# Prior Pregnancy Affects Aging-Related Non-AIDS Comorbidity Burden in U.S. Women With and Without HIV

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## BACKGROUND

- Women versus men with HIV have a higher burden of aging-related multimorbidity, which may be related to reproductive transitions including pregnancy history
- We evaluated the association of pregnancy history on prevalent comorbidity burden in women with and without HIV in age groups across the adult lifespan

## METHODS

- We evaluated longitudinal data collected from women with and without HIV (WWH; WWoH) enrolled in the **Women's Interagency HIV Study (WIHS)**
- Inclusion criteria: in follow-up on/after 2009 (when >80% of WWH consistently used antiretroviral therapy)

**Exposures**
- HIV serostatus
- Maternal age (<40, 40-49, 50-59, ≥60)
- Number of prior live births (**parity**)

**Outcome**
- **Non-AIDS comorbidity (NACM) burden** = number of NACM per participant out of 10 assessed:
  - Hypertension, dyslipidemia, diabetes, cardiovascular, kidney, liver, lung, bone disease, non-AIDS cancer, psychiatric illness

- NACM were defined using a combination of laboratory data, clinical measurements, and/or self-reported diagnosis or medication use
- Maternal age, parity, and NACM burden were ascertained at end of observation (latest 03/2020)
- Two-sample t-test compared NACM burden by HIV serostatus; and, linear regression evaluated the association of parity with NACM burden
- Within each age group, separate linear regression models assessed for synergistic effects of HIV and parity on NACM burden, adjusting for race/ethnicity, body mass index (BMI), and smoking

**COHORT DESCRIPTION:** **Table 1** shows characteristics and most prevalent NACM of 3,234 women included.

Among women with and without HIV (>80% reporting ≥1 prior live birth), greater parity was significantly associated with **comorbidity burden**, and HIV modified this effect in some age groups.

## RESULTS

**Table 1**. Characteristics and NACM prevalence

| *Characteristic, % or median (Q1-Q3)* | **WIHS participants (N=3,234)** |
|---|---|
| Living with HIV | 71% |
| Age, *years* | 51 (44-57) |
| Black race | 65% |
| BMI, *kg/m²* | 30.2 (25.5-36.2) |
| Ever smoked cigarettes | 68% |
| *Most prevalent NACM* | |
| Hypertension | 69% |
| Psychiatric illness | 55% |
| Dyslipidemia | 42% |

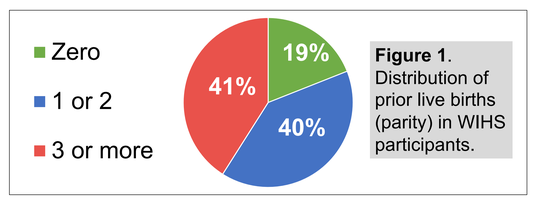



**Figure 1**. Distribution of prior live births (parity) in WIHS participants.

- Parity at end of observation (**Figure 1**) did not significantly differ by HIV status ($p$=0.13).

Median NACM burden was 4.0 vs 3.0 among WWH vs WWoH ($p$<0.001).

- The estimated median NACM burden among women with 0, 1-2, ≥3 prior live births was 3.0, 3.0, and 4.0, respectively.
- In unadjusted analysis, parity was significantly associated with NACM burden ($p$ *for trend*=0.02), regardless of HIV serostatus.
  - Estimated mean (±SE) NACM burden among women with zero, 1-2, ≥3 live births was 3.64 (±0.11), 3.86 (±0.07), 3.93 (±0.07) ($p$-trend 0.03) in WWH and 3.16 (±0.16), 3.09 (±0.12), 3.35 (±0.11) in WWoH ($p$-trend=0.35).
- In adjusted models, HIV modified the effect of parity (HIV*parity interaction) on NACM burden in certain age groups (**Figure 2**):
  - <40yrs ($p$=0.29)
  - 40-49yrs ($p$=0.02)
  - 50-59yrs ($p$=0.39)
  - ≥60yrs ($p$=0.93)

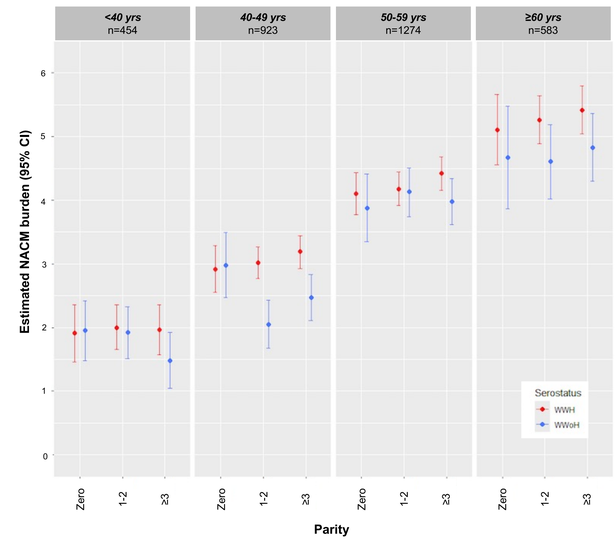



**Figure 2.** Estimated mean NACM burden (95% CI) in WWH and WWoH stratified by parity shown within each age group. Model adjusted for parity, HIV, parity*HIV interaction, race/ethnicity, BMI, ever smoking.

## CONCLUSIONS

- In a large cohort of U.S. women with and without HIV, who had a high burden of aging-related comorbidities and >80% reporting ≥1 prior live birth, greater parity was associated with NACM burden.
- This effect was significantly modified by HIV among women aged 40-49 years, with some evidence of modification by HIV as women age.
- Our findings suggest parity may be a risk factor for aging-related multimorbidity and highlight the need for novel comorbidity screening and prevention in HIV using across-the-lifespan approaches tailored by sex/gender.

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