Factors associated with HIV seroconversion in young women in South Africa

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BACKGROUND

- Adolescent girls and young women (AGYW) in sub-Saharan Africa bear a disproportionate burden of HIV.
- Targeted HIV prevention interventions are needed to reduce the burden of infection in AGYW in this region.
- The study determined whether certain demographic, behavioral and biological factors place AGYW at higher risk of acquiring HIV.
- Findings could provide guidance for designing customized HIV prevention strategies (such as the roll-out of PrEP) for this high-risk sub-group.

HIV Incidence rate: **3.92 (95% CI: 3.27-4.69)** per 100 py

Factors protective against HIV acquisition:
+ Family support
+ High-school completion

Factors increasing risk of HIV acquisition:
- Inconsistent condom use
- Prevalent STI

- **Factors associated with HIV seroconversion**
- ***Underlying socio-demographic factors***
  - 15-19 years = no family (emotional and financial) support (adjusted HR(aHR) = 3.19, p<0.01)
  - 20-24 years = failure to complete high school (aHR=1.78, p=0.04)
- ***Behavioral factors***
  - 15-19 years = # lifetime partners (aHR=1.14, p=0.05)
  - 20-24 years = inconsistent condom use (aHR=12.56, p=0.01)
  - Although protective, rates of consistent condom use were <15%
- ***Biological***
  - 15-19 years = has an STI at enrolment (aHR=2.52, p=0.03)
  - About 50% of women had at least one STI (Syphilis, *Chlamydia trachomatis, Neisseria gonorrhea, Mycoplasma genitalium, Trichomonas vaginalis* or HSV-2) at enrolment

METHODS

- **Study design:** Population-based cohort study that formed part of the HIV Provincial Surveillance System (HIPSS)
- **Study setting:**
  uMgungundlovu district
  KwaZulu-Natal
  South Africa
  2014 - 2017

- **Study procedures:**
  - Enrolled 2,710 HIV negative women (15-24 years old)
  - Follow up - approximately 18 months after enrolment
- **Study Measurements**
  - Staff administered questionnaire
  - Peripheral blood sample (HIV, pregnancy and other STIs)
- **Study analysis**
  - Inter-relationships between demographic, behavioral and biological variables was studied and their association with HIV incidence was examined using a proximate determinants framework and modelled using Cox proportional hazards models.

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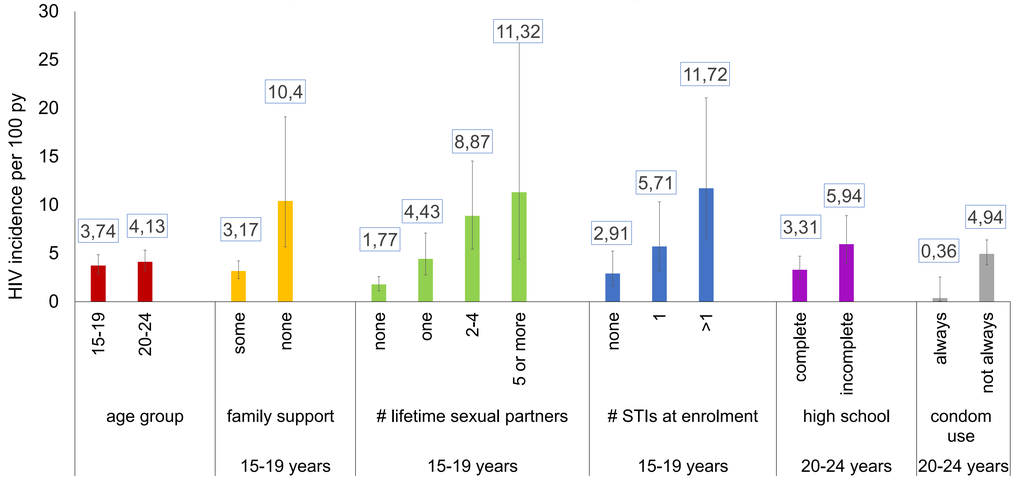
RESULTS

- **HIV incidence rate**
  - **163 HIV seroconversions over 4016 person-years (py)**
    - Overall = **3.92** (95% confidence interval (CI): 3.27-4.69) per 100 py
    - Women 15-19 years = **3.74** (95% CI: 2.87-4.86)) per 100 py
    - Women 20-24 years = **4.13** (95% CI: 3.20-5.33) per 100 py
    - Orphans (<18 years old) = **9.23** (95% CI: 3.86-22.17) per 100 py

Figure 1: Incidence rates among young women in KwaZulu-Natal, South Africa, by demographic, behavioural and biological factors



CONCLUSIONS

- Findings suggest that structural factors, namely lack of family support and/or education, contribute to the high HIV incidence rates observed in young women in this population.
- While the data also suggests that programs supporting women's sexual health and condom use remain effective ways to reduce risk, STI rates in this population were found to be high and condom use low.

ADDITIONAL KEY INFORMATION

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