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COVID-19 detection and spread control: what initiatives in Italy for the homeless population?

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Abstract. **In Italy COVID-19 pandemic had a severe impact. The homeless live in situations aggravating their poor health conditions and comorbidities. Although homeless people are a fragile category, no dedicated measures by public health departments seem to be applied infrequently to this population. For these reasons, they are probably one of the categories most affected by the global spread of the SARS-CoV-2. Moreover, the current vaccination campaign against COVID-19 can represent an important opportunity for health and social integration also for the homeless.**

This scoping review performed a map to describe strategies and interventions adopted to protect the homeless population during the COVID-19 pandemic in Italy. The methodology adheres to the PRISMA statement (extension for purpose revision) and follows the framework of Arksey and O'Malley. At the end of the selection process, 7 studies deemed relevant were included. Many strategies have been adopted to counter the spread of the virus to the homeless population, such as rapid and molecular tests with swabs or rapid blood tests. All the tests for diagnosing the infection currently in use have also been used for the homeless.

Key Words:
SARS-CoV-2, COVID-19, Homeless, Spread control, Italy, Scoping Review.

Introduction

COVID-19 is probably the most important modern challenge for public health. The pandemic has affected all people, in particular socially vulnerable populations such as refugees, migrants, asylum seekers and people in precarious housing conditions.

Although several studies underline the importance of epidemiological investigations to detect the focus and links of contagions, this may be difficult in the homeless population. There are about 50,000 homeless in Italy[1]. They represent one of the categories worse affected by the global diffusion of the SARS-CoV-2[2,3]. Precarious health, caused by underestimated and chronic diseases, is a condition that adds up to social isolation and lack (or fear) of access to health services. These people may have limited access to information regarding infection control and limited disposable of individual protection devices such as facial masks or hand sanitizing gel. As a result, there is a high risk of the uncontrolled spread of the SARS-CoV-2 in this community. Moreover, more severe forms of COVID-19 can develop in these people, living on the street without shelter nor adequate medical care.

This review performed a map to describe strategies and interventions adopted to protect the homeless population during the COVID-19 pandemic in Italy. Understanding the characteristics and spread of SARS-CoV-2 infection among the homeless is of utmost importance to limit outbreaks of infection, and to improve public health interventions for this specific population.

Materials and Methods

This scoping review was made according to the PRISMA statement (extension for Scoping Review)[4] and follows Arksey and O'Mal-

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ley's framework[5]. This methodology is useful to identify, as much as possible, the types of strategies used to detect and reduce the SARS-CoV-2 pandemic between homeless in Italy (research question).

The research was performed on the following databases: PubMed, CINHAL, Embase, and Cochrane Library. The research was conducted from March to May 2021. An exhaustive search string was constructed and revised with the support of librarians, for all the electronic databases consulted (Table I).

For the aim we drafted a research protocol based on Population (homeless), Intervention (all that were detected), Outcome (reduce the spread of pandemic), and Setting (Italy). The main searching terms utilized were "homeless", "COVID-19" and "Italy". Moreover, all terms were combined through Boolean operators AND and OR, to collect all the available articles.

The following selection criteria were adopted, although the search strategies were constantly discussed among the authors: all types of studies detected, articles about the adult homeless population, studies about COVID-19 detecting or spreading control in Italy, no time limits. Exclusion criteria were non-peer-reviewed studies, literature not in English or Italian, studies about mental health, dermatological or sexually transmitted diseases. The selection of the studies was made by RefWorks®; duplicates were eliminated, and a preliminary selection (non-pertinent) was made by reading the title and abstract, by two different authors (EDS and ADL).

Table I. Search query.

PubMed

("covid 19"[MeSH Terms] OR "SARS-CoV-2"[MeSH Terms] OR "COVID-19 Testing"[MeSH Terms] OR ("covid 19"[Title/Abstract] OR "covid"[Title/Abstract] OR "coronavirus"[Title/Abstract] OR "SARS-CoV-2"[Title/Abstract] OR "2019-nCoV"[Title/Abstract])) AND ("Homeless Persons"[MeSH Terms] OR ("Homeless Person"[Title/Abstract] OR "Homeless Shelter"[Title/Abstract] OR "Shelter Homeless"[Title/Abstract] OR "Homeless"[Title/Abstract] OR "Street People"[Title/Abstract] OR "People Street"[Title/Abstract] OR ("Homeless Persons"[MeSH Terms] OR ("Homeless"[All Fields] AND "persons"[All Fields]) OR "Homeless Persons"[All Fields] OR "Homeless"[All Fields] OR "homelessness"[All Fields]) OR "Homeless People"[Title/Abstract])) AND ("ital*"[Title/Abstract] OR "ital*"[Title/Abstract])

Embase

('homeless person'/exp OR 'homeless person' OR 'homeless people':ti,ab OR 'homeless persons':ab,ti OR 'street people':ab,ti OR vagabond:ab,ti) AND ('coronavirus disease 2019'/exp OR 'coronavirus disease 2019' OR '2019 novel coronavirus disease':ab,ti OR '2019 novel coronavirus infection':ab,ti OR '2019-ncov disease':ab,ti OR '2019-ncov infection':ab,ti OR 'covid':ab,ti OR 'covid 19':ab,ti OR 'covid 2019':ab,ti OR 'covid-19':ab,ti OR 'covid19':ab,ti OR 'ncov 2019 disease':ab,ti OR 'ncov 2019 infection':ab,ti OR 'novel coronavirus 2019 disease':ab,ti OR 'novel coronavirus 2019 infection':ab,ti OR 'novel coronavirus disease 2019':ab,ti OR 'novel coronavirus infection 2019':ab,ti OR 'sars coronavirus 2 infection':ab,ti OR 'sars-cov-2 disease':ab,ti OR 'sars-cov-2 infection':ab,ti OR 'sars-cov2 disease':ab,ti OR 'sars-cov2 infection':ab,ti OR 'sarscov2 disease':ab,ti OR 'sarscov2 infection':ab,ti OR 'wuhan coronavirus disease':ab,ti OR 'wuhan coronavirus infection':ab,ti) AND ('italy'/exp OR ital*)

CINAHL

AB "COVID-19" OR "SARS-CoV-2" OR "COVID-19 Testing" OR (covid-19 OR covid OR coronavirus OR SARS-CoV-2 OR 2019-nCoV)
AND
AB "Homeless Person*" OR "Person* Homeless" OR "Homeless Shelter*" OR "Shelter* Homeless" OR Homeless OR "Shelter* for Homeless Person*" OR "Street People" OR "People Street" OR Homelessness "Homeless People"
AND Italy OR Ital*

Cochrane

(homeless people OR homeless persons OR street people OR vagabond)
AND
"2019 novel coronavirus disease" OR "2019 novel coronavirus infection" OR "2019-nCoV disease" OR "2019-nCoV infection" OR COVID OR "COVID 19" OR "COVID 2019" OR "COVID-19" OR COVID19 OR "nCoV 2019 disease" OR "nCoV 2019 infection" OR "novel coronavirus 2019 disease" OR "novel coronavirus 2019 infection" OR "novel coronavirus disease 2019" OR "novel coronavirus infection 2019" OR "SARS coronavirus 2 infection" OR "SARS-CoV-2 disease" OR "SARS-CoV-2 infection" OR "SARS-CoV2 disease" OR "SARS-CoV2 infection" OR "SARSCoV2 disease" OR "SARSCoV2 infection" OR "Wuhan coronavirus disease" OR "Wuhan coronavirus infection"
AND Italy OR Ital*

Results

The database search strategy identified 22 studies but only 7[6-12] were judged pertinent and then selected (Figure 1). Many types of research were conducted using different kinds of swab tests, other by serological tests: in fact, all the tests for diagnosing infection currently in use have also been used for the homeless (Table II).

Discussion

Several studies[2,3,6,7,12] confirmed the homeless vulnerable conditions. Although the health precarious conditions of homeless people were already known, no specific programs were started to reduce the infection risk[6,7]. Moreover, dedicated measures by the public health departments seem to be seldom applied in this population[7]. Therefore,

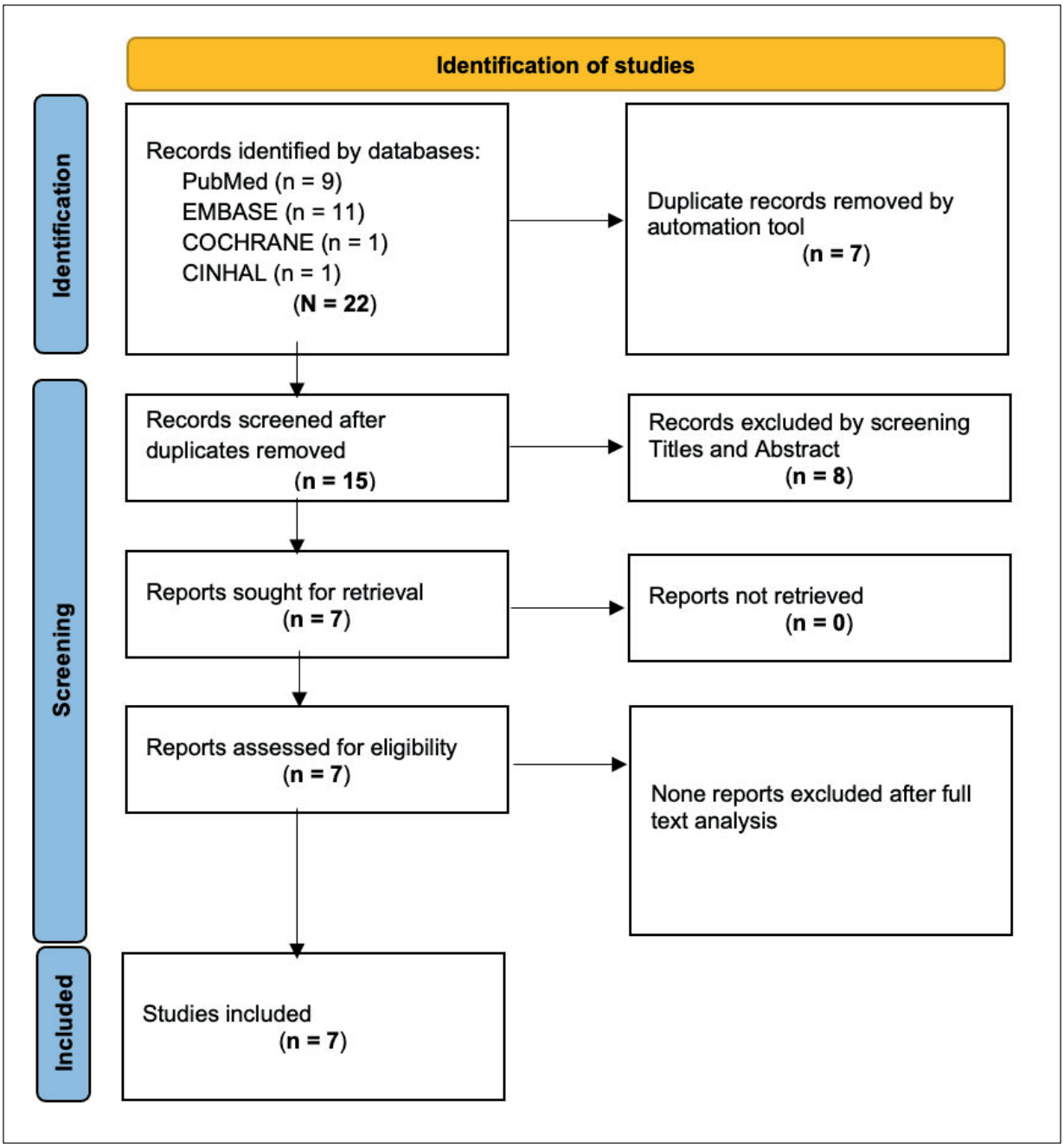

Figure 1. Flow diagram (PRISMA) for record screening process.

Table II. Main characteristics of the selected studies.

Study	Main characteristics and results
Barbieri et al[6]	Operational agenda. Homeless people are at increased risk of SARS-CoV-2 infection. Italy does not have adequate public health measures for the homeless. 85.7% of these are men with characteristics of: psychic and physical multiple morbidity, drug addiction and alcoholism, poor hygiene measures, difficulties in accessing health services. For them, diagnosis, traceability, assistance and isolation are extremely difficult, with repercussions on this specific population and on the general one relating to the containment of the pandemic. To improve infection containment strategies, the author suggests a national approach of tracing and surveillance in case of positivity, specific health care, the availability of a national assistance fund, the distribution of protective equipment and the creation of health facilities. specific hospitalization for out-of-hospital management of the disease.
Ralli et al[7]	Recommendations to avoid contagion and limit the spread of infection among homeless people: avoid crowding in places such as public transport, catering centres and aggregate living environments for the night without adequate protection; be informed about the guidelines for the prevention of contagion; use masks correctly and be aware of their importance; knowledge of the symptoms of COVID-19. Immediate isolation on suspicion of infection.
Ralli et al[8]	It is of utmost importance to implement adequate public health measures to limit the spread of the infection among homeless people, quickly identify and isolate asymptomatic and minimally symptomatic subjects, promptly and adequately treat positive cases and correctly manage the entire socio-economic environment of people homeless.
Ralli et al[9]	Observational study on a cohort of about 200 homeless people in Roman homeless shelters, implementing preventive measures at the entrance and during the stay (SARS-CoV-2 testing, education, distancing, and monitoring) which made it possible to maintain a prevalence of infection around 2%. The importance of daily checks is emphasized, not only at the entrance of the structures but also towards the staff to reduce the spread of infection and avoid clusters in this vulnerable population.
Ralli et al[10]	Preliminary study. The use of rapid serological tests can also help in the early identification of subjects at risk, limiting their entry into public facilities. To be considered as potentially risky for the population, the high percentage of asymptomatic COVID-19's positive even among the homeless.
Ralli et al[11]	Study with SARS-CoV-2 Real-Time Reverse-transcription Polymerase Chain Reaction (rRT-PCR) nasopharyngeal swab on 298 homeless and shelter staff, remarked an infection prevalence of 4%, of which 75% asymptomatic. Preventive measures should be increased in this population where the closure of shelters could have severe effects on this and the general population. Alternative residential solutions should also be explored and supervised in case of need.
Iacolella et al[12]	Analysis of the willingness to vaccinate against COVID-19 and the previous vaccination history (tuberculosis, hepatitis A and B and seasonal flu) of 112 Italian homeless. 64.3% of the population was willing to be vaccinated. Males were more in favor of vaccination than females (74.1% vs. 59.3%). The age group between 60 and 69 years was the most available to the vaccine (84.6%), with an inversely proportional availability to the age up to people between 30 and 39 years (45.5%) wary of vaccination. About 50% of the population had not been vaccinated for tuberculosis, hepatitis A and B and seasonal flu, and about a third were unknown. However, this study did not investigate the causes of the distrust of vaccines. It would be a good omen that claims about the importance of extending COVID-19 vaccination to the most vulnerable populations would follow the distribution of the vaccine to these populations.

the homeless remain one of the most pandemic vulnerable categories[11]. This could be related to poor/incorrect information to prevent contagion, to the unavailability of personal protective equipment (such as face masks or hand sanitizing gel) and to the sharing of common spaces[6].

All of the selected studies were conducted in Rome. No other Italian city would seem to have been involved. Furthermore, all shelters involved were managed by religious organizations in the Italy State and Vatican State.

The Italy state does not have adequate public health measures for people with increased risk of SARS-CoV-2 or for the homeless[6]. Diagnosis, assistance, and isolation are extremely difficult, with repercussions on this specific community and the general population relating to the containment of the pandemic. A national approach of tracing and surveillance is necessary for positive cases, specific health care, distribution of protective devices and the creation of health services specific to the management of the out-of-hospital diseases. In addition, it could also be useful the management of public transport and canteens to prevent the lack of adherence to shared prevention measures[7].

The health services of the Vatican State have promoted prevention (education, distribution of protective devices, redistribution of reception spaces and distancing), tracing and first assistance to the homeless, but for most of them, there was a lack of adequate public health measures received[8].

In addition, the screening for COVID-19 could be carried out not only at the entrance to reception facilities but every day for both homeless people and staff to reduce the spread of the infection[9].

Implementing the use of rapid serological tests can also help in the early identification of subjects at risk[10]. This practice is useful in consideration of the danger of the high percentual of asymptomatic COVID-19 positives even among the homeless[11].

Overall, the absence of a structured national plan, to resist the spread of the virus among the homeless[6], is probably the most important data that emerges by our results. Moreover, COVID-19 pandemic risks further slowing down the objectives of "Leaving no one behind" promoted in the United Nations 2030 Agenda for Sustainable Development[8,12]. Last but not least, the high percentage of willingness to vaccinate against COVID-19 of this population should be considered[13]. Acceptance of the COVID-19 vaccine among the homeless is already known[13], and the necessity to vaccinate as many people as possible to stop the pandemic could represent an important opportunity for integration.

Conclusions

The data reported in this research show how is important to plan a health program for vulnerable people, like as the homeless.

COVID-19 teaches the useful of health integration to stop the pandemic. Screening for SARS-CoV-2 between the homeless and their vaccination could represent an efficient and effective strategy to counteract the spread of virus in this community and therefore in the general population.

Conflict of Interests

The authors declare that they have no conflict of interest.

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