

CORRESPONDENCE

Research Letter

The Prevalence of SARS-CoV-2 Infection Among Homeless Persons in Cologne, Germany

An Epidemiological Study at the Height of the Third Wave

COVID-19 has been having a substantial effect on society. This is true not only for the immediate impact of the disease, but the personal, economic, and social consequences are equally huge. People living on the margins of society are particularly affected as health care services are barely tailored to their needs. Persons of a low economic status have a higher incidence and higher mortality (1)—an observation that is consistent with findings for many other diseases. Little is known about the importance of COVID-19 in homeless persons.

People are homeless if they do not live in accommodation that constitutes their main address. Such persons find temporary accommodation in emergency sleeping shelters, provisional accommodation, women’s refuges, municipal buses kitted out as homeless shelters for cold weather, with friends, or in hotels. A subset of this group consists of homeless people in a stricter sense: they do not have a residence, and they therefore sleep in the streets or other outside areas (unsheltered people). Regarding the number of homeless people, only estimates are available; for Cologne, the estimated number of unsheltered persons is 400. Because of the lack of data regarding the importance of COVID-19 in homeless persons, we conceived the following project in order to contribute to close this knowledge gap.

Methods

This study reports a prevalence data collection for COVID-19 at the height of the so-called third wave in May 2021, before the city started a vaccination campaign for persons living in the streets in Cologne. The study was funded by the Wilhelm H Pickartz Foundation in Cologne and the registered association “Gesundheit für Wohnungslose” (GfW, health for homeless persons). The study received ethical approval. The project is also investigating further research questions that are not the subject of this article.

The study participants were examined in an institution providing day care for persons of no fixed abode (“Gulliver”) and during a charitably service actively seeking out homeless persons for the purposes of medical care provision in the streets (GfV). They were recruited for the study by personal contact and by provision of information regarding the study in different public locations. After receiving information and giving consent, a pharyngeal swab and a sputum sample taken by means of Salivettes were amplified by means of polymerase chain reaction for SARS-CoV-2. The validity of the tests was shown separately (2). The

TABLE	
Selected data for study participants	
Variable	Result
Total number	130
Sex	
Male	118 (90.8%)
Female	12 (9.2%)
Age (years)	
20–39	43 (33.1%)
40–59	73 (56.2%)
60–79	14 (10.8%)
Nationality	
German	64 (49.2%)
Polish	38 (29.2%)
Romanian	4 (3.1%)
Lithuanian	4 (3.1%)
Other (up to n = 3)	20 (15.4%)
Accommodation	
Unsheltered	76 (58.5%)
Different types of accommodation	54 (41.5%)
Insurance status	
No health insurance	57 (43.9%)
Has health insurance	72 (55.4%)
Not available	1 (0.8%)
Income status	
No income	73 (56.2%)
Unemployment benefit	38 (29.2%)
Other income	19 (14.6%)

diagnostic evaluation was done by using a PCR pooling procedure, in which 10 specimens were investigated in one PCR test. In case the result was positive, the individual subjects in the pool were analyzed again separately. The participants received an amount of five Euro as “compensation.”

Results

The Table shows baseline data. The results of swabs and sputum specimens were concordant. SARS-CoV-2

was identified in four subjects (3.1%, 95% confidence interval [0.11; 6.05]; these were asymptomatic. The determined viral loads (measured in Ct values) of the positive results were between Ct25 and Ct35. Infected persons were found to be unvaccinated and were carrying the SARS-CoV-2 variant alpha. They were subsequently contacted and transferred to an institution reserved by the City of Cologne especially for homeless people for the purpose of care provision and isolation in COVID-19. Furthermore, four contact persons were identified who were also accommodated there. Two further subjects reported symptoms typical for COVID-19; their test results were negative.

Discussion

To our knowledge, this is the first study that presents prevalence data for COVID-19 in asymptomatic homeless persons in Germany. Furthermore, more than half of the participants were without shelter—that is, without any accommodation whatsoever. Similar studies in Italy, Canada, and the USA showed prevalence rates of 2–4% in hostels for homeless people (3–5). Our data are therefore comparable with international findings, but it should be borne in mind that our data were collected mainly in the streets.

The incidence in the general population, which during the time period under study was by a factor of 30 lower, can be used only to a limited degree to compare the results because the method specified by the Robert Koch-Institute to estimate incidence rates differs from ours. In analogy, this is also the case for the overall positive rate, which in the study centers of most laboratories was up to 10%, which can be explained with the fact that these included symptomatic and asymptomatic tested subjects. For a meaningful comparison, only asymptomatic groups of persons should be considered, but for these, hardly any recent data exist. Only few findings came from the “general population.” Non-internal medical admission screenings at the University Hospital Cologne identified 1.8% positive results during the study period (data from the institute of virology). For this group it can be assumed that no COVID-19 symptoms were present.

In addition to the difficulties in comparing the results with the general prevalence of COVID-19, a limitation of our study is the fact that it was not possible to collect any data on the participation rates because of the informal passing of information in the public sphere.

Conclusion

The prevalence of SARS-CoV-2 in asymptomatic homeless persons in Cologne is at least at the level of that in the general population, possibly above that. Because of this result and the widespread multimorbidity, this highly vulnerable group is at particular risk from COVID-19. The results presented here should prompt screening tests to be offered to such people during a high-incidence phase, in order to protect them.

Ethics approval

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Conflict of interest statement

The authors declare that no conflict of interest exists.

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