**Examining the Association Between A Modified Quan-Charlson Comorbidity Index (QCCI) and Viral Suppression: A Cross-Sectional Analysis of DC Cohort Participants**

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**PWH living in Washington, DC (as of December 2020)**

- N = 12,161
- Over 50% of PWH aged 50 years or over (53.2%)
- 78% of PWH identify as Black/African American and/or Hispanic/Latino
- People with HIV (PWH) are living longer with the advancement of effective antiretroviral therapy (ART)
- High prevalence of non-AIDS comorbidities among PWH
- The presence of comorbidities worsen health outcomes, including achievement of viral suppression (VS).

**QUAN-CHARLSON COMORBIDITY INDEX (QCCI)**

- Validated measure used to estimate mortality risk based on diagnosis of selected comorbid diseases; adapted from the Charlson Comorbidity Index.

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**Table 1. Participant Characteristics (n=2471)**

<table>
<thead>
<tr>
<th>Total Sample</th>
<th>N (%)</th>
<th>Total Viral Load Suppressed N (%)</th>
<th>Viral Load Unsuppressed N (%)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2471</td>
<td></td>
<td>2215 (89.6)</td>
<td>256 (10.4)</td>
<td>0.0002</td>
</tr>
</tbody>
</table>

**QCCI Score**

- **Sex**
  - Male: 1825 (73.9)
  - Female: 646 (26.1)

- **Age**
  - 18 – 54: 1468 (59.3)
  - 55+: 1003 (40.7)

- **Race/Ethnicity**
  - Hispanic: 229 (9.3)
  - NH - Black: 1846 (74.7)
  - NH - White: 106 (4.3)

- **Insurance Status**
  - Private: 843 (34.1)
  - Public: 1590 (61.1)
  - Other: 29 (1.2)

- **Clinical Setting**
  - Hospital: 1730 (70.0)
  - Community: 741 (30.0)

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**Table 2. Unadjusted and Adjusted Odds Ratios for factors associated with being virally suppressed (N = 2471)**

**QCCI Score**

- **OR (95% CI)**
  - Male (Viral Status suppressed): 1.07 (0.98, 1.16)
  - Male (Viral Status unsuppressed): 1.12 (0.91, 1.38)

- **Race & Ethnicity (OR, 95% CI)**
  - Hispanic: 2.09 (1.20, 3.56), **2.20 (1.20, 3.91)**
  - NH - White: 3.41 (1.86, 6.34), **2.26 (1.26, 4.05)**
  - NH - Other: 1.30 (0.67, 2.54), 1.17 (0.59, 2.29)

- **HIV Risk Factor (OR, 95% CI)**
  - Heterosexual: 0.53 (0.39, 0.73), **0.69 (0.47, 1.01)**
  - IDU: 0.56 (0.38, 0.94), **0.37 (0.12, 1.09)**
  - Other/Unknown: 0.54 (0.38, 0.77), **0.40 (0.27, 0.61)**

**Insurance Status (OR, 95% CI)**

- Private: 2.09 (1.52, 2.88), **1.93 (1.39, 2.68)**
  - Public: 0.76 (0.42, 1.43)

**Clinical Setting (OR, 95% CI)**

- Hospital: 1.09 (0.86, 1.41)
  - Community: --

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**Summary**

- Patients were predominantly virally suppressed (89.6%), identified as male (73.9%), NH Black (74.7%), and aged 18-55 y/o (59.3%) and receiving care in a community-based clinical setting (70%). The median QCCI score was 1 (Range = 1-12, IQR=2).
- The two groups (suppressed vs. unsuppressed) differed significantly with respect to sex, age, race/ethnicity, HIV risk of transmission and insurance status (p < 0.05).
- As QCCI score increases, the proportion of unsuppressed patients decreases.
- The association between QCCI score and VS was not statistically significant (aOR=1.06, 95% CI 0.96 – 1.17).
- Age, race/ethnicity, HIV risk factor and insurance status were all significantly associated with VS.
- Race/ethnicity was not found to be an effect modifier on the relationship between QCCI score and VS (p > 0.05).

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**Conclusions**

- Although there was not a significant association between QCCI score and VS, our findings suggest that PWH can maintain VS despite complexity of having one or more comorbidities.
- The presence of non-QCCI comorbidities within the Cohort suggest that other factors may have a larger influence on HIV-related health outcomes.
- Emphasis on the need for more inclusive research using comprehensive indices such as the QCCI to measure the burden of comorbidities and their impact on HIV-related health outcomes.

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