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# How inequity threatens the lives of pregnant women: barriers to accessing health services during an incomplete miscarriage in rural southern Mexico

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## SUMMARY

Globally, obstetric emergencies majorly account for maternal morbidity and mortality. Guerrero, Oaxaca and Chiapas accounted for more than 13% of maternal deaths in the country in 2021. Obstetric haemorrhage was the leading cause of maternal death after COVID-19 infection and hypertensive disorders. This case highlights the clinical course and social determinants of health that limited access to health services in a young woman with an obstetric emergency in rural southern Mexico. The case describes common challenges during an obstetric emergency in resource-poor settings, such as timely referral to a second level of care. Our analysis identifies the social determinants of health behind the slow and inadequate emergency response. Additionally, we present several interventions that can be implemented in low-resource settings for strengthening the response to obstetric emergencies at the primary and secondary levels of care.

## BACKGROUND

According to the WHO, maternal deaths are deaths of women while pregnant or within 42 days of delivery or termination of pregnancy due to or exacerbated by pregnancy or its management, excluding deaths from incidental or accidental causes.<sup>1</sup> Although the global maternal mortality ratio has decreased by 38% from 2000 to 2017 (from 342 to 211 maternal deaths per 100 000 live births), it remains unacceptably high worldwide.<sup>2</sup> About 73% of maternal deaths between 2003 and 2009 were due to direct obstetric causes, with haemorrhage and hypertension being the first and second leading causes of death. Nearly a quarter were due to indirect causes, with non-communicable diseases such as diabetes, cardiovascular, respiratory diseases and cancer as major contributors.<sup>3</sup> Globally, in the last 2 years, COVID-19 has contributed to a high proportion of maternal deaths<sup>4 5</sup> and became the leading cause of maternal death in both Colombia and Mexico in 2021.<sup>6</sup>

Given that most maternal deaths are preventable, women's access to quality healthcare during pregnancy and during and after childbirth is key to reduce maternal mortality.<sup>7</sup> However, there are often barriers that prevent women from getting the care they need, both on the demand and supply side, particularly in low-income and middle-income countries (LMICs).<sup>8</sup> Poverty and gender inequality are among the main barriers affecting the demand

for health services. In terms of gender dynamics, structural factors, such as discrimination and social norms, and individual factors, influenced by the former, such as lack of ability to make their own decisions or take control over vital resources and gender-based violence, affect women's agency to choose when and where to seek healthcare. On the other hand, living on low income represents a barrier to covering the costs associated with health care, such as the purchase of medical supplies and medicines, informal and formal fees, the cost of transportation to the health facility and the opportunity cost of seeking care, which represents the economic losses due to taking time off from their productive work. In some cases, there are also supply-side constraints related to the capacity of health systems to deliver healthcare services, as reflected in the location of facilities, the availability of skilled attendants and the needed supplies and equipment, and the overall quality of care. All of these factors have an impact on the ability of pregnant women to use health services. The greater deficiencies in the health systems of LMICs and the scarce resources of their populations are directly related to the wide maternal mortality gap between rich and poor populations worldwide, as exemplified by the difference in the maternal mortality ratio between low-income countries—462 per 100 000 live births—and high-income countries—11 per 100 000 live births—in 2017.<sup>2</sup>

The COVID-19 pandemic has overwhelmed the attention and resources of health systems worldwide, and Mexico is no exception.<sup>9</sup> Yet, the alarming figures mentioned above highlight the importance of keeping women's health during pregnancy, childbirth and post partum at the centre of the global health agenda, as exemplified by the case we present, of a patient with obstetric haemorrhage who faced multiple barriers in accessing the care she needed, putting her life at risk. The events took place in southern Mexico, considered to be the region comprising the states of Guerrero, Oaxaca and Chiapas. These three states are among the four poorest states in the country,<sup>10</sup> while Guerrero and Oaxaca were among the nine with the highest maternal mortality in 2021.<sup>11</sup> A large portion of the population living in this region experiences the following conditions: a deficient or non-existent public transportation system; a precarious road system and associated driving conditions; a poor standard of living, including housing made of

inadequate construction materials and overcrowded living conditions; unstable domestic supplies; poor drainage systems and overall sanitation; lack of access to quality and nutritious food; poor access to telecommunication technologies; and few public facilities in bad condition with a shortage of public servants.<sup>12–14</sup> However, living conditions are especially difficult for women in rural areas, who must add household chores and child rearing—the burden of which has increased with the closure of schools during the COVID-19 pandemic—to the intensive work on the crops. In addition, many are exposed to intimate partner violence<sup>15 16</sup> and other forms of gender-based inequality, such as earning lower income than men.<sup>17</sup>

Through this case report, we identify the factors that led to a delay in the patient's healthcare and that are contributing to the high rates of maternal morbidity and mortality in southern Mexico and in LMICs in general. We aim to increase the awareness of these barriers among government and civil society decision-makers and healthcare professionals, as well as to promote interventions to mitigate them.

### CASE PRESENTATION

A female patient in her fourth decade of life with no known medical history or specific risk factors came to a rural outpatient clinic with a pregnancy of 11.2 weeks gestation. Because it was a weekend, the only health personnel available at the clinic was a physician. The patient mentioned that she started having a spotting-like vaginal bleeding 6 days before the consultation and that she had been doing very hard physical work during the last week. In addition to light bleeding, she had abdominal pain, and on examination the external os was closed. An ultrasound could not be performed for further examination, so she was diagnosed with a threatened miscarriage. She was sent home with some analgesics and was told to come back if the bleeding worsened.

Eight hours later, an emergency home visit was requested of the clinic physician due to an increased abdominal pain and bright red bleeding. At the home visit, the bleeding had stopped, and all vitals were normal. As a result, oral fluid replacement was indicated, and a referral for a specialist consultation was set for the next morning when public transportation was available. It did not appear to be an emergency, so the patient was spared spending the equivalent of \$40 US\$—about 75% of monthly household income<sup>12–14</sup>—on a special car to the nearest hospital, an hour away. However, only 3 hours after the home visit, a truck arrived at the clinic with the patient in the passenger seat. She was still bleeding heavily and was unstable and unconscious, necessitating emergency transfer to the nearest basic community hospital accompanied by the clinic physician.

On arrival at the hospital, there was no doctor other than the accompanying physician and no gynaecology service. The patient was given fluids and stabilised, regaining consciousness, at which point the estimated blood loss had exceeded 1000 mL. She was soon transferred to an ambulance and taken to the next hospital, located 2 hours away. The patient was transfused, and a uterine curettage was performed. The patient was discharged with antibiotic therapy and daily ferrous fumarate for management of secondary anaemia. After discharge, the patient received monthly medical evaluations at her community clinic, psychological support following the trauma and immediate bereavement, and home visits from a community mental health companion.

### GLOBAL HEALTH PROBLEM LIST

- ▶ The latest maternal mortality estimates point to haemorrhage as the first direct cause of maternal death globally. In 2021, it

was the third leading cause of maternal mortality in Mexico after COVID-19 infection and hypertensive disorders.

- ▶ The southern region of Mexico presented one of the highest maternal mortality in the country in 2021.
- ▶ Guerrero, Oaxaca and Chiapas experience the highest shortage of specialised health providers in Mexico.
- ▶ The shortage of skilled health professionals combines with structural poverty and poor communication infrastructure, including land transportation routes and telecommunications, making it difficult for women to receive timely medical care when obstetric emergencies occur.

### GLOBAL HEALTH PROBLEM ANALYSIS

The fulfilment of reproductive and sexual rights is gaining attention in Mexico, as evidenced by the elaboration of a specific national action programme for reproductive and sexual health for the years 2020–2024 by the Ministry of Health (MoH),<sup>18</sup> the publication of the first federal guideline for safe abortion care by the MoH,<sup>19</sup> and the declaration of unconstitutionality of the criminalisation of voluntary abortion by the Supreme Court of Justice of the Nation in 2021.<sup>20</sup> However, there are still many structural barriers that prevent women in Mexico from accessing healthcare during pregnancy, childbirth and post partum, particularly present in the south of the country, which concentrated 13.1% (136 of 1036) of the total maternal deaths in the country in 2021, more than 10% caused by obstetric haemorrhage.<sup>11</sup> In the presented case, major barriers were poverty, deficient transportation and road conditions, poor communication networks, and the lack of qualified health professionals; detail on each category, as well as associated solutions, are described below.

#### Barriers to timely, quality care

First, the lack of economic resources prevented the patient in the case from accessing transport to the nearest basic community hospital sooner: Guerrero, Oaxaca and Chiapas are among the four poorest states in Mexico, with 66.4%, 61.7% and 75.5% of their population, respectively, living in poverty.<sup>10</sup> With nearly half of the region's population living in rural areas,<sup>21</sup> agriculture is one of the only employment options, often in precarious and informal conditions.<sup>22</sup> The southern states are the three Mexican states with the highest percentage of people working in the informal sector, over 78% in all cases.<sup>23</sup> Working in the informal sector is associated with low salaries, little job stability, low national social security coverage and defenselessness before labour law making it difficult to break the cycle of poverty in the region.

Additionally, the poor conditions of the road made the patient's transfer slow and dangerous. The Mexican municipalities with the highest percentage of population with very low accessibility to paved roads (more than 80%) are located in the states of Guerrero, Oaxaca and Chiapas.<sup>24</sup> For instance, in Chiapas only 22% of the total road network is paved,<sup>25</sup> which makes access to healthcare facilities and timely response to emergencies difficult.

Rapid response to emergencies is also limited by the low access to internet and cellular telephony in the southern region of Mexico. In 2020, its three states were among the four in the country with the lowest internet access (Guerrero: 65.7%, Oaxaca: 62.6% and Chiapas: 55.7%).<sup>26</sup> A better communication network would have also facilitated the communication between the general practitioner in the community and the team in the hospital and, as a result, ensured preparedness to receive the patient.

Furthermore, the lack of qualified health professionals represents a major barrier to timely and quality care for the population living in rural areas of southern Mexico. More than 30% of the region's outpatient clinics depend solely on medical students doing their year of social service to meet the health needs of the population.<sup>27</sup> In many cases, inexperienced healthcare personnel may not have adequate training, or financial, logistical, or educational support from the public health system, which affects the quality of healthcare they provide and their mental health.<sup>28</sup> In the presented case, the physician who attended the obstetric emergency at the outpatient clinic had the support of a non-governmental organisation, which provides continuing education, supplies and clinical supervision to some rural clinics in the region and likely contributed to the physician's ability to handle the situation.

Focusing on specialised care, the three southern states experience a profound lack of health specialists, with less than 0.5 specialised health professionals per 1000 inhabitants in 2014, in comparison to almost two specialists per 1000 inhabitants in Mexico City, the country's capital. For instance, 170.5 specialist consultations per 1000 residents were recorded in Chiapas the same year, the lowest figure in Mexico, compared with the highest figure recorded in the country, 1077.9 consultations per 1000 residents in the capital.<sup>29</sup> In the reported case, a faster response could have been provided if there had been an obstetrician-gynaecologist specialist closer to the patient's community of residence.

### Proposed interventions for improving maternal health outcomes

The lack of quality public infrastructure, such as telecommunications and roads in this case, as well as labour guarantees for farmers, should be addressed by supporting interministerial programmes involving the MoH, the Ministry of Labor and Social Welfare, and the Ministry of Communications and Transportation alongside federal, state and municipal authorities. Collectively, prioritising those interventions with the greatest impact on the health of the population through a leading role of the MoH would mitigate the challenges women face during and after pregnancy. By adopting the 'Health in all policies' approach, in which health considerations are integrated and articulated into policies, several programmes have been effective in addressing complex health issues strongly affected by the social determinants of health in Mexico and other countries in the Latin American region.<sup>30</sup>

Related to this, the lack of adequate and affordable transportation to transfer patients with obstetric emergencies and other urgent health needs could be corrected by communities, as shown by the research of Amosse and colleagues in rural Mozambique.<sup>31</sup> This is possible by implementing a community transportation programme, covering expenses through a community fund fed by small financial contributions from community members, and with no external input of vehicles, fuel, personnel or maintenance.

In terms of availability of qualified health professionals in rural areas, the Mexican government should redistribute the workforce of human resources for health throughout the country, with special emphasis on marginalised areas, where private care is not an option for their population. Additional partnerships between rural hospitals and universities could also increase the availability of specialists in rural areas.

At the primary care level, in addition to increasing the number of health professionals, it should be a priority to train these

personnel and guarantee their access to supplies for the management of obstetric emergencies, especially in rural outpatient clinics that are often far from hospitals. For instance, the provision of a uterine balloon tamponade device and training of its use could represent a valuable asset in performing a low-cost, non-invasive, life-saving procedure for postpartum haemorrhage in low-resource settings.<sup>32</sup> Furthermore, these health professionals should be trained and sensitised to adequately communicate a miscarriage and its cause to patients. Increasing basic medical information and providing basic psychoeducational support can help women avoid excessive feeling of responsibility and/or guilt following this event.<sup>33</sup>

The problems discussed and analysed here highlight the Mexican government's challenge in addressing the reproductive and sexual needs of the population. Consistent with international human rights, Mexican law and population's needs, the government is faced with the need to take immediate steps to ensure comprehensive access to sexual and reproductive health information and services for the population, including access to safe and legal abortion. A first step would be for Mexican authorities to create a single document or website that facilitates access to all sexual and reproductive health and rights policy guidelines and service standards. Such an initiative would improve accessibility to this information by healthcare providers, law enforcement, the judiciary and other professionals who may need it, as access to these guidelines and policies is currently fragmented across multiple platforms, often making it difficult to identify the most up-to-date documents. In addition, these professionals should receive adequate training on how to use all these documents in their daily practice. Moreover, information on sexual and reproductive rights, availability of services and regulations should be made available to the general public in easily understandable language, especially regarding key evolving issues, such as when and where a safe and legal termination of pregnancy can be achieved under Mexican law. Ensuring that the population can fulfil their sexual and reproductive rights by eliminating economic barriers that prevent them from accessing health services and ensuring that health facilities have sufficient qualified human resources, supplies and technology to meet the demands of the population is a further priority for the government in basic healthcare provision.

### Learning points

- ▶ It is essential that outpatient clinics have sufficient skilled personnel and supplies to deal with obstetric emergencies until referral to a hospital is possible, especially in rural settings where long distances between primary and secondary care facilities are common.
- ▶ Governments should implement policies that support the redistribution of specialised and non-specialised healthcare professionals to marginalised areas.
- ▶ Community-led initiatives can represent an effective way to sustainably address barriers to healthcare services in low-resource settings, such as the lack of affordable and safe transportation for health emergencies.
- ▶ Collaboration between the public sector and civil society is crucial to reduce the gaps in perinatal and maternal health services faced by health systems in underserved areas.
- ▶ Perinatal and maternal healthcare should be addressed through a 'health in all policies' approach, in order to effectively identify and intervene on the social determinants that act as barriers to quality and timely healthcare.

The issues outlined in the case extend beyond the Mexican context, representing a reality in many LMICs. Similarly, the solutions suggested can also work in other similar contexts. Only by addressing maternal health and its social determinants as a whole will it be possible to improve responses to obstetric emergencies and, consequently, reduce maternal mortality. These efforts must be carried out jointly by health professionals and governmental and civil society decision-makers through an interdisciplinary, multisectoral approach.

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Case reports provide a valuable learning resource for the scientific community and can indicate areas of interest for future research. They should not be used in isolation to guide treatment choices or public health policy.

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