COVID-19 Prevalence

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Key data:
- n=1,544 (random sample for Austria)
- Test period: April 1–6, 2020

A detailed scientific study protocol will be published in April.
COVID-19 Prevalence

1 Objectives, client and consortium

The Austrian Ministry of Science launched this study to find out:

- How many people are infected with COVID-19 in Austria? (prevalence)

This is the first countrywide representative study on COVID-19 worldwide.

Commissioned by: Republic of Austria, represented by the Federal Ministry of Education, Science and Research (BMBWF).

Project consortium:

- SORA Institute for Social Research and Consulting (project lead, coordination, sample, data analysis), closely co-ordinated with:
  - Institut für statistische Analysen Jaksch & Partner GmbH (hotline, sample management, telephone interviews)
  - Medical University of Vienna (evaluation of PCR tests)
  - Complexity Science Hub Vienna CSH (statistical-medical expertise)

Directly commissioned by the BMBWF:

- Austrian Red Cross and its national associations (carrying out PCR tests throughout Austria)
2 Key results

Estimate of period prevalence
Prevalence is the occurrence of a disease in relation to an entire population. This study makes it possible to estimate the prevalence of acute infections with COVID-19 (“Corona Virus”) among non-hospitalized people living in Austria for the period early April 2020.

The proportion of positively tested in the weighted sample is 0.33%.
This proportion represents about 28,500 people among the population.

Confidence interval (95%)
If a sample survey draws a conclusion on a population, the confidence interval must always be observed. For this study, the generally accepted principle was applied that results should be within the stated interval with 95% certainty.

Applying the Clopper-Pearson interval method, we find that the prevalence of COVID-19 in Austrian households is 95% likely to be between 0.12 and 0.76%.

In absolute terms: In addition to the patients in hospitals, there were between 10,200 and 67,400 people acutely infected with COVID-19 in the period April 1-6.
3 Study design

The study was divided into three steps: notification, on-site testing and post-test telephone survey.

Notification (Mar 31 – Apr 3)

- Households selected as part of the random sample were informed in advance of the study by letter and/or by telephone. Willingness to participate was determined.

Testing (Apr 1–6 with focus on Apr 4 and 5)

- Employees of the Austrian Red Cross carried out PCR tests (cobas® SARS-CoV-2) in the included municipalities as well as in drive-in test centers in seven federal states. 35% of the sample went to a drive-in station.
- Testing was carried out using a cotton swab. The swabs were then analyzed at the Clinical Institute of Laboratory Medicine at the Medical University of Vienna.

Telephone survey (after Apr 6)

- After April 6, the tested persons are contacted again by telephone to collect further information, e.g. on their state of health.
- The results of the follow-up survey will be published in April, together with a detailed study protocol.

Information on data protection

The test has been organised in accordance with the GDPR, the regulations of the Austrian market research institutions VMÖ/VdMI and the WHO guidelines. The implementing institutions are at no point able to assign a test result to any particular household/test subject.

The laboratory of the Medical University Vienna notifies the relevant authorities whenever a person tests positive. These authorities then contact the person immediately.

The only stored data is anonymized and kept for statistical analysis or provided for purposes of scientific research.
4 Sampling

Population
The study population consists of all people living in Austria (excluding those currently in hospital). The youngest person in the sample was not yet one year old, the oldest 94 years.

Gross sample
Design: Random selection of 249 municipalities and Viennese districts in Austria stratified in advance according to federal state and municipal size. Random selection of households within the communities and random selection of household member in the household.

Address data: (A) Public telephone directories, supplemented by (B) RLD (random last digit) procedure

Acceptance and refusal to participate: Only households with a confirmed willingness to participate were contacted by the Red Cross for a PCR test. The total refusal rate (address data A + B) is 23%, i.e. 77% of those contacted agreed, a relatively high level of willingness.

A total of 2,197 households declared their willingness to participate, including 654 who were contacted using the RLD procedure.

Net sample
n=1,544

- For n = 1,541 persons, both a correct PCR test and a valid questionnaire are available.
- During recruiting, n = 3 people indicated that they had recently tested positive. These were not tested again but included in the sample as having tested positive. This allows the sample to be corrected for systematic error.
- The net sample used for the calculations therefore contains n = 1,544 cases.
Distribution of federal states in the sample

The unweighted distribution according to federal state is as follows:

<table>
<thead>
<tr>
<th>Federal State</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burgenland</td>
<td>71</td>
<td>4.6%</td>
</tr>
<tr>
<td>Carinthia</td>
<td>29</td>
<td>1.9%</td>
</tr>
<tr>
<td>Lower Austria</td>
<td>326</td>
<td>21.1%</td>
</tr>
<tr>
<td>Upper Austria</td>
<td>255</td>
<td>16.5%</td>
</tr>
<tr>
<td>Salzburg</td>
<td>88</td>
<td>5.7%</td>
</tr>
<tr>
<td>Styria</td>
<td>277</td>
<td>17.9%</td>
</tr>
<tr>
<td>Tirol</td>
<td>99</td>
<td>6.4%</td>
</tr>
<tr>
<td>Vorarlberg</td>
<td>75</td>
<td>4.9%</td>
</tr>
<tr>
<td>Vienna</td>
<td>324</td>
<td>21.0%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1544</td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Weighting

The data were weighted according to:

- Household size
- Region
- Age
- Age x gender
- Age x region
5 Acknowledgements

On behalf of the project consortium and our staff, SORA would like to thank
- those contacted for participation in the study
- those agreeing to participate
- those tested for the study

We would also like to thank
- the staff at the Federal Ministry
- our partner institutions and their staff
- the team at SORA
- the staff and teams of the Austrian Red Cross
- the international and Austrian experts and colleagues who advised and helped us throughout this project