and affects girls and adolescent girls more than their male counterparts.

Between 2021 and 2022, more than 33% of Mexican girls and female adolescents in Mexico with access to a phone or internet experienced some form of digital violence, compared to 12-18% suffered by boys and male adolescents.(209) As both forms of GBV continue to increase, the 16 Days of Activism against GBV campaign, as well as other NGO and non-NGO-based campaigns and prevention and intervention strategies, should focus on sexual and digital violence in girls, adolescents, and women in Mexico.

Some forms of violence, such as economic violence, which are less identified by the public, were also part of the frequently liked tweets for these campaigns; however, more commonly known forms of violence, such as sexual violence and intimate partner violence, had tweets with more likes. Still, by having information on less popular forms of GBV known by the public, the 16 Days of Activism against GBV campaigns are educating the public and providing tools to identify more types of violence. There are forms of GBV that are less commonly known by the public, but this does not necessarily mean that these forms of violence are less prevalent. For example, Mexican national data has found that economic violence, which is not a well-known form of GBV in the country compared to physical, psychological, and sexual violence, is the most common form of GBV in the workplace, with aspects such as schooling and age further affecting women's labor participation.(210) Other examples of forms of GBV that might not be well-known by Mexican society but are commonly present and are also described by frequently liked tweets from these campaigns are vicarious violence, lack of access to sexual and reproductive resources, and obstetric violence, to name a few.

A current social issue represented as a subtheme under the GBV as a human rights violation theme was the violence experienced by vulnerable groups experience in Mexico, including migrant girls, adolescents, and women. Since 2018, caravans of migrants from Central and South America have traveled to Mexico in order to reach the United States, with girls, adolescents, and women being particularly vulnerable to different forms of GBV through their travels in Mexico.(211,212) According to the literature, migrants are more likely to be the victims of human trafficking(211), another form of GBV also present in frequently liked tweets for these campaign years. However, the tweets analyzed did not provide resources that could help prevent human trafficking, as these tweets only had data on the prevalence of this GBV. Specific resources, such as phone numbers, may be more instrumental, particularly in states such as Chiapas, where migrants tend to stay longer and where it has been shown

that GBV is more prevalent for this group.(211) A vulnerable group not mentioned in the frequently liked tweets analyzed are Indigenous girls, adolescents, and women, even though they have consistently experienced GBV, structural, and institutional violence.(213,214) It is unknown if tweets with fewer likes, and thus not included in these analyses, specifically mentioned this vulnerable group in posts by NGOs during these campaign years. Future research on this topic is suggested to better understand not only the public's interest or awareness also to identify different vulnerable groups that are not represented or addressed in national-based campaigns or are not receiving broader support through recognition (likes).

A notable finding in this study regarding activism is that frequently liked tweets from this GBV campaign not only urged the public to be activists but also the public sector, specifically people in leadership positions and healthcare providers. For the latter ones, the frequently liked tweets from the three campaign years acknowledged health care professionals as pillars of society to eradicate GBV in Mexico, one of the few countries with laws for the healthcare sector to address GBV at different prevention levels.(215) However, limited research has examined if the Mexican health care sector is addressing GBV with their patients or working in other ways toward prevention. For example, a study completed among healthcare professionals in the states of Quintana Roo, Coahuila, and Mexico City found that while health care professionals are willing to address the issue of domestic violence with their patients, the care and attention needed for this specific type of violence is insufficient.(216) The awareness provided by the NGOs' tweets and the engagement of the public on the vital role of these medical professionals in preventing and eliminating GBV could lead to the healthcare sector and other types of leadership organizations finally taking ownership of their role in reducing GBV.

Our results found that most of the messages on these tweets exclusively mentioned women and younger girls, while few included adolescents. However, in Mexico, 60% of adolescents between the ages of 15 and 17 have suffered from some type of GBV, 40% have suffered sexual violence, and 80% of the minors under the age of 18 that have disappeared in this country are adolescent girls between the ages of 12 and 17.(154,217) Also, different studies have found a high prevalence of GBV in Mexican adolescent girls. For example, a study in the northern city of Tijuana found that most adolescent girls have experienced some form of intimate partner violence, more specifically emotional, sexual, or physical abuse.(218) It is imperative for Mexican-based NGOs involved in future campaigns for 16 Days of

Activism against GBV to be more inclusive of adolescent girls in their tweets and have specific messages towards this age group, as it is vulnerable and in need of information to combat GBV, and to take account of the influence of social media towards adolescents.

Research using social media data to learn more about hashtag activism and hashtag feminism has grown in the last decade. Particularly, published literature on X data to analyze activism against GBV in the world has focused on hashtags in English(188,219) and most of it has been related to sexual violence.(172,189,190,220) Previous examples of hashtag feminism in Mexico include the #MeToo movement in 2017, #SiMeMatan (#IfTheyKillMe), used by women in response to the media and authority's secondary victimization of femicide victims, and #MiPrimerAcoso (#MyFirstAssault) in 2016, related to childhood sexual abuse, to name a few.(221) Some of these hashtags have been previously analyzed; however, to our knowledge, we believe this research is one of the first ones that focuses on Mexican-based NGOs, different campaign years, and analyzes more than one hashtag. This study provides important information on the types of messages that Mexican-based NGOs focused on in the prevention and elimination of GBV, as well as what types of messages are of more interest to the public. Future studies could further expand the limited knowledge on hashtag feminism against GBV in Mexico. For example, analyzing the demographics of the X users that liked these tweets would provide context for understanding the population that follows this campaign. Analyzing other campaigns on GBV, as well as the messages published and liked on other popular social media platforms in Mexico, such as Facebook, TikTok and Instagram, are worth pursuing in future studies to further explore and better understand topics related to the prevention and elimination of GBV.

Limitations

While, to our knowledge, this is the first study of its kind to understand hashtag feminist in context of GBV activism among NGOs in Mexico, we acknowledge that this research has several limitations. First, the text content of tweets can only be up to 280 characters. This particular characteristic of X could hinder the amount of content to be shared with the public. While some tweets analyzed in this study included videos or infographics that could further expand the message shared by the NGO, most tweets were messages of less than 280 characters with concise and specific, but also limited, information. Regardless

of the limitations of using X data, this social media platform was utilized for analysis instead of other commonly used platforms such as Facebook, as X offers a diverse dataset and has been one of the main channels used for hashtag feminism.(189) Second, while we collected and analyzed all the text present in the frequently liked tweets, we only analyzed the visual elements from the tweets in the form of pictures and short videos (under one minute), losing the potential for more emerging themes to come from longer videos. Third, our study is limited to tweets posted by NGOs that participated in the 16 Days of Activism against GBV campaigns in 2020, 2021, and 2022 through the posting of tweets. The results are not generalizable to the frequently liked messages shared on X by other types of users (such as government agencies and celebrities) that participated in the campaign or to other hashtags related to the campaign that were not analyzed in this research. Fourth, this analysis was specific to NGOs based in Mexico and tweets published in Spanish, so our results might not be generalizable to the campaign in other countries. Fifth, we focused our research on four hashtags (and their variations) specific to this campaign, so it is possible that our research missed capturing other themes from other hashtags related to the 2020, 2021, and 2022 campaigns. Sixth, because of the limited number of tweets (600) analyzed in this research, themes could have been missed; however, a sample size of 500 tweets has been demonstrated to be sufficient to identify themes and understand the public's engagement.(200,222) And finally, the tweets chosen for this analysis were based on their number of likes at the time of data collection. The number of likes on a tweet changes through time, so the messages from these tweets that generated the most attention and engagement from the public at the time of the campaign could have changed by the time the data was collected and might not reflect the engagement of the public with the different topics related to GBV; however, this is unlikely, as research has found that most likes on a tweet are given within 24 hours after the message is posted on X.(223)

Conclusions

Our findings reveal that the frequently liked tweets for the 2020, 2021, and 2022 16 Days of Activism against GBV campaigns posted by Mexican-based NGOs are a reflection of the forms of violence and social issues that currently occur in the country. According to our results, informational tweets on what GBV is, how to eradicate this problem, what activism is, and how to be an activist are the

types of messages that engage the public. Our results could help inform and guide future GBV campaigns while also informing the NGOs of the lack of representation in their messages about GBV towards important vulnerable populations, such as adolescents and Indigenous groups. Still, further research related to hashtag feminism by Mexican-based NGOs on GBV, such as the demographics of X users who engage on these tweets, and the types of activism interactions among X users on other social media platforms, is vital to understand the population that NGOs reach and how the messages shared on these campaigns translate into activism online and offline.

Acknowledgements

Chapter 3, “Use of Social Media for Activism by Mexican Non-Governmental Organizations: Thematic Content Analysis of Posts from the 16 Days of Activism Against Gender-Based Violence Campaign” is currently being prepared for submission for the publication of the material. Co-authors include Drs Kathryn M. Barker, Samantha Hurst, Rebecka Lundgren, Amanda C. McClain, Ramona L. Pérez, and Elizabeth Reed. The dissertation author was the primary investigator and author of this material.

Tables and Figures

Table 3.1 Frequency of hashtags mentioned on most liked tweets per campaign year by Mexican-based non-governmental organizations

Hashtag	**2020**	**2021**	**2022**	**Total**
#25N/#25Noviembre	56	58	102	216
#DiaNaranja/#DíaNaranja	113	111	59	283
#16días/#16DiasdeActivismo/#16DíasdeActivismo	167	204	157	528
#PintaElMundoDeNaranja	49	22	5	76

Table 3.2 Selected quotations representing theme 1, Activism and how to be an activist, and sub-themes from frequently liked tweets posted by Mexican-based NGOs for the 2020, 2021, and 2022 annual 16 Days of Activism against Gender-Based Violence campaigns

Theme	Subtheme	Examples (Tweets translated to English)	Examples (Tweets in original language)
Activism and how to be an activist	Description of the campaign	"During these #16Días and all year long, stand in solidarity with women's rights activists and support feminist movements to resist the rollback of women's and girls' rights. #Únete #25N" (2022 campaign) "The #únete campaign mobilizes everyone to participate in activism that prevents violence against women and girls and resist the rollback of women's rights." (2022 campaign) "What are the #16Días de activismo? It is a call to action and a reminder that violence against women and girls is the most widespread human rights violation around the world. #DíaNaranja Take action to end violence against women and girls." (2022 campaign)	"Durante estos #16Días y todo el año, solidarízate con las activistas de los derechos de las mujeres y apoya a los movimientos feministas para resistir el retroceso de los derechos de las mujeres y las niñas. #Únete #25N" (campaña 2022) "La campaña #Únete moviliza a todas las personas para que participen en el activismo que previene la violencia contra las mujeres y las niñas y resistir el retroceso de los derechos de las mujeres. #16Días #25N #YaEsYa #DíaNaranja" (campaña 2022) "¿Qué son los #16Días de activismo? Es un llamado a la acción y un recordatorio de que la violencia contra las mujeres y las niñas es la violación de derechos humanos más extendida en todo el mundo. #DíaNaranja Actúa para poner fin a la violencia contra las mujeres y las niñas." (campaña 2022)
	Campaign events	"Women musicians, visual artists, activists, journalists, photographers and filmmakers join their voices to create #25NMás16, a sound, visual and informative piece promoted by the Initiative #SpotlightMX MX #DíaNaranja #Únete #16Días" (2020 campaign) "My body is mine, I decide, I have autonomy, I am mine, no, I told you no! We continue forward in the #25N march on the International Day for the Elimination of Violence against Women" (2022 campaign)	"Mujeres músicas, artistas visuales, activistas, periodistas, fotógrafas y cineastas unen sus voces para crear #25NMás16, una pieza sonora, visual e informativa impulsada por la Iniciativa #SpotlightMX MX #DíaNaranja #Únete #16Días" (campaña 2020) ¡Mi cuerpo es mío, yo decido, tengo autonomía, yo soy mía, no, que te dije que no! Seguimos adelante en la marcha #25N el Día Internacional de la Eliminación de la Violencia contra la Mujer" (campaña 2022)
	Geographical examples	"#25N| This is a fight for all women✊ 📣 "Neither in Tijuana, nor in Chiapas, nor in this city, NOT ONE MORE MURDERED" ✕ #NiUnaMenos #VivasNosQueremos" (2020 campaign)	#25N| Esta es una lucha de todas las mujeres✊ 📣 "Ni en Tijuana, ni en Chiapas, ni en esta ciudad, NI UNA ASESINADA MÁS" ✕ #NiUnaMenos #VivasNosQueremos" (campaña 2020)

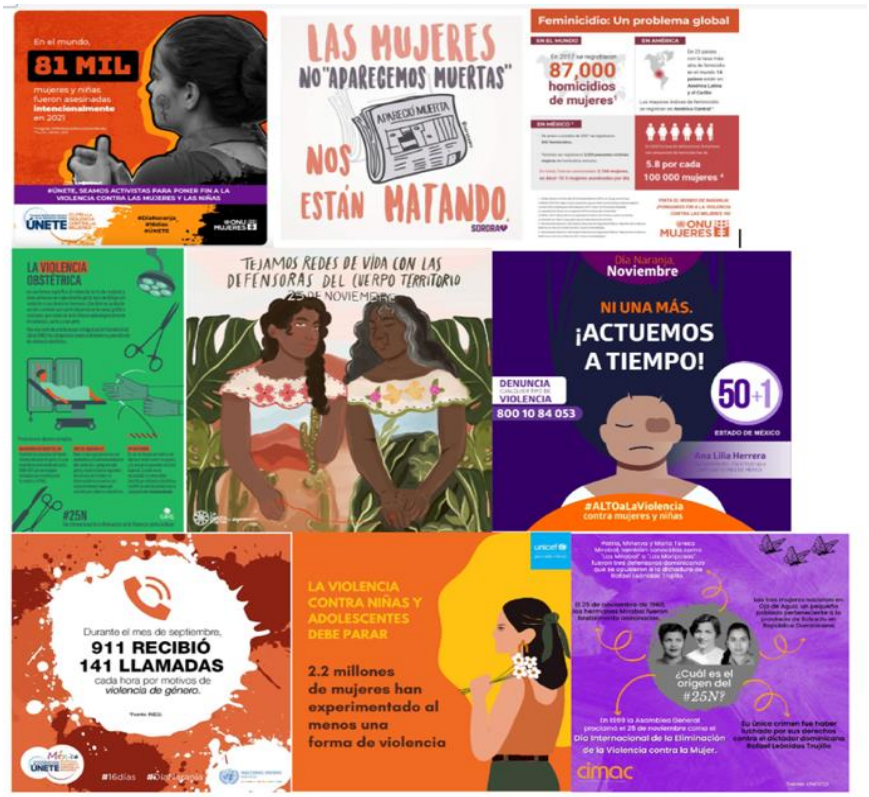


Figure 3.1 Examples of visuals used by Mexican-based NGOs in the frequently liked tweets for the 2020, 2021, and 2022 16 Days of Activism Against Gender-Based Violence campaigns

Table 3.3 Selected quotations representing theme 2, Types of GBV most commonly tweeted about, and sub-themes from frequently liked tweets posted by Mexican-based NGOs for the 2020, 2021, and 2022 annual 16 Days of Activism against Gender-Based Violence campaigns

Theme	Subtheme	Examples (Tweets translated to English)	Examples (Tweets in original language)
Types of GBV most commonly tweeted about	Sexual violence	"Let us join forces against those who attempt to blur the boundaries of sexual consent, blame victims, and excuse perpetrators. During the #16Days of Activism, let's say it loud and clear: NO IS NO. #Únete #DíaNaranja" (2020 campaign)	"Unamos nuestros esfuerzos contra quienes intenten desdibujar los límites del consentimiento sexual, culpar a las víctimas y excusar a los agresores. Durante los #16Días de Activismo, digámoslo alto y claro: NO ES NO. #Únete #DíaNaranja" (campaña 2020)
	Femicides and trafficking	"🔴Mexico closes the year with the terrible number of 27 thousand missing girls and women. Within the framework of #16Días of Activism, it is essential to demand differentiated strategies with a gender perspective to find them all" (2022 campaign) "📣In Mexico, 11 femicides occur DAILY. Today #25N International Day for the Elimination of Violence against Women, we raise our voices for freedom, security, justice and sisterhood for all girls and women in Mexico.💜👭 #NiUnaMas #VivasNosQueremos #DiaNaranja" (2020 campaign)	"🔴México cierra el año con la terrible cifra de 27 mil niñas y mujeres desaparecidas. En el marco de #16Días de activismo es fundamental exigir estrategias diferenciadas con perspectiva de género para encontrarlas a todas" (campaña 2022) "📣En México ocurren 11 feminicidios DIARIOS. Hoy #25N Día Internacional de la Eliminación de la Violencia contra la Mujer, alzamos la voz por la libertad, seguridad, justicia y sororidad para con todas las niñas y mujeres en México.💜👭 #NiUnaMas #VivasNosQueremos #DiaNaranja" (campaña 2020)
	Violence at home	"Women, girls and adolescents need to have peace of mind in their home and feel that their home is a safe and reliable space. Their home is NOT a space of #violence. Let's make families and homes #SafeSpaces! #25N #PintaElMundoDeNaranja #16Días" (2021 campaign)	"Las mujeres, niñas y adolescentes necesitan tener tranquilidad en su hogar y sentir que su casa es un espacio seguro y confiable. Su hogar NO es un espacio de #violencia. ¡Hagamos de las familias y los hogares #EspaciosSeguros! #25N #PintaElMundoDeNaranja #16Días" (campaña 2021)
	Digital violence	"In Mexico, 3 out of every ten female internet users have been victims of cyberbullying in the last year, which is equivalent to 9.7 million women. #16días #25N #DíaNaranja #Únete #NoALaViolencia" (2022 campaign) "The increase in internet use during #COVID19 has made women and girls targets of online violence. In these #16Días of Activism, #pintaelmundodenaranja using your networks to raise awareness and promote solidarity. #DíaNaranja #Únete" (2020 campaign)	"En México, 3 de cada diez mujeres usuarias de internet han sido víctimas de ciberacoso el último año, lo que equivale a 9.7 millones de mujeres. #16días #25N #DíaNaranja #Únete #NoALaViolencia" (campaña 2022) "El incremento del uso de internet durante #COVID19 ha convertido a mujeres y niñas en blanco de violencias en línea. En estos #16Días de Activismo, #pintaelmundodenaranja usando tus redes para concientizar y fomentar la solidaridad. #DíaNaranja #Únete" (campaña 2020)
	Physical violence	"⚠ Did you know that 1 in 3 women in the world has suffered physical or sexual violence throughout their lives? Share this post and #Únete the #16días of activism to end this global pandemic #25N. " (2021 campaign)	"⚠ ¿Sabías que 1 de cada 3 mujeres en el mundo ha sufrido violencia física o sexual a lo largo de su vida? Comparte este post y #Únete a los #16días de activismo para acabar con esta pandemia mundial. #25N" (campaña 2021)

Table 3.4 Selected quotations representing theme 3, changing the narrative and increasing awareness, and sub-themes from frequently liked tweets posted by Mexican-based NGOs for the 2020, 2021, and 2022 annual 16 Days of Activism against Gender-Based Violence campaigns

Theme	**Subtheme**	**Examples (Tweets translated to English)**	**Examples (Tweets in original language)**
Increasing the public's engagement and awareness	Changing the narrative of GBV	"🔘Let's stop using language that blames victims, objectifies women and naturalizes sexual harassment. 🔘#DíaNaranja #16Días #Únete" (2020 campaign) "The different types of violence against women and girls are linked and form part of the same continuum that is carried out against women and girls on a daily and systematic basis. #16Días #DíaNaranja" (2021 campaign)	"🔘Dejemos de usar un lenguaje que culpe a las víctimas, cosifique a las mujeres y naturalice el acoso sexual. 🔘#pintaelmundodenaranja #GeneraciónIgualdad #16Días #DíaNaranja #Únete" (campaña 2020) "Los diferentes tipos de violencia contra las mujeres y las niñas están vinculados y forman parte del mismo continuum que se ejerce contra las mujeres y niñas de manera cotidiana y sistemática. #16Días #DíaNaranja" (campaña 2021)
	Resources	"Report when you see: ❌Abuse ❌Harassment on the street ❌Sexist jokes ❌Unwanted behavior ❌Inappropriate sexual comments Sexual harassment is never acceptable. #16Días #Únete #DíaNaranja" (2020 campaign) "If you face violence, don't be silent, raise your voice. Call 911 ☎ for help immediately and tell your trusted people. #16Días #DíaNaranja" (2021 campaign)	"Denuncia cuando veas: ❌Abuso ❌Acoso en la calle ❌Bromas sexistas ❌Comportamiento no deseado ❌Comentarios sexuales inapropiados El acoso sexual nunca es aceptable. #16Días #Únete #DíaNaranja" (campaña 2020) Si enfrentas violencia, no te calles, alza la voz. Pide ayuda inmediatamente al 911 ☎ y cuéntalo a tus personas de confianza. #16Días #DíaNaranja" (campaña 2021)
	Responsibility of societal institutions	"People in leadership must implement prevention measures that address inequalities in power relations between genders, which are at the root of violence against women and girls #16Días #DíaNaranja" (2021 campaign) "Health providers can also defend the life and health of girls who have been forced to become mothers. Taking care of the health of survivors also involves having the ability to treat them humanely and with dignity. They are #GirlsNotMothers. #25N" (2021 campaign)	"Las personas en liderazgo, deben poner en marcha medidas de prevención que hagan frente a las desigualdades en las relaciones de poder entre los géneros, que se encuentran en la raíz de la violencia contra las mujeres y las niñas. #16Días #DíaNaranja" (campaña 2021) "Las personas proveedoras de salud también pueden defender la vida y la salud de las niñas que han sido forzadas a ser madres. Cuidar la salud de las sobrevivientes también pasa por tener la capacidad de darles un trato humano y digno. Son #NiñasNoMadres. #25N" (campaña 2021)

Table 3.4 continued Selected quotations representing theme 3, changing the narrative and increasing awareness, and sub-themes from frequently liked tweets posted by Mexican-based NGOs for the 2020, 2021, and 2022 annual 16 Days of Activism against Gender-Based Violence campaigns

Theme	**Subtheme**	**Examples (Tweets translated to English)**	**Examples (Tweets in original language)**
Increasing the public's engagement and awareness	Focus on women and younger girls	"Eliminating violence against girls and adolescents is everyone's task. Get informed and learn about different ways in which you can prevent gender violence. #16Días #DíaNaranja" (2021 campaign) "Violence will affect 1 in 3 girls and women throughout their lives. This must stop! #PintaElMundoDeNaranja and unite against violence." (2020 campaign)	"Eliminar la violencia contra las niñas y las adolescentes es tarea de todas y todos. Infórmate y conoce diversas formas en que tú puedes prevenir la violencia de género. #16Días #DíaNaranja" (campaña 2021) "La violencia afectará a 1 de cada 3 niñas y mujeres a lo largo de su vida. ¡Esto debe parar! #PintaElMundoDeNaranja y únete contra la violencia." (campaña 2020)
	Engaging women and men	"We must all (females and males) work together in all sectors to address the various aspects of violence against women and girls #Únete #16Días #25N #DíaNaranja" (2022 campaign) "As men we have to reflect, question ourselves, inform ourselves and act. #25N ✨Let's build relationships of respect, peace and equality! ✨"(2022 campaign)	"Todas y todos debemos trabajar en conjunto en todos los sectores para abordar los diversos aspectos de la violencia contra las mujeres y las niñas. #Únete #16Días #25N #DíaNaranja" (campaña 2022) "Como hombres nos toca reflexionar, cuestionarnos, informarnos y actuar. #25N ✨¡Construyamos relaciones de respeto, paz e igualdad!✨" (campaña 2022)

Table 3.5 Selected quotations representing theme 4, GBV as a violation of human rights, and sub-themes from frequently liked tweets posted by Mexican-based NGOs for the 2020, 2021, and 2022 annual 16 Days of Activism against Gender-Based Violence campaigns

Theme	**Subthemes**	**Examples (Tweets translated to English)**	**Examples (Tweets in original language)**
GBV as a violation of human rights	Equity and injustice	"The origin of violence is discrimination and gender inequality, as well as gender stereotypes and harmful masculinities still in force in our societies. #16Días #DíaNaranja #Únete" (2021 campaign) "🟠 Violence against women is the most widespread violation of human rights in the world and the latest UN data show that the greatest threat to women and girls lies in the people in their immediate environment. #16Días #YaEsYa #DíaNaranja #Únete" (2022 campaign)	"El origen de la violencia es la discriminación y la desigualdad de género, así como los estereotipos de género y las masculinidades nocivas aún vigentes en nuestras sociedades. #16Días #DíaNaranja #Únete" (campaña 2021) "🟠 La violencia contras las mujeres es la violación más generalizada de los derechos humanos en el mundo y los últimos datos de ONU demuestran que la mayor amenaza para las mujeres y las niñas reside en las personas de su entorno más cercano. #16Días #YaEsYa #DíaNaranja #Únete" (campaña 2022)
	Violence towards vulnerable groups	"Inequality, poverty, ethnic origin, disability, immigration status, among others, increase the vulnerability of women and girls. Let's end violence against women and girls NOW! #16Días #DíaNaranja" (2021 campaign)	"La desigualdad, la pobreza, el origen étnico, la discapacidad, el estatus #migratorio, entre otros, aumentan la vulnerabilidad de las mujeres y las niñas. ¡Pongamos fin a la violencia contra las mujeres y las niñas YA! #16Días #DíaNaranja" (campaña 2021)

Table 3.6 Selected quotations representing theme 5, The impact of the COVID-19 pandemic on GBV, from frequently liked tweets posted by Mexican-based NGOs for the 2020, 2021, and 2022 annual 16 Days of Activism against Gender-Based Violence campaigns

Theme	**Examples (Tweets translated to English)**	**Examples (Tweets in original language)**
The impact of the COVID-19 pandemic	"We have stayed at home to avoid risks of contagion by #COVID19 but what happens if the risk is at home? Violence against women in the home has increased during the pandemic, but we can all help victims. #DíaNaranja #16Días #Únete" (2020 campaign) "🏠Shelters ☎Helplines 👚Advice Services for survivors are essential. Any type of support for victims of violence must be available to anyone who needs it, even during the #COVID19 pandemic. #DíaNaranja #16Días #Únete" (2020 campaign) "The pandemic is being particularly painful for women. If no action is taken, the progress in gender equality made over the last 25 years will be lost. #16Días #DíaNaranja #Únete" (2020 campaign)	"Nos hemos quedado en casa para evitar riesgos de contagio por #COVID19 pero ¿qué pasa si el riesgo está en casa? La violencia contra las mujeres en el hogar ha aumentado durante la pandemia, pero toda/os podemos ayudar a las víctimas. #DíaNaranja #16Días #Únete" (campaña 2020) "🏠Refugios ☎Líneas telefónicas de ayuda 👚Asesoramiento Los servicios para las sobrevivientes son esenciales. Cualquier tipo de apoyo a las víctimas de violencia debe estar disponible para quien lo necesite, incluso durante la pandemia de #COVID19. #DíaNaranja #16Días #Únete" (campaña 2020) "La pandemia está siendo particularmente dolorosa para las mujeres. Si no se adoptan medidas, los avances en la igualdad de género logrados en los últimos 25 años se perderán. #16Días #DíaNaranja #Únete" (campaña 2020)

Chapter 4. Prevalence of Non-Consented Care During the Childbirth Process in Mexico by Geographical Regions: Comparing ENDIREH Survey Data from 2016 and 2021

Introduction

Obstetric violence, also known as disrespect and abuse during childbirth, is increasingly recognized as a global public health concern thanks to the growing body of research and documentation of women's experiences with childbirth.(224,225) Obstetric violence, a multifactorial phenomenon which can be both structural and interpersonal, involves any type of loss of autonomy, physical harm, or suffering during the prenatal, childbirth, and postnatal periods.(226,227) Short- and long-term physical health outcomes have been found in women who have suffered from obstetric violence. Some of these include incontinence, breastfeeding problems, and complications during and after the delivery, such as episiotomies, postpartum hemorrhage, and obstructed delivery (228–230). Mental health outcomes that have been associated with obstetric violence include postpartum depression, post-traumatic stress disorder, anxiety, guilt, and sadness.(228,229,231) Research has also shown that distrust and dissatisfaction with the health care system are exacerbated by experiences of obstetric violence.(228,232) This in turn can lead to a delay or reduction in the use of healthcare services, which can negatively affect both the mother and the newborn child.(228,229)

The World Health Organization (WHO) advocates for the division of obstetric violence into seven distinct categories: physical care (such as beating and slapping), non-consented care (lack of informed consent for procedures), non-confidential care (lack of physical privacy and confidentiality of sensitive information), non-dignified care (e.g., intentional humiliation such as scolding and shouting at women), discrimination (commonly based on a woman's ethnicity, race, economic status, educational level, religion, or age), abandonment of care (leaving a woman alone during labor and/or after delivery), and detention in facilities (e.g., confining the woman or infant at the clinic until the bill is paid).(8,233) Of these, non-consented care is particularly common in low- and middle-income countries, as women in these settings are often not informed about the risks and reasons for interventions during childbirth and are not asked for consent about the procedures to be completed during delivery.(234) Specifically, non-consented care during the childbirth process involves the absence of informed consent or of an information process for the pregnant person.(8) Different variations of the category of non-consented care

during delivery include the administration of unconsented interventions such as forced cesarean sections (C-sections), forced contraceptive methods or sterilization, forced hysterectomies, and forced episiotomies during the absence of consent or even after refusal of the procedure, as well as forcing women to sign paperwork, to name a few.(8,57,235) Receiving information and having a supported informed consent process are critical components of a birth experience that is safe and offers quality care.(234)

Obstetric violence is common in high-, middle-, and lower-income countries, such as Pakistan, Ethiopia, South Africa, and women from ethnic minorities in the United States, to name a few.(236–239) Notably, obstetric violence is a prevalent phenomenon in Latin America (57,240), with an estimated 43% of women having experienced abuse and mistreatment during childbirth (240), and documented presence of non-consented care in several countries of this region.(8) Specifically, in Mexico, the prevalence of obstetric violence in the past fifteen years ranges from 6% to 33%, based on previous studies conducted in two cities in Central Mexico.(241) The denial of care to Indigenous women and unnecessary C-sections in this country are forms of obstetric violence particularly identified in the literature.(143,233,242,243) Specific to non-consented care, a mixed-methods study completed in four hospitals across the Mexican states of Puebla and Chiapas found that more than 50% of women experienced non-consented care, as they did not receive adequate information for three invasive procedures (genital cleansing, genital shaving, and enema administration) and did not provide consent for them.(241) Episiotomies, manual uterine cavity revisions, and vaginal examinations are other procedures that have been found to be practiced in Mexico without the consent of female patients during childbirth.(244,245) While the research on obstetric violence in this country has been documented in the past fifteen years, it has been mostly qualitative; however, quantitative studies have been completed at a local level in Mexico City and the states of Puebla, Chiapas, and Morelos.(241,246,247) Information on sociodemographic, pregnancy, and childbirth factors of women who have experienced non-consented care during childbirth in Mexico is restricted to the few local studies that have reported these characteristics. (241,248) Due to the limited literature on non-consented care during childbirth, a gap exists in understanding the populations affected by this form of obstetric violence. Using national data is critical to capturing the magnitude and distribution of this form of violence at a country, state, and local level, as well as to better estimate the characteristics

of the population affected by it and translate the findings into informed interventions and laws to address obstetric violence.

Awareness of obstetric violence has increased in Mexico in the past ten years.(60,249) At the national level, in 2014, obstetric violence was categorized as a punishable offense.(250) In 2016, at the national level, changes were made to the law to improve the quality of care for pregnant women by emphasizing the inclusion of women in the decision-making process, eliminating any form of obstetric violence practices, and modifying the definition of pregnancy.(251) At the state level, in 2013, only four out of the 32 states in Mexico had a definition for obstetric violence in their laws.(252) As of 2021, 28 states Mexico had a definition of obstetric violence in their respective laws about access to life without violence.(252) This has resulted in norms and recommendations on best practices in delivery being followed more closely by health professionals.(60) Still, whether the prevalence of non-consented care has changed in Mexico is unknown.

While no standardized or validated tool to measure obstetric violence exists (253), Mexico has measured obstetric violence twice, in 2016 and 2021(254,255), through the National Survey on the Dynamics of Household Relations (Encuesta Nacional sobre la Dinámica de las Relaciones en los Hogares, ENDIREH, its Spanish acronym), a probabilistic household survey that uses an advisory committee of experts in violence against women that included academic, civil society, and governmental organizations in the creation of this instrument.(57,217) This study sought to examine the prevalence of non-consented care, by type of non-consented care and by geographical region, among Mexican women for the years 2016 and 2021 using data from ENDIREH, which is representative at the national and state levels. We also aimed to determine if there is a difference in the prevalence of this specific form of obstetric violence between 2016 and 2021 and examine the association between sociodemographic, pregnancy, and childbirth factors with non-consented care. This will help identify any institutional, sociodemographic, or individual factors that could be associated with non-consented care. Our results will provide insight into the prevalence of non-consented care during childbirth in Mexico and help determine the geographical location and key socio-demographic characteristics of the women at greater risk of a specific form of obstetric violence.

The term obstetric violence

The literature uses different names for the violence and abuse directed at women during childbirth. Obstetric violence, mistreatment during childbirth, and disrespect and abuse are the most common ones.(256) While mistreatment during childbirth is the term commonly used by the WHO(234), obstetric violence is the term generally used in Latin America.(256) Particularly in Mexico, this concept has been used by researchers since 1998.(57) Because of these reasons and following the vocabulary used in the ENDIREH surveys to collect information on violence towards women during childbirth, the term used in this analysis was obstetric violence.

Methods

Study design and data source

This present study was a secondary cross-sectional analysis of the ENDIREH 2016 and 2021 data on one of the different types of violence against women this survey collects, obstetric violence. We used weighted regression analysis to examine the prevalence of a specific form of obstetric violence, non-consented care, among ENDIREH 2016 and 2021 respondents. The association of non-consent care with sociodemographic characteristics and pregnancy- and childbirth-related factors was also observed.

Since 2003, Mexico's National Institute of Statistics and Geography (INEGI, its Spanish acronym), an autonomous public entity in charge of national surveys and census(257), has conducted ENDIREH to measure different forms of violence against women in the country, such as economic, sexual, psychological, physical, and patrimonial, and within different scopes of occurrence (community, family, partner, school, and at work).(57,217) The objective of ENDIREH is to estimate the prevalence of the different types of violence against women included in this survey, with the goal of eradicating these types of violence through the creation and implementation of informed public policies.(255) ENDIREH is a national and state-level representative cross-sectional survey conducted every four years by the Mexican government.(57,217) Geographically, ENDIREH covers the population in the national, state, and national urban and rural regions.(217) The unit of observation is a private household and women ages 15 and older who live in that household.(217) Trained female data collectors surveyed, in person, only one woman per household among the households selected.(258) Three dimensions of obstetric violence —

non-consented care, abandonment of care, and undignified care —were measured at a national representative level for the first time in Mexico through ENDIREH between October and November 2016.(57) Between October and November 2021, ENDIREH measured obstetric violence for the second time in Mexico.(255)

Analytic sample

The probabilistic sample design for both ENDIREH 2016 and 2021 by INEGI was three-stage, stratified, and by conglomerates.(259,260) An extended description of the sample design for both ENDIREH 2016 and 2021 has been published by INEGI.(259,260) The total number of ENDIREH 2016 respondents was 111,256, and for ENDIREH 2021, 110,127. The study population specific for our analysis consisted of ENDIREH 2016 and 2021 respondents ages 15 to 49y who gave birth in the last five years and received obstetric care during their last childbirth. ENDIREH 2016 and 2021 respondents (ages 15-49y) who did not give birth in the last five years or who did not receive obstetric care during their last delivery were excluded from this secondary analysis. The final analytic sample size for this study was 24,036 respondents from ENDIREH 2016 and 19,322 from ENDIREH 2021 (**Figure 4.1**).

Variables and outcomes

Outcome variables

Obstetric violence in the form of non-consented care and its three different variations (forced contraceptive method or sterilization, forced signed paperwork, and forced C-section) included in ENDIREH 2016 and 2021 were the outcomes for this secondary analysis. The following questions and variables are presented as they were worded by INEGI in their English version of the 2021 ENDIREH survey.(261) While there is not an official English version of ENDIREH 2016, the questions in Spanish for both 2016 and 2021 are identical.(262,263) A respondent was considered to have experienced non-consented care obstetric violence during their last delivery if a “yes” was provided to a question on contraceptive method or sterilization (“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” or “Were you pressured into agreeing to have them put a device or have surgery to stop having

further children?") or on signed paperwork ("Did they force or threaten you to sign any paper without informing you what it was it or what it was for?") or a "no" to questions related to a consented C-section ("Were you informed in a way you could understand why was it necessary to have the cesarean section?" or "Did you give permission or authorization for the cesarean section?"). The last two questions were only specific to respondents who gave birth through a C-section during their last pregnancy. Non-consented care was examined both by combining the three variations of this form of obstetric violence and by examining each of the variations separately.

Independent variables

Sociodemographic variables

For sociodemographic characteristics, these included age at the time of the survey response (<18y, 18-25y, 26-35y, 36-45y, 46y-older), living setting (rural vs. urban), geographical region of residence, highest educational attainment (< 6^{th} grade, middle school, high school or technical school, teacher training, college degree, or higher), ethnic self-identification (considered themselves to be Indigenous according to their culture-yes, yes-partially, no, don't know), marital status at the time of the survey (married, cohabiting, single, separated or divorced, widow), and employment status at the time of the survey (yes, no), and type of employment (paid employee, self-employed, employer, worked without pay). As results were stratified by geographical region, the state of residence of ENDIREH 2016 and 2021 respondents was collapsed into one of the nine regions (North Pacific, Border, Central-Pacific, North Central, Central, Mexico City, State of Mexico (Estado de México), South Pacific, and Peninsula) used for the analysis. The regional stratification used for this secondary analysis followed the one used by Mexico's National Institute of Public Health (INSP, its Spanish acronym), which groups states by their geographical proximity and population density and has been used to analyze data from other national surveys, such as the National Survey on Health and Nutrition.(76)

Pregnancy and childbirth variables

For pregnancy and childbirth, the variables were number of pregnancies in the last five years; parity in the last five years; number of stillbirths in the past five years; number of miscarriages in the past

five years; type of delivery during the last childbirth (vaginal, cesarean section); health facility where prenatal care services were provided for the last pregnancy (Community health center, Mexican Institute of Social Security (IMSS) facility, Institute for Social Security and Services for State Workers (ISSSTE facility), public clinic or hospital, medical clinic or dispensary, private clinic, hospital, or medical office, other, no prenatal care received, no response); health facility where the last delivery occurred (Community health center, IMSS facility, ISSSTE facility, other state public clinic or hospital, private medical office, clinic, or hospital, other); and the type of health insurance the ENDIREH respondent had at the time of the survey (Social Security Popular/Health Institute for well-being (INSABI) Insurance, Social Security IMSS or IMSS Prospera/Bienestar, Social Security ISSSTE, private insurance, other public state institution, more than one type of insurance, does not have medical insurance, no information provided).

Statistical Analyses

Analysis proceeded in two steps: 1. Prevalence estimates were calculated using weights for each of nine geographical regions. Prevalence estimates were stratified by geographical region. Data were weighted to adjust for differences between the sample and the Mexican female population, age 15-49y, by geographical region, as certain regions were either underrepresented or overrepresented in the obstetric violence section of ENDIREH for both 2016 and 2021. For ENDIREH 2016 data, INEGI's 2010 census information on the female population ages 15-49y of each region(264) was divided by the percentage of the ENDIREH sample for that specific region. The same was repeated with ENDIREH 2021 data using INEGI's census data from 2020.(264) Socioeconomic-, pregnancy-, and childbirth-specific variables of ENDIREH 2016 and 2021 respondents who experienced non-consented care during their last childbirth were reported descriptively as frequencies.

2. The next set of analyses included bivariate (crude odds ratio [COR]) and multivariable (adjusted odds ratio [AOR]) logistic regression to determine the association of sociodemographic characteristics and pregnancy and childbirth-related factors with obstetric violence in the form of non-consented care among ENDIREH 2016 and 2021 respondents**.** We first conducted a multicollinearity test to confirm that no multicollinearity existed among the independent variables**.** Then, we constructed

models to estimate crude odds ratios and adjusted odds ratios with 95% confidence intervals for the association between socioeconomic and pregnancy- and childbirth-specific independent variables and non-consented care. Following the methodology of another study (237) on associated factors to obstetric violence and to avoid overfitting the model, only the variables with a p-value <0.05, the value considered statistically significant, on their bivariate logistic regression were included in the multivariable logistic regression model. The data were analyzed using SPSS Version 29.0 software.

Results

Prevalence of non-consented care

A total of 3,877 and 3,823 respondents from ENDIREH 2016 and 2021, respectively, gave birth in the past five years and received obstetric care during delivery experienced non-consented care during their last childbirth. **Figure 4.2** shows the weighted distributions of non-consented care among ENDIREH 2016 and 2021 respondents. The prevalence of non-consented care increased from 2016 to 2021 across seven of the nine geographic regions in Mexico as well as at the national level. The Central region (20.3% for ENDIREH 2016, 21.7% for ENDIREH 2021) and Mexico City (18.4% for ENDIREH 2016, 23.2% for ENDIREH 2021) had the highest prevalence of non-consented care during childbirth for both survey years. The Border (13.9% for ENDIREH 2016, 14.5% for ENDIREH 2021) and Peninsula (13.5% for ENDIREH 2016, 14.3% for ENDIREH 2021) regions had the lowest prevalence for 2016 and 2021. The rest of the results and tables will also be presented with weighted data.

Sociodemographic characteristics and pregnancy and childbirth factors

Among respondents experiencing non-consented care, close to half of the ENDIREH 2016 and 2021 were between the ages of 26 and 35 at the time of the survey (45.2% for 2016; 49.6% for 2021). Related to marital status and educational attainment, more respondents who experienced this type of obstetric violence were married or cohabitated with a partner at the time of the survey and had completed middle school, high school, or technical school. The majority of respondents lived in urban settings (77.8% for 2016; 76.1% for 2021). For both ENDIREH 2016 and 2021 respondents, 27% were Indigenous or considered themselves partially Indigenous. While 39.2% of ENDIREH 2016 respondents who

experienced non-consented care during childbirth were employed at the time of the survey, the number increased to 45.7% for ENDIREH 2021. See **Table 4.1** for the results.

Regarding the pregnancy and childbirth factors of respondents who experienced non-consented care during their last childbirth, the average number of pregnancies in the last five years was relatively the same between 2016 and 2021 (1.31 for 2016, 1.28 for 2021). C-section was the delivery method for 59% of the deliveries for ENDIREH 2016 and 2021. Community health centers and Mexican Institute of Social Security (IMSS) facilities, which provide healthcare services to formally employed members of the private sector with insurance for these facilities, and other public clinics or hospitals were the most common locations where ENDIREH 2016 and 2021 respondents received their prenatal care and their place of delivery for their last pregnancy. While the type of current medical service affiliation was different among ENDIREH 2016 and 2021 respondents, more than half of ENDIREH 2016 respondents who experienced non-consented care had Social Security IMSS (insurance to receive services at IMSS facilities) or IMSS Prospera insurance or Popular Social Security (types of insurance for marginalized populations who do not have access to other forms of insurance) at the time of the survey (77.7%), and 75.4% of ENDIREH 2021 respondents who experienced non-consented care during their last childbirth had Social Security IMSS or IMSS Bienestar (formerly IMSS Prospera) or did not have any form of medical insurance at the time of the interview. See **Table 4.1** for the results.

Prevalence of specific forms of non-consented care

Table 4.2 reports findings on the prevalence of specific forms of non-consented care. The prevalence of forced contraception or sterilization without knowledge or authorization was higher in 2016, compared to 2021, for the North Pacific (26.9% vs. 25.4%), North Central (20.4% vs. 16.2%), Central (23.2% vs. 22.7%), Mexico City (23.8% vs. 22.6%), State of Mexico (Estado de México) (33.0% vs. 23.1%), and Peninsula (22.9% vs. 21.6%). Pressure to get a contraceptive method or sterilization was higher among ENDIREH 2021 respondents compared to ENDIREH 2016 respondents in six out of the nine geographical regions. Forcing or threatening to sign paperwork was the form of non-consented care with the lowest prevalence in both ENDIREH 2016 and 2021; this specific form of non-consented care saw a minor decrease from 2016 to 2021 in seven out of the nine regions. Among the two questions

related to C-sections, the prevalence of non-consented care during the last childbirth was higher among ENDIREH 2016 respondents in most geographical regions. Not being informed about the need for a C-section was higher in the Border region in 2016 compared to 2021 (56.0% vs. 39.0%), while in the Central Pacific region, the prevalence was lower in 2016 compared to 2021 (34.2% vs. 43.5%). Related to providing authorization for C-sections, the highest prevalence differences between 2016 and 2021 were in the North Pacific (37.4% vs. 26.5%), Mexico City (40.2% vs. 26.7%), and the Central Pacific (43.0% vs. 29.0%) regions.

Factors associated with non-consented care

Unadjusted and adjusted associations of sociodemographic characteristics and pregnancy and childbirth factors with experiencing non-consented care are shown in **Table 4.3**. Ethnic self-identification, number of pregnancies in the last five years, parity in the last five years, and miscarriages in the last five years were not included in the adjusted model based on the p-values of their bivariate logistic regressions. In adjusted models, compared to those ≤18 years old, ENDIREH 2016 and 2021 respondents 26-35y and 36-45y had significantly higher odds of non-consented care during their last childbirth. This was also true for ENDIREH 2021 respondents 46 years of age and older. Additionally, ENDIREH 2016 and 2021 respondents living in rural (vs. urban) settings, having one or more stillbirths (vs. none), and having a vaginal delivery (vs. C-section) also had significantly higher odds of non-consented care during their last childbirth. ENDIREH 2016 and 2021 respondents who gave birth at a private clinic, hospital, or medical office (vs. community health center) or had a medical service affiliation at the time of the survey at other public state institutions (vs. Social Security IMSS) had significantly higher odds of experiencing non-consented care during their last childbirth. ENDIREH 2016 respondents having private insurance, Social Security ISSSTE (a type of insurance for formally employed employees of the public sector), or Prospera at the time of the survey also had significantly higher odds of non-consented care during their last childbirth (vs. Social Security IMSS).

Several factors were associated with lower odds of experiencing non-consented care. Compared to the North Pacific region, respondents living in the Central Pacific, Central, Mexico City, State of Mexico (Estado de México), and South Pacific regions had significantly lower odds of experiencing non-

consented care. Respondents whose marital status was single (vs. cohabitating) at the time of the survey or whose educational attainment was high school or technical school and teaching training, college degree, or higher (vs. 6th grade or less) had lower odds of experiencing non-consented care. Receiving prenatal care for the last pregnancy at other types of facilities or an IMSS facility (vs. community health center) also had lower odds of experiencing non-consented care during the last childbirth for ENDIREH 2021 respondents.

Discussion

This study aimed to investigate the prevalence of a specific form of obstetric violence, non-consented care, among women in Mexico and to assess the relationship between sociodemographic characteristics, pregnancy and childbirth factors, and the odds of reporting non-consented care. This study builds on previous research on obstetric violence in Mexico using ENDIREH data(57), by comparing for the first time ENDIREH results from 2016 and 2021 and stratifying by geographic regions of the country. We found the overall prevalence of non-consented care during childbirth increased from 2016 to 2021 at the national level and in seven out of nine geographical regions. Related to specific forms of non-consented care during childbirth, we also documented that forcing or threatening a woman to sign paperwork was the least common form for both years, while pressuring them to get a contraceptive method or sterilization during the childbirth process, not informing them about the need for a C-section, and not allowing women to provide authorization for this specific process were the most common forms of non-consented care.

Our findings show that the Central region had the second highest prevalence of experienced non-consented care among ENDIREH 2016 recipients and the highest for ENDIREH 2021. These findings add to a previous observational study on respect and evidence-based birth care in different states in Mexico, which found that in one of the states in the Central region, Hidalgo, the instruments used for hospitals in this state did not collect information about informed consent and dignified care.(60) The higher prevalence of non-consented care in the Central and South Pacific regions also coincided with some of the states in the country with the highest marginalization indices. Two (Veracruz and Hidalgo) of the three Mexican states that make up the Central region have high levels of marginalization, while three

(Chiapas, Guerrero, and Oaxaca) out of the four states that make up the region of the South Pacific are considered to have very high levels of marginalization.(265) The marginalization index measures how the lack of access to education, inadequate housing, and lack of assets impact a specific population.(266) Previous research also found women from highly marginalized states suffer high levels of physical, psychological, sexual, and economic violence during pregnancy.(267) As ENDIREH collects information not just on obstetric violence but other types of gender-based violence, future studies should examine the relationship between non-consented care and other forms of obstetric violence with physical, psychological, sexual, and economic violence at the interpersonal level nationally and at the regional or state level.

The prevalence of the different sociodemographic, pregnancy, and childbirth characteristics analyzed in this study was similar among ENDIREH 2016 and 2021 respondents, except for the current medical service affiliation. This is due to the changes in the health care system in the last few years, as Social Security Popular (Seguro Popular, in Spanish) evolved into the Health Institute for well-being (Instituto de Salud para el Bienestar, INSABI, in Spanish) in 2020, reducing the levels of health coverage among the Mexican population, as seen in our results. Previous research on ENDIREH 2016 found that obstetric violence and non-consented care were more common among women who lived in urban regions, were single, younger, did not speak an Indigenous language, had higher educational attainment, and gave birth during their last childbirth at state public hospitals, a Social Security Institute, or community public health centers.(57) We found similar results not just for 2016, but also for 2021; as they show for both ENDIREH 2016 and 2021, non-consented care was more prevalent among women who live in urban regions, those who do not identify as Indigenous, those who considered themselves Indigenous and did not speak an Indigenous language, and those whose last delivery occurred at an IMSS facility or another state public clinic or hospital. However, for both 2016 and 2021, our results showed that the age of the women with a higher prevalence of non-consented care extended from 18 to 35 (at the time of the survey). While, regarding educational attainment, our results showed that the women with the highest prevalence of non-consented care were had either completed middle school, high school, or technical school. The potential reasons for these differences between ENDIREH 2016 results from our research and previous published literature are the way these sociodemographic, pregnancy, and childbirth factors

were stratified, the sample sizes used to evaluate the prevalence of non-consented care, and the fact that our results are shown as weighted estimates adjusted by geographical region. Regarding the living environment, previous literature has found obstetric violence to be common among rural communities in Mexico (60,268); however, our results found a higher prevalence among urban populations. A study done in Ecuador also found a higher prevalence of obstetric violence among women living in urban areas.(269) Further research is required to better understand how different social inequities lead to obstetric violence against women in Mexico or to address the possibility of women from rural or Indigenous populations underreporting this type of violence in ENDIREH.

Related to the association between non-consented care during childbirth and sociodemographic characteristics and pregnancy and childbirth factors, our findings suggest the place of delivery as a factor highly associated with this type of obstetric violence among ENDIREH 2016 and 2021 respondents. Results from ENDIREH are the first to provide an analysis at the national level of this type of association, as previous research in Mexico has only been completed qualitatively or at the local level in one or a few numbers of hospitals (60,230,233,240) without the possibility of comparing the different and unique types of health care settings in this country. The prevalence of C-sections in Mexico is high, the second highest in the Americas.(270) Results from our study confirm this, as close to 60% of ENDIREH 2016 and 2021 respondents experienced non-consented care delivered via C-section. According to literature, different Mexican institutions, such as IMSS and private facilities, have a C-section prevalence higher than what is recommended by the WHO.(271) Previous data has shown that women and physicians in Mexico prefer C-section as the delivery method due to its convenience and being considered safer than a vaginal delivery.(272,273) Still, our results also show that ENDIREH respondents who had a vaginal delivery had greater odds of experiencing non-consented care than those who delivered via C-section; however, those who received prenatal care services or gave birth at IMSS or private facilities had higher odds of experiencing non-consented care. Future ENDIREH surveys could further examine the reasons behind decisions made by women related to pregnancy and childbirth factors, such as prenatal care services received and type of delivery.

Our findings are consistent with research that shows how obstetric violence is the result of a continuum of visible and invisible factors at the different levels of society.(248) These factors include the

degree of autonomy and empowerment of the women on different childbirth choices, such as the type of delivery (vaginal or C-section), prenatal care received, and delivery location, as well as the contributions from the medical providers and major social institutions such as the health care facilities and the governments in charge of enforcing and implementing laws. Regarding laws implemented and enforced, our study found that overall prevalence of non-consented care decreased in one of the nine regions from 2016 to 2021, while forcing or threatening to sign paperwork, not informing about the need for a C-section, and not providing authorization for C-section decreased among most regions from 2016 to 2021, while pressure to get a contraceptive method or sterilization increased at the national and regional level. The partial decrease of different forms of non-consented care from 2016 to 2021 may be attributed to the changes in Mexican law at the national and state levels related to the care of women during pregnancy, childbirth, the postpartum period, and the newborn between those years. However, the increase in some forms of non-consented care raises concerns about the implementation of the new law. A recent study completed in Mexico City found that health personnel are aware of and understand the new laws towards eliminating obstetric violence; however, they continue to witness or perform activities that constitute obstetric violence.(274) Reasons in the literature that have been found behind obstetric violence at health care facilities in Mexico include institutional barriers such as a shortage of specialists and the additional training required, as well as the under-resourced and strained health systems in Mexico, such as a lack of space and infrastructure.(275) Formal and constant supervision at every health center to prevent obstetric violence, as well as accountability mechanisms, are needed to reassure that these laws are followed.

Mexico joins at least two countries in Latin America, Venezuela and Argentina, that have laws against obstetric violence.(248) However, in these two countries, the laws are aimed more at identifying and reporting this type of violence against women than preventing it, and little is known about their effectiveness in reducing this type of violence against women.(276) Mexico has an opportunity to take the lead in Latin America on developing and enforcing a definite legal framework at the national and state levels that defines obstetric violence and laws that protect women during pregnancy and childbirth through the respectful care of medical professionals and institutions to prevent this type of violence against women from occurring. Our results suggest that to reduce this problem, there is a need to strengthen health systems for all types of public and private health facilities, paying special attention to

the geographical regions and populations that have experienced higher reported cases of this structural problem.

This secondary analysis has several strengths worth mentioning. First, we had a large sample size which increases the statistical power. Second, both ENDIREH 2016 and 2021 are representative of the state and national level. Third, weighting the results allowed us to account for underrepresented geographical regions that were sampled. And, finally, while obstetric violence and its specific form of non-consented care during childbirth are complex events to measure and there are no validated or standardized tools for this, ENDIREH 2016 and 2021 follow the same rigorous methodology, allowing us to build on the validity of this national household survey.

We acknowledge several limitations of this study, including that self-reporting of any form of sensitive information, such as violence, is prone to different types of biases, such as recall and social desirability bias.(277,278) ENDIREH only asks about the last childbirth experience, excluding potential events of obstetric violence in previous deliveries. Recall bias from ENDIREH respondents who have given birth more than once could have potentially combined the experiences of their different deliveries when answering this survey. ENDIREH only interviews one woman per household, which potentially excludes other women who suffered from this type of violence from being part of the survey. Women who last gave birth more than five years ago (at the time of the survey) are excluded from answering questions related to obstetric violence. And, finally, using proxy information from the time of the survey for some sociodemographic characteristics (such as age, marital status, and employment status) rather than at the time of the last childbirth is a major limitation of this analysis.

Conclusions

Results from this secondary analysis showed an increase from 2016 to 2021 in non-consented care during childbirth, and in one of its variations, pressure to get a contraceptive method or sterilization. While there is a decrease in the prevalence of forced contraceptive method or sterilization without knowledge or authorization and non-consented C-sections, more than 15% of ENDIREH respondents who gave birth in the last five years experienced at least one variation of non-consented care. More research on obstetric violence, such as expanding the obstetric violence section in the next ENDIREH, is

mandatory to further understand why the prevalence of some non-consented practices has increased while others have decreased, as well as to have greater evidence on the risk factors behind this type of violence and to tailor solutions at the different systems (individuals, communities, healthcare providers, service delivery locations, state and national laws and policies) to each geographical region and each type of population affected by it.

Acknowledgements

Chapter 4, in full, is a reprint of the material as it appears in BMC Pregnancy and Childbirth. Marian, Marian; Barker, Kathryn, M.; Reed, Elizabeth; McClain, Amanda C; Lundgren, Rebecka.; Hurst, Samantha.; Pérez, Ramona L. 2024. The dissertation author was the primary investigator and author of this paper.

Tables and Figures

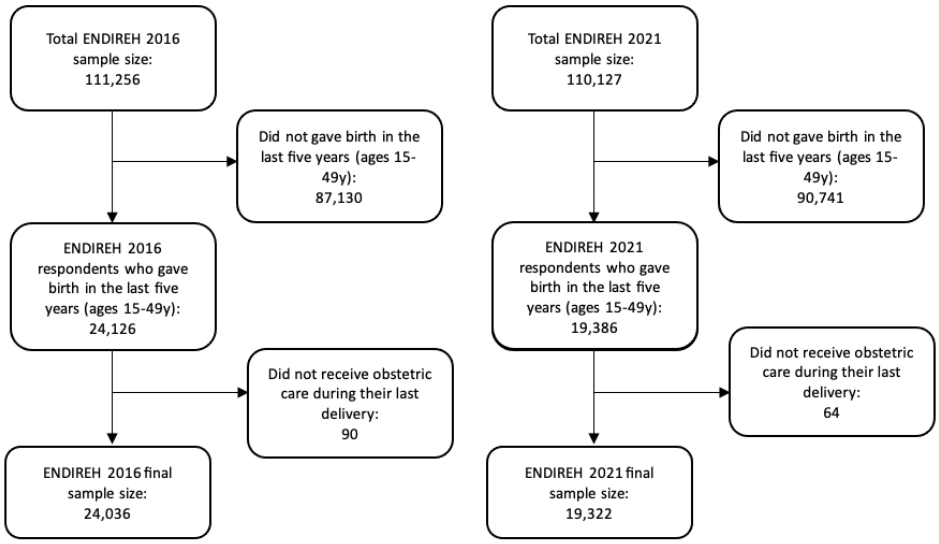


Figure 4.1 Flow charts of ENDIREH 2016 and ENDIREH 2021 final sample sizes

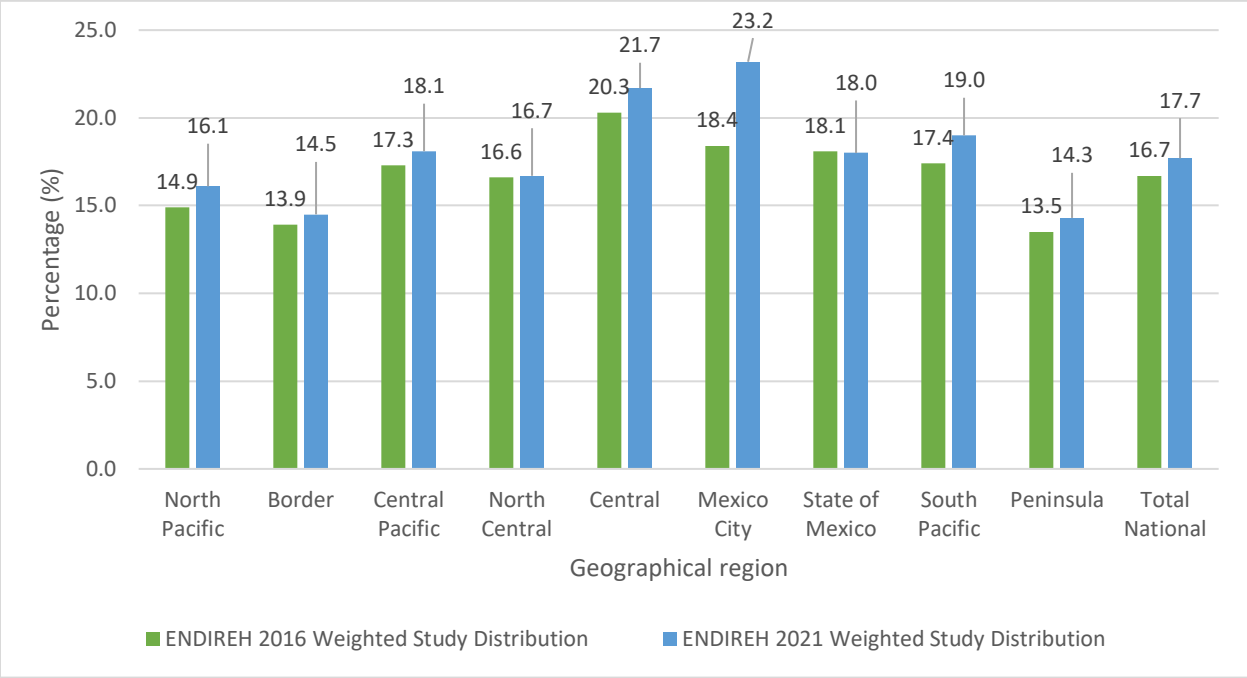


Figure 4.2 Weighted prevalence (%) of non-consented care during childbirth among women who responded to National Survey on the Dynamics of Household Relationships (ENDIREH) 2016 and 2021 stratified by geographical region (ENDIREH 2016 n=24,036, ENDIREH 2021 n=19,322)

Table 4.1 Weighted characteristics of National Survey on the Dynamics of Household Relationships (ENDIREH) 2016 and 2021 respondents who experienced non-consented care during last childbirth (ENDIREH 2016 n=3,877, ENDIREH 2021 n=3,823)

	ENDIREH 2016 respondents who experienced non-consented care during their last childbirth	ENDIREH 2021 respondents who experienced non-consented care during their last childbirth
	% (95% CI)	% (95% CI)
	n=3877	n=3823
Sociodemographic		
Age, y		
< 18	1.9 (1.5-2.3)	1.3 (0.9-1.7)
18-25	37.4 (35.9-38.9)	32.7 (31.1-34.3)
26-35	45.2 (43.6-46.8)	49.6 (47.9-51.3)
36-45	14.9 (13.8-16.0)	15.7 (14.5-16.9)
46-older	0.5 (4.3-5.7)	0.7 (0.4-1.0)
Type of setting where respondent lives		
Urban	77.8 (76.5-79.1)	76.1 (74.6-77.6)
Rural	22.2 (20.9-23.5)	23.9 (22.4-25.4)
Geographical region where respondent lives		
North Pacific	9.0 (8.1-9.9)	9.3 (8.3-10.3)
Border	12.3 (11.3-13.3)	12.7 (11.6-13.8)
Central Pacific	10.9 (9.9-11.9)	10.8 (9.7-11.9)
North Central	12.7 (11.7-13.7)	13.0 (11.8-14.2)
Central	10.2 (9.2-11.2)	9.8 (8.8-10.8)
Mexico City	8.1 (7.2-9.0)	7.4 (6.5-8.3)
State of Mexico (Estado de México)	14.0 (12.9-15.1)	13.9 (12.7-15.1)
South Pacific	12.9 (11.8-14.0)	12.7 (11.6-13.8)
Peninsula	9.9 (9.0-10.8)	10.4 (9.4-11.4)
Highest education attainment		
< 6th grade	14.6 (13.5-15.7)	10.9 (9.8-12.0)
Middle school	38.7 (37.2-40.2)	34.1 (32.5-35.7)
High school or technical school	31.9 (30.4-33.4)	33.1 (31.5-34.7)
Teacher training, college degree or higher	14.8 (13.7-15.9)	22.0 (20.6-23.4)
Literacy-knows how to read and write a note[a]		
Yes	88.3 (85.7-90.9)	87.6 (84.2-91.0)
No	11.7 (9.1-14.3)	12.4 (9.0-15.8)
Ethnic Self-Identification-Considers herself to be Indigenous		
Yes/Yes, partially	27.4 (26.0-28.8)	27.5 (26.0-29.0)
No/Don't know	72.6 (71.2-74.0)	72.5 (71.0-74.0)
Speaks an Indigenous language		
Yes	6.2 (4.8-7.6)	6.9 (5.2-8.6)
No	93.8 (92.4-95.2)	93.1 (91.4-94.8)
Marital Status at the time of the survey		
Married	44.9 (43.3-46.5)	36.9 (35.2-38.6)
Cohabiting	39.9 (38.4-41.4)	45.7 (44.0-47.4)
Single	7.5 (6.7-8.3)	7.6 (6.7-8.5)
Separated or divorced	7.1 (6.3-7.9)	9.1 (8.1-10.1)
Widow	0.6 (0.4-0.8)	0.7 (0.4-1.0)
Employed at the time of the survey		
Yes	39.2 (37.7-40.7)	45.7 (44.0-47.4)
No	60.8 (59.3-62.3)	54.3 (52.6-56.0)
Type of employment[b]		
Paid employee	74.6 (72.4-76.8)	64.6 (62.2-67.0)
Self-employed	22.9 (20.8-25.0)	31.5 (29.1-33.9)
Employer	0.8 (0.4-1.2)	1.7 (1.0-2.4)
Worked without pay	1.6 (1.0-2.2)	2.2 (1.5-2.9)

Table 4.1 continued Weighted characteristics of National Survey on the Dynamics of Household Relationships (ENDIREH) 2016 and 2021 respondents who experienced non-consented care during last childbirth (ENDIREH 2016 n=3,877, ENDIREH 2021 n=3,823)

	ENDIREH 2016 respondents who experienced non-consented care during their last childbirth			ENDIREH 2021 respondents who experienced non-consented care during their last childbirth		
	% (95% CI)			% (95% CI)		
	n=3877			n=3823		
Pregnancy and childbirth						
	Mean	SD	Range	Mean	SD	Range
Pregnancies in the last five years[c]	1.31	0.572	1-7	1.28	0.541	1-5
Parity in the last five years[c]	2.29	0.616	1-11	1.22	0.533	0-5
Stillbirths in the last five years[c]	1.05	0.256	1-7	0.03	0.208	0-3
Miscarriages in the last five years[c]	1.13	0.417	1- 8	0.12	0.370	0-3
	% (95% CI)					
Type of delivery in the last childbirth						
Vaginal	40.4 (38.9-41.9)			40.1 (38.4-41.8)		
Cesarean section	59.6 (58.1-61.1)			59.9 (58.2-61.6)		
Health facility where prenatal care provided in the last pregnancy						
Community health center	34.2 (32.7-35.7)			26.0 (24.6-27.4)		
Mexican Institute of Social Security (IMSS) facility	29.4 (28.0-30.8)			30.6 (29.1-32.1)		
Institute for Social Security and Services for State Workers (ISSSTE facility)	2.3 (1.8-2.8)			2.2 (1.7-2.7)		
Public clinic or hospital	15.8 (14.7-16.9)			15.9 (14.7-17.1)		
Medical clinic or dispensary	1.4 (1.0-1.8)			0.9 (0.6-1.2)		
Private clinic, hospital, or medical office	10.2 (9.2-11.2)			15.2 (14.1-16.3)		
Other[d]	6.0 (5.3-6.7)			8.8 (7.9-9.7)		
No prenatal care received	0.6 (0.4-0.8)			0.4 (0.2-0.6)		
No response	0.1 (0.0-0.2)			0		
Health facility where last delivery occurred						
Community Health Center	10.3 (9.3-11.3)			8.2 (7.3-9.1)		
IMSS facility	35.6 (34.1-37.1)			36.6 (35.0-38.2)		
ISSSTE facility	2.7 (2.2-3.2)			2.6 (2.1-3.1)		
Other state public clinic or hospital	39.5 (38.0-41.0)			37.5 (35.8-39.2)		
Private medical office, clinic, or hospital	10.3 (9.3-11.3)			13.7 (12.5-14.9)		
Other[e]	1.6 (1.2-2.0)			1.4 (1.0-1.8)		
Current medical service affiliation						
Popular Social Security/Health Institute for well-being (INSABI) Insurance[f]	47.9 (46.3-49.5)			17.4 (16.2—18.6)		
Social Security IMSS or IMSS Prospera/Bienestar[g]	29.8 (28.4-31.2)			37.4 (35.9-38.9)		
Social Security ISSSTE	3.0 (2.5-3.5)			3.5 (2.9-4.1)		
Private Insurance	0.5 (0.3-0.7)			0.4 (0.2-0.6)		
Other public state institution[h]	0.6 (0.4-0.8)			2.2 (1.7-2.7)		
More than one	3.7 (3.1-4.3)			1.1 (0.8-1.4)		
Does not have medical insurance	9.0 (8.1-9.9)			38.0 (36.5-39.5)		
No information provided	5.5 (4.8-6.2)			0		

[a]For respondents who completed 6th grade or less.
[b]For respondents employed at the time of the survey.
[c]In the last five years for ENDIREH 2016 is between 2011 and 2016 and for ENDIREH 2021 is between 2016 and 2021.
[d]Includes midwives, healers, physicians at pharmacies, and receiving more than one type of service.
[e]Includes at home with a midwife or healer.
[f] Social Security Popular (Seguro Popular, in Spanish) evolved into the Health Institute for well-being (Instituto de Salud para el Bienestar, INSABI, in Spanish) in 2020.(279)
[g] IMSS Prospera evolved into IMSS Bienestar in 2019.(280)
[h]Includes insurance from PEMEX, Marines, and Defense

Table 4.2 Weighted Prevalence (% and 95% CI) of different forms of non-consent care experienced by ENDIREH 2016 and 2021 respondents stratified by geographical region (ENDIREH 2016 n=3,877, ENDIREH 2021 n=3,823)

	Forced contraceptive method or sterilization without knowledge or authorization (% and 95% CI)		Pressure to get a contraceptive method or sterilization (% and 95% CI)		Forced or threatened to sign paperwork (% and 95% CI)		Not informed about the need of a Cesarean section (% and 95% CI)[a]		Did not provide authorization for Cesarean section (% and 95% CI)	
	ENDIREH 2016	ENDIREH 2021	ENDIREH 2016	ENDIREH 2021	ENDIREH 2016	ENDIREH 2021	ENDIREH 2016	ENDIREH 2021	ENDIREH 2016	ENDIREH 2021
North Pacific	26.9 (25.5-28.3)	25.4 (24.0-26.8)	48.3 (46.7-49.9)	56.6 (55.0-58.2)	6.0 (5.3-6.7)	7.9 (7.0-8.8)	42.3 (40.7-43.9)	40.0 (38.4-41.6)	37.4 (35.9-38.9)	26.5 (25.1-27.9)
Border	23.1 (21.8-24.4)	27.3 (25.9-28.7)	50.9 (49.3-52.5)	47.2 (45.6-48.8)	8.8 (7.9-9.7)	7.9 (7.0-8.8)	56.0 (54.4-57.6)	39.0 (37.5-40.5)	36.7 (35.2-38.2)	38.1 (36.6-39.6)
Central Pacific	15.9 (14.7-17.1)	23.4 (22.1-24.7)	57.7 (56.1-59.3)	58.9 (57.3-60.5)	10.2 (9.2-11.2)	7.6 (6.8-8.4)	34.2 (32.7-35.7)	43.5 (41.9-45.1)	43.0 (41.4-44.6)	29.0 (27.6-30.4)
North Central	20.4 (19.1-21.7)	16.2 (15.0-17.4)	60.1 (58.6-61.6)	66.4 (64.9-67.9)	9.8 (8.9-10.7)	8.2 (7.3-9.1)	43.7 (42.1-45.3)	39.6 (38.0-41.2)	35.5 (34.0-37.0)	33.3 (31.8-34.8)
Central	23.2 (21.9-24.5)	22.7 (21.4-24.0)	61.9 (60.4-63.4)	59.0 (57.4-60.6)	7.8 (7.0-8.6)	6.2 (5.4-7.0)	37.7 (36.2-39.2)	29.1 (27.7-30.5)	40.4 (38.9-41.9)	38.7 (37.2-40.2)
Mexico City	23.8 (22.5-25.1)	22.6 (21.3-23.9)	62.5 (61.0-64.0)	58.0 (56.4-59.6)	13.7 (12.6-14.8)	12.8 (11.7-13.9)	41.9 (40.3-43.5)	31.7 (30.2-33.2)	40.2 (38.7-41.7)	26.7 (25.3-28.1)
State of Mexico (Estado de México)	33.0 (31.5-34.5)	23.1 (21.8-24.4)	52.0 (50.4-53.6)	56.8 (55.2-58.4)	12.4 (11.4-13.4)	14.7 (13.6-15.8)	47.5 (45.9-49.1)	41.3 (39.7-42.9)	39.7 (38.2-41.2)	30.3 (28.8-31.8)
South Pacific	25.8 (24.4-27.2)	26.6 (25.2-28.0)	56.0 (54.4-57.6)	59.1 (57.5-60.7)	10.2 (9.2-11.2)	5.3 (4.6-6.0)	41.4 (39.8-43.0)	27.7 (26.3-29.1)	35.8 (34.3-37.3)	38.0 (36.5-39.5)
Peninsula	22.9 (21.6-24.2)	21.6 (20.3-22.9)	39.5 (38.0-41.0)	43.1 (41.5-44.7)	8.1 (7.2-9.0)	6.4 (5.6-7.2)	42.0 (40.4-43.6)	41.9 (40.3-43.5)	50.7 (49.1-52.3)	45.9 (44.3-47.5)
Total National	24.1 (22.8-25.4)	23.2 (21.9-24.5)	53.4 (51.8-55.0)	56.2 (54.6-57.8)	9.7 (8.8-10.6)	8.6 (7.7-9.5)	43.2 (41.6-44.8)	37.3 (35.8-38.8)	39.9 (38.4-41.4)	34.5 (33.0-36.0)

Table 4.3 Association between sociodemographic characteristics, pregnancy, and childbirth factors and experiencing non-consented care during childbirth among ENDIREH 2016 and 2021 respondents

	COR (95% CI)	AOR (95% CI)
Age, y		
< 18	1	1
18-25	1.06 (0.87-1.30)	1.13 (0.92-1.40)
26-35	1.33 (1.09-1.63)**	1.47 (1.19-1.82)***
36-45	1.44 (1.17-1.77)***	1.63 (1.31-2.02)***
46-older	1.44 (0.98-2.11)	1.60 (1.08-2.37)*
Setting		
Urban	1	1
Rural	1.19 (1.12-1.26)***	1.16 (1.09-1.24)***
Geographical region		
North Pacific	1	1
Border	1.11 (0.99-.1.24)	1.06 (0.94-.1.19)
Central Pacific	0.85 (0.76-0.95)**	0.81 (0.72-0.91)***
North Central	0.92 (0.82-1.02)	0.84 (0.75-0.94)**
Central	0.69 (0.62-0.77)***	0.64 (0.57-0.72)***
Mexico City	0.71 (0.63-0.80)***	0.65 (0.57-0.73)***
State of Mexico (Estado de México)	0.83 (0.77-0.92)***	0.72 (0.64-0.80)***
South Pacific	0.83 (0.74-0.92)***	0.72 (0.64-0.81)***
Peninsula	1.14 (1.00-1.28)*	1.07 (0.94-1.21)
Educational attainment		
Up to 6th grade	1	
Middle school	0.89 (0.83-0.97)**	1.00 (0.92-1.09)
High school or technical school	0.78 (0.72-0.85)***	0.89 (0.81-0.97)**
Teacher training, college degree or higher	0.89 (0.81-0.97)*	0.82 (0.74-0.91)***
Ethnic-Self Identification-Considers herself to be Indigenous		
Yes/Yes, partially	1	
No/Don't know	1.00 (0.95-1.06)	
Employed at the time of the survey		
Yes	1	1
No	1.07 (1.01-1.12)*	1.03 (0.97-1.09)
Marital Status		
Cohabitating	1	1
Separated or divorced	0.94 (0.85-1.04)	0.94 (0.85-1.04)
Widow	0.91 (0.66-1.25)	0.80 (0.58-1.12)
Married	1.13 (1.07-1.19)***	1.02 (0.96-1.08)
Single	0.84 (0.76-0.93)***	0.89 (0.80-0.99)*
Number of pregnancies in the last 5 years		
1	1	
>1	1.00 (0.95-1.06)	
Parity in the last five years		
0	1	
1	0.96 (0.70-1.32)	
>1	1.03 (0.75-.1.41)	
Stillbirths in the last five years		
0	1	1
≥1	1.07 (1.01-1.12)*	1.11 (1.05-1.18)***

Table 4.3 continued Association between sociodemographic characteristics, pregnancy, and childbirth factors and experiencing non-consented care during childbirth among ENDIREH 2016 and 2021 respondents

	COR (95% CI)	AOR (95% CI)
Miscarriages in the last five years		
0	1	
≥1	1.03 (0.97-1.08)	
Type of delivery in the last childbirth		
Cesarean section	1	1
Vaginal	2.00 (1.91-2.11)***	2.42 (2.29-2.55)***
Location of prenatal care provider		
Community health center	1	1
IMSS facility	0.81 (0.76-0.87)***	1.15 (1.03-1.28)*
ISSSTE facility	1.10 (0.93-1.30)	0.93 (0.72-1.21)
Public clinic or hospital	0.99 (0.91-1.07)	1.04 (0.96-1.13)
Medical clinic or dispensary	1.04 (0.82-1.31)	0.96 (0.76-1.22)
Private clinic, hospital, or medical office	1.58 (1.46-1.71)***	1.05 (0.94-1.17)
Other[a]	0.97 (0.87-1.07)	0.81 (0.72-0.91)***
No prenatal care received	1.26 (0.91-1.74)	1.08 (0.77-1.52)
Place of childbirth delivery		
Community Health Center	1	1
IMSS facility	0.69 (0.63-0.76)***	0.64 (0.57-0.73)***
ISSSTE facility	1.05 (0.88-1.25)	1.20 (0.94-1.55)
Other state public clinic or hospital	0.86 (0.78-0.94)**	0.88 (0.80-0.97)*
Private medical office, clinic, or hospital	1.93 (1.74-2.15)***	2.69 (2.36-3.06)***
Other[b]	2.54 (2.06-3.14)***	2.16 (1.73-2.70)***
Current medical service affiliation		
Social Security IMSS	1	1
Social Security ISSSTE or Prospera/Bienestar[c]	1.43 (1.24-1.64)***	1.15 (0.95-1.39)
Social Security Popular/Health Institute for well-being (INSABI) insurance[d]	1.11 (1.05-1.18)***	0.93 (0.86-1.02)
Other public state institution[e]	1.67 (1.34-2.09)***	1.33 (1.06-1.68)*
Private Insurance	2.18 (1.55-3.06)***	1.15 (0.81-1.64)
More than one	1.24 (1.05-1.46)**	0.99 (0.83-1.17)
Does not have medical insurance	1.16 (1.08-1.24)***	0.97 (0.90-1.05)

[a]Includes midwives, healers, physicians at pharmacies, and receiving more than one type of service.
[b]Includes at home with a midwife or healer.
[c]IMSS Prospera evolved into IMSS Bienestar in 2019.(280)
[d]Social Security Popular (Seguro Popular, in Spanish) evolved into the Health Institute for well-being (Instituto de Salud para el Bienestar, INSABI, in Spanish) in 2020.(279)
[e]Includes insurance from PEMEX, Marines, and Defense.
* p< 0.05 ** p< 0.01 *** p< 0.001
COR: Crude Odds Ratio; AOR: Adjusted Odds Ratio; CI: Confidence Interval

Chapter 5. Discussion

In this chapter, we summarize the key findings and limitations of Chapters 2, 3, and 4. Then we discuss the potential implications of the research done and recommendations based on our results, followed by the concluding remarks of this dissertation.

Summary of Key Findings

This dissertation research aims to advance the literature on exploring structural violence against women in Mexico by assessing direct and indirect forms of violence in different public health issues present in this country. While the three studies from this dissertation are independent of each other, structural violence is inherent in the issues explored in Chapters 2, 3, and 4. Structural violence impacts a broad range of personal, economic, and social factors that influence health factors (18) and are expressed in different forms of inequities, such as gender inequities, which is the root of the topics of this dissertation, gender-based nutrition-related inequities during pregnancy, GBV, and obstetric violence.

Chapter 2 explored the nutritional education and knowledge women in the cities of Oaxaca City and Puerto Escondido, in the state of Oaxaca, received during their pregnancy, as well as their nutritional practices, prenatal supplemental acquisition, and use behaviors during the prenatal period. From the 25 semi-structured interviews completed between the two cities, five themes emerged: 1) Life experiences, sociodemographic, and health characteristics that influence nutritional practices and knowledge during pregnancy; 2) Female family members as a primary source of nutritional knowledge and food support; 3) Support from other members of women's social network; 4) Medical guidance for nutrition during pregnancy; and 5) Quality and gaps in the broader health care system and social services. These themes highlight how women's own experiences and social identities and the different interpersonal and community-level environments interact and shape women's nutritional knowledge and practices during pregnancy. These results elucidate the experiences and characteristics that guided the nutritional practices and knowledge of Oaxacan women during pregnancy. The study fills a gap on identifying under-acknowledged barriers of structural violence that result in gender-based nutrition-related inequities for women during pregnancy, such as food insecurity and lack of access to nutritional supplements, but also

what these women are doing and the support they receive from their social networks to address these gaps during their prenatal period.

In Chapter 3, we completed a thematic content analysis to assess the themes covered in 2020, 2021, and 2022 by Mexican NGOs on X during the annual '16 Days of Activism Against GBV' campaign and examine the tweets most frequently liked by the public. The 200 most liked tweets per campaign year (total of 600 tweets) with at least one of four hashtags (#16días/#16DiasdeActivismo/#16DíasdeActivismo, #25N/#25Noviembre, #DiaNaranja/#DíaNaranja, and #PintaElMundoDeNaranja) were analyzed. The five themes that emerged were: 1) activism and how to be an activist; 2) types of GBV; 3) increasing the public's engagement and awareness; 4) GBV as a violation of human rights; and 5) the COVID-19 pandemic's impact on GBV. The tweets from this campaign that were frequently liked by the public reflect some of the most significant societal issues currently present in the country. Findings from this analysis bring evidence of what NGOs in Mexico are doing through hashtag activism to prevent and eliminate GBV. Based on our research, we found that through activism, educating the population, and calling out structures of power, these organizations aim to break the structural violence that perpetuates GBV in this country.

For Chapter 4, we used data from Mexico's ENDIREH national datasets to determine the prevalence and assess change over time of non-consented care during childbirth, a form of obstetric violence, in 2016 and 2021 at a national and regional level. We also examined the association of sociodemographic, pregnancy-, and childbirth factors with this type of violence. We found that the national prevalence of non-consented care during childbirth increased from 2016 to 2021. One of the non-consented care variations, pressure to get a contraceptive method, also increased during this period. A decrease in prevalence was observed for the other variations of non-consented care nationally and in most of the nine regions. Women between the ages of 26 and 35 years, married, cohabiting with a partner, living in urban settings, who do not identify as Indigenous, and who received prenatal services or gave birth at IMSS facilities experienced a higher prevalence of non-consented care during childbirth. Being 26 years of age and older, living in a rural setting, experiencing stillbirths in the last five years, having a vaginal delivery, receiving prenatal services at IMSS, or delivering at a private facility were significantly associated with higher odds of reporting non-consented care. This study provides evidence

on sociodemographic, pregnancy-, and childbirth factors associated with obstetric violence and how this form of GBV is rooted in structural and interpersonal violence manifested as inequities in healthcare facilities.

Dissertation Limitations

This dissertation has several limitations to acknowledge. Recall bias is a potential limitation of the studies described in Chapters 2 and 4. In Chapter 2, as participants were asked about their nutritional practices during all of their pregnancies, those whose first pregnancies happened over a longer time interval could potentially not accurately remember. For both Chapters 2 and 4, women who had given birth more than once could potentially combine their experiences, leading to inaccurate recollections of a specific pregnancy. A limitation shared by the studies from Chapters 3 and 4 is the lack of theoretical frameworks to guide these research projects. Theoretical frameworks provide a guiding lens for all methodological aspects of research, such as the development of the research question, and the conceptualization and analysis of the data.(281) While the Ecological Systems Theory and the Intersectionality Framework were used to guide the research questions, interview guide, data coding, and analysis of Chapter 2, this was not followed for the research studies completed in Chapters 3 and 4, missing the opportunity to use theoretical foundations to guide and understand our results. However, the overarching conceptual framework on structural violence (282,283) that guided this dissertation and the inductive nature of the research for both studies lay the groundwork for future research and theoretical frameworks in GBV.

Related to each chapter individually, the main limitations in Chapter 2 included the small sample size in the city of Oaxaca (n=9) compared to the city of Puerto Escondido (n=16), as well as the difference in recruitment techniques between both cities. Participants were recruited in markets, health centers, and through word of mouth in the city of Oaxaca, while all participants from Puerto Escondido were purposefully recruited at one health center. To make up for the small sample in the city of Oaxaca and the differences in recruitment methods between both cities, we focused on strengthening two central elements of the interview process, which were the interview guide and the probes for each question. Through the effective use of the interview guide and probes, we were able to achieve a high level of depth and detail from participants. In Chapter 3, one of the main limitations comes from the concise

information that each analyzed tweet had, as messages from X are only allowed to be up to 280 characters, limiting the information that could be shared by NGOs through this platform. This research analyzed the most frequently liked tweets from the 2020, 2021, and 2022 campaigns; however, the sample size was limited to a total of 600 tweets, which could potentially lead to missed messages that the public was highly engaged with during these campaigns. For Chapter 4, while the large sample size increased the statistical power of the analysis, self-reporting, particularly due to the sensitive topic that violence is, is prone to social desirability bias in this study, as overreporting of behaviors that are more acceptable is a threat to validity in studies that involve violence self-reports.(284)

Despite these limitations, this dissertation highlights different research methods, specifically semi-structured in-depth qualitative interviews, thematic content analysis of social media data, and descriptive statistics, to examine structural violence against women in Mexico from different methodological perspectives. The intention of this dissertation was not to generalize results among the three studies but to explore different public health areas in order to triangulate knowledge to have a broader spectrum of structural violence against women in Mexico. To do this, methodologies that were subjective in nature to interpret data were required and used in Chapters 2 and 3 to triangulate with the quantitative findings from Chapter 4. The three studies provide information that fills some gaps in the literature on GBV and nutrition during pregnancy among the Mexican population, as well as a holistic overview of structural violence that women face in this country.

Implications and Recommendations

In a period of political and nutritional transitions in Mexico (77,86), Chapter 2 adds to the literature on understanding the nutritional practices of women during pregnancy in the cities of Oaxaca and Puerto Escondido, in the state of Oaxaca, including access to and use of nutritional supplements, as well as further examining the sources of their nutritional knowledge. Extensions for this work can include the replication of this study in rural communities in the state of Oaxaca, as 51% of the population in this state lives in rural communities, compared to 21% at the national level.(285,286) Further studies could expand on assessing the type of nutritional education provided in private and public prenatal care in Oaxaca through key informant interviews with health professionals at the public and private levels. The policies

and practices around prenatal nutritional supplement availability (in public health facilities) and recommendations could also be further examined through key informant interviews, as this was one of the differences in practice between women in Puerto Escondido and Oaxaca City, as well as women who received their prenatal care in private settings vs. women who attended public clinics. One of the findings from the study in Chapter 2 is the importance of support from other members of women's social network during pregnancy, particularly female family members. Future studies that follow mother-daughter or grandmother-granddaughter dyads during the pregnancy of the daughter/granddaughter could further elaborate on the nutritional knowledge shared and other forms of support provided by elder female family members during the prenatal period among Mexican women.

The research findings in Chapter 3 are some of the first ones to examine the roles of NGOs in hashtag feminism in Mexico. Our results could be used to guide future '16 Days of Activism Against Gender-Based Violence' campaigns as well as other online campaigns addressing GBV. While we focused our research on Mexican-based NGOs, the '16 Days of Activism Against Gender-Based Violence' is a global campaign, and any tweet from this campaign, regardless of the location of the NGO who posted the message, can be seen by any person with access to the internet; therefore, we recommend further thematic content analysis on tweets published by NGOs from other countries to have a better understanding of the public's engagement with this global campaign. More research on other GBV campaigns, feminist hashtag campaigns, and activists is also recommended to further understand the public's engagement with GBV activism and the evolution of GBV in Mexico. However, at the time this dissertation was completed (August 2024), it is unknown if research using likes from tweets to analyze the public's engagement could be done in the future, as in June 2024, X modified its policy and made likes private.(287) While accountholders are still able to manage their likes, this information is no longer public, limiting researchers' ability to study the public's engagement through likes, which was the metric we used for this analysis. Still, retweets are another metric that has been used in the past to measure engagement on a tweet and could be used to analyze the public's engagement on GBV and other important hashtag feminists' campaigns, as X continues to be used by millions of social media users in Mexico and the rest of the world.(288)

For Chapter 4, while the prevalence of some variations of non-consented care decreased from 2016 to 2021, the national prevalence increased during this period. Our findings suggest the need to enforce current laws and strengthen health systems, paying special attention to the geographical regions and populations that have experienced higher reported cases of this structural problem. The specific variation of non-consented care, pressure to get a contraceptive method or sterilization, should be further analyzed, as it was the only variation in the ENDIREH surveys that increased between the two time periods. Policies and interventions should pay special attention to the geographical regions of Mexico City and Central Mexico, the two regions with the highest percentage of non-consented care in the country. Specific to ENDIREH data, additional studies could explore the association between non-consented care during childbirth and other forms of obstetric violence present in ENDIREH 2016 and 2020, specifically physical abuse, abandonment of care, and non-dignified care. Future ENDIREH surveys could expand its obstetric violence questionnaire to include questions about other variations of non-consented care not currently present on this cross-sectional survey, such as non-consented episiotomies, blood transfusions, or augmentation of labor, to name a few. Finally, due to the high prevalence of C-sections in Mexico (289), further questions that investigate the rates and reasons behind the number of unnecessary C-sections in the country could also be added to ENDIREH.

Conclusions

In this dissertation, we sought to broaden knowledge of GBV, non-consented care during childbirth, access to nutrition, nutritional practices, and knowledge during pregnancy, health issues that are a result of structural violence against women in Mexico. Taken together, the findings from these three papers contribute to the foundation on which to build our understanding of these areas, as well as providing recommendations for future research. Public health efforts, such as policies and interventions, are needed to address the different forms of violence against women in Mexico, especially in contexts where violence and inequality are invisible due to structural and institutional disadvantages.

Supplementary appendix

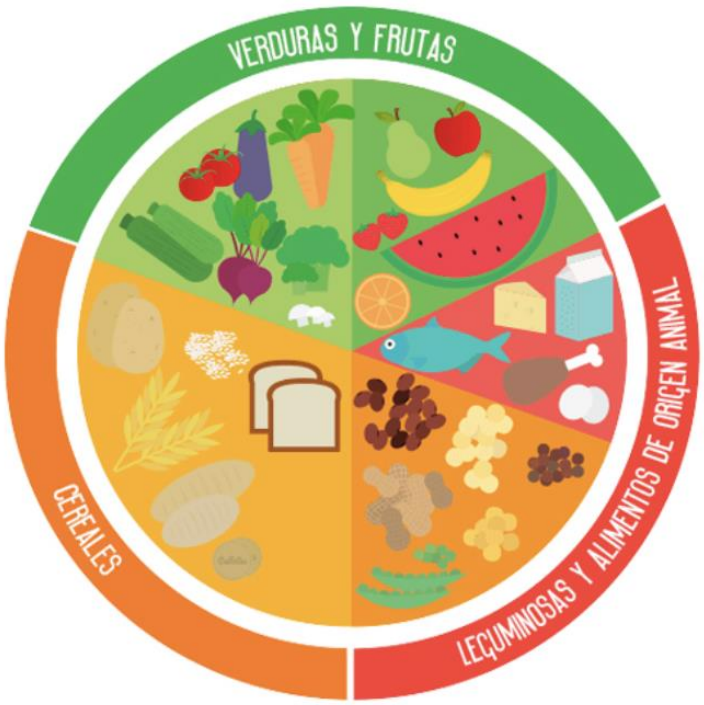
Chapter 2

Supplemental Table 2.4 Semi-structured interview guide

Related to food consumption and acquisition: **1.** What would you say were the foods you ate the most during the last pregnancy? What are the reasons for consuming these foods? What were you told by your doctor/person providing care to eat during your pregnancy? **2.** What would you say are the foods you eat most frequently? What are the reasons for consuming these foods? **3.** Did you eat differently during your pregnancies? If so, how do you eat differently? **4.** (only for women who have been pregnant more than once) If has changed, what are the reasons for that? **5.** Do you eat differently when you are pregnant versus when you are not pregnant? If so, how do you eat differently? **6.** How did you get the food that you ate when you were pregnant? How do you get the food (when not pregnant)?
Related to nutrition education: **7.** What type of nutrition education did you receive when you were pregnant and from whom? **8.** What type of nutrition education have you received (when not pregnant) and from whom? **9.** Where would you say your nutrition knowledge comes from?
Related to nutritional supplements: **10.** Did you consume nutritional supplements during your pregnancy? **11.** If no to Q11, what are the reasons for not consuming nutritional supplements during your pregnancy? **12.** If yes to Q11, what type of supplements did you took? How did you obtain these supplements? How frequently would you say you consume these supplements? For how long did you consume these supplements? For the ones who stopped consuming nutritional supplements, could you provide me the reason why you stopped taking the supplements?
Related to *Prospera* and other social services: **13.** Did you previously receive services from *Prospera*? **14.** If yes to Q14, what type of nutrition education did you receive from *Prospera*? **15.** If yes to Q14, did you receive services from *Prospera* when you were pregnant? **16.** If yes to Q16, what type of nutrition education did you receive from *Prospera* when you were pregnant? **17.** Did you receive nutritional supplements from *Prospera* when you were pregnant? **18.** If yes to Q18, what type of supplements did you receive? How often did you receive these? How frequently did you consume these supplements? For how long did you consume these supplements? For the ones who stopped consuming nutritional supplements, why did you stop consuming the supplements? **19.** How was your nutrition different when you were pregnant and receiving *Prospera* compared to your last pregnancy? (for women who received *Prospera* while pregnant and were pregnant at least once when they were not receiving *Prospera*) **20.** Did you receive any other form of social services when you were pregnant? If yes, what services were those? What type of nutritional education did you receive from these? For how long?

Supplemental Table 5.2 Additional quotes

Theme	Quote
1. Women's own decisions, experiences, and knowledge	"I had problems because I felt insecure and when I went to work, I sometimes skipped meals, I didn't give me time to eat." (Participant #3, age 29, Oaxaca City) "Well, the truth is, well, I did suffer for a while for money" (Participant #7, age 27, Oaxaca City) "Well, since school. From school they teach us how to eat, right? They take us, they give us classes, maybe in the books it comes. And the talks they normally give you." (Participant #27, Puerto Escondido)
2. Female family members as a primary source of knowledge and food support	"From older family members, well, the elders. They are the ones who tell you "no, you can't eat this"" (Participant #25, age 41, Puerto Escondido) "And at times, (the pregnancy) asked me for acidic stuff (food), but at times they (grandmother and mother) would not allow me, because they said that when the baby is born it will hurt you a lot. And then, the baby would grow with, how do you say? With stomach inflammation" (Participant #13, age 30, Puerto Escondido) "Well, from time to time my mother brings me food, *mole* (Mexican dish with a traditional sauce of the same name), broths. But, well, most of the time, I do them." (Participant #26, age 21, Puerto Escondido)
3. Support from husbands and other members of women's social network	"I hardly saw the doctor there…because my children's father was a little more closed. So, no, he almost didn't like me going to the doctor." (Participant #14, age 34, Puerto Escondido) "And here we don't know, if it is high risk (pregnancy) we don't want to be responsible for what happens." So this one, well then my dad was there, says "no daughter, he says, you better go to an individual, he won't do what your baby costs you, but make sure it turns out well." (Participant #1, age 38, Oaxaca City) "(I use *Materna* nutritional supplement) because my husband's aunt was taking that. And during both of her pregnancies she was taking that…That's very good, I can still use it while breastfeeding." (Participant #22, age 22, Puerto Escondido)
4. Medical guidance for nutrition during pregnancy	"(Nutritionist taught me that) I have to eat in portions, I have to eat snacks, that I should not eat so much fat, no sugar, not with so much salt. And, well, also, eat five times a day, have snacks, reduce carbohydrates, and all that" (Participant #27, age 34, Puerto Escondido) "Here (At the health center) the nurses just (taught) about the "*plato del bien comer*" and all of that" (Participant #27, age 34, Puerto Escondido) "(the doctor told me) to eat zucchinis, well, green beans, chayotes, all of the vegetables" (Participant #4, age 20, Oaxaca City)
5. Quality and gaps the broader health care system and social services	"I almost always resort more to *Similares* (a pharmacy), because at the (health) center it takes them all day to see…It's difficult, to waste time" (Participant #2, 31, Oaxaca City)



(290)

Supplemental Figure 2.3 Plato del bien comer (the eatwell plate)

Chapter 3

Supplemental Table 6.1 Codebook of the Thematic Analysis of the 2020, 2021, and 2022 16 Days of Activism Against Gender-Based Violence Campaign

Code	Description
Activism	Mentions what is activism, the need for activism, how to be part of the movement.
Adolescents	Mentions adolescents or women ages 12-17.
Career	Mentions anything related to career or jobs.
Country/state/city	A specific country, state or city is mentioned on tweet or through a hashtag.
COVID-19	Mentions COVID-19 or comment relates to COVID-19 pandemic.
Culture	Mentions the word culture, cultural.
Data about GBV	Provides data/numbers about gender-based violence.
Digital violence	Mentions digital or cyber violence.
Discrimination	Mentions the word discrimination or related concepts.
Economy	Mentions the word economy or concepts related to money, economic situation, etc.
Education	Mentions the word education, school, or related concepts.
Equality/justice	Mentions the words justice, equality, injustice, inequality, inequity, or related concepts.
Event/activity	Mentions an invitation to a march, conference, workshop, webinar related to GBV or the 16 Days against GBV.
Explanation about campaign	Explains or defines what the 16 days of activism campaign is about.
Femicide	Mentions the word femicide (*feminicidio* in Spanish) or the death of a woman due to violence against her gender.
GBV advocate/defender	Organization, person, movement working towards the elimination of gender-based violence.
Girls	Mentions adolescents or women under the age of 12.
Good example	Example worth using on reports or articles.
Health services	Mentions any of health services (mental, physical, etc.).
How to eradicate GBV-resources	Provides suggestions on how to eradicate GBV at the interpersonal and/or community level.
Human rights	Mentions human rights. December 10 is International Human Rights Day, so tweets from that date could mention human rights and its relationship with GBV eradication.
Just hashtags	Use this code when the tweet only contains hashtags. Please check before coding if there is a link to a picture or video. If there is, code the tweet based on the picture/video and do not use this code. If the tweet only includes hashtags used this code.
Law/Governments/ politics	Anything related to laws, the government, politics, or politicians.
Migrants/Refugees	Mentions migrants, migration, or refugees.
Obstetric Violence	Mentions violence that occurs during the prenatal, childbirth, or postnatal period.
Personal characteristics	Ethnicity, age, economic status, disability, or another aspect of a person mentioned.
Physical violence	Mentions any form of physical violence.
Reporting violence	Mentions, recommends, provides tools about reporting any form of GBV.
Reproductive rights/health	Reproductive rights, menstruation, reproductive health, contraceptives, abortion.
Respect	Mentions the word respect, lack of respect, or related concepts.
Safety	Mentions the word safety or related concepts.
Sexual violence	Mentions sexual torture, sexual abuse, rape, or any other form of sexual violence.
Society	Mentions society, norms, rules, or related concepts.
Sports	Mentions sports or a specific sport.
Victim/survivors	Mentions about gender-based violence victims/survivors.
Violence against women/girls	Mentions violence against women and/or girls and/or adolescents and/or gender-based violence and not a specific type of violence (physical, sexual, etc.)
Violence at home	Mentions any information about violence occurred at home.
Women	Mentions women (ages 18 and older).

References

1. World Bank Group. Mexico Gender Landscape [Internet]. World Bank; 2022. Available from: https://documents1.worldbank.org/curated/en/099052307012279101/pdf/IDU0e67f60bc0e0bb049090a6560f318b694d69c.pdf

2. United Nations. Gender Inequality Index [Internet]. Human Development Reports. United Nations; 2022 [cited 2023 Feb 7]. Available from: https://hdr.undp.org/data-center/thematic-composite-indices/gender-inequality-index

3. World Economic Forum. Global Gender Gap Report 2023. World Economic Forum; 2023 Jun.

4. World Bank. Mexico Gender Landscape. World Bank;

5. UN Women. UN Women – Americas and the Caribbean. [cited 2024 Jun 20]. Mexico. Available from: https://lac.unwomen.org/en/donde-estamos/mexico

6. Crippa Méndez M, Rodríguez Barraza A. An Interpretation of Femicide in Mexico: Violence and Human Rights. Adv Appl Sociol. 2022;12(02):11–28.

7. UNICEF México. UNICEF México. 2020 [cited 2024 Jul 17]. ONU México llama a escuchar las voces de las mujeres que claman igualdad y justicia. Available from: https://www.unicef.org/mexico/comunicados-prensa/onu-m%C3%A9xico-llama-escuchar-las-voces-de-las-mujeres-que-claman-igualdad-y

8. Bowser D, Hill K. Exploring Evidence for Disrespect and Abuse in Facility-Based Childbirth. Harv Sch Public Health Univ Res Co LLC. 2010 Sep 20;57.

9. Sinha P, Gupta U, Singh J, Srivastava A. Structural Violence on Women: An Impediment to Women Empowerment. Indian J Community Med Off Publ Indian Assoc Prev Soc Med. 2017;42(3):134–7.

10. Galtung J. Violence, Peace, and Peace Research. J Peace Res. 1969;6(3):167–91.

11. Macassa G. Does Structural Violence by Institutions Enable Revictimization and Lead to Poorer Health Outcomes?—A Public Health Viewpoint. Ann Glob Health. 89(1):58.

12. Outlaw M. No One Type of Intimate Partner Abuse: Exploring Physical and Non-Physical Abuse Among Intimate Partners. J Fam Violence. 2009 May 1;24(4):263–72.

13. Galán Jiménez JS, de la Rosa Rodríguez PI, Hernández Rodríguez KY. Violencia estructural, mujeres y conductas disruptivas en San Luis Potosí, México. Rev Crim [Internet]. 2022 Dec [cited 2024 Jun 20];64(2). Available from: http://www.scielo.org.co/scielo.php?script=sci_arttext&pid=S1794-31082022000300023

14. Lee BX. Structural Violence. In: Violence: An Interdisciplinary Approach to Causes, Consequences, and Cures [Internet]. John Wiley & Sons, Ltd; 2019 [cited 2023 Feb 7]. p. 123–42. Available from: https://onlinelibrary.wiley.com/doi/abs/10.1002/9781119240716.ch7

15. Singer M. Toward a bio-cultural and political economic integration of alcohol, tobacco and drug studies in the coming century. Soc Sci Med 1982. 2001 Jul;53(2):199–213.

16. Wilson M, McLennan A. A comparative ethnography of nutrition interventions: Structural violence and the industrialisation of agrifood systems in the Caribbean and the Pacific. Soc Sci Med. 2019 May 1;228:172–80.

17. Montesanti SR. The role of structural and interpersonal violence in the lives of women: a conceptual shift in prevention of gender-based violence. BMC Womens Health. 2015 Oct 26;15(1):93.

18. Montesanti SR, Thurston WE. Mapping the role of structural and interpersonal violence in the lives of women: implications for public health interventions and policy. BMC Womens Health. 2015 Nov 11;15(1):100.

19. Sasseville N, Maurice P, Montminy L, Hassan G, St-Pierre É. Cumulative Contexts of Vulnerability to Intimate Partner Violence Among Women With Disabilities, Elderly Women, and Immigrant Women: Prevalence, Risk Factors, Explanatory Theories, and Prevention. Trauma Violence Abuse. 2022 Jan;23(1):88–100.

20. García-Moreno C, Zimmerman C, Morris-Gehring A, Heise L, Amin A, Abrahams N, et al. Addressing violence against women: a call to action. The Lancet. 2015 Apr 25;385(9978):1685–95.

21. Bellows AC, Lemke S, Jenderedjian A, Scherbaum V. Violence as an Under-Recognized Barrier to Women's Realization of Their Right to Adequate Food and Nutrition: Case Studies From Georgia and South Africa. Violence Women. 2015 Oct;21(10):1194–217.

22. FAO. Food and Agriculture Organization of the United Nations. [cited 2023 Jan 28]. Hunger. Available from: https://www.fao.org/hunger/en/

23. Ashby S, Kleve S, McKechnie R, Palermo C. Measurement of the dimensions of food insecurity in developed countries: a systematic literature review. Public Health Nutr. 2016 Nov;19(16):2887–96.

24. Sharma A, Lin M, Okumus B, Kesa H, Jeyakumar A, Impellitteri K. Adopting a systems view of disrupting crisis-driven food insecurity. Public Health. 2022 Oct;211:72–4.

25. Myers CA. Food Insecurity and Psychological Distress: A Review of the Recent Literature. Curr Nutr Rep. 2020 Jun;9(2):107–18.

26. Ricks JL, Cochran SD, Arah OA, Williams JK, Seeman TE. Food insecurity and intimate partner violence against women: results from the California Women's Health Survey. Public Health Nutr. 2016 Apr;19(5):914–23.

27. WFP. WFP and Gender. World Food Programme; 2022 Apr.

28. Hatcher AM, Page S, Aletta van Eck L, Pearson I, Fielding-Miller R, Mazars C, et al. Systematic review of food insecurity and violence against women and girls: Mixed methods findings from low- and middle-income settings. PLOS Glob Public Health. 2022 Sep 14;2(9):e0000479.

29. Agrawal P, Post LA, Glover J, Hersey D, Oberoi P, Biroscak B. The interrelationship between food security, climate change, and gender-based violence: A scoping review with system dynamics modeling. PLOS Glob Public Health. 2023 Feb 24;3(2):e0000300.

30. Jewkes R, Chirwa E, Alangea DO, Addo-Lartey A, Christofides N, Dunkle K, et al. Pooled analysis of the association between food insecurity and violence against women: Evidence from low- and middle-income settings. J Glob Health. 13:04021.

31. McKay FH, Bennett R. Examining the Relationship Between Food Insecurity and Family Violence: a Systematic Narrative Review. J Fam Violence [Internet]. 2023 Aug 23; Available from: https://doi.org/10.1007/s10896-023-00624-5

32. Visser J, Wangu J. Women's dual centrality in food security solutions: The need for a stronger gender lens in food systems' transformation. Curr Res Environ Sustain. 2021 Jan 1;3:100094.

33. World Health Organization [Internet]. 2021 [cited 2023 Jan 27]. Violence against women. Available from: https://www.who.int/news-room/fact-sheets/detail/violence-against-women

34. UN Women. UN Women. [cited 2024 Jul 17]. Facts and figures: Ending violence against women. Available from: https://www.unwomen.org/en/what-we-do/ending-violence-against-women/facts-and-figures

35. World Bank. World Bank Gender Data Portal. 2022 [cited 2024 Jul 17]. Violence against women and girls – what the data tell us. Available from: https://genderdata.worldbank.org/en/data-stories/overview-of-gender-based-violence

36. Adema W, Frey V. The Pursuit of Gender Equality: An Uphill Battle-How does MEXICO compare? [Internet]. OECD; 2017. Available from: https://www.oecd.org/mexico/Gender2017-MEX-en.pdf

37. Gurría A. OECD. 2020 [cited 2023 Feb 9]. Gender Equality and the Empowerment of Women for Inclusive Growth in Mexico. Available from: https://www.oecd.org/about/secretary-general/gender-equality-and-empowerment-of-women-for-inclusive-growth-mexico-january-2020.htm

38. Ancira M. Ibero. 2023 [cited 2024 Jul 17]. #8M / Las Inequidades en salud en mujeres y niñas. Available from: https://ibero.mx/prensa/8m-las-inequidades-en-salud-en-mujeres-y-ninas

39. World Bank. Mexico Gender Assessment [Internet]. World Bank; 2019. Available from: https://documents1.worldbank.org/curated/en/377311556867098027/pdf/Mexico-Gender-Assessment.pdf

40. Ramage K, Stirling-Cameron E, Ramos NE, Martinez SanRoman I, Bojorquez I, Spata A, et al. "When you leave your country, this is what you're in for": experiences of structural, legal, and gender-based violence among asylum-seeking women at the Mexico-U.S. border. BMC Public Health. 2023 Sep 2;23(1):1699.

41. Valencia Londoño PA, Nateras González ME, Bruno Solera C, Paz PS. The exacerbation of violence against women as a form of discrimination in the period of the COVID-19 pandemic. Heliyon. 2021 Mar 1;7(3):e06491.

42. Booth S, Pollard CM. Food insecurity, food crimes and structural violence: an Australian perspective - Booth - 2020 - Australian and New Zealand Journal of Public Health - Wiley Online Library. Aust N Z J Public Health. 2020 Mar 19;44(2):87–8.

43. Guardiola J, Gónzález-Gómez F. La influencia de la desigualdad en la desnutrición de América Latina: una perspectiva desde la economía. Nutr Hosp. 2010 Oct;25:38–43.

44. Batis C, Denova-Gutiérrez E, Estrada-Velasco BI, Rivera J. Malnutrition prevalence among children and women of reproductive age in Mexico by wealth, education level, urban/rural area and indigenous ethnicity. Public Health Nutr. 2020 Aug;23(S1):s77–88.

45. Arriaga-Ayala EX, Shamah-Levy T, Méndez-Gómez Humarán I, Morales-Ruán MDC. Asociación de inseguridad alimentaria y mala nutrición en mujeres de zonas rurales de México, 2018 y 2020. Salud Publica Mex. 2023 Jul 15;65(4, jul-ago):353–60.

46. Mundo-Rosas V, Méndez-Gómez Humarán I, Shamah-Levy T. Caracterización de los hogares mexicanos en inseguridad alimentaria. Salud Pública México. 2013 Jan 2;56:12.

47. Hernandez-Ruiz C, Wangchuk R. Unpacking Barriers to Mexican Women's Equal Participation in the Labor Market. John F. Kennedy School of Government, Harvard University; 2022 Mar.

48. Ponce-Alcala RE, Ramirez-Garcia Luna JL, Shamah-Levy T, Melgar-Quiñonez H. The association between household food insecurity and obesity in Mexico: a cross-sectional study of ENSANUT MC 2016. Public Health Nutr. 24(17):5826–36.

49. Rosas VM, Vega NIV, Borbolla MÁV, Guerra AG, Ramírez SR, Marian M, et al. Seguridad alimentaria en hogares mexicanos. INSP. 2022;

50. UNICEF. Case Study Mexico City. UNICEF; 2022 Jul.

51. Ramos ME, Gibaja-Romero DE, Ochoa SA. Gender inequality and gender-based poverty in Mexico. Heliyon. 2020 Jan 1;6(1):e03322.

52. Frias SM. Measuring Structural Gender Equality in Mexico: A State Level Analysis. Soc Indic Res. 2008 Sep 1;88(2):215–46.

53. Pick S, Contreras C, Barker-Aguilar A. Violence against Women in Mexico. Ann N Y Acad Sci. 2016 Dec 5;1087(1):261–78.

54. ONU Mujeres – América Latina y el Caribe [Internet]. 2024 [cited 2024 Jun 20]. Las huellas de los feminicidios en CDMX. Available from: https://lac.unwomen.org/es/stories/noticia/2024/03/las-huellas-de-los-feminicidios-en-cdmx

55. Naciones Unidas en México [Internet]. [cited 2024 Jun 20]. La prevención de la violencia contra las mujeres y las niñas es la clave hacia un mundo más igualitario, seguro y próspero. Available from: https://mexico.un.org/es/253792-la-prevenci%C3%B3n-de-la-violencia-contra-las-mujeres-y-las-ni%C3%B1as-es-la-clave-hacia-un-mundo-m%C3%A1s, https://mexico.un.org/es/253792-la-prevenci%C3%B3n-de-la-violencia-contra-las-mujeres-y-las-ni%C3%B1as-es-la-clave-hacia-un-mundo-m%C3%A1s

56. Cantú-Martínez PC. Organizaciones no gubernamentales y violencia de género: Caso Nuevo León, México. Univ Rev Cienc Soc Humanas. 2021;(35):151–65.

57. Castro R, Frías SM. Obstetric Violence in Mexico: Results From a 2016 National Household Survey. Violence Women. 2020 May;26(6–7):555–72.

58. Annborn A, Finnbogadóttir HR. Obstetric violence a qualitative interview study. Midwifery. 2022 Feb 1;105:103212.

59. O'Brien E, Rich M. Obstetric violence in historical perspective. The Lancet. 2022 Jun 11;399(10342):2183–5.

60. Montoya A, Fritz J, Labora A, Rodriguez M, Walker D, Treviño-Siller S, et al. Respectful and evidence-based birth care in Mexico (or lack thereof): An observational study. Women Birth J Aust Coll Midwives. 2020 Nov;33(6):574–82.

61. Lazzerini M, Semenzato C, Kaur J, Covi B, Argentini G. Women's suggestions on how to improve the quality of maternal and newborn hospital care: a qualitative study in Italy using the WHO standards as framework for the analysis. BMC Pregnancy Childbirth. 2020 Apr 6;20(1):200.

62. Raffield B, Fredengren C, Kjellström A. Narratives of inequality. Towards an archaeology of structural violence in Late Iron Age Scandinavia. Archaeol Dialogues. 2024 Feb 12;1–26.

63. Martínez-Galiano JM, Cano-Ibáñez N, Hernández-Martínez A, Delgado-Rodríguez M. Nutrition in Reproductive Health: Nutritional Conditioning Factors during Pregnancy and Its Impact on Health. Reprod Med. 1(3):169–80.

64. Morrison JL, Regnault TRH. Nutrition in Pregnancy: Optimising Maternal Diet and Fetal Adaptations to Altered Nutrient Supply. Nutrients. 2016 Jun 4;8(6):342.

65. McAuliffe FM. Impact of pregnancy on long-term health: Advances in postpregnancy care—An opportunity to improve long-term maternal health. Int J Gynecol Obstet. 2023;160(S1):4–6.

66. Moafi F, Kazemi F, Samiei Siboni F, Alimoradi Z. The relationship between food security and quality of life among pregnant women. BMC Pregnancy Childbirth. 2018 Aug 6;18(1):319.

67. Tuncalp Ö, Rogers LM, Lawrie TA, Barreix M, Peña-Rosas JP, Bucagu M, et al. WHO recommendations on antenatal nutrition: an update on multiple micronutrient supplements. BMJ Glob Health. 2020 Jul 30;5(7):e003375.

68. Lowensohn RI, Stadler DD, Naze C. Current Concepts of Maternal Nutrition. Obstet Gynecol Surv. 2016 Jul;71(7):413–26.

69. Magaña-Lemus D, Ishdorj A, Rosson CP, Lara-Álvarez J. Determinants of household food insecurity in Mexico. Agric Food Econ. 2016 Dec;4(1):10.

70. Food and Nutrition Board, National Research Council, Institute of Medicine. Health and Developmental Correlates of Child Food Insecurity from Pregnancy to Adolescence. In: Research Opportunities Concerning the Causes and Consequences of Child Food Insecurity and Hunger: A Workshop Summary [Internet]. National Academies Press (US); 2013 [cited 2024 Feb 8]. Available from: https://www.ncbi.nlm.nih.gov/books/NBK201400/

71. Gross RS, Mendelsohn AL, Arana MM, Messito MJ. Food Insecurity During Pregnancy and Breastfeeding by Low-Income Hispanic Mothers. Pediatrics [Internet]. 2019 Jun 1 [cited 2021 Feb 26];143(6). Available from: https://pediatrics.aappublications.org/content/143/6/e20184113

72. Ivers LC, Cullen KA. Food insecurity: special considerations for women. Am J Clin Nutr. 2011 Dec;94(6):1740S-1744S.

73. Organización Mundial de la Salud. Directriz: administración diaria de suplementos de hierro y ácido fólico en el embarazo [Internet]. Ginebra: Organización Mundial de la Salud; 2014 [cited 2023 Jan 31]. 28 p. Available from: https://apps.who.int/iris/handle/10665/124650

74. Martínez García RM, Jiménez Ortega AI, Peral-Suárez Á, Bermejo LM, Rodríguez-Rodríguez E, Martínez García RM, et al. Importancia de la nutrición durante el embarazo. Impacto en la composición de la leche materna. Nutr Hosp. 2020;37(SPE2):38–42.

75. CONEVAL. Medición de Pobreza 2022 [Internet]. CONEVAL; 2023 Aug [cited 2024 Feb 26]. Available from: https://www.coneval.org.mx/Medicion/MP/Documents/MMP_2022/Pobreza_multidimensional_2022.pdf

76. Shamah Levy T, Romero-Martínez M, Barrientos-Gutiérrez T, Cuevas-Nasu L, Bautista-Arredondo S, Colchero MA, et al. Encuesta Nacional de Salud y Nutrición 2020 sobre Covid-19. Resultados Nacionales. Cuernavaca, México: Instituto Nacional de Salud Pública; 2021.

77. Barquera S, Arellano M. La transición alimentaria en México: una amenaza para la salud humana y planetaria. La Jornada Morelos [Internet]. 2023 Jun 5; Available from: https://www.insp.mx/informacion-relevante/la-transicion-alimentaria-en-mexico-una-amenaza-para-la-salud-humana-y-planetaria

78. Tijerina Sáenz A, Ramírez López E, Meneses Valderrama VM, Martínez Garza NE. Ingesta energética y de macronutrientes en mujeres embarazadas en el noreste de México. Arch Latinoam Nutr. 2014 Sep;64(3):174–81.

79. Islas Vega I, Reynoso Vázquez J, Hernández Ceruelos M del CA, Ruvalcaba Ledezma JC, Islas Vega I, Reynoso Vázquez J, et al. La alimentación en México y la influencia de la publicidad ante la debilidad en el diseño de políticas públicas. J Negat No Posit Results. 2020;5(8):853–62.

80. Rivera Dommarco JÁ. Deficiencias de micronutrimentos en México: un problema invisible de salud pública. Salud Pública México. 2012 Apr;54(2):101–2.

81. Perichart-Perera O, Rodríguez-Cano AM, Gutiérrez-Castrellón P, Perichart-Perera O, Rodríguez-Cano AM, Gutiérrez-Castrellón P. Importancia de la suplementación en el embarazo: papel de la suplementación con hierro, ácido fólico, calcio, vitamina D y multivitamínicos. Gac Médica México. 2020;156:1–26.

82. INSP. Prevención de mala nutrición en niñas y niños mexicanos ante la pandemia de Coronavirus (COVID-19). Instituto Nacional de Salud Pública (INSP); 2020 Apr.

83. González-Garrido JA, Garrido-Llanos S, Ceballos-Reyes GM, García-Sánchez JR. Prevalencia de anemias en mujeres embarazadas del Hospital General Yanga, Córdoba, Veracruz, México. 2012;23(1).

84. World Health Organization, World Health Organization. Guideline: daily iron and folic acid supplementation in pregnant women. 2012.

85. Heredia-Pi I, Serván-Mori E, Reyes-Morales H. Brechas en la cobertura de atención continua del embarazo y el parto en México. Salud Pública México. 2013 Mar 4;55:S249–58.

86. Cortes Montano E. Fading Health & Nutrition Habits in Response to Termination of Conditional Cash Transfer Program PROSPERA: Assessing Transition to BIENESTAR Benito Juárez Program in Veracruz, Veracruz, México. Ritsumeikan Asia Pacific University; 2020.

87. Schaefer I. World Bank. 2013 [cited 2022 Jul 26]. Supporting the Reform Agenda for Inclusive Growth in Oaxaca, Mexico. Available from: https://www.worldbank.org/en/results/2013/09/04/oaxaca-inclusive-growth

88. CONEVAL. CONEVAL. [cited 2024 Jul 12]. Pobreza a nivel municipio 2010-2020. Available from: https://www.coneval.org.mx/Medicion/Paginas/Pobreza-municipio-2010-2020.aspx

89. CONEVAL. Multidimensional Measurement of Poverty in Mexico: An Economic Wellbeing and Social Rights Approach [Internet]. CONEVAL; Available from: https://www.coneval.org.mx/informesPublicaciones/FolletosInstitucionales/Documents/Multidimensional-Measurement-of-poverty-in-Mexico.pdf

90. Pobreza en 2022 menor que previa a la pandemia, pese a caída en acceso a servicios de salud [Internet]. México cómo vamos; 2023 Aug [cited 2024 Jan 26]. Available from: https://mexicocomovamos.mx/wp-content/uploads/2023/08/20230810_PublicacionMCV_Pobreza2022.pdf

91. Serván-Mori E, Ramírez-Baca MI, Fuentes-Rivera E, García-Martínez A, Quezada-Sánchez AD, del Carmen Hernández-Chávez M, et al. Predictors of maternal knowledge on early childhood development in highly marginalized communities in Mexico: Implications for public policy. Acta Psychol (Amst). 2022 Oct 1;230:103743.

92. Consejo Nacional de Evaluación de la Política de Desarrollo Social. Informe de Pobreza y Evaluación 2020 Oaxaca. Ciudad de Mexico: CONEVAL; 2020.

93. Sámano Sámano R, Godinez Martínez E, Romero Pérez I, Sánchez Miranda G, Espíndola Polis JM, Chávez Courtois ML. Contexto sociocultural y alimentario de mujeres con embarazos de riesgo. Ciênc Saúde Coletiva. 2014 May;19:1419–28.

94. Luna P, Valdes T, Zelocuatecatl-Aguilar A, Medrano-Loera G, Guerrero B, Garcia-Martinez A, et al. '[The pediatrician] said that maybe my milk, instead of doing good, no longer helped': the ecology of infant formula in rural communities in Central Mexico. Public Health Nutr. 24(12):3879–91.

95. Vilar-Compte M, Pérez Navarro C, Burrola-Méndez S, Sachse-Aguilera M, Veliz P. Barriers and enablers of breast-feeding protection and support after the 2017 earthquakes in Mexico. Public Health Nutr. 24(8):2286–96.

96. Vázquez-Vázquez A del P, Fewtrell MS, Chan-García H, Batún-Marrufo C, Dickinson F, Wells JCK. Do maternal grandmothers influence breastfeeding duration and infant nutrition? Evidence from Merida, Mexico. Am J Biol Anthropol. 2022 Nov;179(3):444–59.

97. Romero-Villanueva D, Dickinson F, Batún JL, Castillo-Burguete T, Azcorra H. The Associations Between Maternal Socioeconomic Factors and Adequacy of Energy and Macronutrient Intakes in Pregnant Women From Yucatan, Mexico. Food Nutr Bull [Internet]. 2022 Feb 10 [cited 2024 Jan 30];43(2). Available from: https://journals.sagepub.com/doi/full/10.1177/03795721221077723

98. Azcorra H, Dickinson F, Batún JL. The relationship between pre-pregnancy BMI and energy and macronutrients intakes during pregnancy in women from Yucatan, Mexico. J Obstet Gynaecol. 2022;0(0):1–7.

99. Quiroz AM, Bernés SR, Cortes EEL, Guerrero VB, Solís MOV. Nivel de conocimiento nutricional de mujeres de una comunidad rural de Nayarit, México : Level of nutritional Knowledge of women from a rural community in Nayarit, Mexico. CISA. 2023 Jun 30;4(4):83–98.

100. Mahmudiono T, Segalita C, Rosenkranz RR. Socio-Ecological Model of Correlates of Double Burden of Malnutrition in Developing Countries: A Narrative Review. Int J Environ Res Public Health. 2019 Jan;16(19):3730.

101. Rai SS, Peters RMH, Syurina EV, Irwanto I, Naniche D, Zweekhorst MBM. Intersectionality and health-related stigma: insights from experiences of people living with stigmatized health conditions in Indonesia. Int J Equity Health. 2020 Nov 11;19(1):206.

102. Lanfer HL, Reifegerste D. Embracing challenging complexity: exploring handwashing behavior from a combined socioecological and intersectional perspective in Sierra Leone. BMC Public Health. 2021 Oct 14;21:1857.

103. Acosta D, Ludgate N, McKune SL, Russo S. Who Has Access to Livestock Vaccines? Using the Social-Ecological Model and Intersectionality Frameworks to Identify the Social Barriers to Peste des Petits Ruminants Vaccines in Karamoja, Uganda. Front Vet Sci [Internet]. 2022 Feb 28 [cited 2024 Jun 6];9. Available from: https://www.frontiersin.org/articles/10.3389/fvets.2022.831752/full

104. Ojukwu EN, Okoye HU, Saewyc E. Social Correlates of HIV-Risky Behaviours among African Canadian Adolescents Living in British Columbia, Canada: A Secondary Data Analysis. Int J Environ Res Public Health. 2023 Jun 1;20(11):6031.

105. COPLADE. Diagnóstico Plan de Desarrollo Regional Costa [Internet]. Coordinación General del Comité Estatal de Planeación para el Desarrollo de Oaxaca (COPLADE); 2020 [cited 2023 Mar 24]. Available from: https://www.oaxaca.gob.mx/coplade/wp-content/uploads/sites/29/2021/04/Costa.pdf

106. COPLADE. Diagnóstico Plan de Desarrollo Regional Valles Centrales [Internet]. Coordinación General del Comité Estatal de Planeación para el Desarrollo de Oaxaca (COPLADE); 2020 [cited 2023 Mar 24]. Available from: https://www.oaxaca.gob.mx/coplade/wp-content/uploads/sites/29/2021/04/Valles-Centrales.pdf

107. Data Mexico [Internet]. 2021 [cited 2022 Sep 1]. Oaxaca de Juárez. Available from: https://datamexico.org/es/profile/geo/oaxaca-de-juarez?redirect=true#population-and-housing

108. INEGI [Internet]. [cited 2023 Jan 20]. Censo de Población y Vivienda 2020. Available from: https://www.inegi.org.mx/app/cpv/2020/resultadosrapidos/default.html?texto=puerto%20aventuras

109. Data México. Data México. [cited 2024 Jul 4]. San Pedro Mixtepec. Available from: https://www.economia.gob.mx/datamexico/es/profile/geo/san-pedro-mixtepec#population-and-housing\

110. López V, Fernández Aldecua MJ. El desarrollo turístico en Oaxaca: entre el keynesianismo y el posdesarrollo. In: El desarrollo turístico en México Revisión general y casos de estudio. Puerto Vallarta, Jalisco, México: Universidad de Guadalajara; 2021.

111. Pérez RL. The Taste of Oaxaca: It's to Die For! In: Taste, Politics, and Identities in Mexican Food [Internet]. 1st ed. Bloomsbury Publishing Plc; 2019 [cited 2023 Apr 3]. p. 147–60. Available from: https://www.bloomsburycollections.com/book/taste-politics-and-identities-in-mexican-food

112. Reyes Castañón YV. Centro Internacional del Mejoramiento de Maíz y Trigo. 2020 [cited 2023 Mar 20]. De las leguminosas, todas las que se pueda. Available from: https://idp.cimmyt.org/de-las-leguminosas-todas-las-que-se-pueda/

113. Curiel C. Prácticas localizadas de producción y consumo en la ciudad. Relaciones sociales a través de la alimentación no convencional en Oaxaca, México. Soc Ambiente. 2019;(21):227–51.

114. Denham D, Gladstone F. Making sense of food system transformation in Mexico. Geoforum. 2020 Oct 1;115:67–80.

115. Jiménez-Arenas OL, Rojas-Ramírez J, Oliva-Aguilar VR, Tejeida-Padilla R. Desarrollo de territorios costeros turísticos en México mediante la autogestión con base sistémica. EURE [Internet]. 2021 [cited 2023 Mar 20];47(141). Available from: http://www.eure.cl/index.php/eure/article/view/EURE.47.141.01

116. Flores-García M, Cruz-Santiago H, García-Baltazar JA, Torres-Olivera MA, Ramírez-Figueroa AD, Ávila-Serrano NY, et al. Preconception diet and its relationship with hemoglobin in rural and urban women of San Francisco Cozoaltepec and Puerto Escondido, Oaxaca. Salud Cienc Tecnol [Internet]. 2023 [cited 2024 Jun 4];3(259). Available from: https://www.researchgate.net/publication/369365102_Preconception_diet_and_its_relationship_with_hemoglobin_in_rural_and_urban_women_of_San_Francisco_Cozoaltepec_and_Puerto_Escondido_Oaxaca

117. Almaguer González JA, Hernán José GR, Vargas Vite V, Padilla Mirazo M. La Dieta de la Milpa Modelo de Alimentación Mesoamericana Saludable y Culturalmente Pertinente. Secretaria de Salud; 2018 Feb.

118. Rivera JA, Barquera S, González-Cossío T, Olaiz G, Sepúlveda J. Nutrition Transition in Mexico and in Other Latin American Countries. Nutr Rev. 2004 Jul 1;62(suppl_2):S149–57.

119. Comité Científico de la ELCSA. Escala Latinoamericana y Caribeña de Seguridad Alimentaria (ELCSA) - Manual de uso y aplicación. FAO; 2012 May.

120. van Nes F, Abma T, Jonsson H, Deeg D. Language differences in qualitative research: is meaning lost in translation? Eur J Ageing. 2010 Nov 19;7:313–6.

121. Strauss AL. Qualitative Analysis for Social Scientists [Internet]. Cambridge: Cambridge University Press; 1987 [cited 2022 Aug 31]. Available from: https://www.cambridge.org/core/books/qualitative-analysis-for-social-scientists/1EBB3B490B28C39D7A33EB12A58B211B

122. Charmaz K. Constructing Grounded Theory [Internet]. 2nd ed. Sonoma State Univesity: SAGE Publications; 2014 [cited 2022 Aug 31]. Available from: https://uk.sagepub.com/en-gb/eur/constructing-grounded-theory/book235960

123. Verdalet-Olmedo M, Sampieri CL, Morales-Romero J, Montero-L de Guevara H, Machorro-Castaño ÁM, León-Córdoba K. Omission of breakfast and risk of gastric cancer in Mexico. World J Gastrointest Oncol. 2012 Nov 15;4(11):223–9.

124. CONEVAL. CONEVAL. [cited 2024 Jun 13]. Sistema de indicadores sobre pobreza y género, 2016-2020. Available from: https://www.coneval.org.mx/Medicion/Paginas/Pobreza-y-genero-en-Mexico-2016-2020.aspx

125. Consejo Nacional de Evaluación de la Política de Desarrollo Social. Informe de pobreza y evaluación 2022 Oaxaca. Mexico: CONEVAL; 2022.

126. Hernández-González M, Juan-Pérez J, Jiménez-Garcés C, Alvarado-Bravo B, Vieyra-Reyes P. Conductas y factores que influyen en la utilización de servicios de salud en la población adulta de la región sur del Estado de México, México. Rev Med E Investig. 2013;1(2):86–95.

127. Sheikh J, Allotey J, Kew T, Khalil H, Galadanci H, Hofmeyr GJ, et al. Vulnerabilities and reparative strategies during pregnancy, childbirth, and the postpartum period: moving from rhetoric to action. eClinicalMedicine. 2024 Jan 1;67:102264.

128. Herrera-Suárez CC, Vásquez-Garibay EM, Romero-Velarde E, Romo-Huerta HP, García De Alba García JE, Troyo-Sanromán R. Hábitos de alimentación y factores culturales en adolescentes embarazadas. Arch Latinoam Nutr. 2008 Mar;58(1):19–26.

129. Sánchez-Jiménez B, Sámano-Sámano R, Pinzón-Rivera I, Balas-Nakash M, Perichart O. Factores Socioculturales y del entorno que influyen en las prácticas alimentarias de gestantes con y sin. 2010;11(2).

130. Herrera Jiménez LK, Herrera Jiménez BB, Gutiérrez Hernández R. Aspectos culturales que influyen en las creencias alimentarias de mujeres embarazadas. IBN SINA. 2021 Mar 10;12(1):1–14.

131. Sámano R, Lara-Cervantes C, Martínez-Rojano H, Chico-Barba G, Sánchez-Jiménez B, Lokier O, et al. Dietary Knowledge and Myths Vary by Age and Years of Schooling in Pregnant Mexico City Residents. Nutrients. 2020;12(2).

132. McClain AC, Dickin KL, Dollahite J. Life course influences on food provisioning among low-income, Mexican-born mothers with young children at risk of food insecurity. Appetite. 2019 Jan 1;132:8–17.

133. Guibrunet L, Ortega-Avila AG, Arnés E, Mora Ardila F. Socioeconomic, demographic and geographic determinants of food consumption in Mexico. PLOS ONE. 2023 Oct 17;18(10):e0288235.

134. Vázquez-Vázquez A, Fewtrell MS, Chan-García H, Batún-Marrufo C, Dickinson F, Wells JC. Does maternal grandmother's support improve maternal and child nutritional health outcomes? Evidence from Merida, Yucatan, Mexico. Phil Trans R Soc B [Internet]. 2021 May 3 [cited 2024 Feb 27];376(1827). Available from: https://royalsocietypublishing.org/doi/full/10.1098/rstb.2020.0035

135. Aubel J. Grandmothers — a neglected family resource for saving newborn lives. BMJ Glob Health. 2021 Feb 1;6(2):e003808.

136. Reyes LI, Frongillo EA, Moore S, Blake CE, Gonzalez W, Bonvecchio A. Functions of social networks in maternal food choice for children in Mexico. Matern Child Nutr. 2021 Sep 10;18(1):e13263.

137. Luna P, Paredes-Ruvalcaba N, Valdes T, Guerrero B, García-Martínez A, Escamilla RP, et al. Discrepancies in infant feeding recommendations between grandmothers and healthcare providers in rural Mexico. Int Breastfeed J. 2022 Nov 22;17(1):77.

138. Hernández RIR, Romero Quechol G, Reyes Morales H, Pérez Cuevas R. Alimentación y estado nutricio de mujeres embarazadas derechohabientes del Instituto Mexicano del Seguro Social en un área suburbana de la Ciudad de México. Ginecol Obstet MÉXICO. 2005;73(1).

139. Perichart Perera O, Balas Nakash M, Schiffman Selechnik E, Serrano Ávila M, Vadillo Ortega F. Impacto de la obesidad pregestacional en el estado nutricio de mujeres embarazadas de la Ciudad de México. Ginecol Obstet MÉXICO. 2006;74(2).

140. Barbosa-Ruíz RE, Domínguez-Quintela MS, Gómez-Gómez G de J, Monjo-Zarate CE, Salinas-López C, María TBR. Conocimientos de mujeres gestantes sobre los requerimientos nutricios en el embarazo. Rev Enferm IMSS. 2005;13(1).

141. Ruiz OA, Ancira-Moreno M, Omaña-Guzmán I, Cordero SH, Morales ACB, Navarro CP, et al. Low quality of maternal and child nutritional care at the primary care in Mexico: an urgent call to action for policymakers and stakeholders. Int J Equity Health. 2024 Feb 22;23(1):35.

142. Juárez-Ramírez C, Villalobos A, Sauceda-Valenzuela AL, Nigenda G. Barreras en mujeres indígenas para acceder a servicios obstétricos en el marco de redes integradas de servicios de salud. Gac Sanit. 2021 Jul 9;34:546–52.

143. Vazquez Corona M, Betrán AP, Bohren MA. The portrayal and perceptions of cesarean section in Mexican media Facebook pages: a mixed-methods study. Reprod Health. 2022 Feb 22;19(1):49.

144. O'Brien C, Newport M. Prioritizing women's choices, consent, and bodily autonomy: From a continuum of violence to women-centric reproductive care. Soc Sci Med [Internet]. 2023 Sep [cited 2024 Feb 29];333. Available from: https://www.sciencedirect.com/science/article/pii/S0277953623004677

145. Ramírez Pérez A. El parto en el modelo público institucional y con partera tradicional: motivaciones de las mujeres del Istmo oaxaqueño. INEGI & CONAPO; 2014.

146. Bueno-Gutierrez D, Chantry C. Using the Socio-ecological Framework to Determine Breastfeeding Obstacles in a Low-Income Population in Tijuana, Mexico: Healthcare Services. Breastfeed Med. 2015 Mar;10(2):124–31.

147. Bueno-Gutierrez D, Chantry C. 'Life does not make it easy to breast-feed': using the socio-ecological framework to determine social breast-feeding obstacles in a low-income population in Tijuana, Mexico. Public Health Nutr. 2015 Dec;18(18):3371–85.

148. Mundo-Rosas V, Vizuet-Vega NI, Martínez-Domínguez J, Morales-Ruán MDC, Pérez-Escamilla R, Shamah-Levy T. Evolución de la inseguridad alimentaria en los hogares mexicanos: 2012-2016. Salud Pública México. 2018 May 4;60(3, may-jun):309.

149. Ávila-Arcos MA, Méndez-Gómez Humarán I, Morales-Ruán MDC, López-Olmedo N, Barrientos-Gutiérrez T, Shamah-Levy T. La inseguridad alimentaria y factores asociados en hogares mexicanos con casos de Covid-19. Salud Pública México. 2021 Oct 28;63(6, Nov-Dic):751–62.

150. Martínez-Martínez OA, Gil-Vasquez K, Romero-González MB. Food insecurity and levels of marginalization: food accessibility, consumption and concern in Mexico. Int J Equity Health. 2023 Sep 4;22(1):178.

151. PAHO/WHO. PAHO/WHO | Pan American Health Organization. [cited 2024 Feb 8]. Violence against women. Available from: https://www.paho.org/en/topics/violence-against-women

152. WHO. World Health Organization. [cited 2024 Feb 8]. Violence against women. Available from: https://www.who.int/health-topics/violence-against-women

153. INEGI [Internet]. 2022 [cited 2023 Jan 27]. Violencia contra las mujeres en México. Available from: https://www.inegi.org.mx/tablerosestadisticos/vcmm/

154. UNICEF. UNICEF. [cited 2024 Apr 5]. Proteger a las niñas y a las adolescentes de cualquier forma de violencia. Available from: https://www.unicef.org/mexico/protecci%C3%B3n-la-ni%C3%B1ez-y-adolescencia/proteger-las-ni%C3%B1as-y-las-adolescentes-de-cualquier-forma-de

155. Strickland RD. Violencia contra niñas, niños y adolescentes en México. Psicol Iberoam [Internet]. 2022 [cited 2024 Apr 5];30(2). Available from: https://www.redalyc.org/journal/1339/133972771005/html/

156. UNICEF México [Internet]. 2020 [cited 2023 Feb 8]. ONU México: poner fin a la violencia contra las mujeres y las niñas no está en pausa. Available from: https://www.unicef.org/mexico/comunicados-prensa/onu-m%C3%A9xico-poner-fin-la-violencia-contra-las-mujeres-y-las-ni%C3%B1as-no-est%C3%A1-en

157. CESOP. Violencia Familiar en México (2015-2022). Centro de Estudios Sociales y de Opinión Pública; 2023 Mar.

158. Murray C. México: las llamadas de emergencia por violencia contra las mujeres aumentaron en 2020. Global Citizen [Internet]. 2021 Jan 26 [cited 2023 Jan 30]; Available from: https://www.globalcitizen.org/es/content/mexico-violence-women-emergency-calls/

159. Galván M. La otra pandemia: 13,631 mujeres huyeron por violencia de enero a mayo de 2021. Expansión Política [Internet]. 2021 Jul 24 [cited 2023 Jan 30]; Available from: https://politica.expansion.mx/voces/2021/07/24/pandemia-historica-mexico-13631-mujeres-huyen-por-violencia

160. PAHO. Gendered Health Analysis COVID-19 in the Americas [Internet]. PAHO; 2021 Dec. Available from: https://iris.paho.org/bitstream/handle/10665.2/55432/PAHOEGCCOVID-19210006_eng.pdf?sequence=4&isAllowed=y

161. UNWOMEN, ECLAC. Care in Latin America and the Caribbean during the COVID-19. Towards Comprehensive Systems to Strengthen Respose and Recovery. UNWOMEN;

162. Rosas Villicaña RM. Orfandad y violencia a niñas, niños y adolescentes en la pandemia de Covid-19. El caso de México en el contexto latinoamericano. Relac Estud Hist Soc. 2021;42(166):1–25.

163. UNFPA. United Nations Population Fund. 2021 [cited 2024 Jun 25]. Reporting Tip sheet on Digital Violence: A practical reference guide for journalists and media. Available from: https://www.unfpa.org/resources/digital-violence-tip-sheet-for-journalists

164. González-Malabet MA, Sanandres Campis E, May R, Molinares Guerrero IS, Durán-Oviedo S. The hybrid political role of feminism on Twitter during COVID-19: SISMA Mujer in Colombia. Womens Stud Int Forum [Internet]. July-August2023 [cited 2024 Jun 25]; Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10266129/

165. Yang G. Narrative Agency in Hashtag Activism: The Case of #BlackLivesMatter. Media Commun. 2016 Aug 11;4(4):13–7.

166. Ramírez Plascencia D, Carvalho Gurgel B, Plaw A. The Politics of Technology in Latin America (Volume 2): Digital Media, Daily Life and Public Engagement. Routledge; 2022.

167. Núñez Puente S, D'Antonio Maceiras S, Fernández Romero D. Twitter Activism and Ethical Witnessing: Possibilities and Challenges of Feminist Politics Against Gender-Based Violence. Soc Sci Comput Rev [Internet]. 2019 Jul 24 [cited 2024 Jun 25];39(2). Available from: https://journals.sagepub.com/doi/full/10.1177/0894439319864898?casa_token=PZzR4grEDTcAAAAA%3AJoHz4NB0cwk0P7gBWzdzGD_jCGEwNtHcEVwkFqrAASe5CTEjtxFL_Dz5dLj_PxxeJd_iEg8Wj6eQJQ

168. Kermani H, Hooman N. Hashtag feminism in a blocked context: The mechanisms of unfolding and disrupting #rape on Persian Twitter. New Media Soc [Internet]. 2022 Oct 19 [cited 2024 Jun 25];0(0). Available from: https://journals.sagepub.com/doi/10.1177/14614448221128827

169. Chen G, Pain P, Barner B. "Hashtag Feminism": Activism or Slacktivism? In: Feminist Approaches to Media Theory and Research. 2018. p. 197–218.

170. Lovejoy K, Saxton GD. Information, Community, and Action: How Nonprofit Organizations Use Social Media*. J Comput-Mediat Commun. 2012 Apr 1;17(3):337–53.

171. Li M, Turki N, Izaguirre CR, DeMahy C, Thibodeaux BL, Gage T. Twitter as a tool for social movement: An analysis of feminist activism on social media communities. J Community Psychol. 2021 Apr;49(3):854–68.

172. Xiong Y, Cho M, Boatwright B. Hashtag activism and message frames among social movement organizations: Semantic network analysis and thematic analysis of Twitter during the #MeToo movement. Public Relat Rev. 2019 Mar 1;45(1):10–23.

173. Nau C, Quan-Haase A, McLaughlin R. Women-Focused Nonprofit Organizations and Their Use of Twitter During the COVID-19 Pandemic: Characterizing a Gendered Pandemic Through Information, Community, and Action. Soc Media Soc. 2023 Jan 15;9(1):20563051221146489.

174. Matos C. NGOs and advocacy communications on sexual and reproductive health and rights: From the North to the South. Fem Media Stud. 2022 Feb 17;22(2):183–204.

175. Bermúdez GM, Bonino A. Ni una más, ni una menos, manifestaciones de mujeres como fuente del derecho. Inventio. 2017;13(29):5–12.

176. ONU Mujeres México. #NoEstásSola Material Informativo Elaborado por ONU Mujeres México. ONU Mujeres México; 2020.

177. Spotlight Intiative. Spotlight Initiative. 2020 [cited 2024 Jul 1]. #NoEstásSola: Contra la violencia hacia las mujeres en el hogar. Available from: https://www.spotlightinitiative.org/es/news/noestassola-contra-la-violencia-hacia-las-mujeres-en-el-hogar

178. Navarro C, Martínez García L, Vialás Fernández S. Usos y valoración de Facebook como herramienta para la lucha contra la violencia de género en México. Teknokultura Rev Cult Digit Mov Soc. 2018;15(2):285–99.

179. ONU Mujeres – América Latina y el Caribe [Internet]. 2022 [cited 2023 Jan 20]. En la mira: 16 Días de activismo contra la violencia de género. Available from: https://lac.unwomen.org/es/stories/noticia/2022/11/en-la-mira-16-dias-de-activismo-contra-la-violencia-de-genero-2022

180. UN Women [Internet]. [cited 2023 Jan 20]. 16 Days of Activism against Gender-Based Violence. Available from: https://www.unwomen.org/en/what-we-do/ending-violence-against-women/unite/16-days-of-activism

181. United Nations Population Fund [Internet]. [cited 2023 Jan 20]. 16 Days of Activism Against Gender-Based Violence. Available from: https://www.unfpa.org/16days

182. INEGI. Encuesta Nacional sobre Disponibilidad y Uso de Tecnologías de Información en los hogares (ENDUTIH) 2021. Mexico: INEGI; 2022 Jul. Report No.: 350/22.

183. Statista. Statista. 2023 [cited 2023 Jan 30]. Countries with most Twitter users 2022. Available from: https://www.statista.com/statistics/242606/number-of-active-twitter-users-in-selected-countries/

184. Statista [Internet]. 2023 [cited 2023 Jan 31]. Twitter user distribution by gender Mexico 2021. Available from: https://www.statista.com/statistics/977130/twitter-mexico-gender-distribution/

185. Rivera Rivera L, Séris Martínez M, Reynales Shigematsu LM, Gómez García JA, Austria Corrales F, Toledano-Toledano F, et al. Violence against Women during the COVID-19 Pandemic in Mexico. Healthcare. 2023 Feb 1;11(3):419.

186. De la Garza Montemayor DJ, Ibáñez DB, Brosig Rodríguez ME. Digital Habits of Users in the Post-Pandemic Context: A Study on the Transition of Mexican Internet and Media Users from the Monterrey Metropolitan Area. Societies. 2023 Mar;13(3):72.

187. Lara MA, Navarrete L, Medina E, Patiño P, Tiburcio M. Impact of Facebook on Social Support and Emotional Wellbeing in Perinatal Women during Three Waves of the COVID-19 Pandemic in Mexico: A Descriptive Qualitative Study. Int J Environ Res Public Health. 2023 Jan;20(3):2472.

188. Bogen KW, Bhuptani PH, Haikalis M, Orchowski LM. A Qualitative Analysis of How Individuals Utilized the Twitter Hashtags #NotOkay and #MeToo to Comment on the Perpetration of Interpersonal Violence. Soc Media Soc. 2022 Jan 1;8(1):20563051221086229.

189. Bogen KW, Bleiweiss KK, Leach NR, Orchowski LM. #MeToo: Disclosure and Response to Sexual Victimization on Twitter. J Interpers Violence. 2021 Sep;36(17–18):8257–88.

190. Bogen K, Bleiweiss K, Orchowski L. Sexual Violence Is #NotOkay: Social Reactions to Disclosures of Sexual Victimization on Twitter. Psychol Violence. 2018 Apr 26;9.

191. Kräh LMF. Social Media and the Mexican Feminist Movement –Leading or Impeding the Fight Against Gender-Based Violence? University of Twente; 2021.

192. Peeters S, Hagen S. The 4CAT Capture and Analysis Toolkit: A Modular Tool for Transparent and Traceable Social Media Research. Comput Commun Res. 2022 Sep 28;4(2):571–89.

193. Chen J. sproutsocial. 2021 [cited 2023 Feb 17]. Twitter Metrics: How & Why You Should Track Them | Sprout Social. Available from: https://sproutsocial.com/insights/twitter-metrics/

194. Charbonneau E, Mellouli S, Chouikh A, Couture LJ, Desroches S. The Information Sharing Behaviors of Dietitians and Twitter Users in the Nutrition and COVID-19 Infodemic: Content Analysis Study of Tweets. JMIR Infodemiology [Internet]. 2022 Sep 16 [cited 2023 Mar 22];2(2). Available from: https://infodemiology.jmir.org/2022/2/e38573

195. Ripberger JT, Jenkins-Smith HC, Silva CL, Carlson DE, Henderson M. Social Media and Severe Weather: Do Tweets Provide a Valid Indicator of Public Attention to Severe Weather Risk Communication? Weather Clim Soc. 6(4):10/1/2014.

196. Silver A, Andrey J. Public attention to extreme weather as reflected by social media activity. J Contingencies Crisis Manag. 2019 May 3;27(4):346–58.

197. Tahamtan I, Potnis D, Mohammadi E, Miller LE, Singh V. Framing of and Attention to COVID-19 on Twitter: Thematic Analysis of Hashtags. J Med Internet Res [Internet]. 2021 Oct 9 [cited 2023 Mar 22];23(9). Available from: https://www.jmir.org/2021/9/e30800#ref47

198. Viguria I, Alvarez-Mon MA, Llavero-Valero M, Asunsolo del Barco A, Ortuño F, Alvarez-Mon M. Eating Disorder Awareness Campaigns: Thematic and Quantitative Analysis Using Twitter. J Med Internet Res. 2020 Jul 14;22(7):e17626.

199. Sharma G. Reuters. 2019 [cited 2020 Nov 10]. Deaths prompt Nepal to offer cash to women who shun “menstrual huts.” Available from: https://www.reuters.com/article/us-nepal-women-menstruation/deaths-prompt-nepal-to-offer-cash-to-women-who-shun-menstrual-huts-idUSKBN1Y71VG

200. Chan B, Lopez A, Sarkar U. The Canary in the Coal Mine Tweets: Social Media Reveals Public Perceptions of Non-Medical Use of Opioids. PLOS ONE [Internet]. 2015 Aug 7 [cited 2023 Mar 22];10(8). Available from: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0135072

201. Rufai SR, Bunce C. World leaders’ usage of Twitter in response to the COVID-19 pandemic: a content analysis. J Public Health. 2020 Aug 18;42(3):510–6.

202. Smith HJ, Chen J, Liu X. Language and rigour in qualitative research: Problems and principles in analyzing data collected in Mandarin. BMC Med Res Methodol. 2008 Jul 10;8(1):44.

203. Braun V, Clarke V. Using thematic analysis in psychology. Qual Res Psychol. 2006 Jan 1;3(2):77–101.

204. Bascu JDR, O’Connell ME, Cammer A, Ahmadi S, Berger C, Azizi M, et al. Examining the Impact of COVID-19 on People With Dementia From the Perspective of Family and Friends: Thematic Analysis of Tweets. JMIR Aging [Internet]. 2022 Jun 27 [cited 2023 Mar 23];5(2). Available from: https://aging.jmir.org/2022/2/e38363

205. Naeem M, Ozuem W, Howell K, Ranfagni S. A Step-by-Step Process of Thematic Analysis to Develop a Conceptual Model in Qualitative Research. Int J Qual Methods. 2023 Mar 1;22:16094069231205789.

206. Rodríguez AP, González-García R. La incidencia de la acción colectiva feminista virtual en las respuestas del Estado a la violencia de género en México. Edähi Bol Científico Cienc Soc Humanidades ICSHu. 2018 Dec 5;7(13):28–37.

207. Di Napoli PN. Jóvenes, activismos feministas y violencia de género en la Unam: genealogía de un conflicto. Rev Latinoam Cienc Soc Niñez Juv. 2021 Apr 29;19(2):1–27.

208. ONU Mujeres. Violencia digital contra las mujeres y las niñas [Internet]. ONU Mujeres; 2023 Mar [cited 2024 May 14] p. 24. Available from: https://mexico.unwomen.org/sites/default/files/2023-03/Brief_ViolenciaDigital.pdf

209. INEGI. Estadísticas a propósito del Día Internacional de la Eliminación de la Violencia contra la Mujer. INEGI; 2023 Nov.

210. Rodríguez Pérez RE, Castro Lugo D, Ibarra Gutiérrez S, Rodríguez Pérez RE, Castro Lugo D, Ibarra Gutiérrez S. Violencia laboral de género como factor que inhibe la participación de las mujeres en el mercado de trabajo de México. Rev Econ. 2022 Dec;39(99):110–33.

211. Fuentes Alcalá ML, Hernández Engrandes C, Alcay Méndez SG, Fuentes Alcalá ML, Hernández Engrandes C, Alcay Méndez SG. Situations of Vulnerability to Human Trafficking in Mobile and Resident Populations in the Municipality of Tapachula in the Context of the 2018-2019 Migrant Caravans. Front Norte [Internet]. 2022 Dec [cited 2024 May 15];34. Available from: http://www.scielo.org.mx/scielo.php?script=sci_abstract&pid=S0187-73722022000100104&lng=es&nrm=iso&tlng=es

212. Torre Cantalapiedra E. El estudio de las caravanas migrantes en México. Norteamérica [Internet]. 2022 May 27 [cited 2024 May 15];17(2). Available from: https://www.revistanorteamerica.unam.mx/index.php/nam/article/view/525

213. Torres Beltrán XK, Tena Guerrero O. Violencia estructural e institucional hacia mujeres rurales mixtecas: el caso del Programa de Inclusión Social PROSPERA en el estado de Guerrero, México. Culturales [Internet]. 2019 [cited 2023 Feb 8];7. Available from: http://www.scielo.org.mx/scielo.php?script=sci_abstract&pid=S1870-11912019000100104&lng=es&nrm=iso&tlng=es

214. Raby D. Nuestra Madre sufre y llora. Violencia intrafamiliar y Buen Vivir desde la relación con el maíz en una comunidad nahua de Guerrero, México. Relac Estud Hist Soc. 2018;39(155):43–75.

215. Ortiz-Barreda G, Vives-Cases C. Violencia contra las mujeres: el papel del sector salud en la legislación internacional. Políticas En Salud Pública. 2012;26(5):483–9.

216. Herrera C, Rajsbaum A, Agoff C, Franco A. Entre la negación y la impotencia: prestadores de servicios de salud ante la violencia contra las mujeres en México. Salud Pública México. 2006;48:s259–67.

217. INEGI. National Survey on the Dynamics of Household Relationships (ENDIREH) 2016 Principales Resultados (Encuesta Nacional sobre la Dinámica de las Relaciones en los Hogares (ENDIREH) 2016 Principales Resultados) [Internet]. 2017 Aug 18. Available from: https://www.inegi.org.mx/contenidos/programas/endireh/2016/doc/endireh2016_presentacion_ejecutiva.pdf

218. Uysal J, Stockman JK, Miller E, Rocha-Jimenez T, Rangel GM, Padilla Mercado A, et al. “At Least I Didn’t Get Raped”: A Qualitative Exploration of IPV and Reproductive Coercion among Adolescent Girls Seeking Family Planning in Mexico. J Interpers Violence [Internet]. 2022 [cited 2024 May 7];37(7–8). Available from: https://journals.sagepub.com/doi/full/10.1177/0886260520959571?casa_token=hP6hrTiTm3EAAAAA%3ALIRigNSqZCPNrepOfsupizjIfhPwqWmsoB0FTm11q4FGurQAqnxiu-0gaOAnGKAo53E_mDKCAhS8BA

219. Silva M, Anaba U, Jani Tulsani N, Sripad P, Walker J, Aisiri A. Gender-Based Violence Narratives in Internet-Based Conversations in Nigeria: Social Listening Study. J Med Internet Res. 2023 Sep 15;25:e46814.

220. Xue J, Zhang B, Zhang Q, Hu R, Jiang J, Liu N, et al. Using Twitter-Based Data for Sexual Violence Research: Scoping Review. J Med Internet Res. 2023 May 15;25:e46084.

221. Rovira-Sancho G. Activism and affective labor for digital direct action: the Mexican #MeToo campaign. Soc Mov Stud. 2023 Mar 4;22(2):145–62.

222. Sharma AE, Mann Z, Cherian R, Del Rosario JB, Yang J, Sarkar U. Recommendations From the Twitter Hashtag #DoctorsAreDickheads: Qualitative Analysis. J Med Internet Res. 2020 Oct 28;22(10):e17595.

223. Pfeffer J, Matter D, Sargsyan A. The Half-Life of a Tweet. In: International AAAI Conference on Web and Social Media [Internet]. 2023 [cited 2024 Jul 8]. p. 1163–7. Available from: https://ojs.aaai.org/index.php/ICWSM/article/view/22228

224. Edward MM, Kibanda Z. Obstetric violence: A public health concern. Health Sci Rep. 2022 Dec 28;6(1):e1026.

225. WHO. The prevention and elimination of disrespect and abuse during facility-based childbirth. Geneva: World Health Organization; 2015.

226. Keedle H, Keedle W, Dahlen HG. Dehumanized, Violated, and Powerless: An Australian Survey of Women’s Experiences of Obstetric Violence in the Past 5 Years. Violence Women. 2022 Nov 30;10778012221140138.

227. Elizabeth O’Brien, Rich M. Obstetric violence in historical perspective. The Lancet. 2022 Jun 11;399(10342):2183–5.

228. Taghizadeh Z, Ebadi A, Jaafarpour M. Childbirth violence-based negative health consequences: a qualitative study in Iranian women. BMC Pregnancy Childbirth. 2021 Aug 19;21(1):572.

229. Leite TH, Marques ES, Esteves-Pereira AP, Nucci MF, Portella Y, Leal M do C. Disrespect and abuse, mistreatment and obstetric violence: a challenge for epidemiology and public health in Brazil. Ciênc Saúde Coletiva. 2022 Feb 2;27:483–91.

230. Laínez Valiente NG, Martínez Guerra GDLÁ, Portillo Najarro DA, Alvarenga Menéndez AF, Véliz Flores AM. Physical and psychological consequences of obstetric violence in Latin American countries. Alerta Rev Científica Inst Nac Salud. 2023 Jan 30;6(1):70–7.

231. Kozuki N, Ericson K, Marron B, Lainez YB, Miller NP. The resilience of integrated community case management in acute emergency: a case study from Unity State, South Sudan. J Glob Health. 2018 Dec;8(2):020602.

232. Kujawski S, Mbaruku G, Freedman LP, Ramsey K, Moyo W, Kruk ME. Association Between Disrespect and Abuse During Childbirth and Women's Confidence in Health Facilities in Tanzania. Matern Child Health J. 2015 Oct;19(10):2243–50.

233. Calvo Aguilar O, Torres Falcón M, Valdez Santiago R. Obstetric violence criminalised in Mexico: a comparative analysis of hospital complaints filed with the Medical Arbitration Commission. BMJ Sex Reprod Health. 2019 Nov 5;bmjsrh-2018-200224.

234. World Health Organization. WHO recommendations: intrapartum care for a positive childbirth experience [Internet]. Geneva: World Health Organization; 2018 [cited 2023 Mar 17]. Available from: https://apps.who.int/iris/handle/10665/260178

235. Kingma E. Harming one to benefit another: The paradox of autonomy and consent in maternity care. Bioethics. 2021;35(5):456–64.

236. Hameed W, Avan BI. Women's experiences of mistreatment during childbirth: A comparative view of home- and facility-based births in Pakistan. PLoS ONE. 2018 Mar 16;13(3):e0194601.

237. Siraj A, Teka W, Hebo H. Prevalence of disrespect and abuse during facility based child birth and associated factors, Jimma University Medical Center, Southwest Ethiopia. BMC Pregnancy Childbirth. 2019 May 27;19(1):185.

238. Logan RG, McLemore MR, Julian Z, Stoll K, Malhotra N, GVtM Steering Council, et al. Coercion and non-consent during birth and newborn care in the United States. Birth Berkeley Calif. 2022 Dec;49(4):749–62.

239. Lappeman M, Swartz L. Rethinking obstetric violence and the "neglect of neglect": the silence of a labour ward milieu in a South African district hospital. BMC Int Health Hum Rights. 2019 Oct 30;19(1):30.

240. Tobasía-Hege C, Pinart M, Madeira S, Guedes A, Reveiz L, Valdez-Santiago R, et al. Disrespect and abuse during childbirth and abortion in Latin America: systematic review and meta-analysis (Irrespeto y maltrato durante el parto y el aborto en América Latina: revisión sistemática y metaanálisis). Rev Panam Salud Pública. 2019 May 3;43:1.

241. Brenes Monge A, Fernández Elorriaga M, Poblano Verástegui O, Valdez Santiago R, Martínez Nolasco MA, Yáñez Álvarez I, et al. Disrespect and Abuse in Obstetric Care in Mexico: An Observational Study of Deliveries in Four Hospitals. Matern Child Health J. 2021 Apr 1;25(4):565–73.

242. Foster J, Alonso C. Contemporary Issues in the Training, Practice, and Implementation of Midwifery for Indigenous Women in Mexico. In: Schwartz DA, editor. Maternal Death and Pregnancy-Related Morbidity Among Indigenous Women of Mexico and Central America: An Anthropological, Epidemiological, and Biomedical Approach [Internet]. Cham: Springer International Publishing; 2018. p. 313–26. Available from: https://doi.org/10.1007/978-3-319-71538-4_16

243. Smith-Oka V. Microaggressions and the reproduction of social inequalities in medical encounters in Mexico. Soc Sci Med. 2015 Oct 1;143:9–16.

244. Dixon LZ. Delivering Health [Internet]. Vanderbilt University Press; 2020 [cited 2023 Jul 10]. Available from: http://www.jstor.org/stable/j.ctv17vf3r7

245. El Konti M. Between Cut and Consent: Indigenous Women's Experiences of Obstetric Violence in Mexico. Am Indian Cult Res J. 2018 Oct 1;42(4):21–41.

246. Nieto-González LA, Romero-Quiroz M de los A, Córdova-Avila MA, Campos-Castolo M. Perception of fair treatment for pregnant women in obstetric nursing. Rev CONAMED. 2011;16(1):5–11.

247. Valdez-Santiago R, Hidalgo-Solórzano E, Mojarro-Iñiguez M, Arenas-Monreal LM. New evidence concerning an old issue: abuse against women in delivery rooms. Rev CONAMED. 2013;18(1):14–20.

248. Espinoza-Reyes E, Solís M. Decolonizing the Womb: Agency against Obstetric Violence in Tijuana, Mexico. J Int Womens Stud. 2020;21(7).

249. GIRE. Violencia Obstétrica Un Enfoque de Derechos Humanos. Mexico: GIRE; 2015.

250. Senado de la República [Internet]. 2014 [cited 2023 Sep 29]. Senado aprueba sancionar violencia obstétrica. Available from: http://comunicacion.senado.gob.mx/index.php/informacion/boletines/12513-senado-aprueba-sancionar-violencia-obstetrica.html

251. Diagnóstico sobre Victimización a causa de Violencia Obstétrica en México. Comisión Ejecutiva de Atención a Víctimas; 2016.

252. GIRE. El Camino hacia la Justicia Reproductiva: Una Década de avance y pendientes. Mexico: GIRE; 2021.

253. Savage V, Castro A. Measuring mistreatment of women during childbirth: a review of terminology and methodological approaches. Reprod Health. 2017 Oct 26;14(1):138.

254. INEGI [Internet]. 2018 [cited 2023 Jun 29]. Encuesta Nacional sobre la Dinámica de las Relaciones en los Hogares (ENDIREH) 2016. Available from: https://www.inegi.org.mx/rnm/index.php/catalog/286

255. Encuesta Nacional sobre la Dinámica de las Relaciones en los Hogares ENDIREH 2021. INEGI; 2022 Sep.

256. Pickles C. “Obstetric Violence,” “Mistreatment,” and “Disrespect and Abuse”: Reflections on the Politics of Naming Violations During Facility-Based Childbirth. Hypatia. 2023 Aug;38(3):628–49.

257. INEGI [Internet]. [cited 2023 Oct 3]. Quiénes Somos. Available from: https://www.inegi.org.mx/inegi/contenido/infoest.html

258. Encuesta Nacional sobre la Dinámica de las Relaciones en los Hogares 2016 ENDIREH Marco conceptual. Mexico: INEGI; 2016.

259. INEGI. Encuesta Nacional sobre la Dinámica de las Relaciones en los Hogares 2016 .ENDIREH. Diseño muestral. INEGI; 2017.

260. INEGI. Encuesta Nacional sobre la Dinámica de las Relaciones en los Hogares 2021. ENDIREH. Diseño muestral. INEGI; 2022.

261. INEGI. National Survey on the Dynamics of Household Relationships 2021. ENDIREH. Questionnaire for married or in cohabitation woman. INEGI; 2021.

262. INEGI. Encuesta Nacional sobre las dinámicas de las relaciones en los hogares ENDIREH 2016 Cuestionario para mujer soltera [Internet]. INEGI; 2016. Available from: https://en.www.inegi.org.mx/programas/endireh/2016/

263. INEGI. Encuesta Nacional sobre las dinámicas de las relaciones en los hogares ENDIREH 2021 Cuestionario para mujer soltera [Internet]. INEGI; 2021. Available from: https://www.inegi.org.mx/programas/endireh/2021/

264. INEGI [Internet]. [cited 2023 Jul 6]. Población total por entidad federativa y grupo quinquenal de edad según sexo, serie de años censales de 1990 a 2020. Available from: https://www.inegi.org.mx/app/tabulados/interactivos/?pxq=Poblacion_Poblacion_01_e60cd8cf-927f-4b94-823e-972457a12d4b&idrt=123&opc=t

265. Agudelo-Botero M, Landeros-Jinéz M, Giraldo-Rodríguez L. Factores asociados con violencia familiar hacia adultas mayores mexicanas, 2016. Papeles Poblac. 2023 May 30;28(113):125–42.

266. Vega Estrada S de la, Téllez Vázquez Y, López Ramírez J. Índice de marginación por localidad 2010. 1. ed. México, D.F: Consejo Nacional de Población; 2012. 342 p. (Colección Indices sociodemográficos).

267. Cuevas S, Blanco J, Juárez C, Palma O, Valdez-Santiago R. Violencia y embarazo en usuarias del sector salud en estados de alta marginación en México. Salud Pública México. 2006;48:s239–49.

268. Juárez-Ramírez C, Nigenda G, Sauceda-Valenzuela AL, Villalobos A. Lags in the provision of obstetric services to indigenous women and their implications for universal access to health care in Mexico. Sex Reprod Health Matters. 28(2):1778153.

269. Arias Fuentes FF, Arteaga E, San Sebastián M. Social inequalities in women exposed to obstetric and gyneco-obstetric violence in Ecuador: a cross-sectional study. BMC Womens Health. 2022 Oct 13;22(1):419.

270. OECD. Health at a Glance 2011 [Internet]. 2011. Available from: https://www.oecd-ilibrary.org/content/publication/health_glance-2011-en

271. Doubova SV, Leslie HH, Kruk ME, Pérez-Cuevas R, Arsenault C. Disruption in essential health services in Mexico during COVID-19: an interrupted time series analysis of health information system data. BMJ Glob Health. 2021 Sep 1;6(9):e006204.

272. Guendelman S, Gemmill A, Thornton D, Walker D, Harvey M, Walsh J, et al. Prevalence, Disparities, And Determinants Of Primary Cesarean Births Among First-Time Mothers In Mexico. Health Aff Proj Hope. 2017 Apr 1;36(4):714–22.

273. Bernal-García C, Campos CNE. Cesárea: situación actual y factores asociados en México. Salud Quintana Roo. 2018;11(40).

274. Cobo Armijo MF, Sáenz AP, Flores Subias P. Obstetriv Violence and Mexican Official Norms: An Opportunity to improve implementation based on reported violations by healthcare personnel in four general hospitals in Mexico City. Juríd Ibero. 2023;7(14).

275. Flores-Romero L, Viñas-Velázquez BM, Treviño-Siller S. Obstetric Violence in Childbirth Care in Baja California: Nursing Personnel Perceptions. Front Norte [Internet]. 2022 [cited 2024 Jan 19];34. Available from: https://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S0187-73722022000100110

276. Williams C, Jerez C, Klein K, Correa M, Belizán J, Cormick G. Obstetric violence: a Latin American legal response to mistreatment during childbirth. BJOG Int J Obstet Gynaecol. 2018 Sep;125(10):1208–11.

277. Kelly CA, Soler-Hampejsek E, Mensch BS, Hewett PC. Social Desirability Bias in Sexual Behavior Reporting: Evidence from an Interview Mode Experiment in Rural Malawi. Int Perspect Sex Reprod Health. 2013;39(1):14–21.

278. Bogliacino F, Grimalda G, Ortoleva P, Ring P. Exposure to and recall of violence reduce short-term memory and cognitive control. PNAS. 2017;114(32):8505–10.

279. Reich MR. Restructuring Health Reform, Mexican Style. Health Syst Reform. 2020 Jan 1;6(1):1–11.

280. Gobierno de México [Internet]. [cited 2023 Jun 27]. IMSS-BIENESTAR. Available from: http://www.imss.gob.mx/imss-bienestar

281. Gauffin K, Dunlavy A. Finding common ground: how the development of theory in public health research can bring us together. Soc Theory Health. 2021 Jun 1;19(2):127–36.

282. Page-Reeves J, Niforatos J, Mishra S, Regino L, Gingrich A, Bulten R. Health Disparity and Structural Violence: How Fear Undermines Health Among Immigrants at Risk for Diabetes. J Health Disparities Res Pract. 2013;6(2):30–47.

283. Farmer PE, Nizeye B, Stulac S, Keshavjee S. Structural Violence and Clinical Medicine. PLoS Med. 2006 Oct;3(10):e449.

284. Visschers J, Jaspaert E, Vervaeke G. Social Desirability in Intimate Partner Violence and Relationship Satisfaction Reports: An Exploratory Analysis. J Interpers Violence. 2017 May 1;32(9):1401–20.

285. Centro de Estudios Sociales y de Opinión Pública. Desarrollo rural. Centro de Estudios Sociales y de Opinión Pública; 2023 Jan.

286. FIDA. Invirtiendo en la población rural en México. FIDA; 2017 Oct.

287. Treisman R. X now hides your “likes” from other users, whether you like it or not. NPR [Internet]. 2024 Jun 13 [cited 2024 Jul 10]; Available from: https://www.npr.org/2024/06/13/nx-s1-5004515/x-likes-hide-users-elon-musk

288. Statista [Internet]. 2024 [cited 2024 Jul 11]. X/Twitter: Global audience 2024. Available from: https://www.statista.com/statistics/242606/number-of-active-twitter-users-in-selected-countries/

289. Marian M, Pérez RL. Association between location of prenatal care services and non-consented cesarean sections in Mexico: A secondary analysis of the National Survey on the Dynamics of Household Relationships 2016. PLOS ONE. 2024 May 14;19(5):e0303052.

290. Servicio de Información Agroalimentaria y Pesquera. Gobierno de México. 2019 [cited 2024 Apr 9]. El Plato del Bien Comer. Available from: http://www.gob.mx/siap/articulos/el-plato-del-bien-comer