

ORIGINAL ARTICLE

The Relationship between Serological Testing, Demographics, Clinical Presentation and RT-PCR Testing for COVID-19

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SUMMARY

Background: Serological tests provide an important tool to diagnose previous exposure to the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Herein we describe the relationship between the demographics, clinical characteristics, and molecular investigations and the presence of coronavirus disease 2019 (COVID-19) antibodies.

Methods: Three hundred and four participants, living in Gauteng, South Africa, were screened for COVID-19 antibodies between September 12, and December 12, 2020. Indications for serological testing included previous infection (n = 45, 14.80%), World Health Organization (WHO) symptoms (n = 122, 40.13%), positive household contact (n = 40, 13.16%), and/or positive close non-household contact (n = 80, 26.32%).

Results: There were 58 (19.08%) positive rapid antibody tests. Risk factors associated with a positive rapid antibody test included WHO symptoms, namely fever/chills (odds ratio [OR] 3.50, 95% confidence interval [CI] 1.50 to 8.19), loss of taste or smell (OR 8.66, 95% CI 3.27 to 22.94), and the presence of a household contact (OR 3.66, 95% CI 1.59 to 8.40).

Conclusions: The findings support the measures implemented to reduce the spread of infection.

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Supplementary Tables and Figures

Table 1S. Univariate analysis of positive SARS-CoV-2 rapid antibody tests.

Variable	Univariate Logistic Regression		
	OR	95% CI	p-value
Previous RT - PCR test	4.18	2.26 to 7.74	< 0.001
Symptomatic	8.57	4.30 to 17.10	< 0.001
Unexplained body aches	2.25	1.18 to 4.31	0.014
Fever/chills	7.27	3.58 to 14.74	< 0.001
Cough	4.31	2.17 to 8.56	< 0.001
Shortness of breath	3.73	1.79 to 7.82	< 0.001
Loss of taste or smell	18.18	7.53 to 43.91	< 0.001
Fatigue or weakness	4.31	2.32 to 8.02	< 0.001
Household contact	5.48	2.69 to 11.16	< 0.001

Key: OR - odds ratio, CI - confidence interval.

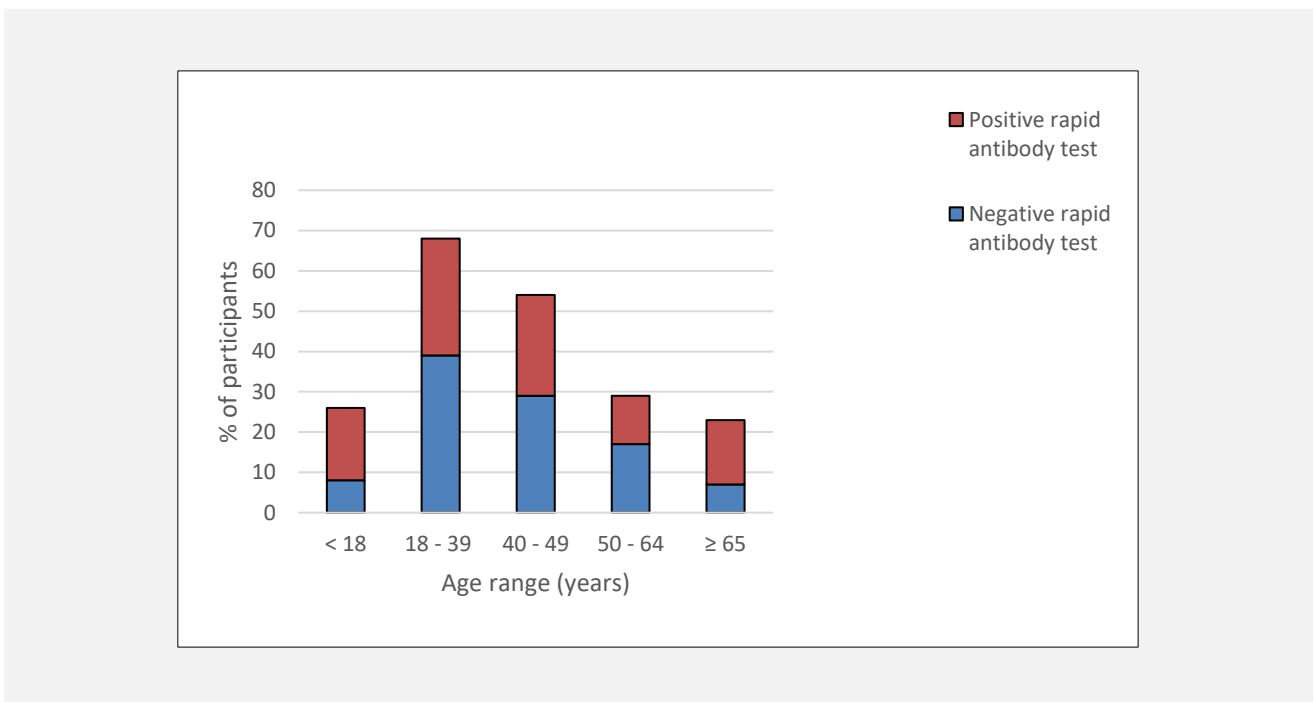


Figure 1S. Age distribution of participants.

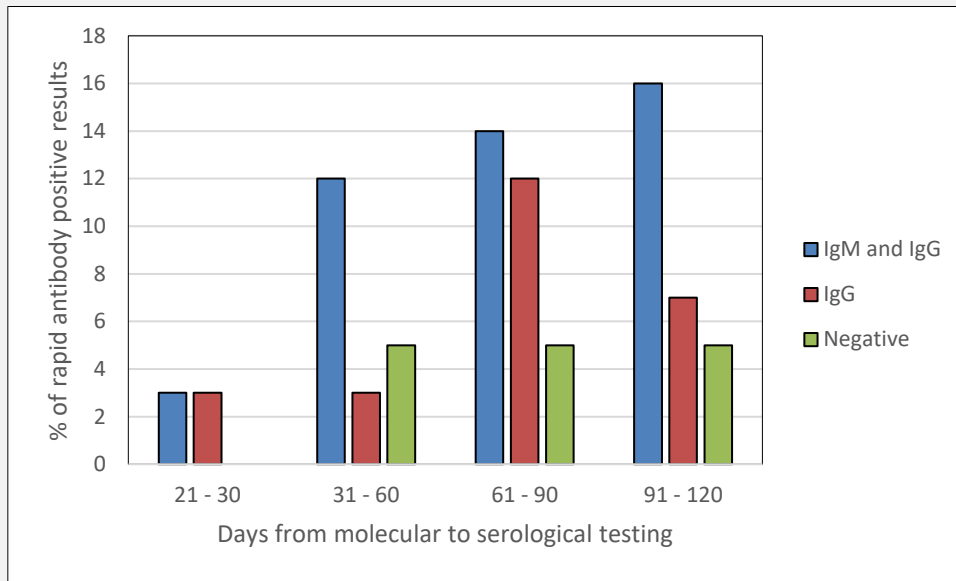


Figure 2S. IgM and IgG positive SARS-CoV-2 rapid antibody tests in participants with prior positive RT-PCR testing.