

Background

In January 2020, the World Health Organization declared that coronavirus disease had become a pandemic. The first case in Saudi Arabia was reported on March 2, 2020. The Saudi Ministry of Health has authorized the use of anti-SARS-CoV-2 immunoglobulin (IgM/IgG) antibody testing, but serological test evaluations are still ongoing.

Methods

The primary aim of the cohort study was to determine whether living on a government institution campus, thus limiting public exposure, is protective against infection with SARS-CoV-2. In October 2020, a study population composed of 763 employees of the King Abdulaziz City for Science and Technology (KACST) in Saudi Arabia and their family members were asked about their age, nationality, residency status, chronic conditions, previous COVID-19 symptoms, exposure to infected individuals, and COVID-19 PCR test results. After informed consent was obtained, the VivaDiag™ COVID-19 IgM/IgG Rapid Test was administered. Statistical analysis was conducted with Pearson correlation and generalized linear regression models to determine the ability of several independent variables to predict IgG status.

Results

Of the 763 study individuals, 91.1% lived off campus, and 8.9% lived on campus. As expected, IgG positivity was strongly positively correlated with the loss of smell as a COVID-19 symptom ($r = 0.417052483$). On-campus residency was weakly correlated with IgG positivity (IgG+; $r = 0.187990064$) and IgM positivity (IgM+; $r = 0.242302626$), indicating that residing on campus actually increased the risk of contracting COVID-19.

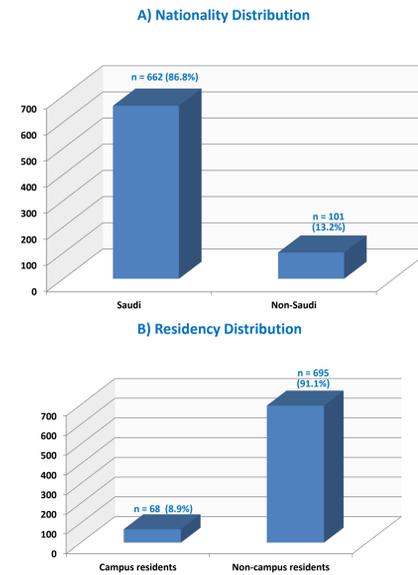


Fig.1.A) Distribution of nationality of origin. B) Campus residence distribution Campus residents were defined as King Abdul-Aziz City for Science and Technology (KACST) employees and/or their family members who lived exclusively on campus, including engaging in most daily activities (shopping, dining, etc.) on campus. Non-campus residents were defined as KACST employees who lived, shopped, and dined outside of the KACST campus. The family members of non-campus residents were excluded from the study.

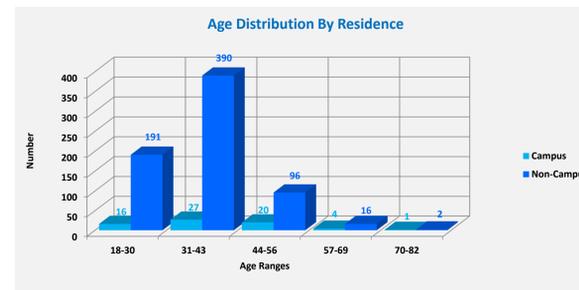


Fig.2 Comparison of age distributions between campus and non-campus residents.

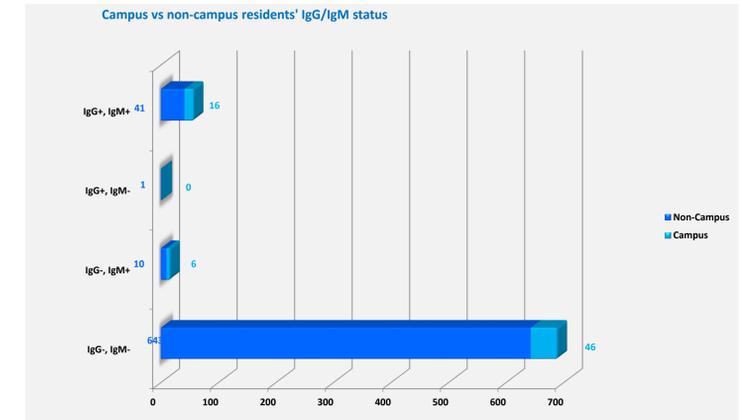


Fig.3 IgM/IgG prevalence in campus versus non-campus residents. Comparisons of distributions between campus and non-campus residents of positive or negative test results for IgG and IgM antibodies against SARS-CoV-2.

Conclusion

The analysis of 763 subjects indicated that while a difference in the prevalence of anti-SARS-CoV-2 IgG positivity was detectable between campus and non-campus residents, contrary to the hypothesis, living on campus was not protective against but rather increased the likelihood of being infected by the virus and thus being positive for IgG.

Acknowledgment

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