

# Maternal health and health-seeking behaviors among indigenous *Mam* mothers from Quetzaltenango, Guatemala

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## Suggested citation

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## ABSTRACT

**Objective.** To obtain background information about maternal health and health-seeking behaviors among indigenous mothers living in rural *Mam*-Mayan communities of Quetzaltenango, Guatemala.

**Methods.** A cross-sectional analysis of 100 pregnant and breastfeeding women in four communities was performed to determine prevalence and determinants of service utilization.

**Results.** Extreme poverty, poor education, and poor access to basic resources were prevalent. Out of 100 women 14–41 years old, 33% did not use the formal health care sector for antenatal care; the majority consulted a traditional birth attendant. Only 13% delivered in a hospital. Lower socioeconomic status, lack of fluency in Spanish, and no ownership of a motorized vehicle were associated with the highest likelihood of poor utilization of services.

**Conclusions.** A variety of factors affect utilization of maternal health services by indigenous women in rural Quetzaltenango. These include socioeconomic disparities, ethnic and linguistic differences, and poor access to basic resources. The current reproductive needs of women should be addressed to improve their health and increase their chance of having healthy children.

## Key words

Maternal welfare; maternal health services; food security; Guatemala.

Pregnancy-related complications remain the number one cause of death and disability among women of reproductive age worldwide, with an estimated 287 000 women dying from causes related to pregnancy and childbirth each year (1). Progress in reducing the maternal mortality ratio (MMR) has been disappointingly uneven between and within countries, and large socioeco-

nomic disparities persist (1–3). Effective interventions have been known for decades but are still not widely available or accessible in developing countries.

To reduce maternal mortality, any proposed interventions must ultimately reduce the likelihood that 1) a woman will become pregnant, 2) a pregnant woman will experience a serious complication, and/or 3) a woman who experiences complications will die (4). A preventive focus on maternal health and nutrition is also critical. Access to skilled birth attendants and emergency obstetric care has proven fundamental to the prevention of avoidable maternal deaths (5–7).

However, even when maternal health services are functioning well, women with obstetric complications often face a variety of economic, cultural, and/or geographic barriers to using them. Three types of delays contribute to the likelihood of maternal death: 1) delay in deciding to seek care, 2) delay in reaching a treatment facility, and 3) delay in receiving adequate treatment at the facility (4).

Indigenous women worldwide are particularly vulnerable to complications during pregnancy and childbirth, and may face MMRs that are two to three times as high as national averages (8–10). The Western health care system

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rarely provides culturally appropriate care for these mothers, who are often prohibited from following their traditional birth practices. As a result, many do not trust or access the formal health system, or access it only in emergencies (11). Indigenous women may also be at a higher risk for complications due to being very young; having high fertility rates, and birth spacing less than three years; undernutrition; poverty; and having to engage in strenuous physical work throughout pregnancy. Linguistic and cultural marginalization; inadequate clinical care, and health promotion; poor access to disease prevention services; and environmental contamination further aggravate the situation (12, 13).

Guatemala has the sixth highest MMR in the Americas, estimated between 110 and 290 per 100 000 live births, with the higher estimates accounting for lack of government reporting (5). Guatemala's MMR decreased 1.7% per year from 1990–2008, far below Target 5A of the United Nations' Fifth Millennium Development Goal (MDG 5) of 5.5% per year (1), and far below other Central American countries (14). The estimated MMR of 211 for indigenous populations—who represent 40.3% to as high as 60% of the country's population, according to some estimates (15, 16)—is three times greater than that among non-indigenous (MMR = 70), most likely due to the harsher economic circumstances, higher fertility rates (4.5 versus 3.1), and poorer access to health services of the former group (17). Quetzaltenango is a department in the western highlands of Guatemala with a population of 825 000, 58% of which is indigenous (18). Its MMR is estimated at 108. Approximately 60% of births take place at home with the assistance of a traditional midwife (*comadrona*).

The primary objective of this study was to obtain background information about maternal health and health-seeking behaviors among indigenous mothers living in rural *Mam*-Mayan communities of Quetzaltenango.

## MATERIALS AND METHODS

### Study population and area

This study was a collaboration between Tufts University and the Center for Studies of Sensory Impairment, Aging and Metabolism (CeSSIAM), a

Guatemala-based research organization. It was conducted in the western highlands of the Republic of Guatemala, in the department of Quetzaltenango, whose capital of the same name is 210 km from Guatemala City and the second largest city in Guatemala. The research was carried out July–December 2009 through a nongovernmental organization (NGO) focusing on health that was participating in the Ministry of Public Health and Social Welfare's Coverage Extension Program and serving eight rural *Mam*-Mayan hamlets in the San Juan Ostuncalco municipality. Of these eight hamlets, four (referred to as "A," "B," "C," and "D") were selected for participation in the study. The selection of hamlets was based solely on the NGO's recommendation and thus was not necessarily representative of *Mam*-Mayan communities. At the time of the study, all four selected hamlets had populations between 1 100 and 2 400, engaged in subsistence agriculture, and had similar socioeconomic and infrastructural conditions.

Study participants were women who 1) sought care at the community health center or 2) were identified by community health workers and provided information to the research team during home visits. Selection criteria included being either pregnant or up to six months postpartum. Data were collected on maternal obstetric experience both during pregnancy and in the early postpartum period.

### Ethical considerations

All research was conducted in accordance with prevailing ethical principles. Ethics approval was obtained from Tufts University and from CeSSIAM. All participants enrolled in the study gave written consent after receiving an explanation of the nature of the project and their involvement as study participants. To protect the anonymity of study participants, all questionnaire responses were coded, and collected data were free of any identifying information.

### Study design

The study was cross-sectional and involved the administration of a 15-minute field-tested survey. One hundred women (25 per community) were interviewed in Spanish or via a *Mam*-speaking translator. Survey questions pertained to socio-

demographics, access to basic resources, diet and nutrition supplementation, obstetric history, and health-seeking behavior.

### Definition and characterization of study variables

Study participants were classified as 1) not living in poverty, 2) living in poverty, or 3) living in extreme poverty based on scoring for six criteria of the validated index of Unsatisfied Basic Needs (*Necesidades Básicas Insatisfechas*, NBI) (19): type of floor, number of individuals per living quarter, household water access, water and sanitation, household child rate of school attendance, and education level of head of household.

Food supplementation, provided to the communities through the health NGO, consisted of a blended food made with maize and soy flour fortified with vitamins and minerals, intended for consumption by children aged 6–35 months and by pregnant and lactating women living in areas with high prevalence of undernutrition.

Maternal food intake was assessed via a food frequency questionnaire that inquired whether food items were consumed daily, weekly, monthly, or never, and how frequently per time unit they were consumed.

Use of the public health sector was defined as use of services from 1) the health NGO, 2) a health center, or 3) a public hospital. The "formal" health sector was defined as public or private health services. A woman was classified as having consulted a traditional birth attendant if she consulted a *comadrona*. Type of antenatal care (ANC) was categorized as either "formal" or "informal" and location of delivery as either "home" or "hospital."

### Statistical analysis

PASW Statistics 17.0 (SPSS Inc., Chicago, Illinois, USA) was used for all analyses. *P* values were two-tailed with a significance level of 0.05. Proportions of study variables were estimated by community and poverty level (extreme poverty versus not) using cross-tab analysis; differences in proportion were assessed by univariate logistic regression. Analysis of variance (ANOVA) with post-hoc Tukey's tests was used to compare means of continuous variables.

Binary logistic regression models were used to examine the independent effect of predictor variables on type of ANC and delivery location.

**RESULTS**

**Socio-demographic characteristics**

The mean age of the study population was 25.2 years (standard deviation (SD) = 7.0), ranging from 14–41 years (Table 1). Twenty-six of the women (26%) qualified as having had high-risk pregnancies based on age alone: 14 (14%) were 16 years old or younger and 12 (12%) were 35 years or older during pregnancy. Of the 100 women, 93% self-identified as indigenous, 43% did not speak Spanish, 32% had never attended school, and 41% were illiterate. Eighty-seven (87%) lived in poverty, of which three-fourths lived under conditions of extreme poverty. Fifty-nine (59%) lived in households with no sewage system. Only 27% had family ownership of a motorized vehicle. Predictably, the women living in extreme poverty ( $n = 67$ ) compared to all others were more likely to be indigenous (97% versus 85%,  $P = 0.042$ ); non-Spanish speakers (49% versus 73%,  $P = 0.026$ ); illiterate (48% versus 27%,  $P = 0.05$ ); and without a family vehicle (18 versus 46%,  $P = 0.004$ ) (Figure 1).

**Nutrition**

Four (4%) of the women ate fewer than three meals a day. While all of the women consumed carbohydrate sources (maize or potato) daily, intake deficiencies existed for all other food groups (data not shown). Vegetable, fruit, milk/egg, and meat intakes of once per week or less—well below the recommended intake—were present in 18%, 47%, 52%, and 54% of the 100 women, respectively. Variability existed between communities with regard to intake frequencies of different food groups, but statistical power limited further interpretation.

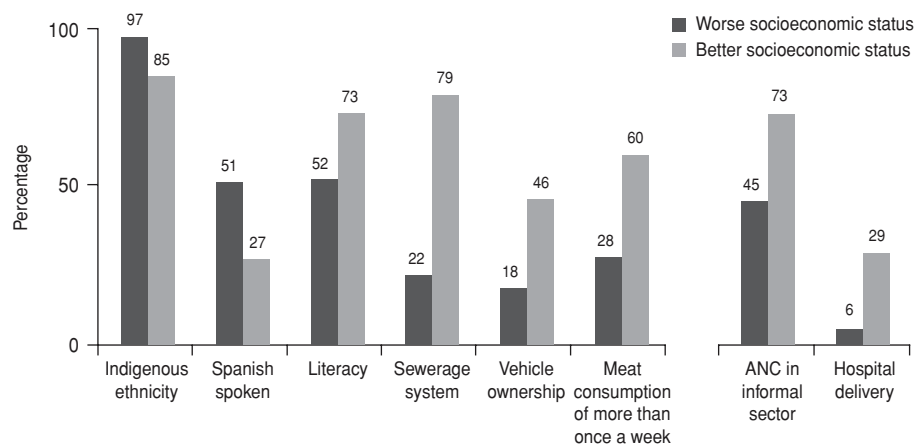
Women from the two poorest communities (C and D) had the lowest intake of vegetable and meat products and the lowest utilization of formal ANC services. These two communities also had the highest rate of utilization of food supplements, most likely reflecting a baseline of chronic food insecurity. One of the most commonly stated reasons for visiting a public health clinic was food

**TABLE 1. Socio-demographic characteristic of participants in study on maternal health-seeking behavior in four rural indigenous communities (A–D), Quetzaltenango, Guatemala, July–December 2009<sup>a</sup>**

Characteristic	A	B	C	D	Total
Distance to closest health center (km)	6.0	8.0	1.0	9.5	— <sup>b</sup>
Community population size (N)	1 575	2 400	1 433	1 163	—
Study sample size (n)	25	25	25	25	100
Mean age (standard deviation)	24.6 (7.3)	26.1 (6.9)	26.8 (6.9)	23.4 (6.8)	25.2 (7.0)
Women currently pregnant	10	9	6	4	29
Women who delivered in last 9 months	15	16	19	21	71
Parity of last-born child (%)					
1st-born	40	28	12	40	30
2nd-born	16	12	28	32	22
3rd- to 5th-born	24	36	40	24	31
6th+-born	20	24	20	4	17
Self-reported ethnicity (%)					
Indigenous	92	84	96	100	93
Ladino	8	16	4	0	0
Language(s) spoken (%)					
<i>Mam</i>	92	76	92	100	90
Spanish	52	64	52	60	57
Maternal education level (%)					
None	28	40	40	20	32
Primary	60	44	56	64	56
Secondary or higher	12	16	4	16	12
Household poverty (%)					
Total living in poverty	76	76	100	96	87
Total living in extreme poverty	48*	52*	88*	80**	67
No adequate sewage system	32*	36*	84*	84**	59
Ownership of motorized vehicle (%)	8*	4**	20	40***	27

<sup>a</sup> Asterisks indicate statistically significant differences ( $P < 0.005$ ) derived from binary logistic regression analysis (chi-square test).  
<sup>b</sup> Not applicable.

**FIGURE 1. Relative socioeconomic status (extreme poverty versus no extreme poverty) of participants in study on maternal health-seeking behavior in four rural indigenous communities, and its association with socio-demographic variables (left) and utilization of obstetric care services (antenatal care and delivery location) (right), Quetzaltenango, Guatemala, July–December 2009<sup>a</sup>**



<sup>a</sup> All differences are statistically significant based on the chi-square test ( $P < 0.05$ ).

supplementation—again reflecting baseline food insecurity.

**Health care access and utilization**

Nine (9%) of the women had previously used some form of contraception

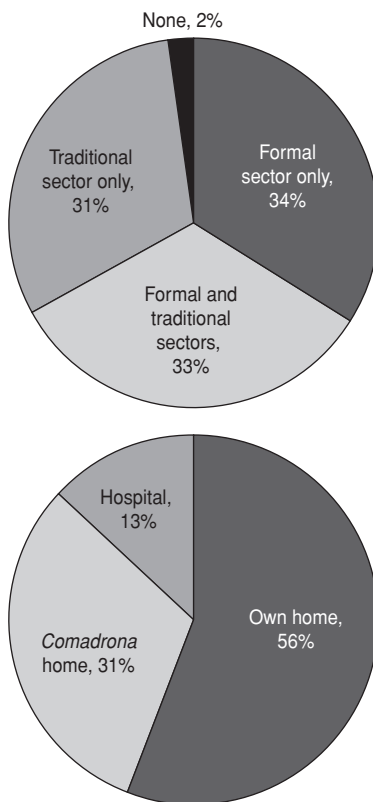
(Table 2). Of the 100 women, 2% had not received ANC during their most recent pregnancy. Sixty-seven (67%) had seen formal ANC providers; of these, half had also seen *comadronas* (Figure 2). Thirty-one (31%) identified *comadronas* as their only provider of ANC. Although choice

**TABLE 2. Obstetric health data for participants in study on maternal health-seeking behavior in four rural indigenous communities (A–D), Quetzaltenango, Guatemala, July–December 2009<sup>a</sup>**

Health data	A (n = 25)	B (n = 25)	C (n = 25)	D (n = 25)	Total (n = 100)
Obstetric services (%)					
Prior contraceptive use	4	12	12	12	9
Antenatal care within formal sector	64	80	64	60	67
Delivery within formal sector	13	38	16	0	15
Treatments received in pregnancy (%)					
Vitamins/iron	48	60	68	64	60
Nutritional supplement	32*	52	60*	72**	54
Traditional treatments	12	20	8	8	12
Prior obstetric experience <sup>b</sup> (%)					
Stillbirth	24	4	0	4	8
Neonatal loss	19	9	9	0	9
Loss of child < 5 years old	19	26	17	8	18
Cesarean section	5	13	4	0	6
Complication postpartum	5	13	0	8	7

<sup>a</sup> Asterisks indicate statistically significant differences ( $P < 0.005$ ) derived from binary logistic regression analysis (chi-square test).

<sup>b</sup> Respondents only included women who had had a prior delivery ( $n = 21, 23, 23,$  and  $24$  for communities A, B, C, and D respectively). Events are defined as one or more event per woman (i.e., actual number of events per woman not taken into consideration).

**FIGURE 2. Obstetric health services used by participants in study on maternal health-seeking behavior in four rural indigenous communities, by antenatal care provider (top) and location of delivery (bottom), Quetzaltenango, Guatemala, July–December 2009**

of providers was not significantly different between communities, it was significantly different when comparing women living in extreme poverty to those who

were not (45% versus 73% used the formal sector,  $P = 0.010$ ). Sixty of the women (60%) reported taking vitamins and iron during their last pregnancy and 54 (54%) had taken nutritional supplements.

Of the 29 pregnant women, 15 (52%) planned to deliver at home, 7 (24%) in a *comadrona's* home, and 7 (24%) in a hospital. Of the 71 postpartum women, 36 (51%) had delivered at home, 24 (34%) in a *comadrona's* home, and 9 (12%) in a hospital. Differences in delivery location were significant between community B (38% hospital deliveries) versus A, C, and D (13%, 16%, and 0% respectively) and between women living in extreme poverty versus those who were not (6% versus 29%,  $P = 0.023$ ).

### Self-reported maternal health care indicators

Seven (8%) of the 91 non-primiparous women reported experiencing a prior stillbirth, eight (9%), neonatal loss, and 16 (18%), loss of a child under 5 years old (Table 3). Five (5%) of the women reported a prior cesarean section and six (7%) reported complications post-delivery (infection or hemorrhage).

### Determinants of utilization of services

The strongest determinant of ANC provider use was household wealth (Table 3). After controlling for age, Spanish fluency, and motorized vehicle ownership, women living in extreme poverty were almost four times more likely to exclusively

consult *comadronas* for ANC versus their wealthier counterparts ( $P = 0.007$ ).

The strongest determinants of location of delivery were household wealth and vehicle ownership, although household wealth lost significance when controlled for other variables. Home delivery was six times more likely among women living in extreme poverty than among their wealthier counterparts (unadjusted OR,  $P = 0.017$ ; adjusted OR = 3.69,  $P = 0.119$ ), and more than six times more likely among women without a vehicle (adjusted OR = 6.67,  $P = 0.039$ ). Age, community, and Spanish fluency were not significantly correlated with delivery location.

## DISCUSSION

Overall, there was poor utilization of maternal health services among the study participants. Prior contraception use, at 9%, was below the national average (43%) and the indigenous population average (24%) (20). Similarly, rates of skilled birth attendance at delivery were well below the government-reported national average of 70%, and the indigenous population average of 30% (14). Hospital deliveries were infrequent, at only 13%.

Study results reveal a baseline of extreme poverty within the four communities, with relative poverty emerging as a significant determinant of health care utilization. Numerous other studies in developing countries have demonstrated consistent relationships between socioeconomic status and use of health services, including maternal health care services (21–25).

Worldwide improvements in maternal health are linked to advances in education, health care, family planning, and increased opportunities for adolescent girls and women (26–28). Higher utilization of biomedical services among more educated women is believed to result in part from better allocation of resources, greater control over these resources, more autonomy in household decision-making, greater self-confidence, and stronger demand for satisfactory service from health practitioners (29–31). Geographic factors and accessibility of services are also often quoted as being strong determinants of a women's use of the formal health sector for pregnancy care (28). Doctors and biomedical services tend to be concentrated in larger cities with greater economic resources and public infrastructure; remote location, poor public transportation



**TABLE 3. Unadjusted/adjusted odds ratios (ORs) and 95% confidence intervals (CIs) for determinants of access to antenatal care (informal versus formal health sectors) and location of delivery (home versus hospital) among participants in study on maternal health-seeking behavior in four rural indigenous communities, Quetzaltenango, Guatemala, July–December 2009**

Determinants	Unadjusted OR	95% CI	P	Adjusted OR	95% CI	P
Access to antenatal care						
Maternal age	1.012	0.96–1.07	0.598	1.01	0.95–1.07	0.726
Extreme poverty	3.29	1.33–8.13	0.010	3.86	1.44–10.37	0.007
Knowledge of Spanish	1.58	0.71–3.53	0.261	2.34	0.96–5.72	0.063
Vehicle ownership	0.61	0.24–1.50	0.276	0.79	0.29–2.16	0.646
Delivery location						
Maternal age	1.05	0.94–1.18	0.384	1.00	0.88–1.13	0.947
Extreme poverty	6.27	1.39–28.17	0.017	3.69	0.71–19.02	0.119
Knowledge of Spanish	0.13	0.02–1.06	0.057	0.15	0.02–1.48	0.104
Vehicle ownership	0.11	0.02–0.57	0.009	0.15	0.03–0.91	0.039

infrastructure, cost of travel, and frequent impassability of roads due to inclement weather make distances to the closest public health center or public hospital major obstacles—especially to poor households without a motorized vehicle (32, 33).<sup>3</sup> Impressive successes in decreasing disparities in access to health services have been achieved in other nations through central planning focused on decreasing poverty, improving education and sanitation, guaranteeing affordable and effective medical care, and strengthening health care through the public sector and at the community level (34).

In Guatemala, however, institutional capacity is estimated to handle only about one-fifth of births in medical facilities (35). This makes it all the more critical that *comadronas*, who are 1) highly respected in most communities, 2) often preferred to formal health care alternatives, and 3) already supplying most of pregnancy care received in rural Guatemala, remain a vital component of any intervention aimed at improving maternal health during pregnancy and delivery (36). Poor utilization of those health services that do exist could be addressed by enhancing communication and transport strategies, with the goal of reducing delays in women receiving needed emergency biomedical care. Reinforcing referral networks between formal and traditional health providers and strengthening effective partnerships between different levels of health pro-

vision, from community to emergency services, is critical.

One large study that examined national data from the Guatemala Survey of Family Health (37) found little to no association between 1) a family's income or 2) the availability and accessibility of biomedical health services and use of those services during pregnancy in rural, indigenous areas. In areas like those used in the current study, where pregnant women rely on government-sponsored health centers and posts that often offer prenatal care for free or at a nominal cost, it could easily be argued that wealth may have minimal impact on health care utilization. Poor quality of care received in government facilities, often staffed by minimally trained personnel, and typically lacking supplies and medicine, is one reason why accessibility of services may not necessarily translate into increased utilization of services (36, 37).

Failure to consider social and cultural factors on health care decision-making may also explain poor utilization of existing services. Within the current study population, Spanish fluency emerged as a strong determinant of type of ANC provider consulted, suggesting that not knowing Spanish may be a strong logistical and cultural barrier to access to health services. In addition, as found in an analysis of the 2008–2009 National Survey of Maternal and Infant Health (*Encuesta Nacional de Salud Materno Infantil*, ENSMI), Spanish fluency was the strongest determinant of utilization of reproductive health services in Guatemala (34).

The overwhelming use of *comadronas* for both prenatal and delivery care is undoubtedly tied to local cultural

norms and preferences and greater trust in traditional practices. Previous ethnographic studies have cited a number of sociocultural factors that explain low utilization of formal health services by rural indigenous women in Guatemala, including 1) lack of confidence in biomedical treatments, 2) perception of poor quality of care, 3) discriminating or condescending treatment by medical personnel, 4) inability of medical staff to speak the indigenous languages, 5) embarrassment over being examined, and 6) greater confidence in midwives (38–42). Other important factors may include a woman's previous experience with health personnel and facilities, the influence of her spouse and other relatives, and her beliefs regarding pregnancy and appropriate care.

With this in mind, increasing the number of health staff that speak Mayan languages and are sensitive to indigenous norms and practices, and hence able to deliver culturally appropriate care to indigenous women, could greatly increase the utilization of lifesaving formal health services. In 2009, the Guatemalan Ministry of Health, in collaboration with the U.S. Agency for International Development (USAID) Health Policy Initiative (HPI) and the Guatemalan Indigenous Women's Network in Reproductive Health (*Red de Organizaciones de Mujeres Indígenas por la Salud Reproductiva*, RED-MISAR), evaluated the current state of reproductive health services in the country and put forth recommendations for the establishment of a pluralistic medical system that would incorporate both biomedical and Mayan beliefs and practices in the care of pregnant women (43). Specific recommendations included giving

<sup>3</sup> Villatoro E, Hurtado E. Informe final de la investigación etnográfica sobre algunos aspectos de salud y nutrición realizada en una comunidad de Huehuetenango. Unpublished report. Prepared for Guatemalan Ministry of Public Health and Social Assistance, Guatemala City, 1986.

women the choice between *comadrona*-assisted versus physician-assisted deliveries, allowing the practice of vertical childbearing, and providing women with the option to wear traditional clothing and eat traditional foods, especially those that are considered vital around the time of childbirth. It was also recommended that all Secondary Health Care centers be equipped with adjoining facilities where *comadronas* would attend deliveries and easily refer women for emergency obstetric services when needed.

In partnership with indigenous authorities, *comadronas*, and key local actors, various organizations and individuals in Guatemala are taking a lead role in 1) building this type of pluralistic health system and 2) fostering the cultural exchange and awareness raising that would allow its fruition (44–52). However, these efforts remain extremely localized and recommended practices have failed to be integrated into most health care practice nationwide. Relations between formal and traditional providers are often tense due to social, ethnic, and cultural differences along with a strong history of discrimination and devaluation of indigenous knowledge and practices (40). This tense relationship is exacerbated by the fact that biomedical providers occupy a privileged position within the formal health care system. *Comadrona* training programs are frequently criticized for being tedious and for using teaching methods that are culturally inappropriate for older, frequently illiterate, rural women (50–53). Current efforts aimed at incorporating *comadronas* into the formal health care system often focus on the modification of *comadrona* practices rather than on the provision of culturally appropriate, high-quality services by traditional and biomedical providers alike. Achieving the latter would require bridging differences and creating space for an equal, bidirectional flow of knowledge between the formal and traditional health systems to sensitize health workers about the existence, value, and importance of traditional systems of health knowledge and indigenous norms and practices.

### Implications

The current findings have important implications for maternal health policy in Guatemala. Although this study was

not designed to evaluate maternal–infant morbidity or mortality, the low rate of utilization of skilled birth attendants and emergency obstetric care services revealed in the results—far lower than national estimates—was an important finding highlighting the significant marginalization and vulnerability of indigenous women living in poor, rural areas of the country.

Beyond strengthening emergency health services that will mostly benefit complicated pregnancies, further prioritizing maternal health and nutrition through prevention programs and addressing underlying social determinants could have a profound impact on the health and well-being of mothers and decrease their overall vulnerability to any complications that may arise. Maternal morbidity during pregnancy and early lactation and maternal mortality are associated with poor infant outcomes, including low birth weight, reduced survival, and impaired infant growth and development (54–56). Poor early infant growth can have lifelong, population-wide health implications, increasing the risk of infant morbidity and mortality as well as chronic adult diseases, hindering the long-term social and economic development of vulnerable communities, and locking populations in a vicious cycle of poverty and poor health (57–59). Childhood stunting in Guatemala, which ranges from 54% to as high as 70% in some rural indigenous communities, including those in this study, is the worst rate in Latin America and the third worst worldwide (3). Raising awareness of 1) risk factors for poor maternal–infant health and 2) the importance of promoting reproductive health programs at a community level could positively affect uptake of practices that are known to improve maternal and infant health outcome.

### Limitations

Study limitations included 1) the small sample size, which reduced the power of the statistical analyses and reduced the generalizability of study findings; 2) use of a study sample from formal sector health clinics, which biased selection toward women who make use of the public health system; and 3) the fact that the study team was composed of foreigners,

which may have affected women's willingness to divulge information.

### Recommendations

Better understanding of local, indigenous cultural preferences and practices is a critical part of any maternal health intervention program. The transformation of medical knowledge into effective services and its adaptation to local cultures remains the cornerstone to collective health and health service utilization. Improved data about indigenous populations are needed to help create policies that lead to access to comprehensive, culturally appropriate health care services and education. Toward this end, much can be learned from the fields of ethnography and medical anthropology and the leading work already being carried out to create a pluralistic health system able to satisfy the needs of indigenous populations. Listening to indigenous perspectives and responding to their priorities and needs is a crucial part of the equation.

### Conclusions

Guatemala would greatly benefit from social programs that build on local capacity, heavily invest in public health infrastructure, draw wisely from the country's invaluable cultural wealth and diversity, and directly address existing disparities in access to needed maternal health services for marginalized, indigenous populations. Incorporating indigenous knowledge and values into all policies that affect indigenous populations is critical for meeting these goals.

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**Conflicts of interest.** None.

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## RESUMEN

### Salud materna y comportamientos relacionados con la búsqueda de asistencia sanitaria en madres indígenas *mames* del departamento de Quetzaltenango, Guatemala

**Objetivo.** Obtener información básica acerca de la salud materna y los comportamientos relacionados con la búsqueda de asistencia sanitaria en madres indígenas residentes en comunidades rurales de la etnia maya *mam* en Quetzaltenango, Guatemala.

**Métodos.** Se llevó a cabo un análisis transversal de 100 mujeres pertenecientes a cuatro comunidades, embarazadas o en período de lactancia, con objeto de determinar la prevalencia y los determinantes de la utilización de servicios.

**Resultados.** La pobreza extrema, la escasa formación y el acceso limitado a los recursos básicos fueron prevalentes. De las 100 mujeres, de 14 a 41 años de edad, 33% no acudieron al sector formal de atención de salud en busca de asistencia prenatal; la mayor parte de ellas consultaron a una partera tradicional. Solo 12% dieron a luz en un hospital. El nivel socioeconómico inferior, la falta de fluidez en español y la carencia de un vehículo motorizado se asociaron con la mayor probabilidad de escasa utilización de los servicios.

**Conclusiones.** Diversos factores afectan a la utilización de los servicios de salud materna por parte de las mujeres indígenas del Quetzaltenango rural. Entre estos factores figuran las desigualdades socioeconómicas, las diferencias lingüísticas y étnicas, y el acceso limitado a los recursos básicos. Es preciso atender a las necesidades reproductivas actuales de las mujeres para mejorar su salud y aumentar sus probabilidades de tener hijos sanos.

## Palabras clave

Bienestar materno; servicios de salud materna; seguridad alimentaria; Guatemala.