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# Effects of Micronutrients on the Status of HIV-infected African American Women

Veronica A. Graham, DrPH

## Problem

As of 2017 there are 48,126 of African American Women (AAW) who are infected with HIV each year who report weight loss within the first year of HIV and then progress to AIDS without the use of micronutrients. Without micronutrients the weight loss would be greater.

## Purpose

The purpose of this study was to understand how the consumption of micronutrients affects weight, the CD4 cell count, and the viral load of HIV-infected AAW through the use of a case study approach, and a quantitative retrospective research analysis via frequency, univariate and multilinear approach.

## Significance

Nutritional interventions are proven to increase a persons quality of life. Nutrition has been shown to improve the quality of life of HIV-infected individuals. Metabolic abnormalities are managed with the use of vitamins, minerals and other supplements.

The goal was to address the lack of use of micronutrients to add in weight gain and maintenance, increase CD4 cell counts and decrease in viral load. Appropriate supportive therapy could be provided to aid in better health and care for HIV-infected AAW.

## Social Change Implications

The information from this study will make a positive impact in physician offices and health departments. The impact can be seen through implementing micronutrients in the recommended HIV/AIDS treatments.

Another impact can be seen in the change in the trajectory on social settings and support groups for individuals who are HIV-infected, and change the interactions between physicians and patients who are HIV-infected.

## Theory or Framework

The **health belief model (HBM)** is the main framework of this study. The four major aspects of the HBM examined for this study were:

- Perceived seriousness
- Perceived susceptibility
- Perceived barrier
- Perceived benefits

Two important facts supply the foundation from this framework.

- HBM allows one to assume that the HIV-infected individual does not want to progress to AIDS and
- the HBM assumes an HIV-infected individual wants to take specific health actions to be healthier even though they are infected.

## Relevant Scholarship

The key literature reviewed described several different aspects of micronutrients, HIV and AAW. One key literature review described HIV and its process of infection. Another review described the appropriateness of micronutrients and the immune system. Another source described the literature/statistics on how AAW are disproportionately affected by HIV and the challenges of viral suppression. In short, the available literature enabled me to review the past and the present of HIV in respect to nutrition, malnutrition

## Research Questions

**RQ 1:** What is the correlation between the intake of micronutrients and the weight of an HIV-infected African American Woman?

**RQ 2:** What is the correlation between the intake of micronutrients and the CD4 count of an HIV-infected African American Woman?

**RQ 3:** What is the correlation between the intake of micronutrients and the viral load of an HIV-infected African American woman?

## Participants

The population from which the samples were drawn were HIV-infected AAW, age 18-60 years, via the NHANES survey and physical exam.

The sample size was 1,115 in five regions over 15 counties.

The participants were chosen two years in advance to make them aware of the process, HIPPA and any changes to the date and time of the survey.

## Procedures

There are three parts to the data collection to ensure integrity.

- Participants were contacted via mail with an explanation of the survey process
- Six months prior to the survey the participants were notified of the location of the mobile for the physical portion of the survey.
- Interview protocols are handled via landline.

## Analysis

The data analysis steps included:

- Data were striped and condensed to only those that were HIV-infected AAW, because the original data consist of women of all origins in the counties observed.
- A linear analysis was used with variables such as weight, CD4 and viral load.
- The same variables were used for a multilinear progression analysis.
- The analysis of the data from NHANES consisted of various components of fast food, supplements and consumptions of diary and staple foods. I stripped the variables that were not appropriate for this study.

## Findings

The results indicated there was a direct correlation among all individuals who consumed micronutrients but not enough relevance that would amount to funding for future research due to the sample size. Therefore, further research to increase the sample size by expanding to multiple regions is needed.

## Interpretation

Although there was significant weight loss among participants, they would be able to maintain their weight via a micronutrient regimen in addition to their HIV regimen.

Perceived seriousness/susceptibility determined rather a participants engaged in the use of micronutrients.

Lastly, the results reviewed that the perceived barriers and benefits of the use of micronutrients causes a participant to be more engaged with her treatments.

## Limitations

Possible limitations include:

- The sample size.
- Separating the data into subpopulations.

## Recommendations

### Future Research

- Increase the span of the study to an entire region that includes data from multiple states instead of counties within one state.
- Perform and combine both quantitative and qualitative data.
- Include provider-patient education.
- Practitioners and Physicians alike to consider nutritional counseling for all HIV/AIDS patients to include micronutrients into their antiretroviral regimen.

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