

# Evaluation of dental demands and needs of people experiencing homelessness in the city of Rome, Italy

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**Abstract. – OBJECTIVE:** Poor oral health and oral diseases are common among people experiencing homelessness. The aim of this study was to evaluate the dental demands and needs of a population of homeless persons in the city of Rome, Italy.

**PATIENTS AND METHODS:** The clinical records of 165 homeless patients admitted between October 2020 and October 2021 to the dental service of the Primary Care Services of the Eleemosynaria Apostolica, Vatican City, were retrospectively reviewed. The service employed dentists to evaluate dental needs and oral conditions in patients experiencing homelessness. The main dental and oral pathological conditions were noted.

**RESULTS:** One hundred and sixty-five records of homeless patients were included in the study. The sample consisted in 138 males (76.97%) and 27 females (23.03%) with a mean age of 46.9 years (range 7-85 years). Acute tooth pain was reported by 132 (80%) patients, 42 (25.45%) had edentulism or missing teeth and 18 (10.91%) patients had oral lesions. Both dental and oral pathologies were intercepted and managed in secondary health-care facilities.

**CONCLUSIONS:** Given the specific peculiarities of this vulnerable population, it is important to implement strategies that facilitate the access of persons experiencing homelessness to dental evaluation with a preventive and curative perspective.

## Key Words:

Homelessness, Fragile populations, Dental conditions, Oral diseases, Prevention.

## Introduction

People experiencing homelessness frequently require medical, psychological, and social care since their health status is often burdened by chronic diseases, mental disturbances, and drug, alcohol, or smoking addiction<sup>1-6</sup>. Homelessness has several detrimental effects on health, and life expectancy is nearly 20 years lower than in the general population<sup>7</sup>. In addition, access to primary and specialist medical care may be more challenging for homeless persons, with no substantial differences between countries with and without health insurance coverage<sup>8-11</sup>.

Persons experiencing homelessness have a greater burden of dental diseases, namely untreated tooth decay, missing teeth, periodontal disease, and oral pathology compared to the general population<sup>12-19</sup>. Poor oral health has also been associated to an increased risk of developing systemic conditions, such as cardiovascular diseases, diabetes, and kidney diseases<sup>20,21</sup>. In addition, vulnerable populations have a low uptake of dental care despite a greater treatment need<sup>22,23</sup>. In fact, the cost of dental treatment, dental anxiety, a lack of perceived need for treatment have been suggested by some authors as potential barriers to accessing services and to maintaining oral health for this group<sup>24-26</sup>. Due to such constraints, many people experiencing homelessness delay seeking dental care until they experience acute dental pain, which in turn can lead to in-hospital or emergency treatment<sup>27</sup>. Furthermore, although many national

public health systems provide universal and free access, the lack of documents, language barriers and negative or discriminatory approaches may limit their use.

In the light of the above-mentioned barriers to dental care for persons experiencing homelessness, a free dental service was established in October 2020 as part of the Primary Care Services of the Eleemosynaria Apostolica, Vatican City, in collaboration with the Sapienza University of Rome, Italy.

The aim of this study was to describe the experience of this service, with a focus on dental demands and needs of people experiencing homelessness in a central neighborhood of Rome, Italy.

## Patients and Methods

In this retrospective study, clinical data of 165 consecutive persons experiencing homelessness admitted to the dental service of the Primary Care Services of the Eleemosynaria Apostolica, Vatican City, were evaluated. The observation period was October 2020 – October 2021. Inclusion criteria were age >18 years and the condition of homelessness. The study was conducted in accordance with the Declaration of Helsinki.

From each medical record, the following information were retrieved: name, age, gender, country of origin, housing conditions, job status, smoking and drinking habits, and presence/absence of comorbidities. All patients included in the study underwent oral cavity and dental examination aimed at assessing the overall oral health and the presence of dental pathologies and oral lesions. Investigated dental pathologies included caries, periodontal diseases, pulpitis, trauma, and abscesses. Oral lesions included oral lichen planus, candidiasis, fibroma, HPV-related or cancerous lesions, tobacco stomatitis, and aphthous ulcers. The presence/absence of dental elements was also evaluated; complete edentulism was defined as the complete missing of dental elements, while partial edentulism as the absence of some but not all the natural teeth in a dental arch.

Dental examination, at no cost for the patient, was performed in an armchair equipped with a lamp. Available instruments included an examination kit with mirror and probe to diagnose carious, traumatic, periodontal, and oral tissue lesions. All clinical examinations were performed by two operators (FS and GP), dentists' expert in oral pathology and general dentistry. When a dental

treatment that required specific instruments was necessary, the patient was referred to a secondary healthcare facility (George Eastman, Policlinico Umberto I – Sapienza University of Rome). Cases requiring solely medical treatment, such as management of infectious diseases, prevention of dental or mucosal lesions, and oral hygiene recommendations, were managed directly in the primary care service.

## Statistical Analysis

Descriptive analysis was used for the main demographic characteristics of the patients and to describe the results of dental examination. When applicable, data were expressed as means  $\pm$  standard deviations (SD) and standard error (SE). The statistical analysis was conducted using the unpaired *t*-test to highlight differences in specific characteristics (age, sex, housing and working condition, social security documents, smoking, alcohol abuse) of persons with acute and chronic dental conditions. A *p*-value less than 0.05 was considered the cutoff for statistical significance. Prism Software version 8.3.1 (GraphPad Software LLC, San Diego, CA, USA) was used to perform descriptive statistical analysis and to prepare figures.

## Results

The clinical records of 165 persons experiencing homelessness admitted to the dental service of the Primary Care Services of the Eleemosynaria Apostolica between October 2020 to October 2021 were reviewed. The sample included 138 males (76.97%) and 27 females (23.03%) with a mean age of 46.9 years (range: 18-85; SD: 13.62, SE: 0.9906). Most patients were Europeans (58.8%); more precisely, 32 came from Italy (19.4%) and 65 from Eastern Europe (39.4%); 38 persons came from Africa (23%), 15 from Asia (9.1%) and 15 from Central America (9.1%) (Figure 1).

Regarding the housing conditions, 107 patients (64.84%) were unsheltered and lived in the street, while the remaining 58 (35.16%) lived in homeless shelters. Seventy-eight patients (47.28%) had no social security documents at the time of the visit; conversely, 46.06% (n=76) provided the Tax Code (TC) and 6.66% (n=11) provided the Foreigner Temporarily Present (FTP) document.

Only 9 (5.46%) of the patients had a stable job; the remaining 156 (94.54%) were unemployed.

Of the 165 individuals included in the study, 72 (43.63%) reported smoking cigarettes and 36 (21.81%) declared being habitual consumers of alcohol.

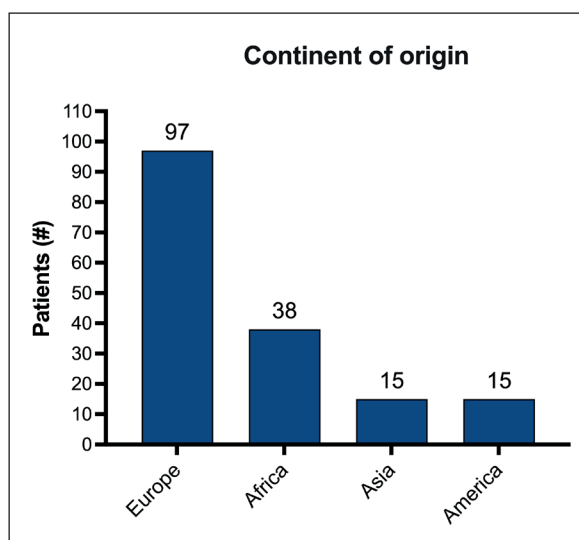
The most common dental disease found in our sample was acute tooth pain ( $n=132$ , 80%); the main causes were destructive caries and caries involving the pulp-dentin complex. Forty-two individuals (25.45%) had either partial or complete edentulism. Eighteen patients (10.91%) had painful and/or suspicious oral lesions; among them, oral candidiasis was diagnosed in 9 patients, lichen planus in 3 patients, leukoplakia in 3 patients, fibromatous lesions in 2 patients and a traumatic ulcer in one patient. Fortunately, no cancerous lesions were found in our sample (Figure 2). When sorting for acute (acute tooth pain) or chronic (edentulia, oral lesions) conditions, statistical analysis showed a significant difference between groups for age, living condition and presence of valid social security documents. In fact, persons with acute conditions were younger (46.2 vs. 53.4 years;  $p=.0488$ ), were mainly unsheltered (74.4% vs. 47.37%;  $p=.0092$ ) and had no social security documents (52.31% vs. 23.7%;  $p=.0103$ ). Conversely, no significant differences were found between acute and chronic conditions for sex ( $p=.0711$ ), having a stable job ( $p=.5706$ ), cigarette smoking ( $p=.0821$ ), and alcohol abuse ( $p=.0612$ ).

Nearly one-third ( $n=52$ , 31.51%) of the patients were referred to secondary healthcare facilities for further diagnostic workup or treatment.

When evaluating general health conditions, 105 individuals (63.63%) had a diagnosis of at least one among heart-related diseases, joint problems, diabetes, and urinary tract infections; the remaining 60 patients (36.67%) reported no known general health problems.

## Discussion

This study evaluated the demands and needs of dental care in a population of 165 homeless persons assisted by the Primary Care Services of the Eleemosynaria Apostolica, Vatican City. The most frequent dental disorder was acute tooth pain, followed by complete or partial edentulism and oral lesions. The main causes of acute tooth pain were destructive caries involving the pulp-dentin complex; these conditions had most certainly led to the loss of dental elements found in our sample together with periodontal disease. Our findings are consistent with the HOPE HOME study by Freitas

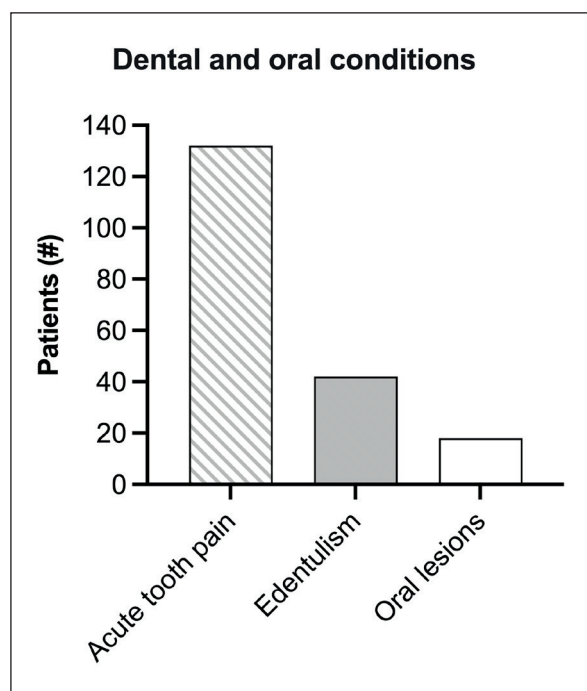


**Figure 1.** Geographical distribution of our sample. Most patients were Europeans (58.8%), followed by Africans (23%), Asians (9.1%) and Americans (9.1%).

et al<sup>28</sup>; the authors reported that tooth loss and oral pain are highly prevalent in older homeless adults, and dental care is ranked as one of the leading unmet needs among this population. In their sample, the authors found that over half of the participants were missing at least half of their teeth, >50% of the sample reported oral pain in the past 6 months, and one third reported that oral pain prevented them from eating and/or sleeping<sup>28</sup>.

In our experience, patients were referred to our service because they were unable to obtain dental treatment due to the high costs or to the lack of regularity of the paperwork for the national health system. These limitations frequently led homeless patients to underestimate or overlook the severity of their dental problems; in many cases, this resulted in patients presenting with acute dental pain as the only or major symptom. Similar conclusions were reported by other authors<sup>24-27</sup>. In addition, barriers to accessing dental care have been further worsened during the Coronavirus Disease 19 (COVID-19) pandemic, thus increasing disparities<sup>3,6,29-33</sup>.

Homelessness is widespread in Italy as in the rest of the world. In our country, there are an estimated 49,000-52,000 homeless people sleeping on the streets or in temporary hostel accommodations; nearly 8,000 of them reside in Rome<sup>34</sup>. According to a study by Harris et al<sup>35</sup>, in most cases the cause of homelessness is a combination of traumatic events, such as permanent job loss, separation from family, and health problems. The first national survey aimed



**Figure 2.** Dental and oral conditions found in our sample. The most common dental disease was acute tooth pain (n=132), followed by edentulism (n=42) and oral lesions (n=18).

at quantifying this social phenomenon in Italy dates back to 2011, and was promoted by the Ministries of Health, Labor and Social Policies, the National Institute of Statistics, the Italian Federation of Organisms for Homeless People and Caritas (a charitable association)<sup>36</sup>. Persons experiencing homelessness require complex medical, psychological, and social care as their health is often burdened with chronic illness, mental and drug disorders, alcohol addiction or smoking<sup>7-10,37,38</sup>. The impact of homelessness on the health of these individuals is devastating, with a shorter life expectancy than the general population, partly due to exposure to greater risks. In addition, the COVID-19 pandemic has further worsened the conditions of vulnerable subjects, that have unique characteristics that make them more susceptible to the transmission of the severe acute respiratory syndrome – Coronavirus Disease 2 (SARS-CoV-2) and to more severe forms of COVID-19<sup>3,39,40</sup>.

The link between oral and systematic health is known and can determine a hematogenous dissemination of bacteria, thus causing inflammation at a systemic level. In particular, the association has been frequently reported between periodontal disease and cardiovascular diseases, diabetes, and rheumatoid arthritis but also in preterm pregnancy and respiratory diseases<sup>41-44</sup>. This is further wors-

ened by the limits of these patients to access primary health care services, as reported by multiple studies published in the literature<sup>14,45,46</sup>.

The present study confirms the elevated demand of oral health of persons experiencing homelessness; indeed, most patients referred to our service because of severe pain in the oral cavity or because they showed discomfort due to the partial or complete lack of teeth. The difficulty in accessing dental care represented for many of them an obstacle to finding a job; discomfort was reported especially by edentulous people.

### Limitations

The study has some limits. The first is the small number of patients in our sample, that may have affected the exact representation of dental needs among the target population. The second limit is the absence of a complete statistical analysis of our data due to the limited information collected during dental visits. Last, the lack of instrumental/radiological equipment during the initial visit may have limited the clinical findings and diagnoses.

### Conclusions

People experiencing homelessness have several oral health needs, especially untreated caries and missing teeth. Their main obstacle to care is represented by economic constraints, followed by dentist's fear, and by the difficulty to access health services. This experience suggests the importance to implement strategies that facilitate access to dental treatment with a preventive and curative perspective. This could be obtained by strengthening a dental service structured to provide diagnostic support and treatment to the vulnerable populations, considering their specific peculiarities.

### Ethics Approval

The study was conducted in accordance with the Declaration of Helsinki; all subjects were fully informed on the executed protocols and agreed to be included in the study.

### Conflict of Interest

All authors declare no conflicts of interest, grants or other funding supports.

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