Ethnicity, socioeconomic characteristics and knowledge, beliefs and attitudes about HIV among Yunnanese Chinese, Hmong, Lahu and Northern Thai in a north-western Thailand border district

Peter Kunstadter*

Social Science Department, Program for HIV Prevention and Treatment (PHPT), Institut de Recherche pour le Développement (IRD), France, and Chiang Mai University, Chiang Mai, Thailand (UMI 174-PHPT)

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Data from ethnically diverse north-western Thailand with recent migrants from Myanmar (Burma) and China allow testing of hypotheses concerning between- and within-community differences in predominantly Yunnanese Chinese, Hmong and Lahu ethnic minority villages versus ethnic majority Thai villages. Topics include knowledge of HIV transmission, prevention and treatment, avoidance of people infected with HIV and constraints to use of health services. Respondents include women with one or more children under age five and their husbands/partners. Ethnicity is consistently associated with socioeconomic characteristics, knowledge of HIV transmission, prevention and treatment, avoidance of people living with HIV and AIDS, and constraints to use of services. Chinese community residents had the lowest levels of knowledge of HIV, especially with regard to mother-to-child transmission, the most intent to avoid contact with people living with HIV and AIDS, and the highest levels of constraints to using services, including ineligibility for government healthcare and limited Thai language ability. Associations of counselling with Thai language ability, and more knowledge and less avoidance of people living with HIV and AIDS, suggest that language-appropriate health education may help overcome disparities.

Keywords: HIV/AIDS; Thailand; ethnic differences; health knowledge; stigma

Introduction

In a globalised world, with massive trans-border and rural-to-urban population movements, no populations, including minorities and trans-border migrants in remote locations, are epidemiologically isolated from receiving or transmitting infectious diseases. Reducing economic, class, ethnic, gender and geographic disparities in health services and health is essential to meet World Health Organisation (1978) goals of Health for All. Since 2001, Thailand’s universal health insurance coverage (UHC) has insured low-cost health services for citizens, but disparities remain between and within ‘marginal’ groups compared with the majority ethnic population. Understanding the differences between and within these groups will help to tailor interventions to reduce disparities.

Disparities among Yunnanese Chinese, Lahu and Hmong minorities and the Northern Thai ethnic majority exist with respect to: health knowledge and behaviours related to HIV/AIDS, especially prevention of mother-to-child transmission; intent to avoid contact with people living with HIV/AIDS; and constraints to access to health services and their

*Email: peter.kunstadter@gmail.com

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distributions in study populations. Data in this paper come from an ethnically-mixed rural area on the Thai-Myanmar (Burma) border, with large numbers of minorities and migrants in frequent contact with other parts of Thailand. Some people in these communities are infected (Chiang Mai Provincial Health Office 2012), but marginal groups, especially Yunnanese Chinese and Hmong, make less use of HIV-related services and have less accurate knowledge about HIV than majority ethnic Northern Thai. Study communities are located in rural foothill areas cleared of forests for cash-cropping since the 1960s. Each study community has a single predominant ethnic group.

Methods

Study design

Controlled comparisons (Eggan 1954) allow the identification of differences in health knowledge and behaviour between ethnic groups, and differences within ethnic groups associated with citizenship and language. To reduce geographic factors associated with use of services and health information, we selected communities that are at least 20 km from the district hospital. Yunnanese communities are located adjacent to a government health station and about 40 km, one-hour travel time on an all-weather paved road, from the district hospital where HIV counselling and testing services are provided. Communities of other ethnic groups are at similar or greater distance, travel time and travel cost to their nearest government health facilities and to the district hospital.

According to local healthcare personnel, all pregnant women and their husbands, regardless of citizenship, are eligible for free or low-cost antenatal care (ANC) and childbirth services, which include HIV counselling and testing. Interviewing women who had recently been pregnant and their husbands controls for eligibility for those services. All these women and men should have received HIV counselling and testing at least once and, thus, could share some common knowledge about HIV.

Research methods

The Ethics Committee of the Faculty of Associated Medical Sciences, Chiang Mai University, approved the research design including questionnaire and informed consent procedures. Questionnaires and informed consent forms were pre-tested with native speakers of Lahu, Hmong and Thai languages.

Censuses in each study community identified women who had given birth to one or more children within the past five years, and their husbands. Trained interviewers, mostly Village Health Volunteers, administered survey questionnaires, with informed consent, separately to women and their husbands, using respondents’ preferred language, usually in respondent’s homes. SPSS version 16 was used to analyse distributions and statistical significance was calculated using Fisher’s exact probability for 2 by 2 tables.

Study populations

Northern Thai people predominate throughout the study district. They are traditionally Buddhist (0.0% Christian in this study), lowland subsistence farmers of irrigated rice, who now cultivate cash crops. Pioneer settlers moved into study communities during the past ~ 40 years, in what was a relatively sparsely populated frontier area. Most adults speak the Northern Thai dialect and read and write Central Thai. Northern Thai
Table 1. Study populations in access to care census and survey.

| Predominant community ethnicity | Surveyed communities | Total households in surveyed communities | Interviewed respondents | Percent of respondents who are members of predominant ethnicity |
|--------------------------------|----------------------|----------------------------------------|-------------------------|---------------------------------------------------------------|
| Hmong\(^a\)                   | 1                    | 215                                    | 73                      | 98                                                             | 99.4 |
| Lahu\(^b\)                    | 5                    | 806                                    | 211                     | 265                                                            | 95.6 |
| Yunnanese\(^c\)               | 6                    | 1164                                   | 187                     | 247                                                            | 87.6 |
| Northern Thai\(^d\)           | 3                    | 503                                    | 36                      | 52                                                             | 87.5 |
| Total                          | 16                   | 2687                                   | 507                     | 662                                                            | –    |

Respondents in all communities consisted of women who were identified in the community census as having given birth to at least 1 child born in five years prior to survey who consented to interview, and their husbands or partners, who consented to interview.

\(^a\) Every Hmong community woman, and her husband or partner who met these criteria.

\(^b\) A 50% random sample of women and their husbands or partners who met these criteria, with replacement for women who were unavailable for interview in one large (599 household) Lahu community, and 100% samples in four smaller highland Lahu communities.

\(^c\) A 50% random sample of women and their husbands or partners who met these criteria, with replacement for women who were unavailable for interview in Yunnanese communities.

\(^d\) Every woman in Northern Thai study communities, and their husbands or partners who met these criteria.
study communities include 12.5% non-ethnic-Thai, four of whom are recent trans-border migrants.

Hmong, the second largest ‘hill tribe’ minority ethnic group in Thailand, traditionally cultivated highland rice and maize. Non-narcotic crops now replace their traditional opium cash crop. The study Hmong community relocated from highlands in far western central Chiang Mai Province about 30 years ago, to a lowland and foothill area with an agricultural development project and a paved road to the district town and markets. No Hmong in the study were trans-border migrants, most spoke the Ntshuaig dialect. Hmong people have traditionally mixed animism and ancestor worship, though 14.1% of Hmong in the study community were Christians.

Lahu are the third largest highland minority ethno-linguistic group in Thailand. Lahu respondents in this study mostly speak the Nyi dialect. They traditionally were highland subsistence farmers but are now cash-croppers. Lahu people are traditionally animists, but 61.4% of those in the study population are Christian (59.5% Protestant, 1.9% Catholic). Founders of Lahu study communities came 40–50 years ago from an area in Chiang Rai Province. Other residents moved more-or-less directly from Myanmar (Burma). Lahu were encouraged by foreign missionaries to move to Thailand after 1962, when most foreigners, including missionaries, were expelled from Burma. There were no consistent statistical differences between Christian and non-Christian Lahu and analyses aggregate them.

The Thai Government resettled remnants of the Kuomintang (Nationalist) army from Burma and south-western China along the Thai-Burma border as a buffer against the Communist Chinese government after 1948 (Mote 1967). Yunnanese Chinese study communities split from older communities in about 1966. Recent immigrants come from highland villages in Myanmar and directly from Yunnan, China, primarily for economic opportunities, continuing to arrive during 2011–2012 while data were collected. Children in Yunnanese communities are enrolled in Thai schools and most also study in Chinese language schools. Among the Yunnanese respondents, 4.4% are Protestant and 0.9% are Catholic, the remainder report themselves as Buddhist and/or ancestor worshippers. Yunnanese community residents are cash-crop farmers plus some merchants. Yunnanese communities benefit from Thai, Mainland Chinese and Taiwan Chinese development projects.

**Strengths and limitations of methods and data**

This study uses large samples of members of minorities and looks at relationships between variables associated with migration and citizenship, while controlling for ethnicity. However, major differences in distribution of variables between groups (e.g., relationships between key variable and personal acquaintance with people living with HIV and AIDS) restrict some analyses.

Quantitative data of this kind provide a baseline for testable hypotheses, and against which the effects of interventions, such as translation services, can be measured. Our conclusions would, however, benefit from qualitative research to flesh out relationships between variables within different ethnicities, for example the persistence of stigma among Chinese respondents and reasons why Lahu respondents know more about prevention of mother-to-child transmission and HIV antiretroviral treatment (ART) than members of other groups.

Population-based incidence and prevalence data are not available, thus it is not possible to evaluate relationships between local epidemiology and knowledge or attitudes with respect to HIV. Direct biomedical measures of health status are not available in these
populations and relationships between biomedically-defined and self-reported health status cannot be evaluated.

Findings

Thai citizenship and government services

Thai citizens receive identity cards indicating eligibility for UHC health insurance, post-primary education and government jobs. Citizenship, however, is not automatically assigned to migrants’ children or stateless persons who are born in Thailand. Trans-border migrants should have passports and visas and a work permit if they intend to work, but many from Myanmar enter Thailand informally. Regulations sometimes allow registration after crossing the border. Trans-border migrants who are unregistered or overstay their visas are subject to harassment, arrest and internment or deportation. Migrants who register have limited access to government benefits, including malaria and pregnancy services. They may be subject to harassment, restricted from working and confined to limited geographic-administrative locations. Assignment of citizenship or class of non-citizen identification cards is governed by regulations, which are locally interpreted and change from time to time. The result is often confusion, and many migrants fear contact with any government officials, including health workers.

Low fertility in Northern Thai communities (Table 1) creates a low ratio of persons interviewed for the census in each Northern Thai household (52 women interviewed in 503 households = 10.3% of households’ women) compared with higher fertility among Hmong (98 women in 215 households = 45.6%). Yunnanese fertility was even higher than among Hmong. High fertility implies that Hmong and Yunnanese respondents on average should have more opportunities for HIV-related counselling and testing than respondents from lower fertility Lahu and Northern Thai communities. *Ceteris paribus*, we would expect Hmong and Yunnanese respondents to be better informed than Lahu and Northern Thai respondents. However, Hmong and Yunnanese respondents actually report less use of pregnancy services than other groups.

Between-group differences

Socioeconomic characteristics

By comparing data from respondents in communities predominated by different ethnic groups, hypotheses were tested about differences between ethnic groups.

Compared with other groups, Yunnanese respondents are significantly (*p < 0.000*) more likely to be: migrants (76.4% of men, 83.0% of women were born outside Thailand), non-Thai citizens (84.5% of men, 93.5% of women), uninsured (37.6% of men, 51.4% of women), without education in Thai schools (men 64.7%, women 82.6%) and non-Thai-speaking (men 48.6%, women 58.1%).

Poor economic conditions are hypothesised as a barrier to access to care. The proportions of respondents from different ethnic communities who report they are poor and report costs of transportation or costs of health services and medicines as reasons for delay or non-use of needed health services are consistent with this hypothesis (see Table 2).

The primary income source in all communities is farming, including farm labour. The median reported annual income among Yunnanese men and women is about 80,000 baht (US$2700). Income distribution for Yunnanese men and women is similar to Northern Thai communities and significantly higher than among men and women in Lahu and Hmong.
Table 2. Respondents’ reasons for delay or non-use of health services, by community ethnicity and sex.

| Constraints to use of modern health facilities | Respondents who reported delaying or not using clinic or hospital for specified reasons* (%) |
|-----------------------------------------------|------------------------------------------------------------------------------------------|
|                                               | Northern Thai                                                                 | Yunnanese                                                                 | Hmong                                       | Lahu                                        |
|                                               | Men                           | Women                          | Men                           | Women                          | Men                           | Women                          |
| Wait time at facility too long                | 52.8                          | 63.8                           | 13.5                          | 22.6                           | 11.3                          | 35.8                           | 65.1                          | 86.0 |
| Lacked money for transportation               | 33.3                          | 30.8                           | 36.4                          | 47.8                           | 13.7                          | 19.4                           | 70.6                          | 60.0 |
| Lacked transportation                         | 19.5                          | 26.2                           | 34.8                          | 27.2                           | 9.6                           | 9.3                            | 37.0                          | 57.0 |
| Lacked money for services or medicine         | 13.9                          | 19.2                           | 34.2                          | 46.6                           | 8.2                           | 7.3                            | 26.1                          | 13.4 |
| Tried medicine from market or drugstore first | 27.8                          | 30.7                           | 16.6                          | 8.5                            | 23.7                          | 36.1                           | 44.1                          | 34.3 |
| Lacked someone to accompany to health facility| 5.6                           | 9.6                            | 23.5                          | 40.0                           | 3.5                           | 5.1                            | 19.9                          | 44.1 |
| Lacked Thai language ability                  | 0.0                           | 1.9                            | 29.0                          | 42.5                           | 1.4                           | 1.0                            | 15.1                          | 36.3 |
| Ineligible for government health services     | 0.0                           | 3.8                            | 26.7                          | 41.3                           | 1.4                           | 1.0                            | 11.4                          | 12.8 |
| Didn’t know how to talk with doctor           | 0.0                           | 5.7                            | 9.6                           | 23.5                           | 4.1                           | 5.1                            | 17.5                          | 36.6 |
| Tried traditional method first                | 16.7                          | 17.3                           | 8.6                           | 3.6                            | 17.8                          | 22.7                           | 26.1                          | 22.3 |
| Seriously ill, but thought illness was not serious | 22.2                         | 21.1                           | 7.0                           | 2.8                            | 1.4                           | 5.2                            | 9.5                           | 23.0 |
| Couldn’t leave house or children to seek healthcare | 22.2                        | 17.3                           | 5.4                           | 7.3                            | 1.4                           | 8.2                            | 14.7                          | 23.0 |
| Don’t know enough about illness               | 22.2                          | 19.2                           | 3.8                           | 2.4                            | 4.2                           | 3.1                            | 7.1                           | 21.1 |
| Feared or experienced harassment from government officials | 2.8                         | 0.0                            | 12.8                          | 21.1                           | 1.4                           | 0.0                            | 10.9                          | 16.6 |
| Feared prejudice or discrimination from healthcare providers because of ethnicity | 8.3                          | 1.9                            | 5.4                           | 2.8                            | 2.8                           | 2.1                            | 5.2                           | 19.6 |
| Didn’t know where to go                       | 16.7                          | 9.6                            | 5.3                           | 10.1                           | 2.7                           | 7.1                            | 9.0                           | 17.8 |
| Feared or experienced scolding or cursing by healthcare providers | 8.4                          | 14.4                           | 6.4                           | 6.9                            | 4.2                           | 3.2                            | 12.3                          | 16.8 |
| Couldn’t leave job to seek healthcare         | 13.9                          | 1.9                            | 4.3                           | 4.0                            | 1.4                           | 0.0                            | 9.9                           | 9.1  |
| Didn’t think illness could be successfully treated | 13.9                        | 7.7                            | 4.2                           | 3.2                            | 3.1                           | 1.0                            | 4.7                           | 11.0 |
| Feared stigmatisation in your own society because of illness | 0.0                          | 1.9                            | 2.7                           | 4.8                            | 1.4                           | 0.0                            | 0.5                           | 9.4  |
| Lacked permission from household member       | 0.0                           | 1.9                            | 2.1                           | 3.2                            | 1.4                           | 5.1                            | 7.6                           | 9.1  |

*Arranged by rank of highest reported percentage of constraint for any ethnicity, for either men or women: 86.0 Highest for this group and sex; 65.1 second highest for this group and sex; 44.1 third highest for this group and sex.
communities, suggesting that disparities in health knowledge and behaviour between Yunnanese and other communities cannot be attributed to gross income disparities.

However, proportions of men and women who self-report being ‘very poor’ or ‘poor’ are highest among Lahu, followed by Yunnanese and Hmong, with the lowest proportions of self-reported ‘poor’ among Northern Thai. Significantly more Lahu women than women from any other group are ‘poor’ or ‘very poor’.

**Formal education and Thai language ability**

Health service providers’ lack of fluency in the preferred language of patients, and patients’ lack of fluency in Thai are hypothesised as major constraints to effective delivery and use of health services. Few healthcare providers, in either the public or private sector, speak the languages or dialects of minority ethnic groups.²

The highest proportions of respondents unable to speak and/or understand Thai occur among Yunnanese and Lahu women and men, though men were significantly more likely than women to be able to speak Thai in these groups. Many men and women in Yunnanese and Lahu communities reported they had received no formal education. Almost all Hmong, compared with Northern Thai men and women, had been educated in Thai schools and almost all speak and understand Thai. Differences between other ethnic groups are all highly significant. Yunnanese and Lahu women are significantly more likely than men to report no years of education and to be unable to speak Thai. These results are consistent with strong inter-correlations of birth country, citizenship, health insurance, Thai education and Thai language ability.

We disaggregated Yunnanese community respondents according to Thai-speaking ability to explore the extent to which language ability is associated with disparities in knowledge and behaviour (see Table 5).

**Self-reported health status**

Health education strategies frequently assume positive links between knowledge, behaviour and good health. We asked about self-perceived health status, but the interpretation of self-reported health is ambiguous. Ill health might result from less knowledge and less use of services, or might lead to more use of health services and more knowledge. Associations of health status with health knowledge and behaviour are inconsistent in this study: Lahu women report the worst health (49.1% ‘very poor, poor or fair’ health) and Northern Thai community men report the worst health status among men (41.7% ‘very poor, poor or fair’ health). Except for Northern Thai communities, men report better health status than women, and women generally have less health knowledge and make more use of health services than men. Significantly more Yunnanese men and women report better health status compared with all other communities, but have less knowledge and report less use of services.

**Knowledge and beliefs about HIV/AIDS transmission, prevention and treatment**

Beliefs concerning HIV transmission, prevention, diagnosis and treatment may influence risk behaviour and the use of health services and may affect stigmatisation of HIV. Most respondents in all communities correctly believe that HIV can be transmitted sexually and by sharing needles for injecting drugs or tattooing.
Table 3. Contact with people living with HIV/infected person.\(^a\)

|                                | Men                  | Women            |
|--------------------------------|----------------------|------------------|
|                                | Yunnanese Northern Thai | Yunnanese Northern Thai |
| Would you eat food prepared by infected person? |                       |                   |
| Yes                            | 6.0 (62.5)           | 6.9 (55.3)       |
| No                             | 94.0 (37.5)          | 93.1 (44.7)      |
| Total n                       | 167                  | 232              |
| Would you eat with an infected person? |                       |                   |
| Yes                            | 6.0 (75.8)           | 7.8 (78.7)       |
| No                             | 94.0 (24.2)          | 92.2 (21.3)      |
| Total n                       | 166                  | 233              |
| Would you sit on a chair where an infected person had sat? |                       |                   |
| Yes                            | 10.0 (91.2)          | 6.0 (89.4)       |
| No                             | 90.0 (8.8)           | 94.0 (10.6)      |
| Total n                       | 170                  | 233              |
| Would you touch an infected person? |                       |                   |
| Yes                            | 3.4 (65.5)           | 4.3 (76.7)       |
| No                             | 96.6 (35.5)          | 95.7 (23.3)      |
| Total n                       | 179                  | 233              |
| Would you take care of an infected person? |                       |                   |
| Yes                            | 3.6 (58.3)           | 7.5 (76.7)       |
| No                             | 96.4 (41.7)          | 92.5 (23.3)      |
| Total n                       | 169                  | 227              |

\(^a\)Totals and percentages in this table do not include ‘Don’t know’ and ‘It depends’ or ‘No answer’.

Yunnanese respondents are significantly more likely to hold mistaken beliefs concerning transmission than members of the other groups: many Yunnanese women (41.9%) and men (34.2%) mistakenly believe HIV can be transmitted by sitting on a chair where an infected person has sat. Differences between Yunnanese and all other groups are significant. This belief is consistent with the finding that significantly higher proportions of Yunnanese respondents indicate they who would avoid people living with HIV and AIDS (Table 3).

Many women and men in all groups, but especially Yunnanese men (59.4%) and women (60.1%) and Lahu women (44.9%), mistakenly believe HIV can be transmitted by mosquito bites. Significantly more Yunnanese men and women compared with Lahu, Hmong and Northern Thai, and significantly more Lahu and Hmong women compared with Northern Thai women, believe mosquitoes can transmit HIV.

**Prevention of mother-to-child transmission**

Lack of knowledge of effectiveness of ART in prevention of mother-to-child transmission, which should be acquired during the counselling that is part of pregnancy services, may constrain pregnant women from accepting testing and treatment, thus increasing the risk of HIV transmission to unborn children.

Most men and women in all communities know that mother-to-child transmission of HIV can occur during pregnancy – no between-group differences are statistically significant. Most men and women in all study communities know that breastfeeding can transmit HIV. Among women, differences are significant between Yunnanese (68.0%
know) and Hmong (70.4% know) compared with Northern Thai (94.2% know) and Lahu (86.8% know). Among men, only the difference between Hmong (65.3% know) versus Lahu (82.5% know) is significant.

Many respondents from all communities do not believe (or ‘do not know’) antiretroviral treatment of HIV-infected women while pregnant can help prevent transmission to unborn children, including 60% of Yunnanese men and women and about half of Hmong and Northern Thai men and women. Lahu respondents are more likely than respondents from other groups to know that ART will help prevent transmission. The difference between Lahu and Northern Thai men is statistically significant.

Although most respondents in all communities believe that HIV can be transmitted by breastfeeding, over one third of Yunnanese (46.2%), Hmong (36.7%) and Lahu (37.2%) women respondents and Yunnanese (50.8%), Hmong (46.8%) and Northern Thai (38.9%) men respondents ‘don’t know’ or ‘don’t believe’ that avoiding breastfeeding by an infected woman can help prevent HIV transmission to the child.

**Knowledge of ART and belief in efficacy of modern treatment**

Lack of knowledge may increase stigma of HIV/AIDS as an untreatable disease. Many respondents, especially Yunnanese men (70.7%) and women (67.8%), and Hmong men (44.9%) and women (54.6%), have never heard of, or ‘don’t know’ about ART. Significantly fewer Yunnanese men and women know about ART than men and women in other groups. Significantly more Northern Thai men and women had heard about ART than respondents of other groups. Significantly fewer Hmong women knew about of ART than Lahu women.

Many respondents, especially Yunnanese (77.5% of men, 70.0% of women) and Hmong (84.9% of men, 86.8% of women), ‘don’t believe’ or ‘don’t know’ if modern medicine is effective in treating HIV infection. The highest proportion who do ‘know’ that current medicines are effective but require lifelong treatment, are in Lahu communities (59.3% of Lahu men, 77.8% of Lahu women). Non-governmental organisation activities in some Lahu communities may explain why more Lahu than members of other groups know about prevention of mother-to-child transmission and ART.

**Constraints on the use of needed health services**

Survey questions asked respondents if they delayed or did not use health services for specified reasons. Overall, reasons reported most frequently included: that they have wait too long at the facility; lack of transportation; lack of money for transportation, services or medicine; trying a medicine from the market or drugstore first; lack of someone to accompany them to a facility; lack of Thai language ability; and ineligibility for government health services.

There are clear differences between groups and genders in proportions reporting constraints, and in the ranking of constraints (Table 2). Consistent with the proportions of Yunnanese and Lahu who do not speak Thai, lack of Thai language ability is reported as a constraint much more often by Yunnanese and Lahu than by others, and more often by Yunnanese and Lahu women than by men.

**Use of HIV/AIDS-related health services**

Ministry of Public Health personnel report that counselling is required before testing, but more respondents reported testing than reported counselling. Trained nurse-counsellors
use a standard manual to counsel groups of women and men in the district hospital, without translation for non-Thai-speakers. The numbers and proportions who reported receiving counselling and testing varied significantly between groups: many Yunnanese men (59.3%) and women (79.3%) and Lahu men (43.6%) and women (45.0%), and one-quarter of Hmong, either were not counselled or ‘don’t know’ that they were counselled, compared with only 25% of Northern Thai men and 11.5% of Northern Thai women. Differences between Yunnanese men and women and all other groups are statistically significant. The lowest proportions of respondents who said they had been tested were reported by Yunnanese men (64.9%) and Hmong men (55.4%). These findings are consistent with low levels of knowledge of ART and low belief in the effectiveness of modern medical treatment of HIV/AIDS among Yunnanese and Hmong informants.  

Stigma directed towards people living with HIV

Stigma (or stigma’s association with accurate knowledge of HIV transmission) is indicated by degree of willingness to be in contact with people living with HIV and AIDS (Le Coeur et al. 2009). We asked respondents: would you eat a meal prepared by an HIV-infected person, eat a meal together with an HIV-infected person, sit on a chair where an infected person had sat, touch an infected person, or take care of an infected person? (Table 3). Rates for Northern Thai men and women who were willing to have each type of contact were about 10 times higher than among Yunnanese respondents (62.5% of Northern Thai men compared with 6.0% of Yunnanese men said they would eat food prepared by a person living with HIV and AIDS). All these differences were significant at the ≤0.000 level.

Translation

Government facilities do not routinely provide translation with clinical services for non-Thai-speaking patients, who must rely on Thai-speaking relatives or friends to help communicate with health personnel. This suggests why ‘lack of someone to accompany them to health facility’ is associated with delay or non-use of services among non-Thai-speakers. Nine-tenths of men and women from minority communities and half of the Northern Thai respondents said they would use translation services if they were available (Table 4). Health personnel repeatedly told us that they also need translation services. These results suggest that translation services might be an acceptable way to reduce some of the between- and within-group disparities.

Within-group differences

Are within-groups differences in sociodemographic characteristics associated with beliefs about HIV prevention and treatment health behaviour and intended contact or avoidance of HIV-infected people?

Citizenship

Thai citizenship is clearly linked to many variables of interest, such as eligibility for UHC benefits. Only 43.9% of men and 55.1% women who were non-citizens have health insurance, compared with 96.6% of Thai citizen men and 100.0% of women. Rates for minority ethnic citizens are equal to rates among Northern Thai respondents. Giving citizenship to non-citizens would give them eligibility, but citizenship is not significantly related to testing for HIV.
Table 4. Would you use translator services if they were available?

|                        | Lahu | Yunnanese | Hmong | North Thai |
|------------------------|------|-----------|-------|------------|
| **Men: Would or probably would use** |      |           |       |            |
| Would not use          | 95.7 | 95.1      | 89.0  | 63.3       |
| Don’t know             | 4.3  | 2.4       | 4.1   | 33.3       |
| Total n                | 211  | 205       | 73    | 33         |
| **Women: Would or probably would use** |      |           |       |            |
| Would not use          | 99.2 | 92.7      | 96.9  | 48.0       |
| Don’t know             | 0.4  | 1.6       | 2.1   | 42.0       |
| Total n                | 263  | 245       | 96    | 50         |
| Fisher exact p: Yes + probably versus No |      |           |       |            |
| Lahu versus Yunnanese  | 0.2387 | 0.5936 | <0.0000 |            |
| Lahu versus Hmong      |       |           | 0.3297 | <0.0000    |
| Lahu versus North Thai |       |           |       | <0.0000    |
| Yunnanese versus Hmong |       |           | 0.5626 | <0.0000    |
| Yunnanese versus North Thai |       |           |       | <0.0000    |
| Hmong versus North Thai |       |           | 0.1494 | <0.0000    |
| Women                  | 0.1494 | 0.1739 | <0.0000 | <0.0000    |
Table 5. Statistical significance of differences between Thai-speaking and non-Thai-speaking respondents in the Yunnanese communities.

| Variable (response of Thai-speaking respondents)                                                                 | Statistical significancea |
|------------------------------------------------------------------------------------------------------------------|---------------------------|
| **Population characteristics**                                                                                     |                           |
| Thai citizen (yes)                                                                                                  | <0.000                    |
| Some education in Thai system (yes)                                                                                | <0.000                    |
| Have health insurance (yes)                                                                                       | <0.000                    |
| Annual income (above median)                                                                                      | NS                        |
| **Knowledge/beliefs about HIV transmission**                                                                      |                           |
| Believe mosquito bites can transmit HIV (no)                                                                       | <0.05                     |
| Believe sitting on a chair where an infected person had sat can transmit (no)                                      | <0.00                     |
| **Knowledge/beliefs about HIV treatment**                                                                        |                           |
| Ever heard of ARVs (yes)                                                                                           | <0.00                     |
| Believe modern medicines can treat HIV effectively (yes)                                                           | NS +                      |
| **Knowledge of prevention of mother-to-child-transmission**                                                        |                           |
| Treating HIV-infected women can help prevent transmission to child (yes)                                           | <0.05                     |
| Not breastfeeding by HIV-infected woman can help prevent transmission (yes)                                        | NS +                      |
| **Use of HIV-related services**                                                                                    |                           |
| Ever counselled for HIV (yes)                                                                                      | <0.05                     |
| Ever tested for HIV (yes)                                                                                        | NS +                      |
| **Intent to avoid contact with HIV-infected person**                                                              |                           |
| Would eat food prepared by HIV-infected person (yes)                                                               | <0.05                     |
| Would eat a meal with an HIV-infected person (yes)                                                                | <0.05                     |
| Would sit on a chair where an infected person had sat (yes)                                                        | <0.00                     |
| Would touch an HIV-infected person (yes)                                                                          | NS +                      |
| Would take care of an HIV-infected person (yes)                                                                    | <0.05                     |
| **Constraints to use of needed health services**                                                                  |                           |
| Lack of Thai language (lower proportion)                                                                          | <0.000                    |
| No one to accompany to health facility (lower proportion)                                                         | <0.000                    |
| Don’t know where to go for services (lower proportion)                                                            | <0.000                    |
| Don’t know how to talk with doctor (lower proportion)                                                             | <0.00                     |

*Probabilities of differences between Thai-speaking and non-Thai speaking respondents in the Yunnanese community in the direction predicted by the hypotheses that Thai-speakers will more closely resemble Northern Thai community respondents. Probabilities calculated by Fisher exact test: NS + not significant at $p \leq 0.05$, but in predicted direction, NS not significant at $p \leq 0.05$ with no difference, or difference not in predicted direction.

Thai language ability

Compared with other communities, Yunnanese respondents consistently report significantly less knowledge and more incorrect beliefs about HIV, less use of services and more frequent intent to avoid contact with people living with HIV and AIDS. Comparisons show consistent statistically significant differences between Thai-speaking and non-Thai-speaking Yunnanese in directions predicted by hypotheses that Thai-speaking ability reduces disparities among Yunnanese. Compared with non-Thai speakers, Thai-speaking Yunnanese more closely resemble Northern Thai respondents in knowledge of transmission, prevention and treatment of HIV infection, intent to avoid contact with people living with HIV and AIDS and constraints to access to health services (summarised in Table 5). For example, the belief that treating infected pregnant women
can help prevent HIV transmission is significantly associated with ability to speak Thai among Yunnanese community men and almost significantly for women. Responses to this question among Thai-speaking Yunnanese community respondents and Northern Thai community respondents are not significantly different.

Distribution of beliefs that an HIV-infected woman can help prevention of mother-to-child transmission by not breastfeeding is almost exactly the same among Thai-speaking men in Yunnanese and Northern Thai communities and significantly different from non-Thai-speaking Yunnanese men. However, Thai-speaking Yunnanese women are significantly less likely to believe that avoiding breastfeeding helps prevent transmission than women in the Northern Thai community (data not shown).

In Yunnanese communities, Thai-speakers are significantly less likely than non-Thai-speakers to believe that HIV can be transmitted by sitting on a chair (Table 6), but a much higher proportion of Yunnanese Thai-speakers hold this mistaken beliefs than Northern Thai community respondents. This is consistent with the higher proportions of Yunnanese who say they would not participate in various forms of contact with people living with HIV and AIDS. Yunnanese Thai-speakers are significantly less likely to believe that HIV can be transmitted by mosquito bites than are non-Thai-speakers (data not shown).

**Differences between men and women**

Women respondents in all community types generally had less knowledge of HIV than men. This was associated with lower levels of education among minority and migrant women. There were higher rates of reported reasons for delay or non-use of needed health services among women. This may be related to less control over resources among women, especially in male-dominated Yunnanese and Hmong communities. However, women were more likely to have been counselled and tested for HIV, and thus should be more likely than men to have knowledge of HIV. Rates of counselling and testing may result from the fact that women, generally have more contact with healthcare providers than do men and that all women in the sample had been pregnant. Although men in the study population, as husbands or partners of these women, were eligible for ANC, men were less likely to receive counselling services. In general, women were also less likely than men say they would avoid people living with HIV and AIDS.

Table 6. Can sitting on a chair where an HIV-infected person had sat transmit HIV?

|                      | Yunnanese community respondents | Thai community respondents |
|----------------------|---------------------------------|-----------------------------|
|                      | Cannot speak Thai | Can speak Thai | All speak Thai |
| Men                  |                    |                    |                |
| Yes                  | 40.9               | 29.0               | 0.8            |
| No                   | 38.6               | 60.2               | 94.4           |
| Don’t know           | 20.5               | 10.8               | 6.6            |
| Total n              | 88                 | 93                 | 36             |
| Women                |                    |                    |                |
| Yes                  | 33.8               | 30.1               | 0.0            |
| No                   | 16.1               | 43.4               | 92.3           |
| Don’t know           | 28.8               | 26.5               | 7.7            |
| Total n              | 118                | 83                 | 52             |
| Fisher exact p ‘Yes’ versus ‘No’ | Men 0.0029 | Women: <0.0000 | –              |
Discussion

This study documents knowledge, beliefs and behaviours related to HIV, accounts for some of the differences observed between the four ethnic groups, and implies ways in which disparities in knowledge and use of health services might be reduced.

Respondents from Yunnanese communities consistently show significant differences in comparison to the Northern Thai ethnic majority. Many statistically significant differences are greatly reduced or eliminated if we consider only Thai-speaking Yunnanese. This suggests that some disparities in knowledge, belief and use of health services might be reduced by health education in a language understood by the intended audience. Thai-speaking Yunnanese respondents are consistently more likely than non-Thai-speakers to say that they would be willing to eat food prepared by, eat a meal with, sit on the same chair as, take care of or touch a person living with HIV and AIDS. Nonetheless, the proportions of Thai-speaking Yunnanese who would do these things remain much lower than proportions of Northern Thai respondents, suggesting much stronger stigma among Thai-speaking Yunnanese than among Northern Thai respondents.

Studies comparing stigma in Africa and Thailand (Genberg et al. 2009) suggest some circumstantial reasons for stigma – never having been tested, no knowledge of ART, limited discussion of HIV and AIDS, low prevalence of HIV, and low-ART coverage – while programmes promoting HIV testing and discussion and education regarding access to ART may reduce stigma. Maman et al. (2009) suggest that fear of suffering and death and the burden of caring for people living with HIV and AIDS contribute to stigma, while the availability of health and socioeconomic services may explain differences in stigma in different settings.

What promotes strong stigma against HIV in Chinese populations? Studies in China identify several mutually non-contradictory hypotheses suggesting that that stigma may be either circumstantial or cultural. One proposed explanation is rooted Chinese cultural features such as ‘filial duty and collectivism’ (Cao et al. 2010). Other explanations suggest that HIV is stigmatised because transmission is associated with stigmatised behaviour, for example sex between men and injection drug use (Cao et al. 2006; Li et al. 2012a, 2012b). Ethnicity is associated with higher prevalence in some areas. The HIV epidemic in China started in Yunnan, which now has the highest prevalence rate overall. Within the province prevalence is higher among minority Jingpo and Yi ethnic groups than among Yunnanese (Han) Chinese (Luo et al. 2013). Does this suggest that stigma among ethnic majority Han Chinese is associated with the minority ethnicity of individuals who were first identified as people living with HIV and AIDS?

Does counselling reduce stigma? Women who reported that they had been counselled were more likely to say they would eat a meal prepared by an infected person, sit on a chair where an infected person had sat, touch or take care of an infected person, but proportions willing to do so were small in all comparisons. There were no significant relationships between intended non-avoidance among men who were counselled versus those who were not. Numbers are too small to see if Thai-speaking ability is associated with greater effect of counselling.

The study analysis controlled for health and socioeconomic resources, indicating that these factors do not explain the higher level of intent to avoid contact among Yunnanese.

Maman et al. (2009) note that ‘more familiarity with HIV/AIDS decreases stigma’. Personal acquaintance with an infected person might represent familiarity, but we could not examine ‘familiarity’ directly. Few Yunnanese respondents (3 men = 1.7%, 13
women = 5.3%, compared with 50.0% of Northern Thai men and 51.9% of Northern Thai women) reported that they had a family member or close friend who had AIDS or who was infected with HIV. Health workers know from medical records that some members of the Yunnanese communities are infected and believe that prevalence of HIV infection among the Yunnanese is roughly equal to, or higher than among the Northern Thai, but we have no population-based prevalence data to compare these groups. Given the apparent strong stigma against HIV among the Yunnanese, they may under-report friends or relatives with HIV, thus low numbers reported by Yunnanese may also indicate persistence of stigma despite actual familiarity.

There are clear differences in population characteristics, knowledge and beliefs, use of health services, intent to avoid contact and constraints to access to health services between communities with different predominant ethnicities. Geographic distance from source of HIV counselling and eligibility for testing and treatment services were controlled for by the study design. Nonetheless, significant differences in rates of counselling and testing exist between different ethnic groups, as well as differences in knowledge and beliefs that should be acquired during counselling.

As expected, respondents from ethnic majority Northern Thai communities had more education, had more accurate knowledge of HIV transmission prevention and treatment, made more use of available services, had lower rates of reported problems of use of services and expressed less intent to avoid people living with HIV and AIDS. Respondents from the Yunnanese communities had the lowest proportions educated in the Thai system, had the least accurate knowledge of HIV, made least use of health services, had high rates of problems of access to services and had most intentions to avoid contact with people living with HIV and AIDS. However, the amount and distribution of income in the Yunnanese communities was comparable to that found in Northern Thai communities, suggesting that income differences cannot account for differences between the two groups in knowledge, beliefs and behaviour.

Thai citizenship, eligibility for UHC health insurance, education in the Thai system and the ability to speak Thai are highly inter-correlated within the Yunnanese communities. Thai language ability is strongly associated with knowledge of HIV and use of health services, strongly differentiating Thai-speaking and non-Thai-speaking respondents within Yunnanese communities with regard to knowledge and behaviour. Thai-speaking members of the Yunnanese communities resemble members of the Northern Thai community in most of the variables discussed in this paper except for indices of avoidance of people living with HIV and AIDS, which remain high among Thai-speakers.

**Implications for health services**

Three results from our Northern Thai sample, incidental to our main focus, should be noted. First, because fertility is so low in ethnic Thai populations, opportunities for ethnic Thai women and men to receive HIV counselling and testing through pregnancy services are narrowly constrained in frequency and age range compared with high fertility Hmong and Yunnanese. This implies that other entry points for these HIV services must be provided for Northern Thai and other ethnic groups in which fertility is low.

Second, although Northern Thai responses offer a standard against which to compare minorities and migrants, half of the Northern Thai respondents from this rural area did not know about ART for prevention of mother-to-child transmission. This implies the
need for more effective health education among the ethnic majority population as well. Third, half of the Northern Thai respondents indicate that they would use translation services, suggesting that some health education and health services are delivered in a formal language that is not easily understood, even by the local Thai-speaking ethnic majority.

**Public health implications**

These data reveal strong differences between ethnic minority respondents in health-related knowledge and intended or actual health behaviour, reasons to delay or not use health services and intent to avoid people living with HIV and AIDS between ethnic-based communities. Differences in communities are associated with Thai language ability, gender and migration. Trans-border migration will increase with the easing of border regulations in mainland Southeast Asia in 2015, bringing more people who will have little knowledge of Thai language (cf. Doussantousse, Sakounnavong and Patterson 2011; Lyttleton and Vorabouth 2011).

The results of this study imply a need for research to tailor, test and evaluate health education interventions for specific sub-populations on topics such as the efficacy of modern medicine to treat HIV and the treatment of infected women and non-breastfeeding for prevention of mother-to-child transmission. Differences between Yunnanese Chinese and the other groups, and between men and women respondents in all communities with regard to socioeconomic characteristics (e.g., education, Thai language ability), knowledge of HIV transmission, prevention and treatment, constraints to use of health services (which disadvantage women) and use of ANC, counselling, testing and intent to avoid people living with HIV and AIDS (which negatively affect men more than women), indicate a need for gender- and ethnic-specific health-intervention programmes. Inconsistent linkage between beliefs about transmission, as against beliefs about prevention, implies a need for better quality health education.

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**Notes**

1. Ethnic differences in HIV risks and prevalence, and the importance of Thai language ability among minority ethnic patients in Thailand have been recognised since the 1990s (Apisitsaowapa et al. 1999; Beyrer et al. 1997; Kammerer et al. 1995).

2. For example, the doctor in the health station closest to the Yunnanese communities is Sino-Thai but speaks and understands a dialect that is not mutually intelligible with the language of most Yunnanese respondents.
3. Responses to the question ‘Have you ever been counselled?’ may reflect Thai language ability rather than the violation of protocol (respondents may not understand information given them in Thai or may not know that information transmitted during ANC was, in fact, ‘counselling’).

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Résumé
Les informations sur le Nord-Ouest de la Thaïlande connu pour sa diversité ethnique, notamment avec l’arrivée récente de migrants en provenance du Myanmar (Birmanie) et de la Chine nous ont permis de vérifier les hypothèses sur les différences inter et intra communautaires dans les villages dont la majorité des habitants sont issus des minorités chinoises (Yunnan), hmong ou lahu, par opposition aux villages dont la population appartient à l’ethnie majoritaire thaïe. Les sujets explorés comprennent les connaissances sur la transmission, la prévention et le traitement du VIH, les comportements d’évitement vis-à-vis des personnes vivant avec le VIH/sida (PVVIH) et les obstacles au recours aux services de soins. Les répondants étaient des femmes ayant un ou plusieurs enfants de moins de 5 ans et leurs maris/partenaires. Le groupe ethnique s’est révélé constamment associé aux caractéristiques socio-économiques; aux connaissances sur la transmission, la prévention et le traitement; aux comportements d’évitement vis-à-vis des PVVIH; et aux obstacles au recours aux services. C’est parmi la communauté chinoise que les plus faibles niveaux de connaissances sur le VIH ont été identifiés, en particulier en ce qui concerne la transmission mère-enfant, ainsi que les intentions les plus fortes d’éviter les contacts avec les PVVIH et le niveau le plus élevé d’obstacles au recours aux services de soins, parmi lesquels l’inéligibilité aux soins pris en charge par le gouvernement thaïlandais et la barrière linguistique. L’association entre la possibilité de comprendre les conseils donnés en thaï, et un niveau plus élevé de connaissances sur le VIH et moins de comportements d’évitement vis-à-vis des PVVIH suggère qu’une éducation à la santé assurée dans la langue appropriée peut aider à surmonter les différences entre ces groupes ethniques.

Resumen
Los datos de la zona noroeste de Tailandia con un muestra étnica diversa de emigrantes recientes de Myanmar (Birmania) y China nos permiten comprobar las hipótesis sobre las diferencias entre comunidades y dentro de ellas en pueblos con minorías étnicas predominantemente de chinos yunnaneses y de las tribus hmong y lahu en comparación con los pueblos con una mayoría étnica de tailandeses. El conocimiento de la transmisión, la prevención y el tratamiento del VIH, evitar a personas seropositivas y las restricciones en el uso de los servicios sanitarios fueron algunos de los temas tratados. Entre los participantes había mujeres con uno o más hijos de menos de 5 años y sus maridos/compañeros. La etnia se asocia continuamente con características socioeconómicas, el conocimiento de la transmisión, la prevención y el tratamiento del VIH, el intento de evitar a personas con el VIH y sida y restricciones en el uso de los servicios sanitarios. Los residentes de la comunidad china tienen los niveles más bajos de conocimientos sobre el virus del sida, especialmente con respecto a la transmisión de madre a hijo, son los que más intentan evitar el contacto con personas con VIH/sida y presentan los niveles más altos de restricciones al uso de servicios, incluyendo la falta de acceso a la asistencia sanitaria estatal y pocos conocimientos del idioma tailandés. Las relaciones entre el asesoramiento y los conocimientos de la lengua tailandesa, y sabiendo que el asesoramiento mejora los conocimientos sobre las personas afectadas por el VIH/sida y hace que no se eviten, esto nos da una idea de cómo se podrían superar las desigualdades mediante una educación sanitaria con los conocimientos apropiados del idioma.