

# SOCIOECONOMIC AND ENVIRONMENTAL FACTORS ASSOCIATED WITH CLINICAL MANIFESTATIONS, ACTIVITY, AND CHRONICITY OF SYSTEMIC LUPUS ERYTHEMATOSUS: A MULTILEVEL STUDY OF THE GLADEL COHORT

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## INTRODUCTION

Socioeconomic status and environmental factors are recognized as key determinants of lupus severity. Despite our knowledge of poverty and the socioeconomic status of lupus patients, few studies determine the effects of poverty at different levels—evaluating the context in terms of public policies (education, health, social outreach)<sup>2</sup> and comparing it with the patient's socioeconomic status. This study explores the association of activity, chronicity, and clinical manifestations of patients with systemic lupus erythematosus (SLE) with socioeconomic and environmental factors.

## RESULTS

We included from the GLADEL database 1,084 patients, of whom 971 (89.6%) were women, and the mean age at diagnosis was 29.1 SD= 11.5 years. Nine Latin American countries were included, the countries that contributed the most patients were Argentina with 311 cases (28.7%), Brazil with 185 cases (17.1%), and Mexico with 175 cases (16.1%), followed by Colombia (12.6%), Peru (6.8%), Paraguay (5.4%), Uruguay (4.4%), the Dominican Republic (2.7%), and Ecuador (1.9%). The predominant ethnic group was mixed (64.7%), the most common marital status was single (47.1%), and the most frequent socioeconomic category was middle class (35%). The first level characteristics for each patient showed 4 clusters (Figure 1, see footnote). Figure 2 shows the change over time of SLE chronicity. Figure 3 shows the correlation among the characteristics at the state/province level that we will include in the following analysis.

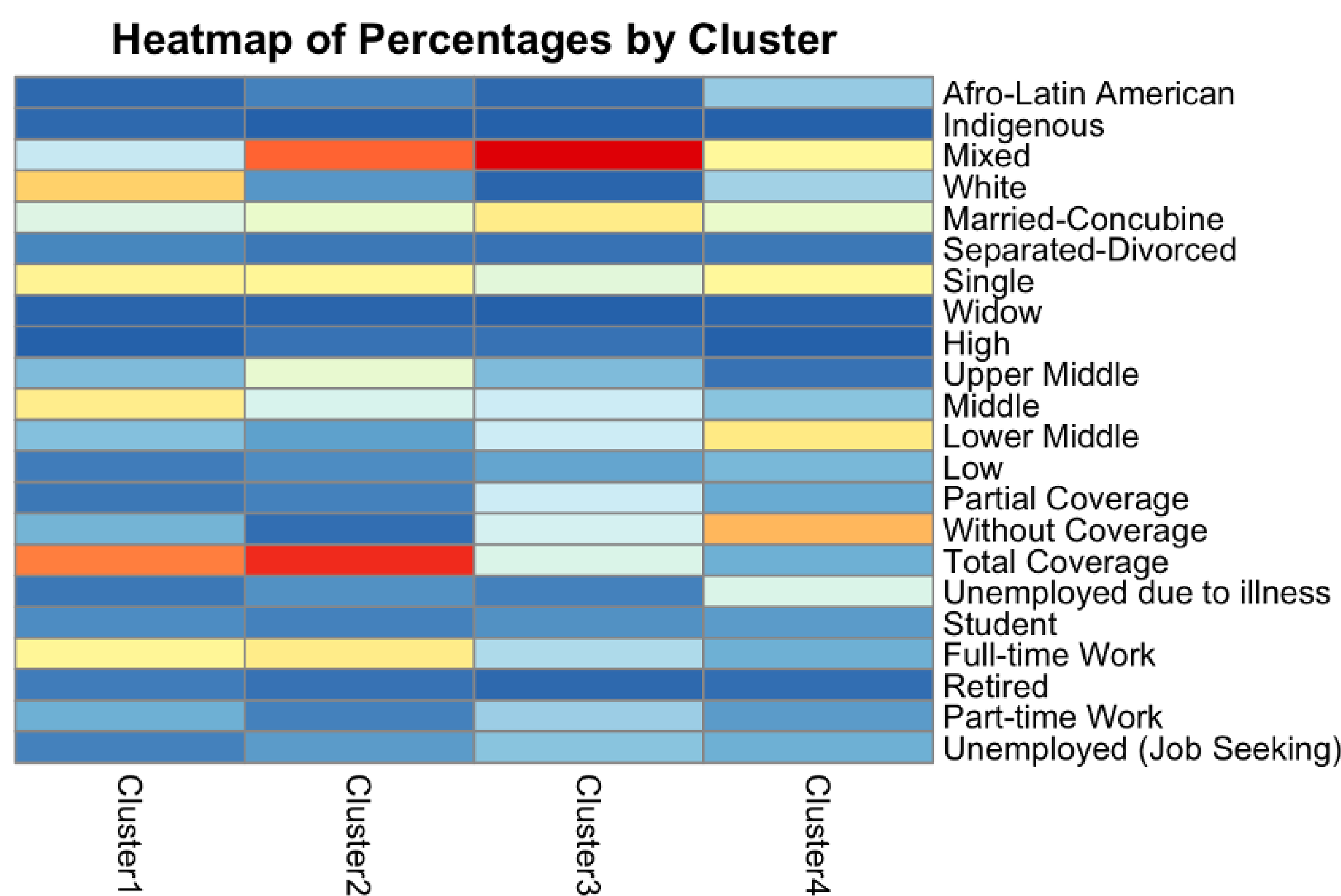
## METHODS

A multilevel ecological study included patients from the GLADEL 2.0 cohort. The first level examines the relationship between clinical manifestations, severity, and chronicity of SLE with each patient's socioeconomic status. Levels 2 and 3 analyze the socioeconomic conditions of the city and country where the treating hospital is located. Level 2 also incorporates environmental variables such as ultraviolet light exposure and pollution levels near the patient's city of care. Socioeconomic clusters were created at each level to evaluate their associations with clinical manifestations, disease activity, and chronicity. Cluster analyses were performed by the Ward method on a distance matrix using Gower's method. A p-value < 0.05 was considered significant.

## CONCLUSION

The analysis describes four clusters associated with different socioeconomic status. Age at diagnosis, ethnicity, socioeconomic status, and schooling are associated with chronicity in our cohort with SLE. Cluster four includes low socioeconomic characteristics, and it is associated with an increase in chronicity. The ongoing analysis of levels 2 and 3 will provide further insights at the state and national levels.

**Figure 1.**  
Heatmap of the different socioeconomic variables per cluster.



Heatmap show the most representative clusters with demographic and socioeconomic variables are described. Cluster four stands out with a predominance of Afro-Latin Americans, with no or limited health coverage and higher employment with different variables

**Figure 2.**  
Chronicity according to the visits in the GLADEL cohort.

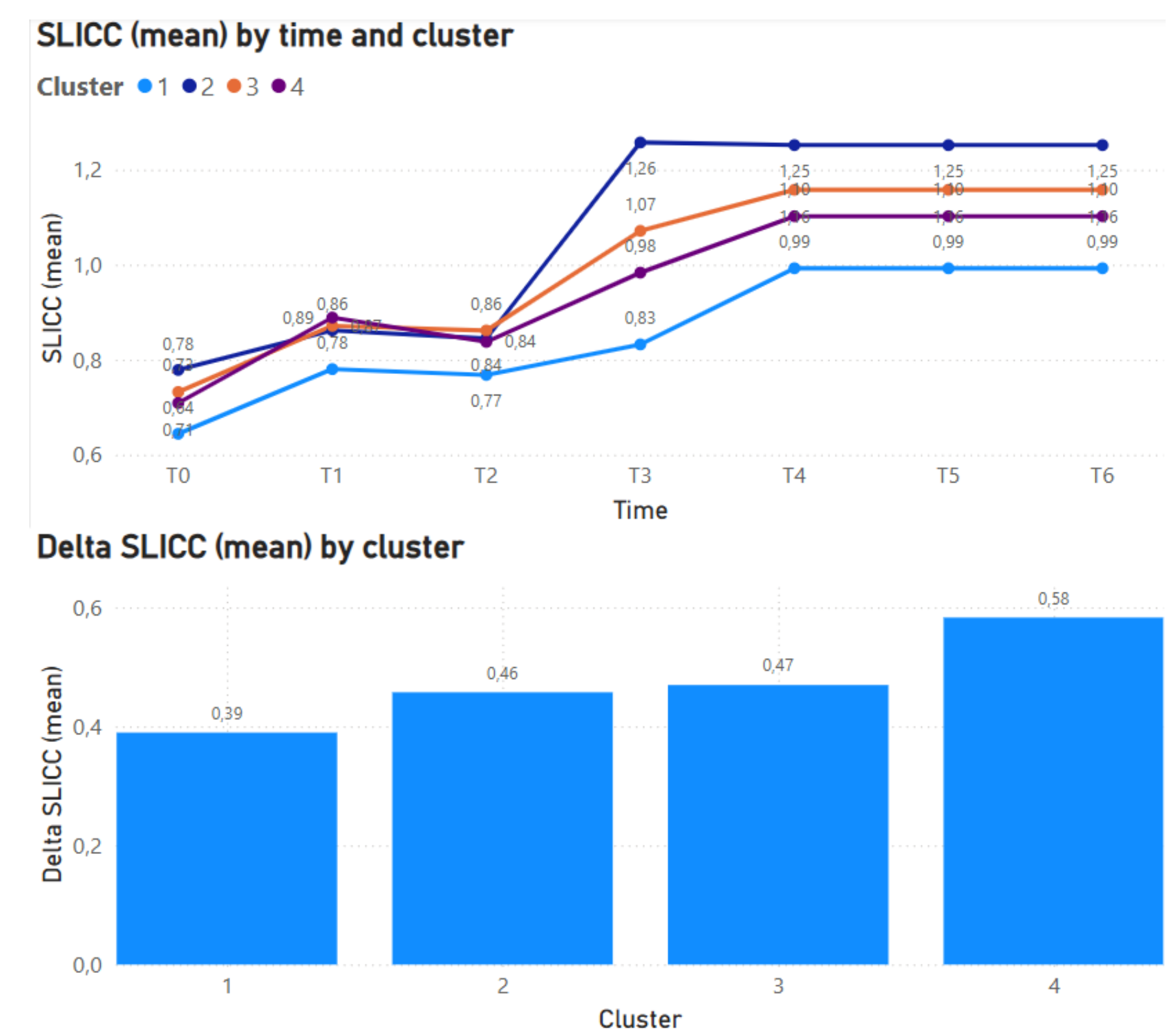


Figure 2 shows that cluster four had more increase in chronicity.

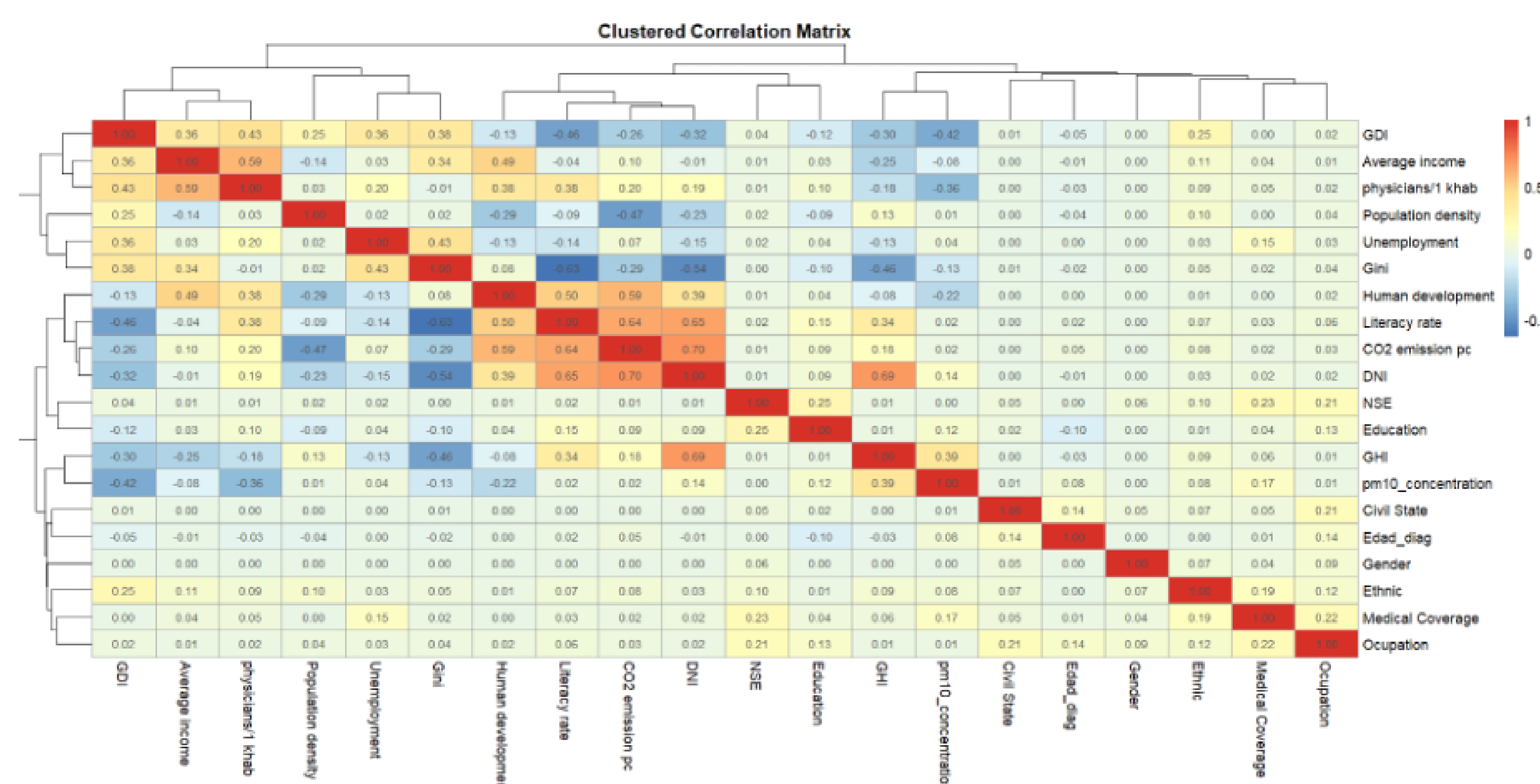


Figure 3 shows the correlation among the state/province-level socioeconomic characteristics. The number represents the positive (red) or negative (blue) correlation. To highlight the positive correlation between per capita monthly income and the number of doctors per km<sup>2</sup>.

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