



# Cervical cytological abnormalities in women living with human immunodeficiency virus in Jamaica



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## Introduction

Cervical cancer is the second leading cause of female cancer and cancer-related deaths in Jamaica with about 486 cases diagnosed annually, a crude age-standardized rate of 15.7/100,000 per year (1). Women living with HIV (WLHIV) are at increased risk of persistent HPV infection, precancerous lesions and are 5 to 6 times more likely to develop cervical cancer (2).

This study was performed to determine the prevalence of pap smear abnormalities and associated risk factors among WLHIV attending the Centre for HIV/AIDS Research, Education & Services (CHARES) in Kingston Jamaica with the intention to treat, educate, and bring awareness to the value of screening.

## Research Questions

Is there an increased risk of cytological abnormalities in women living with HIV ?

What are the risk factors for cytological abnormalities in women living with HIV?

## Methods

This was a convenience sample of WLHIV & accessing HIV/AIDS services

### Data Collection

- Self-administered structured questionnaire
- Conventional pap smear taken

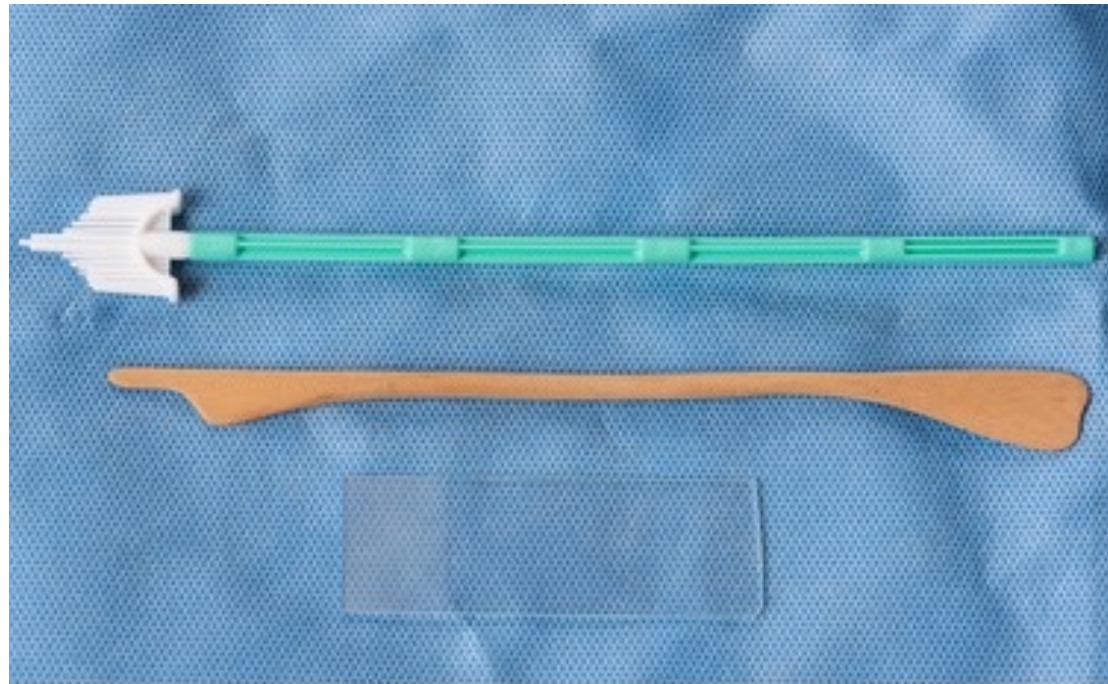
### Chart Review

- Demographics, Latest CD4 count, Latest viral Load
- Level of drug compliance

### Data Analysis

- Univariate analyses using means, medians, or frequencies
- Bivariate analyses using the student t-test for differences in CD4 counts and viral loads
- Chi-square tests were used for associations
- Multivariate analysis was done to evaluate for risk factors.

A p-value of < 0.05 was considered statistically significant.



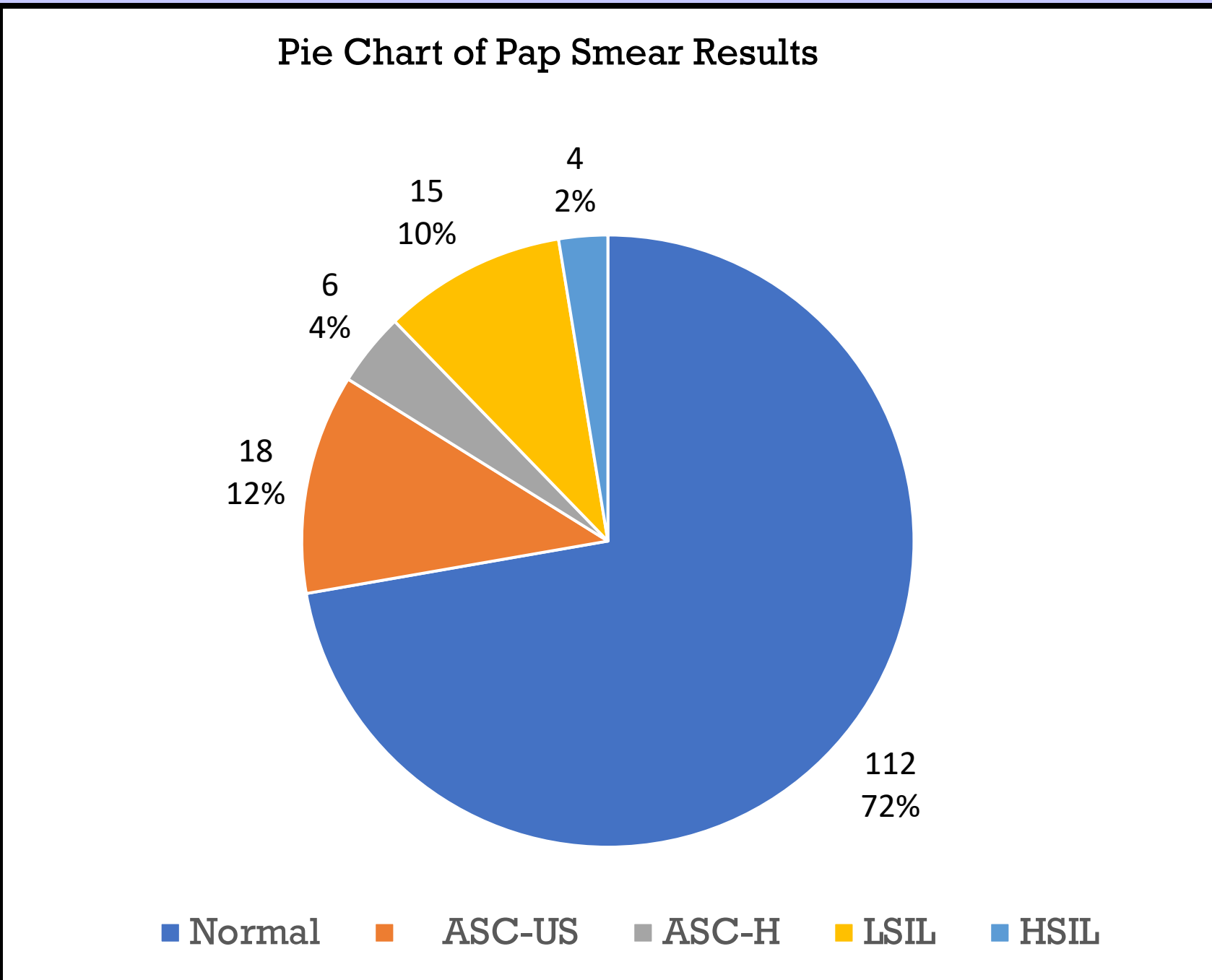
## Results

Participants = 155 women. The prevalence of abnormal cytology was 27.7 %, of which 11.6 % had ASCUS (18/155), 9.7% had LSIL (15/155), 3.9% had ASC-H (6/155) and 2.6% had HSIL (4/155). CD4 count, viral load, and level of compliance were found to be significantly associated with cytological abnormalities.

| Table 1: Demographics of Participants             |                         |
|---------------------------------------------------|-------------------------|
| Characteristics (n= 155)                          | Frequency, n(%) / range |
| Age (years) Median /range                         | 44.5/ 19-70             |
| Marital status (n, %)                             |                         |
| Single                                            | 64(41.3)                |
| Married                                           | 20 (12.9)               |
| Widowed                                           | 10 (6.5)                |
| Divorced                                          | 5 (3.2)                 |
| In a relationship                                 | 56 (36.1)               |
| Education level (n, %)                            |                         |
| Primary                                           | 19 (12.3)               |
| Secondary                                         | 103 (66.5)              |
| Tertiary                                          | 33 (21.3)               |
| Parity (n, %)                                     |                         |
| Parity <3                                         | 58 (37.4)               |
| Parity >3                                         | 76 (49.0)               |
| HAART Compliance (n, %)                           |                         |
| >95%                                              | 124 (80.0)              |
| <95%                                              | 31(20.0)                |
| Median CD 4+ count (cells/mm <sup>3</sup> )/range | 553 (16 - 1630)         |
| Mean viral load (copies/ml)                       | 7360                    |
| Viral load detectable                             | 91 (58.7)               |
| Viral load undetectable                           | 64 (41.3)               |

| Table 2: High-Risk practices of participants |                  |
|----------------------------------------------|------------------|
| Characteristic (n=155)                       | Frequency (n, %) |
| Smoking                                      | 27 (17.4)        |
| Coitarche                                    |                  |
| < 16 years                                   | 67 (43.2)        |
| 16 - 18 years                                | 72 (46.5)        |
| 19 - 20 years                                | 12 (7.7)         |
| ≥ 21                                         | 4 (2.6)          |
| Sexual partners                              |                  |
| Lifetime partners                            |                  |
| 1 - 2 Partners                               | 16 (10.3)        |
| 3 - 4 Partners                               | 50 (32.3)        |
| 5 - 6 Partners                               | 30 (19.4)        |
| > 6 Partners                                 | 59 (38.1)        |
| Partners in the past year                    |                  |
| None                                         | 44 (28.4)        |
| 1 partner                                    | 85 (54.8)        |
| 2 partners                                   | 20 (12.9)        |
| ≥ 3 partners                                 | 6 (3.9)          |
| Sexual practices                             |                  |
| Anal sex                                     | 2 (1.3)          |
| Oral sex                                     | 25 (16.1)        |
| Vaginal sex                                  | 155 (100.0)      |
| Have sex with men                            | 153 (98.7)       |
| Have sex with women                          | 6 (3.9)          |
| Sex with men and women                       | 5 (3.2)          |
| STI                                          |                  |
| History of STI                               | 46 (29.7)        |
| Chlamydia                                    | 14 (9.0)         |
| Gonorrhea                                    | 24 (15.5)        |
| Herpes                                       | 7 (4.5)          |
| Genital Warts                                | 12 (7.7)         |
| Other                                        | 9 (5.8)          |

| Table 3: Correlation between characteristics and Pap Report |            |            |          |
|-------------------------------------------------------------|------------|------------|----------|
|                                                             | Pap        | Smear      | Report   |
| Characteristic                                              | Normal     | Abnormal   | p value  |
| CD4                                                         |            |            | < 0.005* |
| >500 ( n = 87)                                              | 65 (86.2)  | 2 (13.8)   |          |
| ≤500 ( n = 68)                                              | 20 (54.4)  | 14(45.6)   |          |
| Viral load                                                  |            |            | < 0.005* |
| undetectable (n=91)                                         | 60 (81.3)  | 3 (18.7)   |          |
| elevated. (n=64)                                            | 23 (59.4)  | 11 (40.6)  |          |
| Education level                                             |            |            | 0.19     |
| Primary (n = 19)                                            | 13 ( 68.4) | 6 (31.6)   |          |
| Secondary. (n = 103)                                        | 71 (68.9)  | 32 (31.1)  |          |
| Tertiary ( n = 33)                                          | 28 (84.8)  | 5 ( 15.2)  |          |
| STI                                                         |            |            | 0.627    |
| Positive ( n=46)                                            | 32 (69.6)  | 14 (30.4)  |          |
| Negative (n =109)                                           | 80 ( 73.4) | 29 (26.6)  |          |
| Contraceptive                                               |            |            | 0.665    |
| Condoms ( n = 50)                                           | 35 ( 70.0) | 15 9 30.0) |          |
| COCps ( n = 10)                                             | 7 9 70.0)  | 3 ( 30.0)  |          |
| IUCD. ( n = 1)                                              | 0 ( 0.0)   | 1 ( 100.0) |          |
| DMPA (n = 7)                                                | 4 ( 57.1)  | 3 ( 42.9)  |          |
| Smoking                                                     | 17 (63.0)  | 10(37.0)   | 0.235    |
| Adherence                                                   |            |            | 0.023*   |
| ≥ 95 % adherence to treatment                               | 95( 76.6)  | 29 ( 23.4) |          |
| <95 adherence to treatment                                  | 17( 54.8)  | 14 ( 45.2) |          |



## Discussion

In WLHIV, high viral loads and low CD4 counts were significantly correlated with abnormal cervical cytology.

Our 27.7% prevalence of abnormal cytology was lower than that of the only other similar study in the Caribbean region by Dames et al. of 44% of WLHIV from the Bahamas with lower CD4 counts (3) ( 553 versus 260 cells/mm3 ).

HAART significantly reduced the burden of HPV infection and squamous intraepithelial lesions (4). This is due to immunological recovery with improvement in CD4 counts resulting in enhanced oncogenic HPV clearance with regression of premalignant cervical lesions (5).

This study emphasises the need to encourage adherence with antiretroviral therapy.

One limitation of our study is that participants were attending a specialized centre, and most were on HAART therapy, therefore results may not be generalizable to all WLHIV in Jamaica

## Conclusion

The prevalence of cervical cytological abnormalities in WLHIV is higher than in the general population and correlates with the degree of immunosuppression and severity of the disease. Policy changes are needed to integrate gynaecological care (including human papillomavirus vaccination) with primary HIV care and education of physicians and patients on the importance of screening this cohort is of paramount importance.

## References

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