Table 1. Participant Enrollment Characteristics by Site

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | All  (n=1003) | Ratchaburi  (n=503) | Nakorn Ratchasima  (n=500) | p-value |
| Age (years) |  |  |  | *<0.001* |
| 18-20 | 385 (38.4%) | 254 (50.5%) | 131 (26.2%) |  |
| 21-23 | 231 (23.0%) | 111 (22.1%) | 120 (24.0%) |  |
| >23 | 387 (38.6%) | 138 (27.4%) | 249 (49.8%) |  |
| Education Level |  |  |  | *<0.001* |
| None/Some primary | 162 (16.2%) | 99 (19.7%) | 63 (12.6%) |  |
| Secondary | 615 (61.3%) | 284 (56.5%) | 331 (66.2%) |  |
| Vocational | 145 (14.5%) | 88 (17.5%) | 57 (11.4%) |  |
| Some/Completed university/More | 81 (8.1%) | 32 (6.4%) | 49 (9.8%) |  |
| Marital Status |  |  |  | *0.097* |
| Never married or cohabited | 757 (75.5%) | 365 (72.6%) | 392 (78.4%) |  |
| Married | 26 (2.6%) | 16 (3.2%) | 10 (2.0%) |  |
| Cohabitating | 133 (13.3%) | 78 (15.5%) | 55 (11.0%) |  |
| Separated, divorced, widowed | 87 (8.7%) | 44 (8.7%) | 43 (8.6%) |  |
| Monthly Income |  |  |  | *<0.001* |
| <9,000 Baht | 646 (64.4%) | 348 (69.2%) | 298 (59.6%) |  |
| >9,000 Baht | 306 (30.5%) | 114 (22.7%) | 192 (38.4%) |  |
| Missing | 51 (5.1%) | 41 (8.2%) | 10 (2.0%) |  |
| Gender identity |  |  |  | *<0.001* |
| Cisgender MSM | 777 (77.5%) | 384 (76.3%) | 393 (78.6%) |  |
| Transgender MSM | 162 (16.2%) | 64 (12.7%) | 98 (19.6%) |  |
| Unknown/Missing | 64 (6.4%) | 55 (10.9%) | 9 (1.8%) |  |
| Ever had forced sex |  |  |  | *0.004* |
| Yes | 142 (14.2%) | 55 (10.9%) | 87 (17.4%) |  |
| No | 838 (83.5%) | 433 (86.1%) | 405 (81.0%) |  |
| Missing | 23 (2.3%) | 15 (3.0%) | 8 (1.6%) |  |
| Used a condom at last sex |  |  |  | *0.56* |
| Yes | 388 (38.7%) | 187 (37.2%) | 201 (40.2%) |  |
| No | 579 (57.7%) | 290 (57.7%) | 289 (57.8%) |  |
| Missing | 36 (3.6%) | 26 (5.2%) | 10 (2.0%) |  |
| Had sex with a sex worker in past 6 months |  |  |  | *<0.001* |
| Yes | 341 (34.0%) | 198 (39.4%) | 143 (28.6%) |  |
| No | 625 (62.3%) | 278 (55.3%) | 347 (69.4%) |  |
| Missing | 37 (3.7%) | 27 (5.4%) | 10 (2.0%) |  |
| Had receptive anal sex in past 6 months |  |  |  | *<0.001* |
| Yes | 217 (21.6%) | 79 (15.7%) | 138 (27.6%) |  |
| No | 774 (77.2%) | 417 (82.9%) | 357 (71.4%) |  |
| Missing | 12 (1.2%) | 7 (1.4%) | 5 (1.0%) |  |
| Engaged in transactional sex in past 6 months |  |  |  | *0.013* |
| Yes | 408 (40.7%) | 220 (43.7%) | 188 (37.6%) |  |
| No | 556 (55.4%) | 255 (50.7%) | 301 (60.2%) |  |
| Missing | 39 (3.9%) | 28 (5.6%) | 11 (2.2%) |  |
| Had swinging sex in past 6 months |  |  |  | *0.014* |
| Yes | 86 (8.6%) | 31 (6.2%) | 55 (11.0%) |  |
| No | 862 (85.9%) | 430 (85.5%) | 432 (86.4%) |  |
| Missing | 55 (5.5%) | 42 (8.3%) | 13 (2.6%) |  |
| In the past 6 months, had alcoholic drinks prior to anal/neovaginal sex |  |  |  | *<0.001* |
| Never drank alcohol | 241 (24.0%) | 128 (25.4%) | 113 (22.6%) |  |
| Did not have alcohol before sex | 201 (20.0%) | 143 (28.4%) | 58 (11.6%) |  |
| Had alcohol before sex | 554 (55.2%) | 227 (45.1%) | 327 (65.4%) |  |
| Missing | 7 (0.7%) | 5 (1.0%) | 2 (0.4%) |  |
| Been diagnosed with an STI in past 6 months |  |  |  | *0.33* |
| Yes | 33 (3.3%) | 14 (2.8%) | 19 (3.8%) |  |
| No | 936 (93.3%) | 477 (94.8%) | 459 (91.8%) |  |
| Missing | 34 (3.4%) | 12 (2.4%) | 22 (4.4%) |  |
| Ever been tested for HIV |  |  |  | *0.004* |
| Yes | 369 (36.8%) | 205 (40.8%) | 164 (32.8%) |  |
| No | 617 (61.5%) | 284 (56.5%) | 333 (66.6%) |  |
| Missing | 17 (1.7%) | 14 (2.8%) | 3 (0.6%) |  |

All data are presented as n (column percentage). P-values were calculated using Chi-square tests. Responses labeled ‘missing’ also include ‘don’t know’ and ‘refuse to answer’ responses.

Table 2. Unadjusted and Adjusted Hazard Ratios of Risk Factors for HIV Seroconversion

|  |  |  |  |
| --- | --- | --- | --- |
|  | Model 1:  Unadjusted HR (95% CI) | Model 2:  Adjusted HR  (95% CI) | Model 3:  Adjusted HR  (95% CI) |
| Site |  |  |  |
| Ratchaburi | Ref | Ref | Ref |
| Nakorn Ratchasima | 1.28 (0.52-3.17) | 1.11 (0.40-3.10) | 0.96 (0.37-2.53) |
| Education Level |  |  |  |
| None/Some primary | Ref | Ref |  |
| Secondary | 1.67 (0.38-7.41) | 1.88 (0.40-8.77) |  |
| Vocational | 1.46 (0.24-8.76) | 1.44 (0.22-9.28) |  |
| Some/Completed university/More | 1.74 (0.25-12.36) | 1.01 (0.13-8.21) |  |
| Marital Status |  |  |  |
| Never married or cohabited | Ref | Ref |  |
| Ever married or cohabited | 1.60 (0.64-4.02) | 1.54 (0.56-4.22) |  |
| Gender identity |  |  |  |
| Cisgender MSM | Ref | Ref |  |
| Transgender MSM/Unknown | 2.19 (0.89-5.35) | 0.88 (0.29-2.73) |  |
| Ever had forced sex |  |  |  |
| Yes/Unknown | 1.73 (0.63-4.75) | 0.90 (0.28-2.88) |  |
| No | Ref | Ref |  |
| Ever been tested for HIV |  |  |  |
| Yes | **2.47 (1.01-6.04)** | 1.62 (0.61-4.32) |  |
| No/Unknown | Ref | Ref |  |
| Age (years) |  |  |  |
| 18-20 | 0.47 (0.16-1.38) | 0.45 (0.14-1.47) | 0.44 (0.14-1.41) |
| 21-23 | 0.86 (0.29-2.52) | 0.80 (0.26-2.46) | 0.79 (0.26-2.44) |
| >23 | Ref | Ref | Ref |
| Monthly Income |  |  |  |
| <9,000 Baht/Unknown | Ref | Ref | Ref |
| >9,000 Baht | 0.74 (0.30-1.87) | 0.47 (0.17-1.33) | 0.45 (0.16-1.25) |
| Used a condom at last sex |  |  |  |
| Yes | 1.48 (0.59-3.70) | 1.26 (0.46-3.46) |  |
| No/Unknown | Ref | Ref |  |
| Had sex with a sex worker in past 6 months |  |  |  |
| Yes/Unknown | 0.39 (0.09-1.67) | **0.11 (0.01-0.80)** | **0.12 (0.02-0.70)** |
| No | Ref | Ref | Ref |
| Had receptive anal sex in past 6 months |  |  |  |
| Yes/Unknown | **3.04 (1.26-7.29)** | **3.05 (1.00-9.32)** | **3.35 (1.30-8.63)** |
| No | Ref | Ref | Ref |
| Engaged in transactional sex in past 6 months |  |  |  |
| Yes/Unknown | 1.62 (0.62-4.21) | 1.81 (0.51-6.38) |  |
| No | Ref | Ref |  |
| Had swinging sex in past 6 months |  |  |  |
| Yes/Unknown | 1.96 (0.65-5.89) | 2.82 (0.64-12.31) | 3.55 (0.91-13.79) |
| No | Ref | Ref | Ref |
| In the past 6 months, had alcoholic drinks prior to anal/neovaginal sex |  |  |  |
| Never drank alcohol | Ref | Ref |  |
| Did not have alcohol before sex | 0.42 (0.14-1.26) | 0.60 (0.19-1.88) |  |
| Had alcohol before sex/Unknown | 0.79 (0.28-2.22) | 0.83 (0.28-2.44) |  |
| Been diagnosed with an STI in past 6 months |  |  |  |
| Yes/Unknown | **5.05 (1.83-13.95)** | 2.82 (0.88-9.05) | **3.39 (1.11-10.29)** |
| No | Ref | Ref | Ref |

Model 1: Unadjusted Cox proportional hazards models; Model 2: Fully adjusted Cox proportional hazards model; Model 3: Parsimoniously adjusted Cox proportional hazards model. Participants at risk for HIV with at least one follow-up visit after enrollment were included in time-to-event analyses. Cox proportional hazards models were used to estimate unadjusted and adjusted hazard ratios (HRs) and 95% CIs for associations between potential risk factors and seroconversion. Two adjusted models are presented. The fully adjusted model contains all potential predictors of HIV seroconversion identified *a priori* and with knowledge of the study population and setting to assess proximal indicators of risk. The parsimonious model was built using backwards stepwise selection with a significance level of α=0.20 to remove variables from the fully saturated model, in order to explain the data with a minimum number of predictors; site was held in the model. The following variables were analyzed as time-varying covariates: age, income, and factors capturing behavioral and sexual risk in the 6 months prior to each visit (condom use, sex with a sex worker, receptive anal sex, transactional sex, swinging sex, alcohol use before sex, STI diagnosis). Bold indicates significance at p<0.05.