

## Vision & Oral Health among Individuals Experiencing Homelessness

Vision and oral health play a salient role in an individual's overall health and quality of life. Having good vision can help an individual safely navigate the world in which they live as well as help to ensure a healthy and active lifestyle. Additionally, having good oral health can improve one's ability to speak, smile, smell, taste, chew, express themselves, and avoid adverse health outcomes.<sup>(1,2)</sup> This May issue of *In Focus* provides a synthesis of recent literature on vision and oral health of individuals experiencing homelessness. It addresses the prevalence of vision and oral health diseases, unmet needs, factors that can impact outcomes for these diseases, and promising practices to increase access to services. A few limitations exist in the current literature, namely the varying study methodologies used and the lack of nationally representative samples of individuals experiencing homelessness.

### Prevalence of vision problems

There are a number of conditions and diseases that can result in vision-impairment and/or loss. In the US, the most common causes of visual impairment are due to refractive errors and non-refractive retinal disorders which include diabetic eye diseases and age-related macular degeneration (AMD).<sup>(3,4)</sup>

Data on vision-related impairment and diseases are poorly monitored in the general population<sup>(4)</sup> and even more so in the homeless population. Though vision problems are poorly monitored, available data suggests that homeless populations experience them at high

rates. This was demonstrated in a survey of 618 Health Care for the Homeless (HCH) program users, where 30% of participants reported having trouble with their vision.<sup>(5)</sup> In another study that screened 127 shelter users in Oahu, HI, 60.5% of participants reported dissatisfaction with their vision. The underlying cause of vision dissatisfaction varied by participants.<sup>(6)</sup>

Screenings conducted in a 2009-2010 sample of 341 individuals experiencing homelessness in Newark, NJ, found the average functional visual impairment to be 16%, which was 2.5 times higher than the 2006 average of 6.4% in the general population.<sup>(7,8)</sup> Similarly, high percentages (23-35%) of functional visual impairment due to refractive error were found in screenings conducted in the Oahu study.<sup>(6)</sup>

Ko, et al. (2012) estimates the prevalence of vision threatening diseases (VTD) to be 1.7% for adults 20 years and older in the general population. While the

prevalence of VTDs in the homeless population is unavailable nationally, 31% of adults 25 and older screened positive for VTDs in the Newark study.<sup>(8)</sup> These data suggest that individuals experiencing

homelessness may be disproportionately affected by VTDs at rates up to 18 times higher than the general population.

### Prevalence of oral health problems

Like vision, oral health problems—dental caries and periodontal disease—are also poorly monitored in the

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*90% of homeless HCH users reported having dental problems in the past six months*

homeless population, but available data suggests that the prevalence rates are high. This is demonstrated from a 2009 Patient Survey conducted by the Health Resources and Services Administration (HRSA), where almost 90% of homeless HCH users reported having dental problems in the past six months.<sup>(5)</sup>

The Center for Disease Control and Prevention (CDC) estimates that 27.4% of adults ages 20-44 and 17.5% of children ages 5-19 had untreated dental caries in the general population in 2011-2012.<sup>(9)</sup> In comparison, a 2010 study of 409 homeless patients in Los Angeles, CA, revealed prevalence rates of untreated caries that were 2-4 times higher (57.9% for adults and 63.5% for children) than the general population.<sup>(10)</sup> A high prevalence rate of caries was also found in a 2013 study of 157 homeless children in a Midwest city (50%).<sup>(11)</sup>

Similar trends of periodontal disease were found among individuals experiencing homelessness. In a 2008 study of homeless youth and adults (age 14-28) in Seattle, WA, investigators found high percentages of periodontal disease indicators, including: sensitive teeth (52.6%), sore or bleeding gums (27%), painful chewing (26.8%), and loose teeth (11.1%).<sup>(12)</sup>

## Factors impacting oral and vision health outcomes

### *Aging and Medical Health Conditions*

Part of the increased prevalence of vision and oral health problems may be a result of aging.<sup>(13,14)</sup> For vision, age is one of the most important risk factors for AMD and diabetic eye diseases.<sup>(13)</sup> In the studies mentioned above, a high number of older individuals both in the general and homeless population screened positive for VTDs. For example, in Ko, et al. (2012) there was a higher prevalence of VTDs among those who were age 60 and over (4.7%) compared to younger age groups (1-0.6%). Though estimates of VTDs by age are unreported in the Newark study, the average age of participants was 53.6.<sup>(8)</sup>

Dental caries tend to be higher in older age groups as well.<sup>(14)</sup> In Seirawan, et al. (2010), the most severe cases of untreated caries were highest for individuals experiencing homelessness who were age 60 and older. These individuals had the highest average decayed teeth (DT) score—7.6 compared to 3.73-5.34 in younger age groups.<sup>(10)</sup> Age was also found to be positively associated with dental caries in the aforementioned study of 157 homeless children, where average number of dental caries was higher in older children.<sup>(11)</sup>

In addition to aging, complications of comorbid diseases can lead to poor vision and oral health outcomes.<sup>(3,15)</sup> For vision, having diabetes mellitus (DM) and hypertension (HTN) puts an individual at an increased risk for VTDs. In Ko et al. (2014), the prevalence of visual impairment due to VTDs was higher for individuals living with diabetes (3.7 %) compared to those with no diabetes (1.2%). This difference was more pronounced if they had been living with diabetes for 10 years or more (6.1%).<sup>(16)</sup>

Multiple studies have shown that complications of DM, HTN, nutritional deficiencies, immune system weakening diseases (e.g. HIV infection), and taking multiple prescription drugs are associated with poor oral health outcomes, including dental caries and periodontal disease.<sup>(17)</sup> Individuals experiencing homelessness are at an increased risk for these adverse vision and oral health outcomes, as they experience high rates of these underlying diseases and conditions.<sup>(5)</sup>

### *Health behaviors/individual barriers*

Unlike vision problems, explanations for the high prevalence of oral health problems are more frequently associated with self-care practices (oral hygiene) and risky behaviors of the individual. Oral hygiene behaviors of individuals experiencing homelessness have been reported to be poorer compared to individuals in the general housed population. This is due to the many barriers they face, which includes lack of knowledge of oral health risks and benefits, lack of time and place to brush regularly, and limited access to pertinent resources (clean water, toothbrush, toothpaste, and floss).<sup>(18)</sup> Demonstrated by Chi, et al. (2008), 45% of homeless participants reported not having time to brush, 33% did not always have a toothbrush, 18% had no place to brush regularly, and 10% had limited access to clean water. Oral hygiene may also be placed on the lower end of a

list of competing priorities for individuals who are more concerned with finding a home, shelter, and food.<sup>(18)</sup>

In addition to these barriers, poor oral health is very common among individuals with risky behaviors such as substance abuse and having a diet that is high in sugar.<sup>(19,20)</sup> Chronic usage of substances such as alcohol, cocaine, methamphetamine, heroin, and tobacco can lead to tooth decay, cracked teeth, gingivitis, and periodontitis. For people who struggle with substance abuse, maintaining proper oral hygiene is often not a priority, especially during days of bingeing. In some cases, when oral pain is experienced, they may self-medicate with the same substances causing the oral health issue, or with over the counter drugs.<sup>(19)</sup>

Over time, excessive consumption of foods and drinks high in sugar coupled with poor oral hygiene can also result in dental caries.<sup>(20)</sup> For individuals experiencing homelessness, avoiding sugar may be challenging as they often lack control over their food choices. Many face difficulties purchasing foods that meet dietary needs and lack access to cooking and food storage facilities. As a result individuals experiencing homelessness may access food through charitable donations, soup kitchens, fast-food restaurants and convenience stores.<sup>(11,21)</sup>

### *Access to and utilization of care*

Vision and oral health problems may also develop over time due to healthcare system barriers that can lead to missed opportunities for early detection of health issues and preventive and treatment services. Even though there is evidence that access to routine vision and oral health screenings are beneficial,<sup>(22,23)</sup> research shows that individuals experiencing homelessness are at an even greater disadvantage for accessing and utilizing appropriate care.<sup>(8,18)</sup> As reflected in the 2013 Uniform Data System (UDS) report, of the 851,641 individuals to receive health care at an HCH program, only 1.8% received a comprehensive eye exam, 11.8% received oral exams, and 6.9% received preventive dental services (dental sealants, teeth cleaning, and fluoride treatments). Not all HCH programs offer direct dental and vision services.<sup>(24)</sup>

Healthcare system barriers to vision and dental services include the inability to afford services out of pocket, lack of insurance coverage, and limited access to a

provider.<sup>(18,25)</sup> Baggett et al. (2010), for example, found that the most frequently reported reason for not obtaining glasses and dental care among HCH users was the inability to afford care and a lack of insurance coverage. In 2014, the Kaiser Foundation also estimated a need for over 7,000 dental health care professionals across the US.<sup>(26)</sup>

While Medicaid policies mandate that children be covered for dental screenings and preventive services, policies for adults do not mandate dental coverage. This allows states to determine which groups of adults can receive coverage and what types of services are covered. In some states, expanded dental services (such as teeth cleaning, x-rays, and minor to major restorative procedures) are limited to pregnant women and emergency services (such as tooth extraction and pain management) are the only dental services covered for other adults.<sup>(27)</sup>



Even though Medicaid does cover comprehensive dental services for children and limited services for adults, finding a provider that accepts Medicaid can prove to be additionally challenging. As demonstrated by DiMarco et al. (2010), only 30-40% of children receive dental services due to the shortage of providers who accept Medicaid and who have the training and willingness to treat children.<sup>(18)</sup> However, dental providers report that they face a number of barriers to becoming Medicaid participants and they include: complicated paperwork, frequent changes in regulations, slow reimbursements,

perceived social stigma of being a Medicaid participant, and a lack of Medicaid participating specialist to whom patients can be referred.<sup>(28)</sup>

## Implications

This literature review demonstrates adverse vision and oral health outcomes among individuals experiencing homelessness, especially for those with comorbid illnesses like DM, HTN, and substance use disorders. Inability to afford care and lack of personal resources are also more common than in the general population and may contribute to worse outcomes.

The overall impact of these outcomes can be detrimental on an individual's quality of life and well-being. For oral health-related quality of life and vision-related quality of life, this includes impacts on physical health (e.g. bleeding gum, oral pain, ocular pain), social/emotional effects (e.g. anxiety, happiness), functional restrictions (e.g. chewing, talking, ability to read or drive), and comfort in social interactions (Figure 2).<sup>(29-34)</sup> Experiences of severe oral pain, loss of teeth and discomfort can result in disruption in eating habits and dietary intake.<sup>(33)</sup> For children, this can have a great impact on getting the sufficient nutrients needed to support physical growth, and behavioral and learning development.<sup>(11)</sup>

In addition to impacting an individual's quality of life and well-being, untreated oral diseases can lead to other adverse medical outcomes such as cardiovascular disease, dementia, respiratory infections, and complications in controlling glucose levels for diabetes.<sup>(17,34)</sup>

### Practice implications

A number of promising practices for vision and oral health have emerged over the past 10 years, including mobile eye and dental screenings, shelter-based dental services, tele-ophthalmology, and tele-dentistry.<sup>(8,18,35)</sup> Another implication for oral health practice is the inter-professional movement in integrating and increasing collaboration between primary and dental care.<sup>(18,36)</sup> For example, Haber et al. found that by transforming the head, ears, eyes, and throat (HEENT) curriculum, received by health professionals, to include oral (HEENOT) examinations actually increased dental-



primary care collaboration and referrals. These service models are designed to reduce barriers in accessing preventive and treatment services as well as increase awareness of the importance of vision and oral health to the overall health of an individual.<sup>(18,36)</sup>

### Recommendations

To better understand the state of vision and oral health among individuals experiencing homelessness and ensure positive outcomes for this population, the following actions are recommended:

- Collect accurate comparable data regarding vision and oral health diseases, services utilization, and needs in the homeless population
- Implement service delivery models to reduce and eliminate barriers to accessing vision and oral health services, such as integration into primary care; and
- Ensure health care coverage of vision and oral services through policy changes.

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## DISCLAIMER

This publication was made possible by grant number U30CS09746 from the Health Resources & Services Administration, Bureau of Primary Health Care. Its contents are solely the responsibility of the author and do not necessarily represent the official views of the Health Resources & Services Administration.

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**Suggested citation:** National Health Care for the Homeless Council. (June 2015). **Vision and Oral Health among Individuals Experiencing Homelessness: A Quarterly Research Review of the National HCH Council**, 3:3. [Author: Claudia Davidson, Research Associate] Nashville, TN: Available at: [www.nhchc.org](http://www.nhchc.org).

**Acknowledgements:** Contributing edits made by Molly Meinbresse, Director of Research at the National HCH Council.

For more research on vision and oral health and its role in the lives of individuals experiencing homelessness, contact Claudia