

## Risk screening, emergency care, and lay concepts of complications during pregnancy in Chiapas, Mexico<sup>☆</sup>

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### Abstract

Maternal morbidity and mortality are widespread in Chiapas, Mexico's southernmost state, as in many developing regions. Globally, the utility of three approaches to addressing such problems has been debated: (a) obstetric risk screening (i.e. screening women for risk during pregnancy and channeling those at risk to preventive care); (b) emergency obstetric care (i.e. identifying complications during pregnancy or birth and providing prompt effective treatment); and (c) combined risk screening and emergency care. Unaddressed to date in peer-reviewed journals are the lay perceptions of complications and risk that precede and incite the quest for obstetric care in Mexico. High incidence of maternal mortality in Chiapas, exacerbated by the predominantly rural, highly indigenous, geographically dispersed, and economically marginalized nature of the state's southern Border Region, prompted us to conduct 45 open-ended interviews with a convenience sample of women and their close relative/s, including indigenous and non-indigenous informants in urban and rural areas of four municipalities in this region. Interviews suggest that none of the three approaches is effective in this context, and we detail reasons why each approach has fallen short. Specific obstacles identified include that (1) many women do not access adequate prenatal screening care on a regular basis; (2) emergency obstetric care in this region is severely circumscribed; and (3) lay notions of pregnancy-related risk and complications contrast with official clinical criteria, such that neither clinical nor extra-clinical prenatal monitoring encompasses the entire range of physical and social risk factors and danger signs. Findings reported here center on a rich description of the latter: lay versus clinical criteria for risk of antepartum complication.

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## Introduction

Suffering and death due to maternal causes are widespread in Chiapas, Mexico's southernmost state, as in many developing regions. Globally, the utility of three approaches to addressing such problems has been debated: (a) obstetric risk screening, (b) emergency obstetric care, and (c) combined risk screening and emergency care. High incidence of maternal mortality in Chiapas, exacerbated by the predominantly rural, highly indigenous, geographically dispersed, and economically marginalized nature of the state's southern Border Region, prompted research among indigenous and non-indigenous (or *mestiza*) women and their close relative/s residing in urban and rural areas. Interviews suggest that none of the three approaches has been effective in this context. Obstacles include that (1) women do not generally have access to adequate prenatal screening; (2) emergency obstetric care in this region is severely circumscribed; and (3) lay notions of pregnancy-related risk and complications contrast with clinical criteria, such that neither clinical nor extra-clinical prenatal monitoring encompasses the entire range of physical and social risk factors and danger signs. These challenges are detailed below, with an emphasis on the latter.

## Approaches to addressing maternal morbidity and mortality

Fig. 1 outlines the three recognized approaches to address maternal morbidity and mortality. Proponents of the risk screening (RS) model contend that maternal morbidity and mortality are preventable by screening women for risk of obstetric complications (prior to an acute episode), and then channeling those at risk to prompt, effective care. The emphasis is on identifying and addressing risk factors and complications that arise prior to labor, such as multiple gestations. The Mexican Secretary of Health prefers this model (INSP, 2000, 2001; NOM, 1993).

Advocates of the emergency obstetric care (EOC) approach assert that there is no reliable method to identify those women who are at *no* risk for serious complications, especially because problems can develop late and abruptly, making prediction and prevention unreliable. Risk screening is considered inadequate, as most women identified as at risk have uneventful deliveries, while others who develop obstetric complications had no apparent risk factors. This model instead indicates that, regardless of risk profile, women and those around them must be able to recognize complications and access emergency treatment. The emphasis is on

educating the lay population to recognize complications and on providing effective, accessible emergency services. The EOC model is embraced by United Nations Children's Fund (UNICEF), United Nations Population Fund (UNFPA), and Family Health International (FHI) (Family Health International, 2006).

A third approach combines risk screening for prevention with early detection of complications, timely response in acute episodes, and treatment via appropriate emergency care. Advocates, including the World Health Organization (WHO) and the International Federation of Gynecology and Obstetrics (FIGO), promote community-based models of care with access to centralized emergency specialty care. The WHO, for instance, straddles the two models, contending that risk screening has limited impact on maternal mortality, but that prenatal care improves maternal health. While advocating prenatal risk screening, the WHO also calls for prenatal care to educate women and their relatives about danger signs and risks, birth spacing, nutrition, and benefits of skilled attendance at delivery (World Health Organization, 2003).

Literature on addressing maternal mortality in Mexico has focused on maternal mortality statistics (cf.) Ávila Sánchez & Jauregui Díaz, 2003; Bobadilla Reyes Frausto & Karchmer, 1996; "Estadísticas de la mortalidad relacionada con la salud reproductiva: México 1997", 1999); preferences for home/clinic and midwife/physician birthing assistance (cf. Freyermuth Enciso, 2004a, 2004b; Hunt, Glantz, & Halperin, 2002; Sánchez-Pérez, Ochoa-Díaz López, Navarro i Giné, & Martín-Mateo, 1998); access to clinical care (cf. Brentlinger, Sánchez-Pérez, & Cedeño, 2005; Miranda-Ocampo, Salvatierra-Izaba, Vivanco-Cedeno, Alvarez-Lucas, & Lezana-Fernandez, 1993); quality of clinical care (cf. Freyermuth Enciso, 2004b; Gomez-Dantes, Garrido-Latorre, Tirado-Gomez, Ramirez, & Macias, 2001); and funding distribution, policy, and institutional programs (cf. Díaz, Sánchez-Hidalgo, Freyermuth, & Castañeda, 2004; Freyermuth Enciso, 2004a; Ochoa & Garcia, 2005). Research has prioritized biomedical over lay perspectives of risk, clinical care over household health behavior, and advanced complications at birth over initial identification of complications and assessment of risk during pregnancy. Unaddressed to date are lay perceptions of complications and risk that precede and incite care-seeking in Mexico, a gap making this study original and valuable.

## Maternal well-being in Chiapas, Mexico

In 2000, the Mexican national maternal mortality ratio was estimated at 50 deaths per 100,000 live births.

	Risk screening (RS)	Emergency obstetric care (EOC)	Combined approach (RS/EOC)
Underlying tenets	Maternal morbidity and mortality are predictable and preventable.	Maternal morbidity and mortality are, for the most part, not predictable nor preventable.	Some conditions are predictable and preventable; others are not.
Strategy	Screen women for risk and channel them to care (prior to an acute episode).	a) Teach women and others to recognize complications and to seek emergency care. b) Provide effective, available emergency care in the event of an acute episode.	a) Screen women for risk (prior to the development of an acute episode). b) Teach women and others to recognize complications and to seek emergency care. c) Provide effective, available emergency obstetric care in the event of an acute episode.
Proponents	Mexican government (in NOM)	UNICEF, UNFAP, AMDD	WHO, FIGO
Shortcoming/s of the approach in the context of Chiapas	Many women do not get regularly screened by qualified physicians or midwives.	Many women do not recognize complications.	Many women do not get screened. Many women and those around them do not recognize complications.
Emergency obstetric care is not available, accessible, acceptable.			

Fig. 1. Approaches to addressing maternal morbidity and mortality.

The ratio in Chiapas was around 80/100,000, and up to 110/100,000 in the state's southern Border Region. These official statistics are likely underestimates, as observed maternal mortality ratios included 158/100,000 in the nearby Altos Region (Díaz et al., 2004; Freyermuth Enciso, 2003) and as high as 607/100,000 in neighboring regions (Brentlinger et al., 2005). Maternal deaths in Chiapas are concentrated in predominantly indigenous, rural, marginalized communities (Brentlinger et al., 2005; Díaz et al., 2004; Freyermuth Enciso, 2003; Tinoco, 2003). The most frequent causes of maternal mortality in Chiapas included hemorrhage, sepsis, placental retention, ectopic pregnancy, placenta previa, prolonged and obstructed labor (Brentlinger et al., 2005; Díaz et al., 2004; Freyermuth Enciso, 2003; Tinoco, 2003). Many of these complications are very difficult to predict or detect before labor has begun (especially without ultrasound), and can cause rapid blood loss and death.

This troubling panorama persists despite Mexico's commitment to the Safe Motherhood initiative since 1993, high priority on maternal well-being in the national health agenda, and a spotlight on health in Chiapas over the past decade (COESPO, 2003; Díaz et al., 2004; Freyermuth Enciso, 2004a, 2004b). The 1994 Zapatista conflict drew global attention to well-being — including maternal health — in Chiapas. This exposure was soon followed by international, federal, and state investigations into health and care, as well as

investment in infrastructure. This investment was bolstered by attention to maternal mortality in the international conferences in Cairo and Beijing. Locally, the death of 34 neonates in December 2002 catapulted the Comitán General Hospital to national attention, and renewed surveillance, investment, and debate surrounding the quality of maternal-infant care in Chiapas. It is in this context that official efforts (e.g. *Programa de Ampliación de Cobertura* 1996–2002 and *Programa Arranque Parejo en la Vida*) have recently been challenged for failing to lower maternal mortality (Castañeda et al., 2004; Díaz et al., 2004; Freyermuth Enciso, 2004a, 2004b; INSP, 2006; Tinoco, 2003).

In its policy guidelines, the Mexican Secretary of Health has prioritized the RS approach over the EOC strategy. The Official Mexican Norm (*Norma Oficial Mexicana*, NOM) guiding pregnancy, childbirth, and puerperal care, instituted in 1993, begins, “The majority of obstetric harm and risks to the health of the mother and child can be prevented, detected and treated successfully via the application of normative care procedures, among which are the use of the risk focus and the realization of eminently preventive activities....” (NOM, 1993). The 1993 NOM is still in effect, its stance echoed in recent national guidelines asserting that, “the principle causes of maternal and perinatal mortality are preventable via early, systematic, and high quality prenatal care, which allows for the identification and control of the principle obstetric and perinatal risk factors” (INSP, 2000:2, 2001). While

the government has embraced the RS model in policy, the NOM standards have not been successfully implemented in Chiapas, where women are, for the most part, not being adequately screened on a regular basis by a qualified practitioner for the risk of complications during pregnancy.

### *RS and EOC approaches fall short in the Border Region*

In Chiapas, the RS approach is crippled by the facts that women are not adequately screened and that many problems are unpredictable. Chiapas has the highest rates in Mexico of prenatal and birthing care provided by midwives (COESPO, 1999). In 2006, for instance, 19% of births in the state's Border Region were attended by midwives (Comité Regional para la Dictaminación de las Muertas Maternas, 2007). These well-intentioned practitioners, however, vary greatly in their training, capacity to screen for problems and assess risk, and ability to refer patients to emergency clinical care. Many women who care for pregnant and birthing relatives do not self-identify as midwives, and thus have never been detected by the Secretary of Health, nor have they received formal training. Indeed, most of the 535 midwives identified in 2006 in the Border Region practice outside the health care system; only 319 did any statistical reporting to health officials; just 50 had been trained and certified by the Secretary of Health. Further, distribution of this small certified cadre is problematic, as they are concentrated in urban areas, leaving some municipalities few or no certified midwives (e.g. Las Margaritas and La Independencia). For many midwives, training, reporting, and referral are hampered by their having never finished elementary school (Comité Regional para la Dictaminación de las Muertas Maternas, 2007). "Midwife," then, refers to a heterogeneous group, the great majority with little or no capacity to engage in obstetric risk screening or treat complications of pregnancy and delivery (e.g. recognize pre-eclampsia through blood pressure measurement or manage post-partum hemorrhage with medications) and little power to expedite referrals to emergency obstetric facilities. While midwives are popular (albeit ill-equipped) in Chiapas, the state has the lowest rates in the nation of physician-provided prenatal (as well as birth and puerperal) care (Sánchez-Pérez, Ochoa-Díaz López, García-Gil, & Martín-Mateo, 1997). Further, even those fortunate few women who seek and obtain prenatal care from a well-qualified physician and/or midwife tend not to do so regularly, leaving potentially detectable complications unnoticed, and assessments of risk under-estimated.

Without clinical risk screening, Chiapaneca women and those around them must assess risk and recognize complications on their own, and then access adequate emergency care services. By default then, an EOC model is in practice. The EOC strategy falls short, however, when (a) people do not recognize high risk or complications and/or when (b) emergency obstetric care is insufficient. We dedicate the bulk of the findings to local, lay notions of complications. First, however, we draw on prior studies to address the circumscribed nature of emergency care in this region.

Recognition of complications and wherewithal to seek care are of no use if emergency services are not available, accessible, appropriate, and acceptable. In theory, all Mexicans are entitled to free maternal health care; in reality, access to emergency obstetric services is limited (PAHO, 2002). Public primary health care at rural health posts and clinics in the Border Region is usually provided by a bilingual nurse and a visiting general practitioner. Neither a gynecologist-obstetrician, nor complex diagnostic and treatment resources (such as ultrasound and blood transfusions) are available. Primary care facilities, then, have no screening or emergency obstetric care capacity. Secondary care in Mexico is offered through hospitals providing out- and in-patient care by specialists in family medicine, pediatrics, gynecology-obstetrics, general surgery, and internal medicine, who draw on more complex diagnostic and treatment resources than at the primary care level. In the Border Region of Chiapas, however, only 2 of the 143 health care units are equipped for secondary in-patient care (Secretaría de Planeación y Finanzas, 2005), and just one is available to uninsured Chiapanecans. In the four municipalities under study, only the Comitán General Hospital, a regional 90-bed facility, offers routine gynecological, prenatal, delivery, postnatal care, and treatment for complications (e.g. blood transfusions, caesarean sections, eclampsia management). The deficit in primary care services incites many to bypass primary care and go directly to secondary care facilities, resulting in a glut of patients at the Hospital. Women in this region may seek prenatal and birthing care at private practices in urban areas; however, private hospitals and doctors' offices are not legally certified, and they lack the equipment and personnel to provide emergency obstetric care. Patients with obstetric emergencies are referred to the Comitán General Hospital. Further, two coercive policies provide incentives for women to opt for public institutions over private facilities: (a) five prenatal consultations in a public institution entitles them to a free birth and (b) during a prenatal visit in a public clinic, women can arrange for a tubal ligation following childbirth.

In the region of study, access to the one source of emergency obstetric care is hampered by population dispersion, inadequate transportation, and economic vulnerability (cf. Díaz et al., 2004). The Border Region's population (398,954) is extremely dispersed, with an average density of 42 people per square kilometer, and 70% of inhabitants living in rural towns (*Secretaría de Planeación y Finanzas*, 2005). Rural areas are generally populated by Tojolabales, indigenous people of Mayan descent who comprise 13% of the regional population and tend to be economically marginalized. Residents of the Border Region are generally peasant farmers, laborers, and micro-enterprise owners and employees. Of the Border Region municipalities, Las Margaritas and La Independencia are the most geographically extensive, have the highest indigenous concentration, and have maternal mortality ratios double the national ratios. These municipalities are also the most difficult to access. Only 23% of the roads in the Border Region are paved. Travel time from the city centers of La Independencia, Las Margaritas, and La Trinitaria to the Comitán General Hospital is about a half hour in a private vehicle; however, few own a car. People must rely on slow, erratic buses or faster but expensive taxis. Finding transportation at night, on weekends, and holidays is also problematic (Ávila Sánchez & Jaurégui Díaz, 2003; *Secretaría de Planeación y Finanzas*, 2005). Limited ambulance service is available in city centers. While some areas without ambulance service have a community fund to transport women to health services, husbands often do not allow their wives to be moved until it is too late (*Interview with Head of Reproductive Health Program*, 2007).

The facts that most pregnant Chaipaneca women do not receive adequate risk screening and that access to emergency obstetric care is limited make it crucial to understand local lay concepts of risk and complications during pregnancy. Women and those around them draw on these notions to assess symptoms and to decide whether to seek clinic-based risk screening and/or emergency care.

## Objective

In 2004, the Comitán Center for Health Research (*Centro de Investigaciones en Salud de Comitán*, CISC) and the College of the Southern Border (*El Colegio de la Frontera Sur*, ECOSUR) launched a study to explore local lay representations of complicated pregnancy from the perspectives of women and their husbands, parents, and parents-in-law, as these individuals are involved in pregnant women's everyday care and their responses to perceived complications shape

the quest for care. (Subsequent components of this study, to be reported elsewhere, probe perspectives among health care providers.)

## Theoretical basis

This research was based on the notion that prevention of and responses to complications during pregnancy are rooted in local social representations of problematic pregnancy. An array of social representations results from the paradigm from which these representations are constructed. From the hegemonic medical standpoint, representations of maternity are associated with medicalization, technical efficiency, and institutionalized care. Also privileged are notions of mothers' individual responsibility for their care and for the outcome of pregnancy. This focus is based on the idea that pregnant women decide freely when and where to seek care. From this perspective, efforts at training care providers emphasize the delivery of medical–technical content via a traditional banking education model. In contrast to the hegemonic medical model, anthropological approaches have documented myriad social representations of pregnancy, birth, and maternal death, their valued cultural elements, their dimension as family events, and their social as well as biological character. Micro-social and gender-oriented studies have revealed the unequal negotiation processes that occur at the extended-family level, which mediate decision-making regarding care and care-seeking during pregnancy. Also documented are the limitations associated with women's position in the socio-symbolic organization, contributing to the problem of maternal death. Recognizing the sociocultural and gender dimensions of maternity can orient training among health care personnel and the lay population, to then facilitate intervention focused on recognition of complications, decisions to seek care, and/or care itself.

## Methods

This study was conducted with prior review by and approval from Health Jurisdiction III (the official governing body for health in the Border Region) and the Comitán General Hospital's Continuing Education and Research Committee (functioning as its Institutional Review Board). We first developed a guide for open-ended interviews, loosely structured around these themes:

- What is a problematic or complicated pregnancy?
- How might a problematic pregnancy or complication during pregnancy be identified?

- What do you do in such cases?
- Who participates in decisions related to care in such cases? When? How?

Interviews aimed at eliciting active, unprompted knowledge, to understand spontaneous representations of risk, complications, and problems. To ease discussion of private or sensitive themes, interviewers drew on strategies like raising questions in general or abstract terms before asking about personal experiences. The open-ended dynamic permitted informants to speak at length and introduce their own concerns. This method produced a body of text-based data that we could analyze without pre-existing, pre-coded categories. Rather, we identified categories and themes as they emerged from the data.

To contact a non-statistical convenience sample of participants, an interviewer visited each informant's or relative's home. Final informants were identified based on willingness to participate, accessibility, and ability to express themselves. Due to low literacy levels, informed consent was oral. Interviews lasted 30–60 min. Interviews were conducted by experienced bilingual researchers in each informant's preferred language (Tojolabal or Spanish) in her/his home, clinic, or workplace. If informants consented and conditions permitted, interviews were tape-recorded; otherwise, the researcher took notes and then reconstructed the content.

Interviews were conducted with 16 women, ranging from 17 to 47 years of age (median = 27 years, mean = 30 years), and having between 1 and 9 children (median = 3, mean = 4). All women interviewed had a (common-law) husband, and all occupied the lower socioeconomic echelons. Additional interviews were conducted with at least one influential relative: 10 with partners, 8 with the woman's mother and/or father, and 11 with a mother- and/or father-in-law. The 45-person sample purposefully included half indigenous (Tojolabal speaking) and half *mestizo* individuals, half urban and half rural dwellers, all living in the municipalities of Comitán, La Trinitaria, Las Margaritas, or La Independencia, Chiapas.

Analysis included a descriptive phase followed by an interpretive phase. The former entailed data reduction and organized display in an Excel<sup>®</sup> database which included demographic variables, paraphrased responses, and key quotations. These were then ordered by category from the interview guide or from concepts emerging from participants, producing a typology of participants' comments. Interpretation consisted of looking for patterns and trends among the descriptive data through systematic comparison of variables (a technique detailed in Miles & Huberman, 1994). Further, data were

schematized in Mind Manager<sup>®</sup> to visualize information from the various contexts, as well as to identify and represent relationships between themes. Emerging nodes included, for example, the most serious illnesses in women, care and experience during pregnancies and childbirth, the developing fetus, work women do while pregnant, and roles of midwives, in-laws, and husbands. Despite diversity, informants' perspectives and experiences often overlapped. In the findings below, demographic characteristics are noted only when a distinct contrast (urban/rural, indigenous/*mestizo*, old/young) was evident.

## Findings

### *Perceptions of care during pregnancy*

While interviews did not aim to elicit reasons for low prenatal screening rates, many informants expressed hesitance to seek physicians' care during pregnancy, while justifying loyalty to midwives. Clinical care was often perceived as expensive, distant or non-existent, untrustworthy, frightening, slow, and disrespectful. Midwives, in contrast, were frequently described as more affordable, available, accessible, trustworthy, and mobile. Allegiance was reinforced by midwives often being relatives (by blood, marriage, or God-parenting), with a history of service within the family.

Rural residents cited poor infrastructure and distance to facilities as obstacles to consulting a doctor during pregnancy. One observed, "These are isolated communities, they're not accessible by car, there are no health centers...." Further, clinics did not always provide complete services. For example, "In La Trinitaria, they won't help you late at night." Moreover, patients must cover costs of transportation, medication and materials, and for people to accompany them. So, informants explained, "When we are broke, it's better to look for a midwife because they don't charge us much."

Some urban indigenous informants doubted the quality of clinical care, at times even positing it as risky. One argued, "There have been fetal and maternal deaths, the doctor has been irresponsible. The woman runs a high risk...." Sometimes prenatal consultations in the clinics inspired informants to seek a midwife rather than a doctor. In one instance, when doctors diagnosed a transverse baby and suggested a cesarean, one man took his wife to a midwife, stating that he preferred to risk death over a cesarean. This example also illustrates the extreme control that men exercise over women's bodies and care.

Indigenous participants stressed ethnic discrimination, arguing that *mestizo* doctors "do not understand ...the problems that we indigenous people face." One man

saw “repudiation between the doctor and indigenous people.... Patient’s relatives are pushed aside.... Doctors and nurses... they’re not going to respect you.” Another noted, “The problem with pregnancy is that sometimes the care providers don’t help us fast enough. A lot of people here... are complaining that they don’t respect people.... We want and deserve to be treated well.” Further, *mestizo* informants accused clinic staff of differentiating care by socioeconomic status. These concerns drove many to avoid clinical prenatal care and instead see midwives to prevent complications and relieve symptoms.

Informants resorted to physician’s services when pregnancy became complicated, but these visits were rarely aimed at preventive screening. A woman explained, “A midwife is better for me, my body is used to it, but for this problem I’m having now I’ll probably end up in the doctor’s hands.” Another noted, “If pregnant women don’t get better with the midwife, then the midwife takes them to the doctor.” Even those who sought clinical prenatal care did not do so routinely. One woman described her prenatal care as “...sporadic, [I went] when my blood pressure rose, but I didn’t have frequent dates, or a regimen....”

This said, there is a tentative shift toward clinical prenatal care spurred by urbanization, conversion to Protestant sects (which frown upon “traditional” medicine), and government policies making prenatal care mandatory and an incentive for free birth care. A likely trend is a transition period, during which women seek prenatal care from both midwives and physicians, perhaps drawing on perceptions of specialized expertise. For example, while external fetal version and prenatal vitamins are known to both physicians and midwives, informants often saw midwives as better qualified to “massage” the baby into a good position, and more apt to provide “fortifying” and “heating” vitamins. (The NOM prohibits physicians from prescribing vitamins for normal or low-risk pregnancies [INSP, 2001; NOM, 1993].) On the other hand, informants said that physicians might be better at supervising pregnancies in women who had miscarried, so some seek prenatal care from both doctors and midwives. Even so, the large proportion of women who do not consult physicians or midwives for routine prenatal visits inhibits universal obstetric risk screening, making crucial lay recognition of antenatal risk and complications.

#### *Lay representation of problematic or complicated pregnancy*

Obstetric risk screening is based on extensive criteria, including pre-conception risk conditions,

danger signs, and clinically diagnosed complications. Local representations of problematic pregnancy and complications are also multi-faceted and complex. Fig. 2 summarizes the multiple components of lay representations of problematic pregnancy versus official NOM criteria for high risk pregnancy. There is some overlap; this study, however, also reveals differences.

#### *Woman’s sub-optimal pre-pregnancy condition(s)*

*Pregnancy in very old and very young women may be problematic.* Informants saw age as key in designating a pregnancy as problematic. They reasoned that older women suffer from accumulated consequences of poor health and care, and are not as strong as younger women, making pregnancies in older women problematic. Others linked youth to risk. Some wariness regarding pregnancy in young women was derived not from their chronological age, but from older women’s notions that this generation is weaker, more susceptible to morbidity, and less willing or able to endure it. Thus pregnancy in women in the youngest and oldest groups, informants surmised, was problematic. The NOM has similarly marked women under 16 and over 35 as at risk for obstetric complications.

*Pregnancy in primiparous women may be problematic.* Informants, especially indigenous participants, often deemed a woman’s first pregnancy problematic due to the couple’s inexperience and embarrassment. Subsequent pregnancies were considered less complicated, as the woman’s trust in midwives grows and she learns precautions. Indigenous informants contrasted new parents’ inexperience with knowledge acquired over years of parenting. One said, “I’m a man, I don’t know much. I only know because I have a lot of children.” With each pregnancy, people felt more capable of recognizing and responding to problems. For example, one man distinguished abnormal symptoms in his wife’s pregnancy due to insight from her previous pregnancy: “The veins in her feet hurt and got very big, while in her other pregnancies this did not happen.” Likewise, the NOM denotes first pregnancies as high risk. In contrast to lay perspectives, however, the NOM also designates pregnancies beyond the fourth as suspect, due to recurring and cumulative morbidities that can make repeated childbearing risky (e.g. uterine prolapse) (INSP, 2001). One rural *mestiza* woman noted that a pregnancy preceded by miscarriage(s) was problematic and merited close

LAY PERCEPTION of problematic pregnancy A pregnancy may be deemed problematic if it:	OFFICIAL NORM: Criteria for obstetric risk screening A pregnancy is classified (CENIDS, INSP 2000, 2001) as high risk if it:		
<p>Occurs in a woman with sub-optimal pre-pregnancy condition(s):</p> <ul style="list-style-type: none"> <li>o Age ("too young" or "too old")</li> <li>o Parity (1<sup>st</sup> child)</li> <li>o Pregnancy spacing ("too close" or "too far")</li> <li>o Miscarriage in previous pregnancy/ies</li> </ul>	<p>Occurs in a woman with one or more "pre-conception risk conditions":</p> <ul style="list-style-type: none"> <li>o Age (&lt;16 or &gt;35 years)</li> <li>o Parity (1<sup>st</sup> child, any child after the 4<sup>th</sup> child)</li> <li>o Pregnancy spacing (&lt;2 years between pregnancies)</li> <li>o Previous miscarriage</li> <li>o Previous pre-eclampsia</li> <li>o Hemorrhage in second half of previous pregnancy/ies</li> <li>o Previous cesarean section</li> <li>o Previous neonatal death</li> <li>o Previous premature birth</li> <li>o Previous high or low birth-weight</li> <li>o Rh incompatibility in previous pregnancy/ies</li> <li>o Malnutrition</li> <li>o Anemia</li> <li>o Chronic infection</li> <li>o Sexually-transmitted infection/s</li> <li>o Chronic disease (diabetes, hypertension, etc.)</li> <li>o Smoking, other addictions</li> <li>o Epilepsy</li> <li>o Congenital heart disease</li> <li>o Kidney disease</li> <li>o Congenital defects in either parent's family</li> <li>o Short stature (&lt;140cm)</li> </ul>		
<p>Is accompanied by abnormal symptoms in woman or baby: (depending on gestational stage)</p> <ul style="list-style-type: none"> <li>o Vomiting</li> <li>o Headache</li> <li>o Painful and swollen feet</li> <li>o Abdominal pain</li> <li>o Stomach pain</li> <li>o Body ache</li> <li>o Infections</li> <li>o Difficulty breathing</li> <li>o Weakness</li> <li>o Dizziness and fainting</li> <li>o Varicose veins</li> <li>o Toothache</li> <li>o Low blood pressure</li> </ul> <p>o Slow fetal growth</p> <p>o Fetal position</p> <p>o Activity-based symptoms (inability to work)</p>	<p>Is accompanied by danger signs recognizable by women:</p> <ul style="list-style-type: none"> <li>o Persistent vomiting</li> <li>o Headache</li> <li>o Edema/swelling of limbs</li> <li>o Vaginal bleeding</li> <li>o Blurred vision</li> <li>o Ringing in ears</li> <li>o Contractions</li> <li>o Vaginal discharge w/foul smell/itching/burning</li> <li>o Fever</li> <li>o Pain/burning when urinating, dark or gritty urine</li> <li>o Fits or convulsions</li> </ul> <p>Is accompanied by clinically-diagnosed complications which may or may not be perceptible by the woman:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <ul style="list-style-type: none"> <li>o Hypertension</li> <li>o Multigestation (twins, triplets, etc.)</li> <li>o Slow uterine/fetal growth</li> <li>o Abnormal fetal position</li> <li>o Premature rupture of membranes</li> <li>o Premature placental separation</li> <li>o Ectopic pregnancy</li> <li>o Pre-eclampsia-eclampsia</li> </ul> </td> <td style="width: 50%; vertical-align: top;"> <ul style="list-style-type: none"> <li>Diabetes</li> <li>Congenital defects</li> <li>Changes in fetal movement</li> <li>Miscarriage</li> <li>Placenta previa</li> <li>Liver disease</li> <li>Molar pregnancy</li> <li>Fetal death</li> </ul> </td> </tr> </table>	<ul style="list-style-type: none"> <li>o Hypertension</li> <li>o Multigestation (twins, triplets, etc.)</li> <li>o Slow uterine/fetal growth</li> <li>o Abnormal fetal position</li> <li>o Premature rupture of membranes</li> <li>o Premature placental separation</li> <li>o Ectopic pregnancy</li> <li>o Pre-eclampsia-eclampsia</li> </ul>	<ul style="list-style-type: none"> <li>Diabetes</li> <li>Congenital defects</li> <li>Changes in fetal movement</li> <li>Miscarriage</li> <li>Placenta previa</li> <li>Liver disease</li> <li>Molar pregnancy</li> <li>Fetal death</li> </ul>
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<p>Occurs in unfavorable social circumstances, e.g.:</p> <ul style="list-style-type: none"> <li>o Father's behavior (alcohol, violence)</li> <li>o Financial straits</li> <li>o Social complications (premarital, paternity)</li> </ul>			
<ul style="list-style-type: none"> <li>o Is deemed so by woman &amp;/or close influential relatives (partner, parents, in-laws, midwife)</li> <li>o As mediated by perceptions of normality of female suffering and rates of problematic pregnancy</li> </ul>	<ul style="list-style-type: none"> <li>o Is deemed so by the physician</li> </ul>		

Fig. 2. Lay representations of problematic pregnancy versus official criteria for high risk pregnancy.

monitoring. The NOM designates previous miscarriage as an indication of risk.

*An inadequately spaced pregnancy may be problematic.* Some urban indigenous informants defined problematic pregnancy as those resulting from "not using family planning" to ensure adequate spacing. Rural *mestiza* informants said that closely spaced pregnancies present worse symptoms, making them problematic. One rural *mestiza* woman asserted that pregnancy after a long

lag in childbearing may also be complicated. The NOM stipulates that less than two years between pregnancies is risky, but does not mention the effect of a lapse in childbearing.

*Abnormal symptoms in the woman or fetus*

*Pregnancy with abnormal physical symptoms in the woman may be problematic.* Indigenous informants considered varicose veins, head-, stomach-, and body-ache as

worrisome symptoms denoting a problematic pregnancy. Additionally, *rural* indigenous informants mentioned swollen feet and infections, while *urban* indigenous informants cited foot pain, low blood pressure, vomiting, difficulty in breathing, and weakness as traits of problematic pregnancy. Unlike indigenous participants, *mestizo* informants perceived a category of “normal” pregnancy symptoms: swollen feet, nausea, vomiting, headache, stomach and sometimes even abdominal pain. These lists suggest a lack of distinguishing traits of symptoms situated along a continuum between normality and abnormality. In other words, various symptoms were evaluated as both normal and problematic in three different ways. First, the same symptom was perceived as standard in one population, but of concern in another. Vomiting, for example, was worrisome among urban Tojolabales, but normal among others. As one *mestiza* woman said of a typical pregnancy, “We feel like we have to throw up, dizzy and faint. That’s what happens to us, because that’s what always happens....” Second, some symptoms — like swollen feet, abdominal pain, head- and body-ache — were deemed both normal and problematic within the same population, and sometimes even by the same individual. Third, informants mentioned nonspecific symptoms, such as weakness, that occur so frequently in and out of pregnancy among women in this region (due to taxing physical activity and nutritional stress) that they may appear not to be pregnancy-related, and instead seem normal, less serious, and meriting little concern.

Further, participants noted that some symptoms were worrisome in one stage but not another. For example, a woman clarified, “Nearer nine months, cravings aren’t dangerous, they won’t cause miscarriages, the baby will be born when the time is right. Cravings are more dangerous in the earlier months.” Physicians also use gestational timelines to assess fetal development, establish critical periods for testing, and denote changing levels of risk. For instance, the NOM requires that doctors track weight gain and uterine growth and compare this to averages. They look for certain symptoms at certain times, such as co-occurrence of edema, headache, and dizziness in the last trimester to indicate pre-eclampsia.

*Pregnancy with abnormal physical symptoms in the fetus may be problematic.* Inadequate fetal growth and a badly positioned baby were also cited as tell-tale signs of problems. For instance, a fetus that “sticks” to or protracts from one side of the abdomen suggested complications among urban *mestizo* informants. A

father-in-law noted that a problematic pregnancy was one in which “the child sits with its head toward the woman’s heart.” A *mestiza* informant cited transverse fetal position, “...When the baby isn’t right, it’s sideways, it can’t come out, so these are serious cases, and supposedly the women die.” Likewise, the NOM cites abnormal fetal position as high risk.

*Pregnancy accompanied by adverse activity based symptoms may be problematic.* Rural indigenous participants maintained that, although pregnant women frequently experience aches, these symptoms did not normally impede or excuse women from daily tasks. Pregnancies were deemed problematic “when women can’t work.” Gender roles stipulated that women work throughout pregnancy, including farming, cutting firewood, heavy lifting (wood, water, corn), hand-washing clothes, and caring for children and animals. One woman sighed, “I have to go to work and when I rest, I also have to wash clothes — my husbands’, my children’s, mine, my in-laws’ — so I am working all the time.” In urban areas, pregnant indigenous women were expected to perform domestic labor at home and for employers. Rural indigenous women were even encouraged to continue fieldwork to ensure a smooth pregnancy and rapid birth. Thus, given that doctor visits are rare and complaining is discouraged, behavior is a default diagnostic tool among Tojolabales. In contrast, *mestizo* informants cited excessive work and lifting as threatening pregnancy, and were expected to work less and rest more. The NOM does not mention work expectations or inability to perform chores in obstetric risk screening.

#### *Unfavorable social circumstances*

*Pregnancy may be problematic if the father drinks and/or is abusive.* Indigenous informants viewed a pregnancy as problematic if the father consumed alcohol, arguing that this would limit his responsibility and decision-making skills. As one informant warned, “He who drinks a lot of liquor surely is not ready when his wife has a problem in her pregnancy.” Because men in this context are the primary decision-makers, their clarity of mind is fundamental.

Informants also defined as problematic those pregnancies in which women are subject to physical abuse, often associated with drinking. One man observed, “... Bad treatment by the husband. They hit, drink, and come back and hit the woman. When she gives birth, the baby is already hurt. Women also suffer because of this abuse.” In this region, alcohol consumption

among men is widespread, and is frequently cited by men and women alike to justify domestic violence (Glantz, Martínez, Tinoco, & de León, 2004). Informants recognized that delay in care spawned by a drunken husband can be life-threatening, as can be associated physical abuse. The NOM calls for physicians to warn women about repercussions of their own alcohol consumption, but does not suggest probing partners' drinking or domestic violence screening.

*Pregnancy may be problematic if the family is financially constrained.* Informants said that a precarious economic situation could make pregnancy complicated: "I think that when there's no money, it's a problem. The woman can die if we cannot find the money to take her to the doctor." Further, rural indigenous women noted that limited economic resources restricted their consumption of essential vitamins and proteins, while requiring them to work especially hard. Additionally, women's limited control over cash coming into the household, a gendered dynamic common in this region, impacts women's capacity to make decisions regarding their own health and access to services. The NOM does not include economic well-being in obstetric risk screening.

*Pregnancy may be problematic if it is unwanted, unplanned, or involuntary.* Unexpected, unplanned, or unwanted pregnancies also qualified as problematic. Informants reflected:

"I understand [problematic pregnancy] as one that happens just like that, without planning it."

"There are many problems with unwanted pregnancies."

"Sometimes women get pregnant... without their parents knowing. They find a man and get pregnant, without knowing how to take care of themselves. This has always happened in the community, principally among unmarried women who get together with married men."

Women are not only exposed to the physical repercussions of socially complicated pregnancies, but also bear the brunt of the blame and stigma surrounding unsatisfactory pregnancy outcome (including infertility, miscarriage, lack of sons). In rural indigenous contexts, pregnancy out-of-wedlock becomes a community issue brought before the local governing assembly. The couple is subject to fines and physical punishment, as a woman explained:

"Let's say that this pregnancy is not desired by the woman's parents, whatever happens, the single

mother is whipped in front of the assembly or at home. It doesn't matter that she is pregnant, she always gets her whipping.... It's a very big problem for the woman's family. If the woman is very delicate, she'll get sick and will soon lose the baby."

Thus, pregnancy with no worrisome physical symptoms can be problematic in a social sense, and given resulting sub-optimal treatment, can become physically precarious. For instance, CISC's previous research (1996–2000) in Tojolabal communities exposed the case of a young woman left to die in childbirth as she had become pregnant by a married man.

In this way, informants were sensitive to both clinical and social morbidities. While social circumstances and contextual threats derived from socioeconomic and gender inequities (e.g. malnutrition, anemia, sexually transmitted infections, and substance abuse in the mother) are mentioned in the NOM risk assessment criteria, women with social complications likely receive care inferior to that provided to women with more obvious and rapidly treatable clinical morbidities.

*Pregnancy is deemed problematic by a woman and those around her*

While the NOM includes risk screening criteria evident only via technology, elevating clinicians to influential experts, local social dynamics make husbands, parents, and parents-in-law key experts and decision-makers. Relatives recommended prenatal precautions and care, evaluated symptoms, selected care providers, and took the pregnant woman to services. Illustrative quotes include:

"My parents and my in-laws... decided when we would see the midwife, what we'd give her, what we'd tell her."

"Mainly the elders, my parents, my mother-in-law... say how something is going to be done and how a problem will be solved."

"Principally it's up to the husband, and after him, he tells me because I'm his mother, then we talk about it with my daughter-in-law's parents, but because they don't live close to us, we're basically the ones who have to agree, but her parents have to know about the problem."

Absence of relatives shifted influence. An older woman explained, for instance, "My son-in-law went to work in the States, so we have this responsibility... to see to it that my [pregnant] daughter gets well."

Involving multiple individuals in care during pregnancy can become cumbersome, conflictive, and

time-consuming, delaying evaluation of symptoms and care-seeking. One woman explained, “If people don’t agree with each other, the midwife doesn’t do anything. *First*, the four people — the woman’s parents and the man’s parents — have to agree, and... *then* they send for the midwife.” Informants clarified that this distribution of influence permitted both consensus and diffusion of blame when things went awry. On the other hand, such multipartite decision-making often minimizes the pregnant woman’s autonomy, which rests on her age, work, parity, proximity to relatives, and status in the household.

The balance of power among women and relatives may be in flux. Informants suggested that the present generation may be better informed and deserve more independence in decision-making during pregnancy. An older woman affirmed, “It could be that the young adults are smarter than old people.” Additionally, as people move to urban areas, the gendered balance of power shifts, reducing women’s subordination. Another woman opted, “... not to interfere in the lives of my sons and daughters-in-law. They have their own expenses and activities. Lifestyles have changed. We don’t go with them to the doctor because they know the city and they know how to speak Spanish.” The government also banks on younger adults having more literacy, health education, and familiarity in the health care bureaucracy.

#### *Deeming a pregnancy problematic is mediated by local perceptions of suffering and morbidity*

*Normality of female suffering.* A marked perception among mothers/-in-law was that it is normal for women to suffer, and women should put up with pregnancy and accompanying symptoms. Illustrative comments include:

“God decided that’s the way we women would be, and so we have to do it, we have to put up with it, we have to suffer.”

“Pregnancy brings a whole lot of problems. It’s very hard. It’s the way our life is, as women in this world.”

“[Pregnancy] is something that occurs in women; God has given us this suffering in this world.”

Women are educated to accept pain and suffering as their destiny, and that pregnancy merits little special care. These expectations influenced pregnant women’s behavior and others’ reactions to their grievances. One

woman reflected on her pregnant daughter-in-law’s complaints:

“Sometimes I think it’s just [that women nowadays are] stuck up, because they don’t want to just put up with it. Then again I think that maybe it really does hurt her. Nevertheless, I tell her, ‘Couldn’t it be that you’re just very stuck up and spoiled? That’s why you get sick.... Who is going to help you anyway? No one. Even if your husband loves you a lot, that’s not going to help alleviate your pain, it’s your burden.’ And that’s what happened to us. We’re old. We’re all women. We all have children.”

Mothers/in-law inculcated among pregnant women the need to endure adverse symptoms without complaining. On the other hand, danger signs were brought to light when women voiced their symptoms. A man explained, “The woman suffers.... [but it’s worrisome] when we see that she is complaining.” As a result, women’s symptoms may not be recognized until it is too late.

*Varied perceptions of obstetric morbidity.* Some informants felt that problematic pregnancy had become more frequent. Mothers/in-law, especially, observed that women these days were weaker, prone to more morbidity, and less able to endure than women of generations past. The notion that morbidity had increased was met not by heightened sensitivity and responses to symptoms, but by resentment about women’s “gratuitous” complaints and “unwarranted” care-seeking. An older woman lamented, “Over time, things have changed a lot. Pregnant women have more problems these days. They’re weaker. For any little ache they don’t want to do anything, they’re constantly going to the clinic....” Other informants contended that maternal mortality had decreased due to biomedical advances: “Before ... it was probably a lot worse. Now, there are many doctors.” Informants who thought problematic pregnancy had become *more* frequent blamed women’s weakness and frowned on “excessive” checkups. Those suggesting problems had become *less* common credited doctors for their curative (rather than preventive) abilities.

*Pregnancy is, by definition, problematic; problematic pregnancy is normal.* For Tojolabal informants, pregnancy, by definition, was problematic. One explained, “We call it [pregnancy] ‘the big illness’ because it is the biggest illness a woman can have, it is the biggest burden for us.” Pregnancy was seen as a precarious and ongoing state of morbidity. In contrast, various

non-indigenous participants specified that pregnancy was a normal process. One man said, “It is not an illness. It is something natural that God has given us,” and a woman explained, “...It is not an illness; it’s natural, it’s normal.” Either notion — that all pregnancy is problematic or that all pregnancy is normal — can inhibit designating a particular pregnancy as meriting special treatment.

In sum, informants did distinguish higher- from lower-risk pregnancies. Lay criteria include a range of sites (mother, baby, wider social context); extend over a broad time period (pre-pregnancy through birth); incorporate an inclusive group of actors (women and close relatives); and are mediated by notions of normality of female suffering and perceived frequency of problematic pregnancy. Lay representations do include some obstetric risk categories as markers of problematic pregnancy (e.g. age, parity, spacing, physical symptoms in mother and fetus). However, these commonalities do not include all clinically significant danger signs and symptoms. (Granted, unmentioned criteria may be part of informants’ passive knowledge, but were not volunteered at fieldworkers’ request for active knowledge.) On the other hand, obstetric risk screening is focused on biomedical criteria, and is less attuned to locally significant warnings of contextual threats to pregnancy, such as the woman’s ability to sustain a physical workload, her partner’s alcohol consumption, domestic violence, financial hardship, and unplanned or unwanted pregnancy. Physicians may be concerned with symptoms unspecified in the NOM, but feel that certain complications (e.g. infection, bleeding) are more amenable to medical intervention than others (e.g. poverty, infrastructural shortfalls; violence, substance abuse).

## Conclusions

In the Border Region of Chiapas, neither RS, nor EOS, nor both combined function adequately. The RS model, embodied in the Mexican NOM, is inhibited by the low proportion of women who seek routinely scheduled prenatal screening. Even when women seek prenatal care, physicians may not be as sensitive to local contextual risk as they are to biomedical risk criteria. In the absence of adequate risk screening, assessment of risk factors and complications rests on women, husbands, and parents/in-law. Their lay perceptions of problematic pregnancy, however, omit some clinically significant risk categories and are heavily influenced by local notions of women’s suffering and maternal morbidity as pervasive and thus normal. Also challenging is

the need to convince and equip entire groups to act. Finally, when people do seek EOC, care in this region is not often available, accessible, affordable, or acceptable, leading to a sense of fatalism that then limits their willingness to seek clinical help. Further, all three approaches are challenged by the inequitable gender relations in the region, by which men hold a disproportionate amount of power over women and their bodies.

Awareness of local perceptions of risk and complications among the lay population and practitioners is crucial in conceptualizing strategies aimed at both encouraging risk screening and promoting emergency care. First, it is fundamental to identify perceptions of risk that are consistent with clinical criteria, as well as those that are medically inaccurate, misleading, or incomplete. The former can be encouraged while the latter may be adjusted. Second, it is vital to identify groups in which more effort should be concentrated. In this case, primiparous women are perceived (by practitioners and the lay population) as less able to read their own bodies and weaker than multiparous women, thus meriting focused intervention attention. Third, it is crucial to discern among women those who are in a position to prevent, recognize, confront, and elicit a timely response to their obstetric risk and those who are not. Strategies to reduce delay in identifying risk and seeking care, then, must not treat all women the same, but instead make adjustments for disadvantages such as those arising from inaccurate or incomplete perceptions of obstetric risk, meager experience, and limited social support. Fourth, it is necessary to address the larger social factors that are the root causes of women’s suffering in the first place, such as economic marginalization, gender inequity, and poor health infrastructure. Efforts are currently underway to promote these four types of awareness and action among all stakeholders: physicians, midwives, women, and their relatives.

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