**Supplementary Table 2: Univariable and Multivariable analyses of the relationship between sociodemographic, health and vaccine-related variables and Omicron-BA.5 specific SARS-CoV-2 neutralization one month following a fourth COVID-19 vaccine dose**

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| --- | --- | --- | --- | --- | --- | --- |
| Variable | Log2 viral neutralization against Omicron BA.5a | | | | | |
| Univariable analysisb | | | Multivariable analysisd | | |
| Estimate | 95% CI | p-value | Estimate | 95% CI | p-value |
| Recent CD4+ T-cell count | 0.00008 | -0.002 to 0.002 | 0.93 | - | - | - |
| Nadir CD4+ T-cell count | 0.00002 | -0.002 to 0.002 | 0.98 | - | - | - |
| Age | -0.01 | -0.047 to 0.026 | 0.57 | - | - | - |
| Male sex | -0.20 | -1.52 to 1.12 | 0.76 | - | - | - |
| White ethnicity | 0.37 | -0.67 to 1.41 | 0.48 | - | - | - |
| Number of chronic conditions | 0.04 | -0.52 to 0.59 | 0.90 | - | - | - |
| Dual ChAdOx1 as initial regimen | 2.10 | 0.61 to 3.58 | **0.01** | 1.15 | -0.21 to 2.51 | 0.10 |
| Days between first and second vaccine doses | -0.03 | -0.073 to 0.021 | 0.27 | - | - | - |
| mRNA-1273 as third dose | 0.19 | -0.79 to 1.17 | 0.70 | - | - | - |
| Days between second and third vaccine doses | 0.01 | -0.008 to 0.019 | 0.41 | - | - | - |
| mRNA-1273 as fourth dose | 0.84 | -0.16 to 1.85 | **0.097** | 0.68 | -0.16 to 1.52 | 0.11 |
| Bivalent fourth dose | 0.61 | -0.31 to 1.53 | 0.19 | - | - | - |
| Days between third and fourth vaccine doses | 0.01 | 0.002 to 0.023 | **0.02** | 0.009 | 0.0001 to 0.017 | **0.047** |
| Prior SARS-CoV-2 infection (any)c | 1.89 | 1.01 to 2.78 | **<0.0001** | 1.63 | 0.78 to 2.48 | **0.0003** |
| Prior SARS-CoV-2 Omicron infectionc | 1.36 | 0.50 to 2.22 | 0.003 | - | - | - |

a Neutralization data (reciprocal plasma dilutions) were log2 transformed prior to multivariable analysis.

b All variables with p<0.1 in univariable analyses were included in the multivariable model.

c As these two "prior SARS-CoV-2" variables are collinear, only the one with the lowest p-value is included in the multivariable model

d We tested for multicollinearity between all other variables using Variance Inflation Factors (VIF). A VIF of 1 indicates that there is no correlation between a given independent variable and any others; VIFs between 1 and 5 suggest moderate correlation, while VIFs greater than 5 represent strong correlation. All VIFs in the present model were ≤ 1.1.

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