

**Supplementary figure 1:** Flow chart depicting the selection of the population of the study on vaginal HPV infection within HELIUS study, Amsterdam, the Netherlands.

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| **Supplementary table 1.** High-risk HPV prevalence by risk factor in six different ethnicities of 592 randomly selected female HELIUS participants aged between 18 and 34 years who provided a vaginal swab and completed the questionnaire, by ethnicity, the HELIUS study Amsterdam, the Netherlands |
|  | **Dutch** | **South-Asian Surinamese** | **African Surinamese** | **Ghanaian** | **Moroccan** | **Turkish** |
|  |  (N=108) |  (N=100) |  (N=111) |  (N=81) |  (N=103) |  (N=89) |
|   | n | tot | % | n | tot | % | n | tot | % | n | tot | % | n | tot | % | n | tot | % |
| **High-risk HPV** | 45 | 108 | 42% | 18 | 100 | 18% | 36 | 111 | 32% | 21 | 81 | 26% | 27 | 103 | 26% | 26 | 89 | 29% |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Socio-demographic characteristics** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Age (years) |  |  | *p*=0.641 |  |  | *p=*0.555 |  |  | *p=*0.279 |  |  | *p=*0.343 |  |  | *p=*0.698 |  |  | *p=*0.963 |
|  18-23 | 13 | 34 | 38% | 4 | 28 | 14% | 14 | 36 | 39% | 6 | 35 | 17% | 5 | 28 | 18% | 7 | 24 | 29% |
|  24-27 | 13 | 25 | 52% | 6 | 25 | 24% | 10 | 26 | 38% | 4 | 16 | 25% | 8 | 28 | 29% | 6 | 21 | 29% |
|  28-30 | 9 | 21 | 43% | 5 | 21 | 24% | 7 | 21 | 33% | 4 | 12 | 33% | 6 | 21 | 29% | 7 | 21 | 33% |
|  31-34 | 10 | 28 | 36% | 3 | 26 | 12% | 5 | 28 | 18% | 7 | 18 | 39% | 8 | 26 | 31% | 6 | 23 | 26% |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Education |  |  | *p=*0.569 |  |  | *p=*0.870 |  |  | *p=*0.955 |  |  | *p=*0.031 |  |  | *p=*0.252 |  |  | *p=*0.495 |
|  Lower and intermediate education | 12 | 32 | 38% | 12 | 65 | 18% | 25 | 76 | 33% | 20 | 63 | 32% | 20 | 67 | 30% | 18 | 66 | 27% |
|  Higher education | 33 | 76 | 43% | 6 | 35 | 17% | 11 | 34 | 32% | 1 | 17 | 6% | 7 | 36 | 19% | 8 | 23 | 35% |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Civil status |  |  | *p=*0.154 |  |  | *p=*0.284 |  |  | *p=*0.936 |  |  | *p=*0.838 |  |  | *p=*0.443 |  |  | *p=*0.109 |
|  Married/cohabiting | 10 | 32 | 31% | 4 | 32 | 13% | 5 | 16 | 31% | 4 | 15 | 27% | 8 | 39 | 21% | 8 | 42 | 19% |
|  Never married | 35 | 76 | 46% | 14 | 63 | 22% | 30 | 93 | 32% | 16 | 62 | 26% | 17 | 54 | 31% | 15 | 41 | 37% |
|  Divorced | N.A. |  |  | 0 | 5 | 0% | N.A. |  |  | 0 | 1 | 0% | 2 | 10 | 20% | 3 | 6 | 50% |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Current religion |  |  | *p=*0.321 |  |  | ***p=*0.039** |  |  | *p=*0.781 |  |  | *p=*0.393 |  |  | *p=*0.230 |  |  | *p=*0.159 |
|  No religion | 44 | 99 | 44% | 3 | 23 | 13% | 13 | 33 | 39% | 3 | 7 | 43% | 1 | 3 | 33% | 7 | 13 | 54% |
|  Roman Catholic Church | 1 | 3 | 33% | 2 | 5 | 40% | 10 | 34 | 29% | 3 | 11 | 27% | N.A. |  |  | N.A. |  |  |
|  Christianity (other than Roman Catholic)  | 0 | 4 | 0% | 3 | 5 | 60% | 11 | 38 | 29% | 13 | 58 | 22% | N.A. |  |  | 1 | 3 | 33% |
|  Islam | 0 | 1 | 0% | 1 | 19 | 5% | N.A. |  |  | 0 | 1 | 0% | 25 | 99 | 25% | 18 | 71 | 25% |
|  Hinduism | N.A. |  |  | 9 | 42 | 21% | N.A. |  |  | 1 | 1 | 100% | N.A. |  |  | N.A. |  |  |
|  Other | 0 | 1 | 0% | 0 | 6 | 0% | 2 | 6 | 33% | 1 | 2 | 50% | 1 | 1 | 100% | 0 | 2 | 0% |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Migration status |  |  |  |  |  | *p=*0.655 |  |  | *p=*0.473 |  |  | *p=*0.145 |  |  | *p=*0.248 |  |  | *p=*0.595 |
|  1st generation | N.A. |  |  | 6 | 29 | 21% | 16 | 44 | 36% | 16 | 51 | 31% | 6 | 32 | 19% | 6 | 24 | 25% |
|  2nd generation |  |  |  | 12 | 71 | 17% | 20 | 67 | 30% | 5 | 30 | 17% | 21 | 71 | 30% | 20 | 65 | 31% |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Health-related characteristics** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Oral contraceptives use ever |  |  | *p=*0.062 |  |  | ***p=*0.016** |  |  | *p=*0.031 |  |  | ***p*<0.001** |  |  | *p=*0.867 |  |  | *p=*0.112 |
|  No | 2 | 12 | 17% | 0 | 21 | 0% | 1 | 14 | 7% | 2 | 38 | 5% | 9 | 33 | 27% | 3 | 20 | 15% |
|  Yes | 43 | 96 | 45% | 18 | 79 | 23% | 35 | 97 | 36% | 19 | 43 | 44% | 18 | 70 | 26% | 23 | 69 | 33% |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Self-reported genital warts/ulcers/vesicles in the preceding month |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | *p=*0.373 |  |  | *p=*0.905 |  |  | *p=*0.178 |  |  | *p=*0.755 |  |  | *p=*0.776 |  |  | *p=*0.119 |
|  No | 43 | 105 | 41% | 17 | 95 | 18% | 33 | 106 | 31% | 20 | 76 | 26% | 26 | 100 | 26% | 23 | 84 | 27% |
|  Yes | 2 | 3 | 67% | 1 | 5 | 20% | 3 | 5 | 60% | 1 | 5 | 20% | 1 | 3 | 33% | 3 | 5 | 60% |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Substance use** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Smoking status |  |  | *p=*0.169 |  |  | *p=*0.987 |  |  | *p=*0.850 |  |  | *p=*0.101 |  |  | *p=*0.376 |  |  | *p=*0.373 |
|  Never | 18 | 53 | 34% | 12 | 67 | 18% | 23 | 69 | 33% | 19 | 78 | 24% | 21 | 83 | 25% | 9 | 41 | 22% |
|  Former | 9 | 22 | 41% | 2 | 10 | 20% | 4 | 12 | 33% | 2 | 3 | 67% | 3 | 6 | 50% | 4 | 12 | 33% |
|  Current | 18 | 33 | 55% | 4 | 22 | 18% | 8 | 29 | 28% | N.A. |  |  | 3 | 14 | 21% | 13 | 36 | 36% |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Alcohol use in the preceding year |  |  | *p=*0.129 |  |  | *p=*0.352 |  |  | *p=*0.170 |  |  | *p=*0.087 |  |  | *p=*0.297 |  |  | ***p*<0.001** |
|  No | 1 | 7 | 14% | 5 | 37 | 14% | 5 | 24 | 21% | 7 | 40 | 18% | 23 | 93 | 25% | 9 | 62 | 15% |
|  Yes | 44 | 101 | 44% | 13 | 62 | 21% | 31 | 87 | 36% | 14 | 41 | 34% | 4 | 10 | 40% | 17 | 27 | 63% |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **STI at visit \*\*** |  |  | *p=*0.767 |  |  | *p=*0.638 |  |  | ***p=*0.022** |  |  | ***p=*0.018** |  |  | *p=*0.995 |  |  | *p=*0.513 |
|  No | 44 | 105 | 42% | 18 | 99 | 18% | 30 | 102 | 29% | 17 | 75 | 23% | 26 | 99 | 26% | 25 | 87 | 29% |
|  Yes | 1 | 3 | 33% | 0 | 1 | 0% | 6 | 9 | 67% | 4 | 6 | 67% | 1 | 4 | 25% | 1 | 2 | 50% |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Sexual behaviour** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Sexual activity ever\*\*\* |  |  | *p=*0.053 |  |  | ***p=*0.028** |  |  | ***p=*0.092** |  |  | *p=*0.056 |  |  | *p=*0.411 |  |  | ***p=*0.019** |
|  Never had sex  | 0 | 5 | 0% | 0 | 18 | 0% | 0 | 8 | 0% | 3 | 25 | 12% | 7 | 36 | 19% | 1 | 20 | 5% |
|  Sex with a man (+/- woman) | 45 | 103 | 44% | 18 | 82 | 22% | 36 | 101 | 36% | 18 | 56 | 32% | 20 | 66 | 30% | 25 | 68 | 37% |
|  Sex with a woman only | N.A. |  |  | N.A. |  |  | 0 | 1 | 0% | N.A. |  |  | 0 | 1 | 0% | 0 | 1 | 0% |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Currently in a steady relationship |  |  | *p=*0.239 |  |  | *p=*0.275 |  |  | *p=*0.449 |  |  | *p=*0.220 |  |  | *p=*0.272 |  |  | ***p=*0.045** |
|  No | 23 | 48 | 48% | 10 | 44 | 23% | 21 | 59 | 36% | 9 | 44 | 20% | 17 | 55 | 31% | 15 | 38 | 39% |
|  Yes | 22 | 60 | 37% | 8 | 56 | 14% | 15 | 52 | 29% | 12 | 37 | 32% | 10 | 47 | 21% | 10 | 50 | 20% |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ***Among participants reporting to ever have had sex with a man (n=476)*** |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Age at sexual debut (years) |  |  | *p=*0.424 |  |  | *p=*0.296 |  |  | *p=*0.361 |  |  | *p=*0.154 |  |  | *p=*0.793 |  |  | *p=*0.152 |
|  ≤16 | 28 | 56 | 50% | 4 | 18 | 22% | 17 | 52 | 33% | 9 | 17 | 53% | 4 | 12 | 33% | 4 | 5 | 80% |
|  17-18 | 10 | 29 | 34% | 10 | 32 | 31% | 14 | 29 | 48% | 5 | 22 | 23% | 5 | 13 | 38% | 6 | 14 | 43% |
|  19-20 | 4 | 8 | 50% | 3 | 18 | 17% | 4 | 16 | 25% | 2 | 6 | 33% | 4 | 12 | 33% | 6 | 17 | 35% |
|  ≥21 | 3 | 10 | 30% | 1 | 14 | 7% | 1 | 4 | 25% | 2 | 11 | 18% | 7 | 29 | 24% | 9 | 32 | 28% |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Lifetime number of male sex partners |  |  | ***p=*0.001** |  |  | ***p=*0.034** |  |  | *p=*0.875 |  |  | ***p=*0.012** |  |  | ***p=*0.014** |  |  | *p=*0.004 |
|  1 | 0 | 10 | 0% | 2 | 31 | 6% | 3 | 7 | 43% | 2 | 12 | 17% | 8 | 44 | 18% | 9 | 43 | 21% |
|  2-5 | 12 | 37 | 32% | 10 | 37 | 27% | 17 | 46 | 37% | 8 | 31 | 26% | 8 | 15 | 53% | 9 | 14 | 64% |
|  6-10 | 13 | 26 | 50% | 4 | 10 | 40% | 9 | 30 | 30% | 4 | 9 | 44% | 3 | 4 | 75% | 6 | 10 | 60% |
|  ≥11 | 20 | 30 | 67% | 2 | 4 | 50% | 7 | 18 | 39% | 4 | 4 | 100% | 1 | 3 | 33% | 1 | 1 | 100% |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Sexual activity in the preceding six months | ***p=*0.003** |  |  | *p=*0.088 |  |  | *p=*0.109 |  |  | ***p=*0.011** |  |  | *p=*0.741 |  |  | ***p=*0.001** |
|  No sex past six months | 4 | 19 | 21% | 4 | 16 | 25% | 2 | 11 | 18% | 3 | 11 | 27% | 4 | 16 | 25% | 4 | 12 | 33% |
|  With steady partner only | 24 | 60 | 40% | 11 | 61 | 18% | 22 | 67 | 33% | 11 | 41 | 27% | 15 | 48 | 31% | 11 | 44 | 25% |
|  With casual partner(s)  | 17 | 24 | 71% | 3 | 5 | 60% | 12 | 23 | 52% | 4 | 4 | 100% | 1 | 2 | 50% | 10 | 12 | 83% |
|  (+/-steady partner(s)) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Condom use in the preceding six months |  | ***p=*0.033** |  |  | p=0.822 |  |  | p=0.409 |  |  | p=0.903 |  |  | p=0.814 |  |  | p=0.910 |
| No sex past six months | 4 | 19 | 21% | 4 | 16 | 25% | 2 | 11 | 18% | 3 | 11 | 27% | 4 | 16 | 25% | 4 | 12 | 33% |
| Never/mostly not/sometimes | 28 | 63 | 44% | 11 | 55 | 20% | 23 | 63 | 37% | 11 | 32 | 34% | 11 | 38 | 29% | 17 | 44 | 39% |
| Mostly/always | 13 | 21 | 62% | 3 | 11 | 27% | 11 | 27 | 41% | 4 | 13 | 31% | 4 | 11 | 36% | 4 | 12 | 33% |
| **Abbreviations:** HELIUS, HEalthy LIfe in Urban Setting; HIV, human immunodeficiency virus;  |
| HPV, human papillomavirus; IQR, interquartile range; STI, sexually transmitted infection; N.A. not applicable |  |  |  |  |  |  |
|  +/- denotes an optional category e.g. +/- steady partner indicates that individuals with and without a steady partners are included in this category |
| *p*-values <0.05 are considered statistically significant, are based on the Chi-squared test, and are presented in the row of the variable name and in the percentage column |
| \*\* Chlamydia, gonorrhoea, or trichomoniasis (nobody tested positive for gonorrhoea) |  |  |  |  |  |  |  |  |  |  |
| \*\*\* One participant reported to ever have had sex, but did not report whether this was with a man or a woman |  |  |  |  |  |  |

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| **Supplementary table 2.** Bivariable analyses of risk factors of high-risk HPV using Generalized Estimating Equations\*, in 592 female HELIUS participants aged between 18 and 34 years who provided a vaginal swab and completed the questionnaire, by ethnicity, the HELIUS study Amsterdam, the Netherlands |
|
|  | **Dutch** | **South-Asian**  | **African** | **Ghanaian** | **Moroccan** | **Turkish** |
|  |  |  | **Surinamese** | **Surinamese** |  |  |  |  |  |  |
|  | (N=108) | (N=100) | (N=111) | (N=81) | (N=103) | (N=89) |
|  | **OR**  | **95% CI** | **OR**  | **95% CI** | **OR**  | **95% CI** | **OR**  | **95% CI** | **OR**  | **95% CI** | **OR**  | **95% CI** |
| **Socio-demographic characteristics** |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| Age (years) |  | *p=*0.771 |  | *p=*0.564 |  | *p=*0.842 |  | *p=*0.374 |  | *p=*0.855 |  | *p=*0.623 |
|  18-23 | 1 |  | 1 |  | 1 |  | 1 |  | 1 |  | 1 |  |
|  24-27 | 1.15 | (0.55 - 2.41) | 1.37 | (0.33 - 5.72) | 0.99 | (0.39 - 2.57) | 1.99 | (0.62 - 6.44) | 1.55 | (0.56 - 4.31) | 1.73 | (0.55 - 5.43) |
|  28-30 | 1.02 | (0.46 - 2.26) | 1.80 | (0.44 - 7.36) | 1.24 | (0.48 - 3.23) | 2.75 | (0.85 - 8.91) | 1.15 | (0.36 - 3.68) | 2.03 | (0.67 - 6.18) |
|  31-34 | 0.74 | (0.34 - 1.64) | 0.54 | (0.09 - 3.30) | 0.75 | (0.28 - 2.05) | 2.01 | (0.64 - 6.25) | 1.23 | (0.41 - 3.63) | 1.88 | (0.62 - 5.69) |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| Education |  | *p=*0.440 |  | *p=*0.517 |  | *p=*0.940 |  | *p=*0.062 |  | *p=*0.147 |  | *p=*0.585 |
|  Lower education and intermediate | 1 |  | 1 |  | 1 |  | 1 |  | 1 |  | 1 |  |
|  Higher education | 1.29 | (0.68 - 2.44) | 0.66 | (0.19 - 2.29) | 1.03 | (0.48 - 2.19) | 0.13 | (0.02 - 1.10) | 0.52 | (0.22 - 1.26) | 1.26 | (0.55 - 2.91) |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| Civil status |  | *p=*0.395 |  | *p=*0.281 |  | *p=*0.721 |  | *p=*0.652 |  | *p=*0.089 |  | ***p=*0.045** |
|  Married/cohabiting | 1 |  | 1 |  | 1 |  | 1 |  | 1 |  | 1 |  |
|  Never married | 1.33 | (0.69 - 2.55) | 2.11 | (0.54 - 8.17) | 1.21 | (0.42 - 3.49) | 1.31 | (0.41 - 4.18) | 2.08 | (0.89 - 4.85) | 2.40 | (1.02 - 5.64) |
|  Divorced | N.A. |  | N.A. |  | N.A. |  | N.A. |  | 0.89 | (0.17 - 4.74) | 4.11 | (1.16 - 14.54) |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| Current religion |  | *p=*0.113 |  | *p=*0.387 |  | *p=*0.434 |  | *p=*0.578 |  | *p=*0.435 |  | ***p=*0.018** |
|  No religion | 1 |  | 1 |  | 1 |  | 1 |  | 1 |  | 1 |  |
|  Religious | 0.22 | (0.03 - 1.43) | 2.05 | (0.40 - 10.34) | 0.75 | (0.36 - 1.56) | 0.69 | (0.19 - 2.55) | 0.51 | (0.09 - 2.77) | 0.36 | (0.15 - 0.84) |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| Migration status |  |  |  | *p=*0.739 |  | *p=*0.504 |  | *p=*0.152 |  | *p=*0.167 |  | *p=*0.554 |
|  1st generation | N.A. |  | 1 |  | 1 |  | 1 |  | 1 |  | 1 |  |
|  2nd generation |  |  | 0.82 | (0.25 - 2.71) | 1.28 | (0.62 - 2.66) | 0.48 | (0.18 - 1.31) | 1.93 | (0.76 - 4.91) | 1.31 | (0.53 - 3.25) |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Health-related characteristics** |  |  |  |  |  |  |  |  |  |  |  |  |
| Oral contraceptives use ever |  | *p=*0.066 |  |  |  | *p=*0.094 |  | ***p=*0.001** |  | *p=*0.632 |  | *p=*0.110 |
|  No | 1 |  |  |  | 1 |  | 1 |  | 1 |  | 1 |  |
|  Yes | 4.67 | (0.90 - 24.20) | N.A. |  | 8.25 | (0.70 - 97.68) | 11.42 | (2.70 - 48.23) | 0.83 | (0.38 - 1.80) | 2.67 | (0.80 - 8.92) |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| Self-reported genital warts/ulcers/vesicles in the preceding month |  |  |  |  |  |  |  |  |
|  |  | *p=*0.411 |  | *p=*0.977 |  | *p=*0.528 |  | *p=*0.622 |  | *p=*0.423 |  | *p=*0.081 |
|  No | 1 |  | 1 |  | 1 |  | 1 |  | 1 |  | 1 |  |
|  Yes | 1.79 | (0.45 - 7.18) | 0.96 | (0.07 -13.13) | 1.59 | (0.38 - 6.63) | 0.58 | (0.06 - 5.13) | 1.99 | (0.37 - 10.72) | 2.88 | (0.88 - 9.46) |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Substance use** |  |  |  |  |  |  |  |  |  |  |  |  |
| Smoking status |  | *p=*0.103 |  | *p=*0.759 |  | *p=*0.649 |  | *p=*0.287 |  | *p=*0.075 |  | *p=*0.572 |
|  Never | 1 |  | 1 |  | 1 |  | 1 |  | 1 |  | 1 |  |
|  Former | 1.22 | (0.56 - 2.64) | 1.56 | (0.32 - 7.53) | 1.62 | (0.58 - 4.51) | 2.39 | (0.48 - 11.84) | 2.76 | (0.90 - 8.44) | 1.41 | (0.43 - 4.64) |
|  Current | 1.94 | (1.04 - 3.59) | 0.74 | (0.16 - 3.37) | 1.09 | (0.47 - 2.51) | N.A. |  | 0.84 | (0.25 - 2.82) | 1.85 | (0.81 - 4.20) |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| Alcohol use in the preceding year |  | *p=*0.199 |  | *p=*0.203 |  | *p=*0.429 |  | *p=*0.285 |  | *p=*0.215 |  | ***p*<0.001** |
|  No | 1 |  | 1 |  | 1 |  | 1 |  | 1 |  | 1 |  |
|  Yes | 3.44 | (0.52 - 22.70) | 2.31 | (0.64 - 8.39) | 1.47 | (0.56 - 3.86) | 1.61 | (0.67 - 3.85) | 1.91 | (0.69 - 5.29) | 7.84 | (3.65 - 16.87) |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| **STI at visit\*\*** |  | *p=*0.538 |  |  |  | *p=*0.246 |  | ***p=*0.038** |  | *p=*0.599 |  | *p=*0.799 |
|  No | 1 |  |  |  | 1 |  | 1 |  | 1 |  | 1 |  |
|  Yes | 0.49 | (0.05 - 4.83) | N.A. |  | 1.87 | (0.65 - 5.40) | 3.21 | (1.07 - 9.64) | 1.55 | (0.30 - 7.89) | 1.35 | (0.14 - 13.30) |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Sexual behaviour** |  |  |  |  |  |  |  |  |  |  |  |  |
| Sexual activity ever |  |  |  |  |  |  |  | ***p=*0.043** |  | *p=*0.377 |  | ***p=*0.021** |
|  Never had sex  | N.A. |  | N.A. |  | N.A. |  | 1 |  | 1 |  | 1 |  |
|  Sex with a man (+/- woman) |  |  |  |  |  |  | 3.67 | (1.04 - 12.91) | 1.46 | (0.63 - 3.38) | 14.45 | (1.49 - 139.79) |
|  Sex with a woman only |  |  |  |  |  |  | N.A. |  | N.A. |  | N.A. |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| Currently in a steady relationship | *p=*0.492 |  | *p=*0.296 |  | *p=*0.351 |  | *p=*0.114 |  | *p=*0.160 |  | ***p=*0.042** |
|  No | 1 |  | 1 |  | 1 |  | 1 |  | 1 |  | 1 |  |
|  Yes | 0.82 | (0.47 - 1.44) | 0.56 | (0.19 - 1.66) | 0.71 | (0.34 - 1.46) | 1.98 | (0.85 - 4.62) | 0.57 | (0.26 - 1.25) | 0.43 | (0.19 - 0.97) |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| ***Among participants reporting to ever have had sex with a man(n=476)*** |  |  |  |  |  |  |  |  |
| Age at sexual debut (years) |  | *p=*0.393 |  | *p=*0.409 |  | *p=*0.393 |  | *p=*0.513 |  | *p=*0.931 |  | *p=*0.217 |
|  ≤16 | 1 |  | 1 |  | 1 |  | 1 |  | 1 |  | 1 |  |
|  17-18 | 0.61 | (0.31 - 1.20) | 0.96 | (0.29 - 3.18) | 1.59 | (0.76 - 3.32) | 0.67 | (0.24 - 1.87) | 0.75 | (0.19 - 2.92) | 0.72 | (0.20 - 2.64) |
|  19-20 | 0.62 | (0.20 - 1.98) | 0.39 | (0.07 - 2.24) | 0.59 | (0.17 - 2.03) | 0.58 | (0.11 - 3.04) | 0.86 | (0.22 - 3.30) | 0.48 | (0.13 - 1.79) |
|  ≥21 | 0.57 | (0.19 - 1.68) | 0.17 | (0.01 - 2.43) | 1.03 | (0.17 - 6.46) | 0.29 | (0.06 - 1.55) | 0.69 | (0.22 - 2.18) | 0.32 | (0.09 - 1.12) |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| Lifetime number of male sex partners | ***p=*0.006** |  | ***p=*0.005** |  | *p=*0.903 |  | *p=*0.145 |  | ***p=*0.001** |  | ***p=*0.002** |
|  1 | N.A. |  | 0.20 | (0.03 - 1.10) | 1 | (0.25 - 3.95) | 0.48 | (0.09 - 2.50) | 0.17 | (0.07 - 0.40) | 0.22 | (0.09 - 0.54) |
|  2-5 | 1 |  | 1 |  | 1 |  | 1 |  | 1 |  | 1 |  |
|  6-10 | 2.12 | (1.00 - 4.48) | 3.54 | (1.30 - 9.68) | 1.05 | (0.48 - 2.30) | 2.13 | (0.69 - 6.59) | 0.75 | (0.21 - 2.69) | 1.15 | (0.44 - 2.98) |
|  ≥11 | 3.07 | (1.54 - 6.14) | 1.59 | (0.27 - 9.42) | 0.69 | (0.24 - 2.01) | 3.1 | (0.79 - 12.18) | 0.31 | (0.04 - 2.33) | 1.04 | (0.09 - 11.64) |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| Sexual activity in the preceding six months | ***p=*0.004** |  | ***p=*0.002** |  | *p=*0.089 |  | *p=*0.226 |  | *p=*0.619 |  | ***p=*0.001** |
|  No sex past six months | 1 |  | 1 |  | 1 |  | 1 |  | 1 |  | 1 |  |
|  With steady partner only | 3.63 | (1.11 - 11.85) | 1.12 | (0.28 - 4.48) | 2.59 | (0.44 - 15.15) | 1.03 | (0.29 - 3.64) | 1.76 | (0.54 - 5.72) | 0.67 | (0.23 - 1.98) |
|  With casual partner(s)  | 6.78 | (2.02 - 22.80) | 7.92 | (1.65 - 38.03) | 4.98 | (0.82 - 30.31) | 3.19 | (0.62 - 16.46) | 2.13 | (0.19 - 23.99) | 3.26 | (1.07 - 9.99) |
|  (+/-steady partner(s)) |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| Condom use in the preceding six months | ***p*=0.0248** |  | *p*=0.797 |  | *p*=0.221 |  | *p*=0.731 |  | *p*=0.142 |  | *p*=0.586 |
|  No sex past six months | 1 |  | 1 |  | 1 |  | 1 |  | 1 |  | 1 |  |
|  Never/mostly not/sometimes | 4.11 | (1.26 - 13.43) | 1.71 | (0.34 - 8.49) | 2.77 | (0.48- 16.12) | 1.33 | (0.39 - 4.54) | 1.38 | (0.42 - 4.52) | 1.26 | (0.43 - 3.66) |
|  Mostly/always | 5.63 | (1.62 - 19.55) | 1.37 | (0.16-11.58) | 4.20 | (0.70- 25.37) | 0.85 | (0.18 - 3.92) | 3.11 | (0.86 - 11.28) | 0.68 | (0.15 - 2.98) |
|   |   |   |   |   |   |   |   |   |   |   |   |   |
| **Abbreviations:** HELIUS, Healthy Life in Urban Setting; HPV, human papillomavirus; STI, sexually transmitted infection; N.A.=not applicable; ; OR, Odds Ratio; 95% CI, 95% Confidence Interval |
| *p*-values are based on Wald test; *p*-values <0.05 are considered statistically significant and are presented in the row of the variable name and in the 95% CI column |
| \* Columns showing bivariable odds ratios are based on Generalized Estimating Equations: in other words each participant has 12 records, one for every high risk HPV type, making it possible to correct for being positive for more than one HPV type at the same time |
|
| \*\* Chlamydia, gonorrhoea, or trichomoniasis (nobody tested positive for gonorrhoea) |  |  |  |  |  |  |