

## Investigating Associations Between Genes Linked to Social Behavior and Early Covid-19 Spread Using Multivariate Linear Regression Analysis

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**Abstract :** Variation in global COVID-19 spread is partly explained by social and behavioral factors. Many of these behaviors are linked to genetics. The short polymorphism of the 5-HTTLPR promoter region of the SLC6A4 gene is linked to collectivism. The seven-repeat polymorphism of the DRD4 gene is linked to risk-taking, migration, sensation-seeking, and impulsivity. Fewer CAG repeats in the androgen receptor gene are linked to impulsivity. This study investigates an association between the country-level frequency of these variants and early Covid-19 spread. Results of regression analysis indicate a significant association between increased country-wide prevalence of the short allele of the SLC6A4 gene and decreased COVID-19 spread when other factors that have been linked to COVID-19 are controlled for. Additionally, results show that the short allele of the SLC6A4 gene is associated with COVID-19 spread through GDP and percent urbanization rather than collectivism. Results showed no significant association between the frequency of the DRD4 polymorphism nor the androgen receptor polymorphism with early COVID-19 spread.

**Keywords :** neuroscience, genetics, population sciences, Covid-19

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