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Risk of Sexually Transmitted Infections Among Mayan Women in Rural Guatemala Whose Partners are Migrant Workers

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Abstract HIV and sexually transmitted infection (STI) are of concern in Mayan districts of Guatemala in which labor migration is common. This study assessed whether the migration status of men is associated with reported STI symptoms among their female primary partners. In a multivariate analysis of survey data taken from a larger Mayan sexual health study, the odds of reporting STI symptoms were twofold higher among women who reported that their partner migrated (OR 2.08, 95 % CI, 1.16–3.71), compared to women whose partners did not. Women from the Mam and Kaqchikel ethnolinguistic groups reported higher rates of STI symptoms after adjustment for their partners' migration status.

Resumen VIH e infección de transmisión sexual (ITS) son preocupantes en las poblaciones Mayas de Guatemala, en donde la migración para tener un trabajo en plantaciones agrícolas es común. Este estudio fue realizado para determinar si la migración del hombre está asociada con infecciones de transmisión sexual hacia su pareja primaria. En un análisis multi-variable de los datos de una encuesta mas grande sobre salud sexual, los odds de reportar síntomas de ITS era dos veces más grande en mujeres que

tienen parejas primarias masculinas que migran (OR 2.08, 95 % CI, 1.16–3.71) comparado a las mujeres que sus parejas no migran. Mujeres de los grupos lingüísticos Mam y Kaqchikel reportaron mas síntomas de ITS después de ajustar la migración como un factor de riesgo.

Keywords STI/HIV · Migration · Mayan women · Guatemala

Introduction

Guatemala is a multicultural, multiethnic, and plurilingual country, with approximately 14.1 million inhabitants, 40 % of whom are of Mayan indigenous ancestry. Of the 5,640,000 Mayan indigenous Guatemalans, 76.8 % live in poverty or extreme poverty. The indigenous population in Guatemala experiences dramatically poorer health outcomes than nonindigenous Guatemalans [1].

As a result of poverty and inequitable land distribution, indigenous Guatemalans often practice labor migration. Large landowners generally own the most fertile lands in the country and grow coffee and other profitable export crops. Mayan indigenous people generally own small pieces of land where they grow subsistence crops. Because these plots are not big enough to produce enough food to meet their needs, these small farmers often migrate to the coastal plantations during harvest time.

Studies conducted in other developing countries indicate that migration-related factors, such as limited education, cultural beliefs, linguistic problems, low wages, substandard housing, prolonged separation from regular sexual partners, and poor health conditions place individuals at an increased risk for HIV and other sexually transmitted infections (STIs) [2, 3]. It has also been observed that, in

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some developing countries, women whose husbands or partners migrate are at higher risk for HIV and STIs [2, 3].

In Guatemala, it is common for migrant workers to visit brothels or have sexual relations with casual or secondary partners when away from their primary partners [4]. A Guatemalan study found that a husband's migration status was associated with a twofold increased risk for HIV among pregnant women in Guatemala City [5]. No similar studies have been carried out in Guatemala's rural districts, where the majority of the Mayan indigenous population and migrant workers live. Studies in Mexico, which shares a border and similar cultural dynamics with Guatemala, show a substantial prevalence of risk behaviors among migrant populations [6–8].

According to the Ministry of Health and Social Assistance, the total number of reported STI cases in Guatemala per year in 2006–2010 varied between 4,000 and 10,000, with a generally upward trend. The number of syphilis cases during this period varied from 133 to 478 per year [9]. Unfortunately, STIs—syphilis, in particular—are likely to be grossly underreported, as there is little or no active surveillance.

STIs and HIV are of particular concern for indigenous Guatemalans. According to analysis of the National Maternal and Infant Health Survey, Mayan indigenous men and women aged 15–49 years exhibited low knowledge of HIV transmission and low rates of HIV testing [1]. Seventy-eight percent of Mayan indigenous women aged 15–49 years reported never having had a pelvic examination [1]. Of the indigenous women surveyed, a low percentage knew of the following STIs: gonorrhea (only 23 %), syphilis (17 %), genital herpes (16 %), and human papillomavirus (HPV) (2.4 %) [1]. Although limited data exist to understand true HIV prevalence among indigenous Guatemalans, the US Agency for International Development (USAID) claims that preliminary evidence suggests an increasing epidemic [10]. Knowing the relationship between STI infection and labor migration among Mayan indigenous communities is important for designing effective, culturally appropriate STI/HIV intervention programs for this population.

Methods

This study was conducted using data from a larger knowledge, attitude, and practice (KAP) household survey conducted in 2007. The larger study ($N = 1,248$) has been described elsewhere [11]. In brief, it included males and females aged 10–49 years from four ethnolinguistic groups from four departments (a Guatemalan department is about the size of a large county in the USA): Totonicapán (K'iche' linguistic group), Alta Verapaz (Q'eqchi linguistic group),

Chimaltenango (Kaqchikel linguistic group), and San Marcos (Mam linguistic group). These four departments were selected because they are home to 80 % of the four largest ethnolinguistic groups in Guatemala. Ethics committee approval was obtained from the National Autonomous University in Quetzaltenango.

Trained bilingual interviewers administered a survey of 50 questions covering demographic information, acculturation, health services satisfaction, partner communication, knowledge of and approaches to sexuality, HIV and STI knowledge, access to condoms, and sexual coercion. Some of these questions included validated questions from the National Maternal and Infant Health Survey [1] and Population Council Surveys [12]. The subjects were selected randomly at the household level, and only one interview was conducted at each household. Unless the participant preferred Spanish, the interview was conducted in the “mother” language of the community.

The present analysis was conducted on a subset of the subjects in the larger study ($N = 344$). The subset consisted of indigenous Mayan women aged 18–49 years who lived in one of the four selected departments and reported being sexually active and married or in a stable union.

The principal outcome examined in the present analysis is self-reported symptoms of STI. This variable was assessed from a series of questions in the structured interviews describing several STI symptoms (genital ulcers, genital itching or tingling, genital expulsion of pus and other materials) and asking if it was possible that women in their community experience them. Interviewees were then asked whether they had ever experienced any of these symptoms. Respondents who answered yes to this question were considered to have self-reported STI symptoms. The main exposure variable of interest was whether the woman's primary partner migrated to work outside the community.

Descriptive analyses examined the prevalence of the outcome of interest, the primary and secondary exposure variables of interest, and other demographic characteristics of the study participants. Bivariate associations between predictor variables (primary partner's migration status, education, ethnolinguistic group, and age) and the outcome of self-reported STI symptoms were assessed using the Chi square test. Odds ratios (OR) and 95 % confidence intervals (CI) were estimated. Logistic regression was used to assess factors independently associated with STI symptoms. Adjusted odds ratios (AOR) and 95 % confidence limits were calculated. Wald tests were used to assess the significance of ethnolinguistic group, education, and age as covariates in the model. Covariates were considered significant and retained in the multivariate model if the Wald statistic had a P value of less than 0.05. A Pearson Chi square goodness-of-fit test was also used to assess whether

the logistic regression model with the accepted covariates fit the data. Data were analyzed using STATA 11.2 (Stata Corp, College Station, Texas).

Results

Descriptive and Bivariate Analyses

Of the 408 women aged 18–49 years selected to participate in the study, 64 were neither married nor in a union. Among the 344 other women in the study, a total of 65 (18.9 %) reported having experienced STI symptoms. Median age of the women was 32 years (interquartile range [IQR]: 25, 38). Mean number of children was 4.6. Educational attainment was low; almost half (41.6 %) had no formal education. Over half (55.5 %) reported speaking their mother (indigenous) language with family and friends, and just under half (44.5 %) reported speaking their mother language exclusively (Table 1).

Of the 344 Mayan indigenous women who were either married or in a union, 116 (33.7 %) reported having partners who migrated for work. Women from the Kaqchikel and Mam ethnolinguistic groups had higher odds of reporting STI symptoms compared with Q'eqchi women (Kaqchikel: OR 2.43, 95 % CI, 1.08–5.48; Mam: OR 3.57, 95 % CI, 1.63–7.80). Women whose partner migrated had significantly higher odds of having had STI symptoms than women whose partner did not migrate (OR 1.78, 95 % CI, 1.02–3.10).

In multivariate analyses, a partner's migration status and ethnolinguistic group were independently associated with a history of STI symptoms (Table 2).

Having a husband or partner who migrates was associated with a more than twofold increase in odds of reporting STI symptoms among women in this model (OR 2.08, 95 % CI, 1.16–3.71). Women from the Kaqchikel and Mam groups had significantly higher odds of STI symptoms than women in the other groups, independent of their partner's migration status (Kaqchikel: OR 2.43, 95 % CI, 1.08–5.48; Mam: OR 3.57, 95 % CI, 1.63–7.80).

Table 1 Demographic characteristics of Mayan women participating in the study of partner migration status in Guatemala, and associations with self-reported STI symptoms

Characteristic	Prevalence of characteristic		STI symptoms (yes)		
	<i>N</i>	%	<i>N</i>	%	OR (95 % CI)
Study population	344	100	65	18.9	
Mean age	33.3 years		Median, IQR: 32 years (25, 38)		
Age group					
18–34 years	157	45.6	28	17.8	1.0
35–49 years	187	54.4	37	19.7	1.13 (0.66, 1.96)
Education level ^{a,b}					
No formal education	143	41.6	21	14.7	0.53 (0.25, 1.1)
Some primary school	101	29.4	19	18.8	0.71 (0.33, 1.51)
Primary school completed	35	10.2	9	25.7	1.06 (0.41, 2.73)
Secondary school	65	18.8	16	24.6	1.0
Mean number of children	4.6				
Language/s used with family and friends					
“Mother” language only	13	3.8	0	0	– ^c
“Mother” language and Spanish	180	52.3	25	14.0	1.0
Spanish only	153	44.5	40	26.1	2.19 (1.25, 3.85)
Ethnolinguistic group ^{a,b,d}					
Q'eqchi	94	27.3	11	11.7	1.0
Kaqchikel	77	22.4	19	24.7	2.43 (1.08, 5.48)
K'iche'	91	26.5	9	9.8	0.83 (0.33, 2.10)
Mam	82	23.8	26	31.7	3.57 (1.63, 7.80)

N = 344

^a Each group is compared to those not in the category for calculation of odds ratios

^b Pearson Chi square statistic was used to compare proportions among categories

^c Unable to calculate due to zero value in one of the cells

^d Pearson Chi square statistic 18.72, *P* < 0.005

Table 2 Multivariate analysis showing factors independently associated with STI symptoms among Mayan women participating in a study of HIV and STI risk in Guatemala

Covariate	Adjusted odds ratio ^a	95 % CI
Primary male partner who migrates? (yes vs no)	2.08	(1.16, 3.71)*
Ethnolinguistic group		
Q'eqchi	1.0	(Reference)
Kaqchikel	2.34	(1.03, 5.33)*
K'iche'	0.69	(0.27, 1.80)
Mam	3.54	(1.60, 7.80)*

N = 344

* Indicates significance at $P < 0.05$

^a Model adjusted for partner's migration status and ethnolinguistic group

Discussion

This study provides evidence of an association between partner migration and reported STI symptoms among indigenous Guatemalan women. Research in other developing countries [2–4, 6, 7] and in Guatemala City [5] has shown a link between migration and STI/HIV risk, but this is the first study to document it among indigenous Guatemalans. It is important to understand how labor migration affects the sexual health of indigenous Guatemalans, as poverty and structural racism force them to work outside their communities, increasing their vulnerability to STI/HIV infection.

Other findings from the larger KAP study, and from focus groups conducted in association with this study, provide insight into the link between partner migration and self-reported STI symptoms among the indigenous women we observed. Among 839 men and women ages 18–49 in the larger KAP study from which this study was taken who answered the question, 37.4 % claimed not to know what a condom is, and 47.6 % had never heard of a sexually transmitted infection. Focus group participants suggested that it was problematic for a wife to ask her husband to use a condom because doing so would make the husband suspicious, and that men and (to a lesser degree) women in their communities often had multiple sex partners. Lack of education regarding STIs and the practice of multi-partnering in the study population may indicate increased STI transmission among indigenous couples in which the male migrates. More research on indigenous communities is needed to understand these risk factors.

Our findings also suggest that independent of a partner's migration status, membership in certain ethnolinguistic groups may affect risk for STIs. In this analysis, Kaqchikel and Mam women showed higher prevalence of reported STI symptoms, independent of their partner's migration status. Although few data exist regarding STI risk among these groups, we can

speculate regarding factors that may contribute to the elevated risk we observed. Chimaltenango, where Kaqchikel women in the study population were sampled, is one of the few departments in which indigenous women perform sex work in brothels. In San Marcos, where Mam women in this study were sampled, it is common for rural indigenous men to transport produce to distant market cities. This technically is not migrating, because they are not gone overnight, but during the time spent away from their communities, these men may have sex with other partners. Further investigation is needed to assess factors affecting STI/HIV risk among particular ethnolinguistic groups and regions in Guatemala.

One weakness of this study is the method by which the outcome was measured. True STI prevalence among the study population would have been the ideal outcome measure. Self-reporting of STI symptoms is problematic for lack of accuracy, especially because knowledge of Western medical concepts, such as STI symptoms, may be limited. Furthermore, the interview question used to measure history of symptoms (“Have you had any of these symptoms?”) does not specify a time frame or its relation to the husband's absence. However, the overall frequency of reported STI symptoms is generally consistent with laboratory testing done among indigenous Guatemalan women in the National Maternal and Infant Health Survey [1].

More investigation is needed to understand the impact of migration on the transmission of STIs. These findings agree with studies among other populations and reinforce the need to consider socioeconomic factors when designing public health programs. This study also demonstrates the need to develop and validate research techniques that ensure cultural appropriateness, such as developing study methods in collaboration with indigenous community leaders and conducting interviews in both Spanish and mother languages.

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