2024

A quality improvement study of Barbara McInnis house medical respite facility at Boston Health Care for the Homeless Program’s dental clinic

BOSTON UNIVERSITY

ARAM V. CHOBANIAN & EDWARD AVEDISIAN SCHOOL OF MEDICINE

Thesis

A QUALITY IMPROVEMENT STUDY OF BARBARA MCINNIS HOUSE MEDICAL RESPITE FACILITY AT BOSTON HEALTH CARE FOR THE HOMELESS PROGRAM'S DENTAL CLINIC

by

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B.A., College of the Holy Cross 2019

Submitted in partial fulfillment of the

requirements for the degree of

Master of Science

2024

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ACKNOWLEDGMENTS

I want to express my gratitude to Dr. Davies, my advisor at Boston University, for her constant support and commitment during the past two years. Without her belief in me and guidance on OHS and DMD classes, as well as dental school applications, I wouldn't have come this far. Additionally, I would like to acknowledge Dr. Bottenfield for her advice, enthusiasm, and patience in helping me complete this thesis. Her dedication played a crucial role in its success.

I am also thankful to my friends and family who have been there for me throughout this project. Whether it's lending an ear, reviewing numerous drafts, or encouraging me to take breaks, their assistance has been invaluable. I would like to extend my appreciation to my BHCHP family, particularly the dental team, respite team, and research institute. The overwhelming support and guidance from my former dental colleagues have been invaluable. Additionally, I want to thank Dr. Prasad for her expertise and mentorship over the past few years.

Lastly, I am grateful to the respite patients who participated in this project. Interacting with them daily has been enlightening, teaching me much about each individual beyond the scope of this project. Without their trust and support, this dream endeavor would not have been possible.

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ABSTRACT

The issue of inadequate oral health care and the difficulties faced in maintaining consistent dental health are concerns for persons experiencing homelessness (PEH). The Boston Health Care for the Homeless Program (BHCHP) dental clinic strives to provide comprehensive and high-quality oral health care to meet the dental needs of homeless patients. One crucial aspect of improving oral health care for PEH is assessing patient satisfaction.

Currently, there is no tool available to evaluate patient satisfaction specifically in relation to dental care at BHCHP. To address this gap in knowledge, a survey was developed and conducted at the dental clinic. The purpose of this survey was to identify and assess the needs and satisfaction levels of medical respite patients staying at Barbara McInnis House, at BHCHP. By gathering feedback from patients, the research aimed to inform the dental team at BHCHP about areas that require improvement and provide valuable information about oral health care among PEH who are undergoing medical respite care.

The study had three primary goals: first, to characterize the demographic profile and dental service utilization of patients who had completed at least one dental visit at BHCHP; second, for Barbara McInnis House patients, who did complete at least one

dental visit, assess their usage relative to other variables. For patients who did not complete at least one visit, determine the level of interest in future dental care; third, to evaluate the level of satisfaction among patients relative to other dental service usage variables.

In designing this survey, questions about satisfaction were adapted from other standardized surveys focusing on oral health care and PEH. The survey was conducted between January 11, 2024, and February 17, 2024, targeting patients receiving medical respite care. All statistical analyses were performed using the latest version of IBM SPSS Statistics.

Out of the 64 patients included in the study, 57.8% had completed at least one dental visit at BHCHP, while 42.2% had not. Among those who had completed at least one dental visit, the majority were males, Caucasian, and between 45-54 years old. In terms of satisfaction levels, 56% of the satisfaction questions posed to patients received high scores. In general, patients at Barbara McInnis House who were interested in receiving dental care preferred to receive it at BHCHP, in comparison to those who were not interested. The dental services that were most commonly requested included cleanings, dentures, and extractions. However, among patients who were not interested in receiving care at BHCHP, there was an interest in cleanings, implants, and extractions.

No statistically significant relationships were found between satisfaction and the total number of dental appointments completed at BHCHP dental clinic or the time since the most recent appointment. This suggests there is no correlation between the total number of dental appointments nor the timing of the last dental visit and satisfaction.

It is clear that dental care is valued and utilized by medical respite patients at Barbara McInnis House. Overall, the majority of patients are satisfied with patient communication and commitment to care. They feel they are treated with courtesy and respect, understand their treatment options, recommendations, and oral health choices. However, they are less satisfied with how well they feel the dental team listens to them, how their comfort is prioritized during appointments, trust to keep oral health information private, and seeing the dental team quickly following a dental emergency.

Efforts to enhance the satisfaction and provision of dental care for PEH at BHCHP can be achieved by gaining a deeper understanding of the factors that contribute to high or low satisfaction. Further research is necessary to develop quality improvement initiatives that consider the satisfaction levels of Barbara McInnis House patient's oral health care. This project serves as an initial step towards comprehending the needs and level of satisfaction among medical respite patients at Boston Health Care for the Homeless Program's dental clinic.

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LIST OF ABBREVIATIONS

BMC..... Boston Medical Center

BHCHP .....Boston Health Care for the Homeless Program

BMH ..... Barbara McInnis House

BU ..... Boston University

CAHPS.....Consumer Assessment of Healthcare Providers and Systems

CHC .....Community Health Center

CQI.....Continuous Quality improvement

CSQ4.....Client Satisfaction Questionnaire- 4

DPQ ..... Dental Practice Questionnaire

DSQ ..... Dental Satisfaction Questionnaire

DVSS .....Dental Visit Satisfaction Survey

ED ..... Emergency Department

FQHC..... Federally Qualified Health Center

HCH .....Health Care for the Homeless

HIV ..... Human Immunodeficiency Virus

HOSBSPEH ..... Health of Boston Survey of People Experiencing Homelessness

HSCS ..... Homeless Satisfaction with Care Scale

HUD..... Housing and Urban Development

LGOHI .....Locker's Global Oral Health Item

MA ..... Massachusetts

MCOs .....Medicaid or Managed Care Organizations

MRC ..... Medical Respite Care

NHCHC ..... National Health Care for the Homeless Council

NIH ..... National Institute of Health

NIMRC ..... National Institute for Medical Respite Care

OHC ..... Oral Health Care

OHIP-14 ..... Oral Health Impact Profile- 14

PCQ-H ..... Primary Care Quality- Homeless

PEH ..... People/Person(s) Experiencing Homelessness

PITC ..... Point In Time Count

PSQ ..... Patient Satisfaction Questionnaire

PSS ..... Patient Satisfaction Survey

QI ..... Quality Improvement

SERVQUAL ..... Service Quality

SPOHC ..... St Patrick's Oral Health Clinic

SUD ..... Substance Use Disorder

UK ..... United Kingdom

US ..... United States

INTRODUCTION

Approximately, 650,000 people experience homelessness each night in the United States (U.S. Department of Housing and Urban Development (HUD), 2023). Persons experiencing homelessness (PEH) are more likely to suffer from oral and periodontal diseases, poor oral health, and face challenges in accessing dental care compared to the general population (Baggett et al., 2010; Conte et al., 2006; Daly et al., 2010; Dolce et al., 2018). Despite efforts to improve access and encourage regular dental visits, homeless individuals often do not seek care (Goode et al., 2018). Barriers such as cost, dental anxiety, and delaying treatment until experiencing acute dental pain hinder this group from seeking dental care (Coles et al., 2012; Conte et al., 2006; Csikar et al., 2019; Hill & Rimington, 2011). In response to these challenges, Health Care for the Homeless (HCH) programs across the United States have developed innovative approaches and models to provide tailored dental care within the homeless health care setting in order to mitigate the consequences of poor oral health (Dolce et al., 2018).

The Boston Health Care for the Homeless Program (BHCHP) has become one of the country's largest service models offering quality health care for homeless individuals and families in the greater Boston area (Baggett et al., 2010). BHCHP provides various programs including medical respite care (MRC), medical services, behavioral health services, oral health care (OHC), mobile health units, case management, street outreach, and more. Since its establishment in 1985, BHCHP has served over 11,000 homeless individuals (Baggett et al., 2010; Koh et al., 2023). For PEH in need of a safe place to recover after hospital stays, BHCHP offers MRC which provides short-term post-acute

medical and nursing care as an alternative to staying on the streets or in a shelter environment (Doran et al., 2013; McCarthy & Waugh, 2021). The respite program at BHCHP aims to assist homeless patients with navigating health and social services (McCarthy & Waugh, 2021; O'Connell et al., 2010). Therefore, BHCHP has a unique opportunity within its existing infrastructure to promote and facilitate oral health care among homeless individuals receiving respite care (Leonardo, 2023).

At BHCHP's dental clinic, known as Jean Yawkey Place, the goal is to provide high-quality oral health care using a patient-centered approach with readily available access (BHCHP, n.d.). To achieve this goal, future research suggests implementing patient satisfaction questionnaires to document program outcomes and improve dental services at BHCHP's dental clinic (Bolden et al., 1995). While surveys about patient experiences in primary medical care are conducted annually at BHCHP, no surveys have been conducted to evaluate satisfaction with OHC (The BHCHP Institute | Boston Health Care Center for the Homeless, n.d.). Considering that the dental clinic is located on-site with the medical respite facility and there are policies in place for coordinating care, patients at Barbara McInnis House serve as a convenient sample of dental patients.

Understanding the perspectives of homeless individuals regarding dental health services and overall satisfaction is crucial given the numerous obstacles they face in accessing OHC (Dolce et al., 2018). By gaining insights from this subgroup, providers can identify areas in need of improvement to better meet the needs of these patients,

ultimately reaching more homeless individuals in need of dental care and promoting adherence to treatment plans (Dolce et al., 2018).

The quality improvement project undertaken here aims to enhance the dental clinic outcomes at Jean Yawkey Place through the evaluation of a survey assessing oral health care for homeless individuals under medical respite care, specifically focusing on their satisfaction.

LITERATURE REIVEW

Scope of Homelessness

Homelessness encompasses various living situations, including street living, shelter or encampment stays, transitional housing, or staying with family or friends (National Health Care for the Homeless Council (NHCHC), 2019). Between 2022 and 2023, there was a nationwide 12% increase in PEH (HUD, 2023). The US Department of Housing and Urban Development (HUD) defines homelessness as lacking a fixed, regular, and adequate nighttime residence (HUD, 2023).The 2023 point-in-time count (PITC) reported the highest number of PEH since initial reporting in 2007, with an overall increase in family (16%) and individual (11%) homelessness (HUD, 2023). New York, California, Florida, Colorado, and Massachusetts (MA) had the largest increases in homelessness among families with children during this period (HUD, 2023). In MA specifically, there was a 29% increase in homelessness among families and children due to factors such as lack of affordable housing and an influx of migrant families without alternative shelter options (HUD, 2023). It is important to note that PITC data provides only a snapshot of visible homeless individuals within a particular survey area and does not capture the

entirety of the homeless population or experiences of hidden homelessness (Leonardo, 2023). Consequently, studies on homelessness, general health, and oral health are often constrained by small sample sizes as the exact number of homeless individuals is underestimated (Figueiredo et al., 2013).

Homelessness and Health

The phenomenon of homelessness stems from various factors, including poverty, mental illness, substance abuse, chronic illness, unemployment, low wages, economic conditions, deinstitutionalization, family crises, unfortunate circumstances, and lack of affordable housing (Allukian Jr, 1995; King & Gibson, 2003). The health issues faced by homeless individuals contribute to higher levels of physical and mental illness, substance abuse, and chronic diseases compared to those who have stable housing (Lebrun-Harris et al., 2013; Lewer et al., 2019; Schanzer et al., 2007). The poor health resulting from living in crowded shelters and exposure to infectious diseases complicates the management of illnesses, highlighting the often overlooked link between health and homelessness (O'Connell et al., 2010).

PEH are three times more likely to report chronic diseases such as asthma, chronic obstructive pulmonary disease, epilepsy, and heart problems (Lewer et al., 2019). PEH have a higher rate of illness and an average life expectancy that is 12 years shorter than the general US population (NHCHC, 2019). A study conducted in Boston from 1988 to 1993 found that homeless men aged 18 to 44 were more likely to die compared to their housed counterparts (Hwang et al., 1997). Another study analyzing data from adults seen at BHCHP between 2003 and 2018 revealed that drug overdose was the leading cause of

death among PEH across all age, gender, race, and ethnicity groups (Fine et al., 2023). Therefore, it is crucial to provide quality care for this specific population due to their transient nature, elevated risk of health problems and shorter life expectancy, and numerous barriers when accessing healthcare services (King & Gibson, 2003).

Prevalence of Oral Health Issues Among Persons Experiencing Homelessness

Numerous studies conducted in different countries including the United Kingdom (UK), US, Canada, Australia, China, and Sweden consistently show that homeless individuals have poor oral health status (Figueiredo et al., 2013; Mago, 2015). These studies indicate that PEH experience high rates of dental pain and infections, dental caries or missing teeth, the need for emergency dental treatment, self-reported poor oral health, and lack of dental check-ups for over a year (Figueiredo et al., 2013; Freitas et al., 2019; Mago, 2015). Additionally, there are consistent findings across North America that show a high demand for preventative, restorative, and oral hygiene services among PEH due to higher rates of untreated cavities and tooth loss (Figueiredo et al., 2013; Kaste & Bolden, 1995). Commonly reported challenges associated with dental care utilization among PEH include lack of dental insurance, limited access to dental care, and lack of awareness (Baggett et al., 2010; Chi & Milgrom, 2008; Goode, 2023; Goode et al., 2018; Venguidesvarane, 2019). A study found that having dental problems was a significant factor associated with the use of Health Care for the Homeless Program services among homeless adults in the US (Han et al., 2003). According to a patient survey conducted by the Health Resources and Services Administration in 2009, 90% of homeless patients

receiving Health Care for the Homeless (HCH) reported having dental problems within the past six months (Lebrun-Harris et al., 2013).

Factors Impacting Oral Health Outcomes Among Persons Experiencing Homelessness

Factors impacting oral health outcomes among PEH include aging and comorbid diseases. Aging can lead to increased prevalence of oral health problems such as tooth loss and oral pain (Freitas et al., 2019; National Institute of Health, 2021). A study conducted in downtown Los Angeles found that older individuals experiencing homelessness had the most severe cases of untreated caries, with higher average decayed teeth scores compared to younger groups. (Seirawan et al., 2010). Comorbid diseases, such as diabetes and human immunodeficiency virus (HIV) infection, can also contribute to poor oral health outcomes (NHCHC, 2015; Smith et al., 2000). People with diabetes have a higher risk of developing periodontal disease, which can be challenging for unstably housed individuals to manage (Eke et al., 2018). Tooth decay and periodontal disease negatively impact quality of life, affecting physical and mental well-being (Leonardo, 2023; Mago, 2015). The homeless population often faces barriers in accessing dental care, exacerbating the burden of oral disease (Baggett et al., 2010; Chi & Milgrom, 2008; Freitas et al., 2019; Hall et al., 2021; King & Gibson, 2003; Mago, 2015).

Oral Health Care Relationship with Social Well- Being, Substance Abuse, and Behavioral Health Among Persons Experiencing Homelessness

Factors related to social well-being, substance abuse, and behavioral health also play a role in oral health among PEH. Homelessness can lead to poor oral health, affecting appearance and impairing basic functions like breathing, eating, and speaking (National Institute of Health (NIH), 2021). Issues such as depression, employability, nutrition, and social interactions further impact the overall health and quality of life for those experiencing homelessness (Beaton et al., 2021; Coles et al., 2011; Daly et al., 2010). For instance, PEH self-report lower morale, more stress, and less life satisfaction in comparison to those who self-perceive good oral health status (Williams & Stickley, 2011).

Substance use disorder (SUD) and mental illness contribute to oral diseases through direct impacts on teeth and gums (Csikar et al., 2019; Ford et al., 2014; Freitas et al., 2019; Hall et al., 2021). PEH who use illicit drugs are more susceptible to these issues (Locker et al., 2000; Williams & Stickley, 2011). Tooth pain, dental decay, and tooth loss can have a negative impact on sleep and nutrition, which in turn it can exacerbate behavioral illness, SUD, and chronic disease (Freitas et al., 2019; Gibson et al., 2003; Okunseri et al., 2010). Taking multiple prescription drugs for treatment of SUD and behavioral illnesses can increase the risk for adverse effects on the mouth such as dry mouth leading to tooth decay and behaviors like teeth grinding (Hall et al., 2021; NHCHC, 2015).

Additionally, many PEH living with SUD and behavioral illnesses often have repeated and prolonged hospital stays and frequent emergency visits (McCarthy & Waugh, 2021). These illnesses are often prevalent among PEH admitted to respite care (Doran et al., 2013). However, compared to those released to the streets, respite patients have a significantly lower likelihood of being readmitted to the hospital within 90 days of discharge (Kertesz et al., 2009).

PEH, especially those with behavioral health concerns, may have pre-existing traumatic experiences that prevent them from seeking oral health care due to lack of motivation or prioritization, fear, anxiety, or insecurity (Hall et al., 2021; Kisely, 2016). While OHC can potentially induce or worsen past traumas and stress, dental services can improve SUD treatment outcomes and provide long-term benefits such as improved employment, food security, and permanent housing (Hanson et al., 2019; Kisely, 2016). Therefore, maintaining consistent oral hygiene practices and regular dental visits can help prevent and treat oral diseases and minimize adverse effects for patients with SUD or behavioral illness affecting their oral health (Hall et al., 2021; Leonardo, 2023).

Barriers to Accessing Oral Health Care Among Persons Experiencing Homelessness

Among PEH, there are several barriers when it comes to accessing oral health care. Structural barriers include requirements for registering for publicly funded dental programs and government insurance (Durey et al., 2022; Goode et al., 2018; Mago et al., 2018; Omerov et al., 2020; Paisi et al., 2019). Organizational barriers include disrespectful treatment by dental health providers and personnel as well as viewing dental care as a lower priority with only emergency care sought for treatment (Durey et al.,

2022; Goode et al., 2018; Mago et al., 2018; Omerov et al., 2020; Paisi et al., 2019). PEH often prioritize basic survival needs like finding shelter and food over accessing health care and social services (Omerov et al., 2020; Paisi et al., 2019). Stigmas, discrimination, and bureaucracy also hinder these individuals from accessing the necessary health care services they need (Mago et al., 2018; Omerov et al., 2020). Poor access to proper diet, consumption of sugary convenience foods, lack of clean water, toothbrushes, floss, toothpaste, and regular preventative dental care all contribute to poor oral health among PEH (Eke et al., 2018; Frankish et al., 2005). According to Chi et al. (2008), 45% of homeless participants said they did not have 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 (Chi & Milgrom, 2008). In addition, risky behaviors such as tobacco, alcohol, and substance abuse, along with a high prevalence of oral traumatic injuries among the homeless population, contribute to dental phobia and avoidance of treatment (Eke et al., 2018; Ford et al., 2014; Freitas et al., 2019; Goode et al., 2018; Hall et al., 2021; NHCHC, 2015; Paisi et al., 2019).

Affordability for Oral Health Care Among Persons Experiencing Homelessness

The cost of dental care is a major factor in avoiding or delaying treatment for homeless individuals (Baggett et al., 2010; Goode et al., 2018; Mago et al., 2018; Paisi et al., 2019). Not all states require Medicare or Medicaid dental benefits for adults, leaving it up to the states to determine what coverage is available (Northridge, 2016). Medicare only provides emergency coverage, excluding routine treatments like cleanings, fillings, extractions, or dentures (Dolce et al., 2018; Figueiredo et al., 2013; Institute of Medicine

& National Research Council, 2011). The transient nature of homelessness makes it difficult for individuals to maintain consistent coverage due to lack of a permanent home address (Goode et al., 2018; Logan et al., 2015; NHCHC, 2015; Nebeker et al., 2014). Additionally, finding a dental provider who accepts Medicaid can be challenging due to slow compensation and burdensome paperwork and regulations (Goode et al., 2018; Logan et al., 2015; NHCHC, 2015; Nebeker et al., 2014).

PEH often lack the knowledge on how to access dental care services and navigate through dental coverages and benefits (Conte et al., 2006; Dolce et al., 2018; Goode et al., 2018; Mago et al., 2018; Paisi et al., 2019). As a result, they often rely on emergency departments (ED) of hospitals, alcohol substances, self-remedies, and over-the-counter medications to address oral health problems (D'Amore et al., 2011; Figueiredo et al., 2016; Quiñónez Torres et al., 2011; Raven et al., 2017). Uninsured individuals face greater difficulties in accessing medical care, prescription drugs, dental care, and outside referrals compared to those with continuous Medicaid coverage (Seo et al., 2019). Policies that disrupt Medicaid coverage would have significant implications for individuals seeking care, particularly within community health centers (Seo et al., 2019).

A retrospective study from Boston Medical Center (BMC) in MA demonstrated an increase in dental-related ED visits when Medicaid coverage for adults was reduced (Neely et al., 2014). In 2014, reductions in US Medicaid dental programs led to an increase in ED visits for dental issues, indicating that oral health care should not be isolated from other healthcare systems (Cohen et al., 1996; Goode et al., 2018). In addition to the previously mentioned barriers, health centers may have limited capacity in

their dental clinics compared to medical clinics, resulting in individuals experiencing homelessness being more likely to receive medical care rather than dental care (Eke et al., 2018). Therefore, a crucial strategy is for health centers to integrate oral health and primary care in order to improve access to OHC (Eke et al., 2018).

Implications, Recommendations, and Strategies to Improve Oral Health Care for the Dental Safety Net Practice

To address the issue of low utilization of dental services at Federally Qualified Health Centers (FQHCs), it is important to note that only 21% of FQHC patients received dental services in 2015 since most facilities do not offer on-site dental services (Crall et al., 2016). Some FQHCs have separate dental clinics located at different sites within multisite organizations. Efforts should focus on establishing the necessary infrastructure, training, and quality improvement measures to make oral health care available at the majority of FQHC sites, benefiting all individuals but particularly underserved populations such as PEH (Crall et al., 2016).

In order to enhance the oral health care capacity of FQHCs, it is crucial to explore policy opportunities that can improve the workforce for oral health professionals in Community Health Center (CHC) safety nets (Edelstein, 2010). Policy changes related to dental education, licensure, scope of practice for allied dental personnel, and federal and state financing of public insurance could help address the lack of availability of dedicated dental professionals for underserved populations (Edelstein, 2010). Local initiatives aimed at changing social norms regarding care for underserved populations through public-private contracting between FQHCs and private dentists could expand the

workforce and improve the competency of dental professionals in the safety net (Edelstein, 2010). Furthermore, efforts to promote greater engagement with underserved populations among private dentists can also help address workforce challenges (Edelstein, 2010).

Homelessness and the Oral Health Landscape of Boston

Boston is a city that receives Continuum of Care funds from HUD through its participation in the PITC programs (City of Boston, 2023). To gather data on homelessness, the city conducts an annual census that includes individuals spending the night unsheltered on the street, as well as those staying in emergency shelter, transitional housing, or domestic violence shelter programs (City of Boston, 2023). The number of homeless individuals in Boston fluctuates each year due to factors like weather trends and bed availability (City of Boston, 2023). Over a longer period (2007-2023), Massachusetts experienced a 25% decrease in overall homelessness but saw a significant increase (29%) in family homelessness (HUD, 2023).

To gather data on health conditions and social determinants of health among people experiencing homelessness, the Health of Boston Survey of People Experiencing Homelessness (HOBSPEH) is conducted annually. This survey is a collaboration between the Homeless Services Bureau, Populations Health and Research, Bureau of Recovery Services, and Boston University School of Public Health (Boston Public Health Commission (BPHC, 2023). Through quantitative data collection at two emergency shelters and a day program over three months, the Homeless Services Bureau identified unmet needs and barriers unique to Boston's unhoused adults (BPHC, 20*23*).

Findings from the HOBSPEH conducted in 2022 among 57% of unhoused respondents found that 37% of unhoused adults in Boston typically seek medical advice or assistance from BHCHP, the BMH, or nurses at the emergency shelter or Engagement Center when they are sick or in need (BPHC, 2023). Additionally, 28% go to a hospital emergency department, 15% visit a doctor's office, and 6% do not have a usual place to go for healthcare (BPHC, 2023). Among unhoused adults who have not had stable housing for 3-9 years, 69% reported having access to a dentist or dental location compared to only 49% of those who have been without stable housing for less than one year (BPHC, 2023). In terms of dental care utilization, 54% of unsheltered adults in Boston visited a dentist within the past year compared to 37% of sheltered adults among 40% of unhoused respondents (BPHC, 2023).

Medical Respite Care and Dental Care: Boston Health Care for the Homeless Program's Framework

MRC is a form of acute and post-acute medical care for homeless individuals who are too ill or frail to recover on the streets but not ill enough to be hospitalized (Edgington, 2012). These programs provide an alternative for hospitals, preventing them from keeping homeless patients longer than necessary or discharging them to unsupported environments such as the street or inadequate shelters. (McCarthy & Waugh, 2021). MRC, in combination with housing placement services and effective case management, provides a stable environment for individuals with complex medical and psycho-social needs to recover from acute medical conditions (Edgington, 2012). Hence,

MRC plays a crucial role in the continuum of care for PEH or at risk of homelessness (Edgington, 2012).

In MA, there are currently three medical respite programs. One is located in Lynn, while the other two operate under the BHCHP umbrella. The Barbara McInnis House on Albany Street has 104 beds, and the Stacey Kirkpatrick House in Jamaica Plain has 20 beds (NHCHC, 2016). Boston's respite program offers round-the-clock nursing supervision, regular visits by nurse practitioners or physician assistants, on-site physician oversight, dental and psychiatric care within the facility, as well as case management support (Kertesz et al., 2009). On average, patients stay in the respite program for about one to three weeks (Edgington, 2012).

BHCHP's mission to provide high-quality healthcare to all homeless individuals in Boston is supported not only by city and state officials but also by teaching hospitals, community health centers (CHCs), and the state Medicaid agency (O'Connell et al., 2010). As an FQHC, BHCHP can receive reimbursements for eligible patient services covered under Medicaid or Managed Care Organizations (MCOs) through a sustainable payment model (National HCH Council and UnitedHealthcare, 2020; O'Connell et al., 2010). The Affordable Care Act has further aided Medicaid expansion states in reducing uninsurance rates for homeless patients from 51% in 2013 to 22% in 2020 compared to non-expansion states reporting a 63% uninsurance rate for homeless patients in 2020 (Koh et al., 2023; NHCHC, 2020). BHCHP's policy development essential service focuses on establishing payment mechanisms that support individual and community health efforts (O'Connell et al., 2010).

To fulfill the assurance essential service of connecting individuals with necessary personal health services and ensuring access to healthcare when it would otherwise be unavailable, BHCHP established a dental program (O'Connell et al., 2010). The dental services started with a part-time dentist working in 2 shelters in 1985 (O'Connell et al., 2010). Over time, the program expanded to include mobile care, reaching individuals at soup kitchens, shelters, and motels by 1990. In 1994, a second dentist and a permanent operatory were added at BMH, followed by a shared dental clinic within the South End Neighborhood Health Center in 2003 (O'Connell et al., 2010). The development of the dental program took into account the diverse needs of the homeless population and aligned with BHCHP's core public health functions and essential public health services (Bolden & Kaste, 1995; O'Connell et al., 2010)

The Institute of Research within the BHCHP framework has the objective of evaluating the service delivery model, educating the public and policymakers about HCH, and supporting teaching, education, and research in this field (O'Connell et al., 2010). However, there is currently a lack of quality improvement studies focused on the dental program and enhancing oral health care. This presents an opportunity to generate new insights and innovative solutions for addressing oral health issues at BHCHP, while also fostering collaboration between universities, health centers, and medical centers.

Quality Improvement in the Dental Setting

Improving quality in the dental setting involves elevating performance, quality, or safety beyond their initial levels through quality improvement (QI) initiatives (Campbell & Tickle, 2013). The application of continuous quality improvement (CQI) principles can

aid in the growth and stability of dental practices by increasing the number of new patients (Weintraub, 1996). To achieve successful quality dental service over time, it is crucial to understand the characteristics of quality that customers expect (Weintraub, 1996). Data on various systems such as patient circulation for treatment, employee relations with patients, supply inventorying, and employee continuing education play a vital role in CQI efforts. The extent to which these systems fulfill customer needs determines the overall quality of a practice (Weintraub, 1996). While assessing data on how dental practice systems meet consumer needs can provide insights into care quality, there has been a shift towards focusing on customer satisfaction and retention as catalysts for CQI initiatives (Patwardhan & Spencer, 2012).

Patient Satisfaction Surveys as a Tool for Quality Improvement

The effectiveness of patient satisfaction surveys as tools for improving quality is not uniformly supported in existing literature due to inconsistencies in defining patient satisfaction as a concept (Al-Abri & Al-Balushi, 2014). Donabedian's quality measurement model incorporates patient perception into assessing quality by considering patient satisfaction as a patient-reported outcome measure, while patient-reported experiences assess the structure's processes of care (Bjertnaes et al., 2012). Patient satisfaction reflects patient's involvement in decision making and their active participation in enhancing healthcare service quality (Iftikhar Ahmad et al., 2012). There is a strong link between measuring patient satisfaction and continuity of care, as satisfied patients are more likely to comply with treatment and follow healthcare providers (Al-Abri et al., 2013).

Although patient satisfaction surveys are considered important indicators of service delivery success, there is still a need for further development and refinement of standardized tools (Al-Abri & Al-Balushi, 2014). Patient satisfaction surveys (PSS) provide valuable insights into patient opinions and subjective perceptions, which can inform policy-making, administrative practices, and resource allocation in healthcare services (Afrashtehfar et al., 2020). Despite increased attention to patient satisfaction over the years, there are conflicting results regarding its impact on hospital QI initiatives (Al-Abri & Al-Balushi, 2014). Therefore, it is crucial to systematically and extensively utilize PSS results for developing improvement plans (Al-Abri & Al-Balushi, 2014).

Various survey instruments, both internally developed and standardized ones provided by private or public vendors, exist for measuring patient satisfaction (Al-Abri & Al-Balushi, 2014). However, the available standardized instruments such as PSQ (Patient Satisfaction Questionnaire)-18 and CAHPS (Consumer Assessment of Healthcare Providers and Systems) have limited scope despite their reliability and validity (Dawn & Lee, 2003). Consequently, healthcare organizations must carefully select an appropriate instrument that aligns with their specific needs (Al-Abri & Al-Balushi, 2014).

Dental Patient Satisfaction Surveys

Like medical healthcare surveys, understanding the factors influencing dental patients' satisfaction levels is essential for improving dental care quality. By identifying strengths and weaknesses in dental centers through patient satisfaction surveys, improvements can be made to enhance both patient satisfaction and dental care quality

(Aldossary et al., 2023). In a recent study, it was found that out of fourteen dental patient satisfaction instruments evaluated for psychometric validation, there was a lack of patient's perspective and limited cross-cultural adaptations to translation procedures (Nair et al., 2018). The Dental Visit Satisfaction Survey (DVSS) and the Dental Satisfaction Questionnaire (DSQ) were among the published instruments that showed satisfactory internal consistency but did not adhere to guidelines for health status measurement instruments selection, making these tools questionable in validity and reliably (Mokkink et al., 2010).

The DVSS consists of 10 questions to evaluate satisfaction with a specific dental encounter (Corah et al., 1984). It measures aspects such as information and communication, understanding and acceptance, technical competence, and overall satisfaction (Corah et al., 1984). One advantage of using the DVSS is its versatility across different dental practice settings (Corah et al., 1984). Additionally, it can be used alongside other questionnaires to explore shared decision making in doctor-patient relationships and how patient satisfaction influences treatment preferences (Sbaraini et al., 2012).

On the other hand, the DSQ is a 42-item measure with 13 subscales that provide a global perspective on healthcare systems (Chapko et al., 1985). There is also a shorter version with 19 items and six subscales focusing on access, availability/convenience, cost, pain, quality, and continuity (Davies & Ware, 1981). The DSQ was developed by the Rand Corporation which derived data from the National Health Insurance Study in the US conducted amongst adults who enrolled in an insurance plan covering most dental

services except orthodontics (Luo et al., 2018). It has been tested for reliability and validity in various populations including low-income groups (Golletz et al., 1995). The DSQ has been applied to evaluate dental care delivery systems of predoctoral clinics at Ohio State University College of Densitry (Bint et al., 2020; Mascarenhas, 2001).

In contrast to other instruments mentioned above, the Dental Practice Questionnaire (DPQ) and the CAHPS Dental Plan Survey focus on assessing patients' actual experiences rather than their expectations or attitudes (Karimux et al., 2023). These instruments provide actionable information that can be used for quality improvement implementation (Karimux et al., 2023). The DPQ is specifically designed for the Practice Accreditation Scheme as part of the Australian National Safety and Quality Health Service (Narayanan & Greco, 2014). On the other hand, the CAHPS is utilized to establish national benchmarks for dental insurance plan performance, particularly in terms of care delivery (Keller et al., 2009). The CAHPS survey focuses on communication and access domains, primarily for dental plans rather than providers (Karimux et al., 2023). Therefore, oral health care providers cannot solely rely on the CAHPS instrument to tool to comprehend or measure patient experiences (Karimux et al., 2023).

There have been few studies comparing patients' expectations of dentist communication with the actual communication provided by dentists (Afrashtehfar et al., 2020). This indicates a limited understanding of what patients anticipate in dental services versus what they actually receive from dentists (Dewi et al., 2011). By utilizing dimensions of empathy and responsiveness from the SERVQUAL model's 22-item scale

for measuring consumer perception of service quality, patients assigned varying levels of importance to different aspects of services (Dewi et al., 2011). The study revealed that patient satisfaction is primarily influenced by the response given by administration staff regarding long waiting times, followed by the dental assistant's knowledge about the patient's needs during treatment and the dentist's communication with the patient (Dewi et al., 2011). These findings are consistent with other models such as Parasuraman and Zeithaml, which highlight assurance and responsiveness dimensions as crucial factors affecting high-quality dental care (Bahadori et al., 2015).

Patient Satisfaction and Health Assessments with Healthcare for Persons Experiencing Homelessness

Regarding patient satisfaction and health assessments for individuals experiencing homelessness, a study conducted at BHCHP found that quality primary care had different interpretations for homeless patients compared to professionals caring for them (Varley et al., 2020). Through the Primary Care Quality-Homeless survey (PCQ-H), significant factors identified from this population include stigma, respect, and perspectives on patient control of medical decision-making regarding pain and addiction (Varley et al., 2020). It is recommended that homeless patients utilize a survey tool tailored to their specific definition of quality primary care, and services should be adapted to meet their unique needs (Kertesz et al., 2014). Furthermore, understanding how to apply qualitative and quantitative methods for healthcare patient surveys in the context of homelessness is crucial (Kertesz et al., 2014).

To measure satisfaction with care among homeless clients, the 20-item Homeless Satisfaction with Care Scale (HSCS) is used (McCabe et al., 2001).Research indicates that satisfaction of PEH with primary healthcare providers deviates from the established dimensions of satisfaction (McCabe et al., 2001). The identified themes of satisfaction include committed care, respectful engagement, trust, assumption-free practices, and inclusionary care, which should be incorporated into a care model specifically designed for homeless individuals (McCabe et al., 2001). Moreover. poor treatment by healthcare providers can create barriers and lead to a lack of respect and trust, which are closely tied to subjective satisfaction with healthcare (Davies & Ware, 1981). In comparison to other satisfaction measures, the HSCS demonstrates good internal consistency, reliability, and validity (Macnee & McCabe, 2004). Taking into consideration these tools developed for PEH, patient satisfaction is essential for the utilization of dental care among this population group (Macnee & McCabe, 2004).

Importance of Dental Patient Satisfaction Among Persons Experiencing Homelessness

A study conducted in Crawley, Australia found high levels of satisfaction with St Patrick's Oral Health Clinic (SPOHC) among homeless adults due to positive staff attitudes, low costs, time effectiveness, and staff sensitivity to anxiety (Hawkesford et al., 2021). Suggestions for improvement included reducing treatment waiting lists, offering additional treatment types, and improving communication and advertisement of the service (Hawkesford et al., 2021). Although these findings can inform similar oral health services for PEH, their generalizability is limited beyond SPOHC and disadvantaged

groups. (Hawkesford et al., 2021). Despite these limitations, the study utilized various questionnaires such as Locker's Global Oral Health Item (LGOHI), Oral Health Impact Profile-14 (OHIP-14), and the Client Satisfaction Questionnaire-4 (CSQ4), which have demonstrated reliability and validity in previous research involving disadvantaged populations (Attkisson & Zwick, 1982; Daly et al., 2010; Ford et al., 2014; Hawkesford et al., 2021).

Currently, there is a lack of a validated tool available to assess the oral health of PEH (Gordon et al., 2019). It is crucial to develop a practical tool for evaluating OHC patient experiences (Karimbux et al., 2023), considering that certain items may be irrelevant or unreliable for this population (Macnee & McCabe, 2004). In order to inform healthcare policies and initiatives, it is essential to have a valid and reliable measurement of satisfaction within the homeless population to ensure accurate data (Gordon et al., 2019). By understanding homeless individuals' satisfaction with dental health services, healthcare providers can work towards improving the quality of oral health care and identifying areas that need improvement (Dewi et al., 2011; Hawkesford et al., 2020).

Summary

To date, limited research has been conducted on the oral health needs of homeless individuals in Boston, despite the high prevalence of dental disease among this population and its increasing numbers in the city. Only two studies have focused on PEH in Boston (Bolden & Kaste, 1995; Kaste & Bolden, 1995). According to the 2022 HOBSPEH report, most unhoused adults in Boston have access to a dentist or dental facility (BPHC, 2023). However, having access does not guarantee completion of dental

appointments or adherence to recommended treatment (Goode et al., 2018). Addressing the impact of homelessness on satisfaction with oral health care is challenging due to various unknown factors associated with PEH's transient nature. Therefore, it is necessary to develop appropriate tools to assess the oral health needs of this population. This information can then be used to shape policies and practices aimed at providing effective prevention and interventions for improving oral health care (Gordon et al., 2019; Karimbux et al., 2023). Furthermore, these assessment tools should be validated and tailored to the unique circumstances of the unique homelessness cohort (Gordon et al., 2019).

GOALS

A survey was conducted to evaluate the usage of dental services among medical respite care patients at Boston Healthcare for the Homeless Program. This study focused on Barbara McInnis House respite patients, who are a unique population not classified as unsheltered or sheltered. The aim was to understand how these patients interact with, and access, dental services at BHCHP through the Yawkey Way facility. By assessing their usage and satisfaction levels, valuable insights can be gained regarding the current services provided. Since medical respite care patients are housed in the same building as the dental clinic, they may have increased exposure to the dental clinic during their stay and thus were an ideal population for this baseline cohort assessment.

The specific goals of this study are as follows:

- To characterize the demographics and dental service utilization of Barbara McInnis House patients who receive dental care at BHCHP during the study period of January 11th, 2024 and February 17th, 2024.
- For those Barbara McInnis House patients, who did complete at least one dental visit, assess their usage relative to other variables. For patients who did not complete at least one visit, determine the level of interest in future dental care.
- To assess the level of satisfaction among Barbara McInnis House patients who have used the dental clinic presently or in the past relative to other dental usage variables.

This thesis aims to gain a better understanding of how persons experiencing homelessness and receiving medical respite care at Barbara McInnis House utilize and perceive oral health care services at BHCHP. By examining patient utilization and satisfaction, we can support BHCHP's resolve to provide continuous quality improvement to services while also potentially highlighting areas for improvements and expansion in current dental services.

METHODS

This study received approval from the Research Institute of BHCHP and was exempt from the need for IRB approval. The use of iPad tablets was limited to on-site access and securely stored when not in use by the investigator.

Survey Design

The OHC at BHCHP Survey for QI was designed using the Qualtrics Research Suite, web-based survey tool that enables users to create, distribute, and analyze online surveys (Qualtrics, Provo, UT). The collection of data for this paper was conducted using Qualtrics software, Version 2024, between January and March. Copyright © 2024 Qualtrics. Qualtrics and all other Qualtrics product or service names are registered trademarks or trademarks of Qualtrics, based in Provo, UT, USA. For more information, visit https://www.qualtrics.com.

The survey consists of 23 questions that include either response choices on a five-point Likert scale, multiple-choice options, or an open-ended response question (Appendix 1). Satisfaction questions required a response on a five-point Likert scale, ranging from very satisfied to very dissatisfied. The questions use strongly agree, which means very satisfied and strongly disagree, meaning strongly dissatisfied. At the end of the survey, questions regarding participants' sociodemographic characteristics, dental services received, and service utilization patterns were included. It took approximately 10-15 minutes to complete the entire survey.

The patient satisfaction questions in the OHC at BHCHP survey for QI were carefully selected and adapted from various existing scales: Dental Visit Satisfaction Scale, DVSS (Corah et al., 1984), Dental Satisfaction Questionnaire, DSQ (Chapko et al., 1985; Davies & Ware, 1981), Consumer Assessment of Healthcare Providers and Systems, CAHPS (Keller et al., 2009), Homeless Satisfaction With Care Scale, HSCS (Macnee & McCabe, 2004), and Primary Care Quality-Homeless, PCQ-H (Kertesz et al.,

2014; Varley et al., 2020). Additionally, surveys conducted by Dewi et al. (2011), Hawkesford et al. (2021), and Schroeder and Hickey (2020) were consulted to assist in structuring the language and further refining the satisfaction questions.

The Dental Clinic and Medical Respite Setting at BHCHP

The dental clinic is located on the first floor of the building at 780 Albany Street, Boston. The clinic offers walk-in appointments and provides a range of dental services including routine exams, cleanings, emergency care, deep cleanings, fillings, extractions, and partial and complete dentures. If needed, the dental clinic provides consultations and referrals to other specialty providers if patients need more advanced care. Currently there are three dentists, one office manager, one hygienist, five dental assistants, as well as dental students on clinical externships. The clinic operates from Monday through Friday from 7:00 am to 3:30 pm with extended hours until 7:30 pm on some Thursdays. On Saturdays, it only provides care respite patients from 8:00 am to 12:00 pm. On average, it can see up to 25 patients per day.

The medical respite facility is located on floors three and four of BHCHP's Barbara McInnis House, which has a total of 104 beds. It caters to nearly 2000 homeless individuals annually, providing a range of care including acute and subacute treatment, pre and postoperative care, rehabilitation services, palliative care, and end-of-life care (O'Connell et al., 2010). Patients typically stay at the facility for approximately one to two weeks. Patients at BMH can request a dental appointment through the respite staff who then send an internal referral via Epic, the electronic health record system. Priority for dental appointments is given to BMH respite patients on Tuesday afternoons and

Saturday mornings; however, outpatients from other BHCHP sites and PEH also have equal access to care.

Recruitment

Patient recruitment for the study was conducted at BMH between January 11th, 2024 and February 17th, 2024. Recruitment hours were from 12:30 - 2:30 pm Monday through Friday, and on 3 consecutive Saturdays from February 3rd to 17th, 2024. During the first four weeks of recruitment, surveys were administered in the atrium of BMH. In the fifth week, surveys were conducted in patients' personal rooms at BMH. On Saturdays, surveys were administered in the BMH dental waiting room.

Surveys were administered using Qualtrics on an iPad. If unable to use the iPad, patients were allowed to complete a paper copy of the survey, which was then manually entered by the investigator into Qualtrics after the patient completed the survey. Each patient was only permitted to complete the survey once. To ensure no duplication, all patients signed their names on an attendance sheet. The survey was made available in both English and Spanish, and patients who needed assistance with translating the survey into Spanish had access to an in-person translator provided by BHCHP. For compensation, all patients received an oral health care kit consisting of a toothbrush, floss, toothpaste, a friendship bracelet, and a thank you card.

Participants

A total of 81 patients were enrolled in this study. All patients were 18 years old or above and were currently residing at BMH at BHCHP for MRC between January 11,

2024, and February 17, 2024. Fluency in either English or Spanish was a requirement for participation. The study excluded individuals without BMH patient status, those with severe mental health issues that affected their ability to consent or comprehend the survey, and individuals who displayed altered behavior (such as being abusive, psychotic, cognitively impaired, or severely intoxicated) as determined by the investigator.

Key Measures

The first measure investigated the demographics and utilization of dental services by BMH patients at BHCHP during the study and in the past. The second measure determined the future level of interest in dental services offered at BHCHP and the specific type of dental service patients were interested in. The third measure assessed the level of satisfaction with dental services provided relative to service usage among patients who have completed at least one dental visit.

Data Analysis

Statistical analyses were conducted using IBM SPSS Version 29 (Statistical Package for Social Sciences) with an alpha significance value of 0.05. Cronbach's alpha coefficient of 0.952 indicated strong reliability for the 18 satisfaction items and allowed combining them into one composite mean score using the Likert scale. Spearman's Correlation Test was utilized to assess the relationship between satisfaction and dental visits.

RESULTS

Out of the total of 81 patients who participated in the survey, 17 surveys were excluded. Two patients completed the survey twice. The first patient provided identical responses on both attempts, so only the first response was considered for analysis. The second patient had different responses for each attempt, so both of their responses were excluded from analysis. One patient started but did not complete more than half of the survey due to difficulty sitting for a long time. Ten patients needed assistance reading the survey because of sight difficulties. The researcher read the questions aloud and recorded their answers on an iPad, rather than having the patients input their own responses. These 10 patients were excluded from data analysis based on the researcher's decision. Three patients completed the survey in Spanish but were removed from results and data analysis due to a small sample size. As a result, 17 patient responses were excluded, leaving a sample size of 64 patients.

Patient Demographics

Table 1 displays demographic information for BMH patients who took part in the survey. The results revealed that 75% identified as male, while 23.4% identified as female. One patient did not provide a response to the gender question. The largest proportion of patients (35.9%) fell into the 45-54 age group, followed by the 55-64 age group (25%). Most surveyed patients identified as White or Caucasian (54.7%), with Black or African American following at 25%. Additionally, 84.1% identified as Spanish,

Hispanic, or Latino in origin. Most patients reported not being fluent in any language other than English (88.7%).

Table 1. Barbara McGinnis House Patient Demographics.

Patients were surveyed on their demographics, including age, gender, race, ethnicity, fluency in languages other than English, and whether they had completed a dental visit. The highest percentage of patients fell into the 45-54 age group. Most patients were male and more than half identified as White or Caucasian (n=64).

		Count	Column N %
At least one dental visit?	No	27	42.2%
	Yes	37	57.8%
Age Group (years)	18-24	1	1.6%
	25-34	9	14.1%
	35-44	11	17.2%
	45-54	23	35.9%
	55-64	16	25.0%
	65+	4	6.3%
Gender	Male	48	75.0%
	Female	15	23.4%
Missing Gender	0	1	1.6%
White or Caucasian	No	29	45.3%
	Yes	35	54.7%
Black or African American	No	48	75.0%
	Yes	16	25.0%
American Indian/Native American or	No	61	95.3%
Alaska Native	Yes	3	4.7%
Asian	No	64	100.0%
	Yes	0	0.0%
Native Hawaiian or other Pacific	No	63	98.4%
Islander	Yes	1	1.6%
Other	No	56	87.5%
	Yes	8	12.5%
Prefer not to say	No	61	95.3%
	Yes	3	4.7%
Spanish, Hispanic/ Latino origin?	Yes	10	15.9%
	No	53	84.1%
Fluent in another language besides	Spanish	4	6.5%
English?	No	55	88.7%
	Portuguese	1	1.6%
	Other, not listed	2	3.2%

Patient Response to Completion of at Least One Dental Visit

Among the total of 64 patients, 57.8% had visited BHCHP dental clinic at least once, while 42.2% had not (Table 1). In terms of gender and age breakdowns among those who had completed at least one dental visit: a higher proportion of males in the 45-54 age group (32.2%) had visited compared to males in the 55-64 age group (13.3%). Similarly, a higher proportion of females in the 45-54 age group (5.4%) had visited compared to females in the 55-64 age group (0%).

In contrast, a lower proportion of females in the 45-54 age group (11.1%) had not completed at least one dental visit compared to females in the 55-64 age group (14.8%). However, the percentages for males who had not completed at least one dental visit were the same between those in the 45-54 age group and those in the 55-64 age group (both at 22.2%). Among patients who had visited BHCHP dental clinic at least once, there were three times as many males as females in the 65+ age group. Additionally, among patients who had visited BHCHP dental clinic at least once, the youngest patient (18-24 years old) was female (Figure 1).

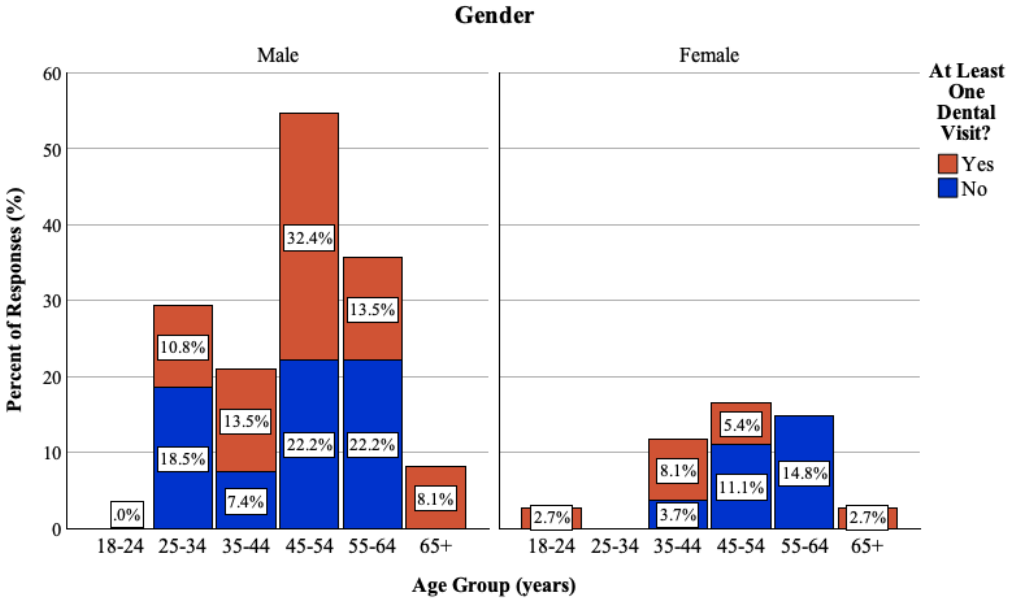

Figure 1. Completion of at Least One Dental Visit by Gender and Age Group
The stacked bar chart illustrates the breakdown of age groups by gender and completion of at least one dental visit. Male patients aged 45-54 had the highest proportion of completed dental visits compared to other genders and age groups at BMH. Among patients aged 18-24, more females completed at least one dental visit compared to males in the same age group. Male patients aged 65 or older had a higher rate of completing at least one dental visit compared to female patients in the same age group (n=64).

Additional Dental Care Relative to Other Variables

A series of additional survey questions were posed to patients who had attended at least one dental appointment. Comparing the number of completed dental appointments at the BHCHP dental clinic, 35.1% of patients had completed more than five appointments, while 2.7% had completed five appointments, 10.8% had completed four appointments, 8.1% had completed three appointments, 16.2% had completed two appointments, and 27% had only completed one appointment (Figure 2).

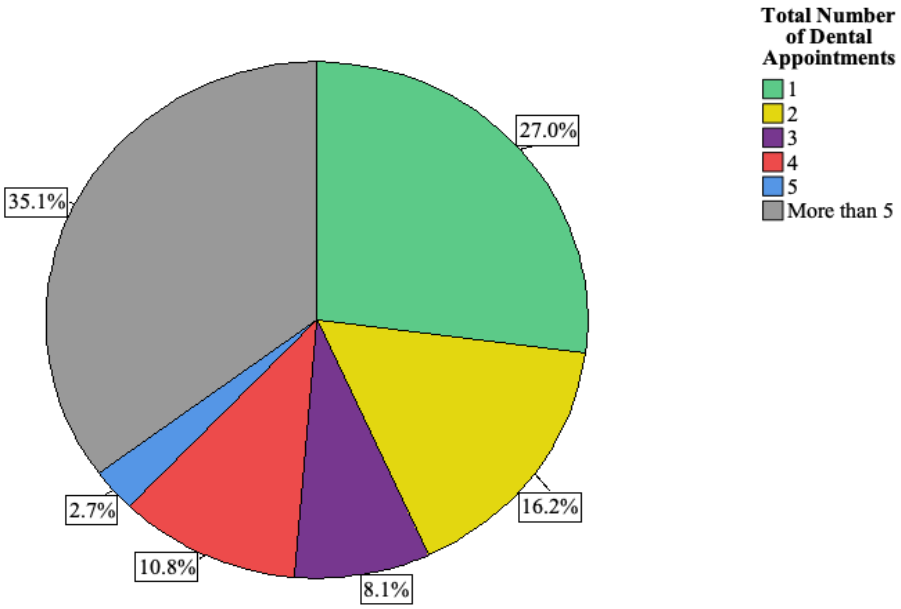

Figure 2. Completed Dental Appointments at BHCHP

The pie chart shows the percentage of patients who have completed different numbers of appointments at BHCHP dental clinic. Most patients completed more than five appointments, followed by those who completed only one appointment (n=37).

The most recent dental appointment involved various procedures, including extraction (32.4%), cleaning and checkup (18.9%), denture or partial (16.2%), consult for referral (16.2%), dental emergency (8.1%), deep cleaning (5.4%), and filing (2.7%) (Figure 3).

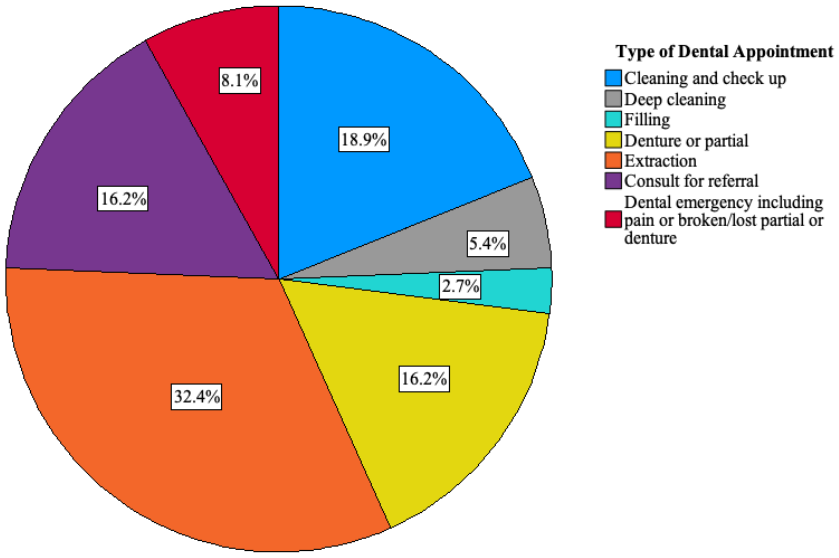

Figure 3. Type of Most Recent Dental Appointment at BHCHP
This pie chart displays the percentage breakdown of the type of procedure received during a patient's most recent dental appointment at BHCHP. Extractions were the most common procedure, followed by cleanings and checkups (n=37).

When asked about the time since their last dental appointment at the BHCHP clinic, BMH patients provided the following responses: unable to remember (24.3%), more than three months ago (21.6%), 3-5 weeks ago (13.5%), today (10.8%), less than one week ago (10.8%), 1-2 weeks ago (8.1%), and more than one month ago (8.1%) (Figure 4).

Approximately 51.4% of patients reported having a future dental appointment scheduled with BHCHP, while 40.5% did not have any appointment scheduled; additionally, 8.1% mentioned that they would call the dental clinic to schedule a future appointment, and none said they would walk in for emergency hours at the clinic (Figure 5).

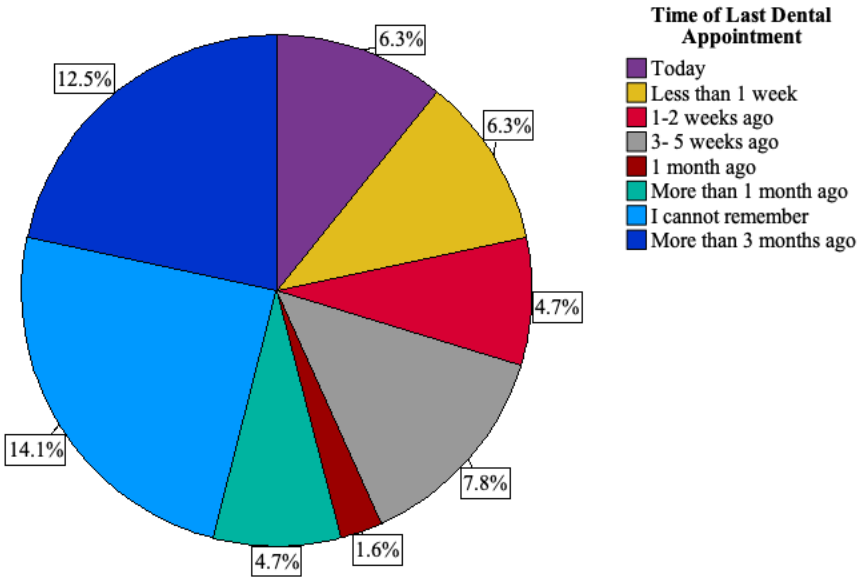

Figure 4. Time of Last Dental Appointment at BHCHP

The pie chart illustrates the percentage of time elapsed since a patient's last dental appointment at BHCHP. Most patients could not remember when their most recent appointment took place. The second largest group reported that their last appointment was over three months ago (n=37).

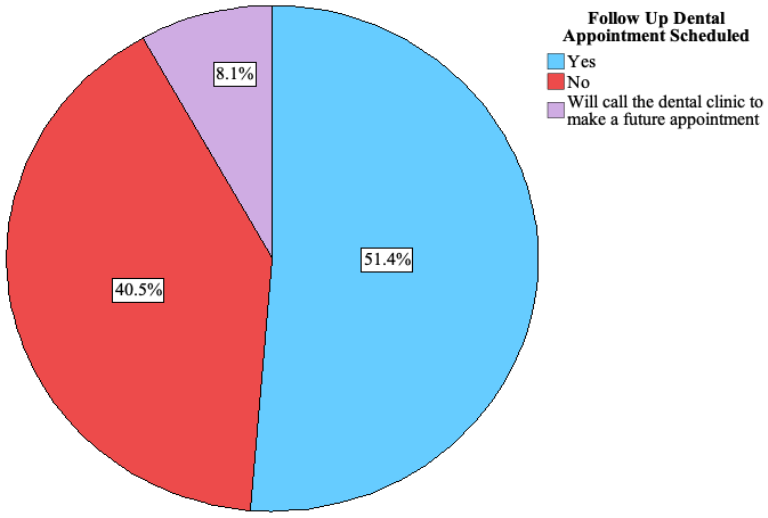

Figure 5. Follow up Dental Appointment Scheduled at BHCHP.

This pie chart indicates the percentage of patients with scheduled future dental appointments at BHCHP. Just over half of the patients stated that they have a future dental appointment scheduled with BHCHP (n=37).

Moreover, when asked about referrals for dental treatment elsewhere, approximately 75.8% stated they did not have any referral, whereas 18.2% affirmed having a referral elsewhere and 6.1% were unsure (Figure 6).

Regarding transportation to dental appointments at BHCHP, patients who did not stay at BMH reported using public transportation (51.4%) or walking (29.7%), while others used a combination of services (8.1%), services through medical companies including BHCHP (5.4%), their own vehicle, or had a friend or family member take them (2.7%). None of the patients mentioned using ride-hailing apps such as Uber or Lyft for transportation (Figure 7).

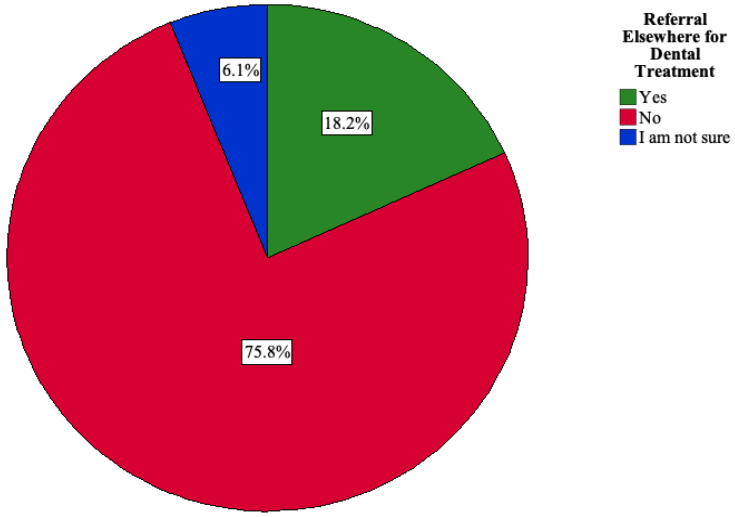

Figure 6. Referrals Elsewhere for Unavailable Dental Treatment at BHCHP Dental Clinic

The pie chart shows the percentage patients with dental referrals elsewhere if dental treatment is not provided by BHCHP. Most patients did not have a referral for dental treatment elsewhere (n=33).

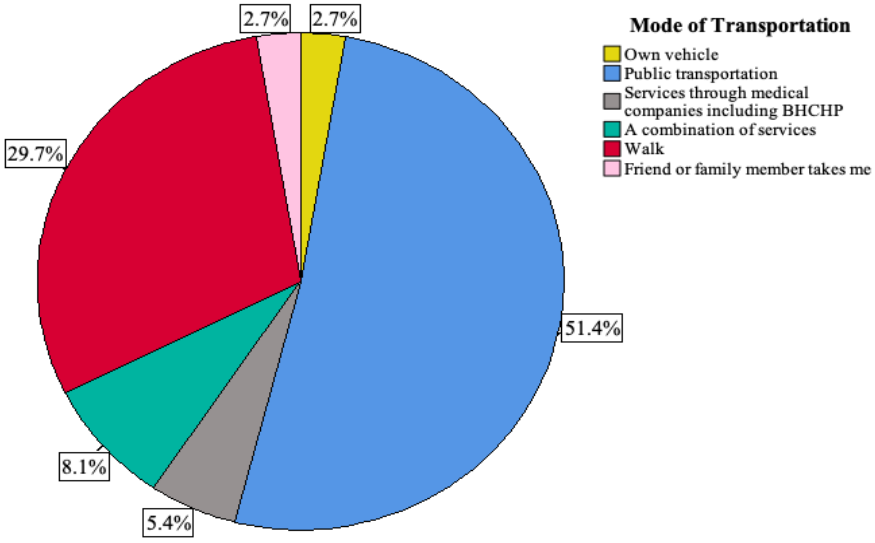

Figure 7. Mode of Transportation to Dental Appointments at BHCHP

The pie chart shows the means of transportation patients utilized for dental appointments to BHCBP. The majority were through public transportation (n=37).

In terms of transportation methods to reach dental appointments at BHCHP, reported in percentages, patients who were not staying at BMH reported using public transportation or walking. None of the patients chose ride-hailing services like Uber or Lyft, or other modes of transportation.

In terms of preferred locations for addressing dental problems, 70.3% of BMH patients who had completed at least one dental appointment with BHCHP chose the BHCHP dental clinic compared to 33.3% of BMH patients who had not attended any dental visit (Figure 8). Among those who had completed at least one visit, approximately 8.1% opted for another community health center, whereas only 3.7% of those who hadn't completed any visit made the same choice (Figure 8). Roughly 8.1% of patients who had completed at least one dental visit were uncertain about where to go, compared to 25.9% of those who hadn't attended any dental visit (Figure 8).

A higher proportion of BMH patients who hadn't completed any dental visits at BHCHP (11.1%) chose to go to the emergency room, while only 5.4% of those who had attended at least one dental visit made that choice (Figure 8). Those who hadn't visited BHCHP for dental care were more likely to select multiple places (3.7%) than those who had attended at least one visit (2.7%) (Figure 8).

A greater proportion of BMH patients without any dental visits at BHCHP preferred going to a private dentist when they experienced a dental problem (14.8%), in comparison to BMH patients who had completed at least one dental appointment (2.7%) (Figure 8). Among patients who had attended at least one dental visit at BHCHP, 2.7% preferred handling their dental problems on their own (Figure 8). Patients who hadn't

completed any dental visits chose a dental school clinic (7.4%) when experiencing a dental problem (Figure 8). Additionally, 25.9% of BMH patients who hadn't completed any dental visits were unsure about where to go if they encountered a dental problem, compared to 8.1% of BMH patients who had completed at least one dental visit (Figure 8).

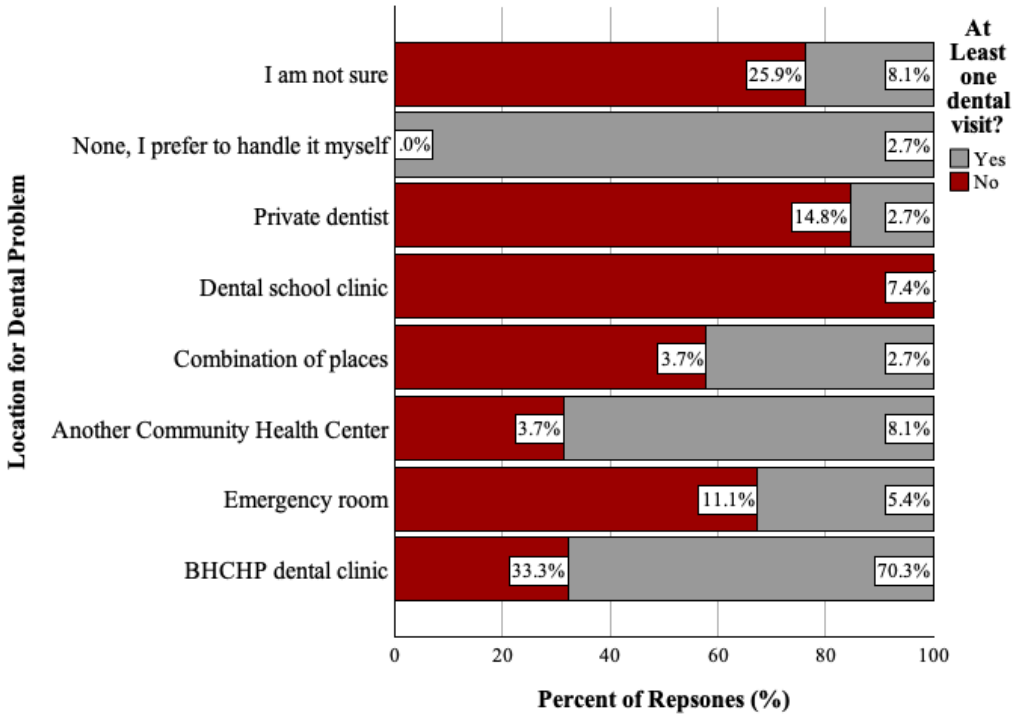

Figure 8. Location for a Dental Problem Among Completion of at Least One Dental Visit at BHCHP

This stacked bar chart depicts the location preferences of BMH patients when experiencing a dental problem. Patients who had completed at least one dental visit at BHCHP showed a higher preference for BHCHP dental clinic compared to those who had not completed any visits (n=64).

Interest in Dental Care While Staying at BHCHP and Type of Dental Services

A total of 64 patients were surveyed to determine their interest in dental care and the type of dental services they preferred. According to Figure 9, 84.6% of the patients expressed interest in dental care, while 15.4% indicated no interest among those who had not received dental treatment at BHCHP.

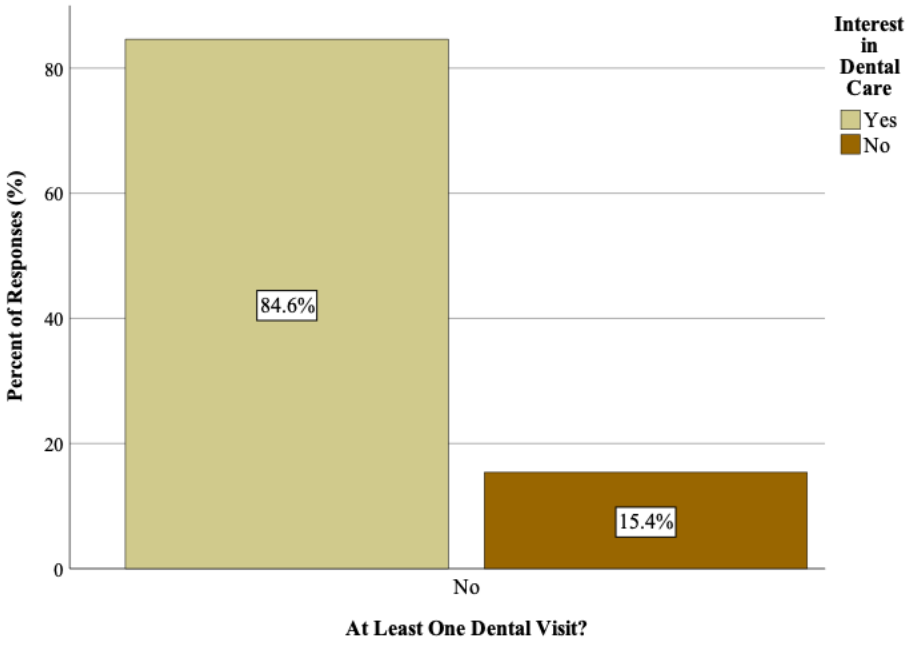

Figure 9. BMH Patients Interest in Dental Care
The clustered bar graph illustrates the percentage of patients interested in dental care. Among those who had not visited BHCHP for dental services, a higher proportion of BMH patients expressed interest compared to those who did not (n=64).

Patients interested in dental care selected a variety of services they were interested in, including cleanings (43.5%), dentures (41.9%), extractions (37.1%), implants (35.5%), fillings (32.3%), crowns (17.2%), and root canals (16.1%). Conversely, patients

who were not interested in receiving dental care at BHCHP showed interest primarily in cleanings (4.8%), implants (3.2%), and extractions (1.6%) as shown in Figure 10.

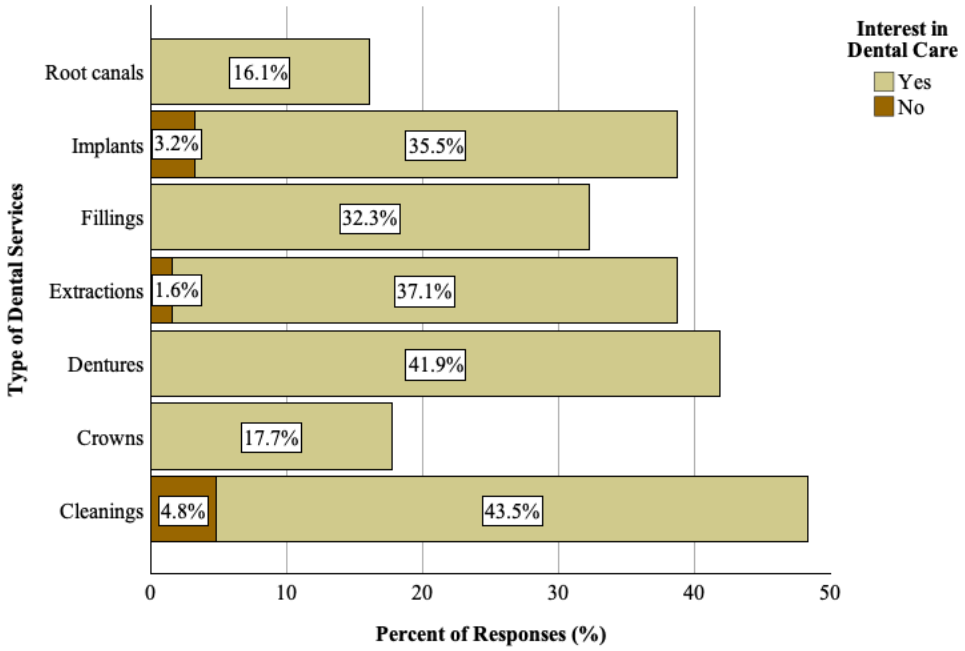

Figure 10. Type of Dental Service by Interest in Dental Care at BHCHP
The stacked bar chart presents the percentage of patients interested in dental care at BHCHP and their preference for specific types of dental services. The percentages are based on responses from a total of 64 patients surveyed.

Patient Satisfaction with BHCHP Dental Appointments and Care

Patient satisfaction with dental appointments and care at BHCHP was assessed using a Likert scale, with scores ranging from strongly disagree (1), somewhat disagree (2), neither agree nor disagree (3), somewhat agree (4), and strongly agree (5). Out of the 37 respondents, two patients did not answer two satisfaction item questions. All completed responses were included in the data analysis.

Most patients expressed high levels of satisfaction, 83.3% agreeing that they were treated with acceptance, courtesy, and respect by the dental team and 81.1% understanding the explanations provided by the dental team before and after treatment (Figure 11). On the other hand, there were areas where patients reported lower satisfaction levels. For instance, 24.3% felt that the dental team did not listen carefully, 18.9% did not feel that comfort was prioritized during dental work, and 18.9% were unsure about trust in the dental team to keep their oral health care information private (Figure 11).

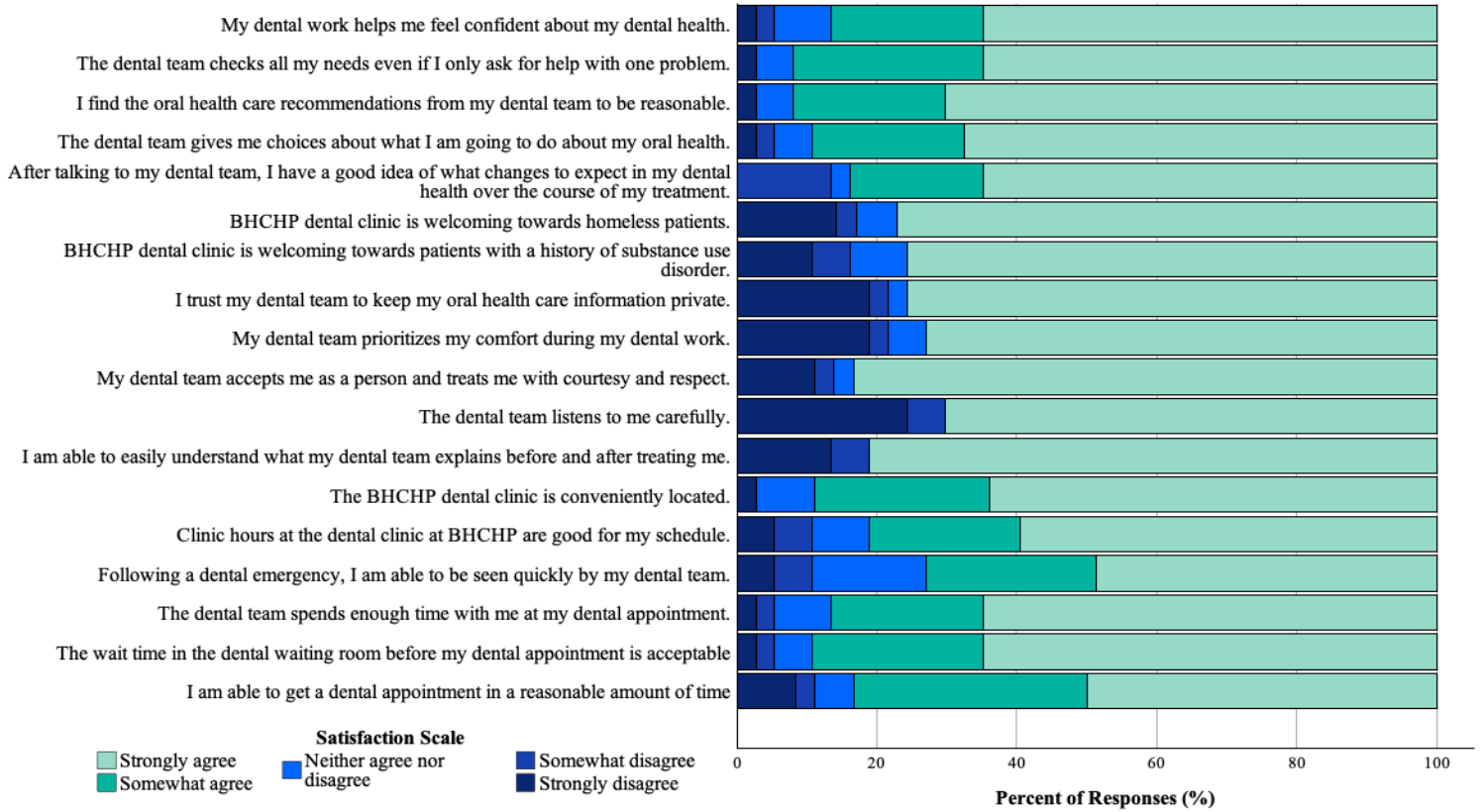

Figure 11. Patient Satisfaction with Dental Appointments and Care at BHCHP Dental Clinic.
Shown is a stacked bar graph of percentages of Likert Type- Scale responses to satisfaction statements. Most patients strongly agreed with statements**.** Among the highest percentage of strongly agreed statements, 83.3% of patients agreed that the dental team accepted them as a person with courtesy and respect and 81.1% of patients could understand the explanation given by the dental team before and after dental treatment. Among strongly disagreed statements, 24.3% of patients felt that the dental team did not listen to them carefully, 18.9% did not feel comfort was prioritized during dental work, and 18.9% did not trust in the dental team to keep their oral health care information private (n=37).

As seen in Table 2, 56% of the total of 18 satisfaction items resulted in high satisfaction decision. Patients strongly agreed (64.9%), somewhat agreed (24.3%), and neither agreed nor disagreed (5.4%) towards an acceptable wait time in the dental waiting room before dental appointments. Patients strongly agreed (64.9%), somewhat agreed (21.6%), and neither agreed nor disagreed (8.1%) that enough time was spent by the dental team during the dental appointment. Patients strongly agreed (63.9%), somewhat agreed (25%), neither agreed nor disagreed (8.3%) that the BHCHP dental clinic is conveniently located. Patients strongly agreed (81.1%) with understanding of the explanation by the dental team before and after treatment. Patients strongly agreed (83.3%) and neither agreed nor disagreed (2.8%) with the dental team's acceptance of the patient as a person and treatment with courtesy and respect (Table 2).

Patients strongly agreed (64.9%), somewhat agreed (18.9 %), and neither agreed nor disagreed (2.7%) with understanding of changes to expect in dental health over the course of treatment after talking to the dental team. Patients strongly agreed (67.6%), somewhat agreed (21.6%), and neither agreed nor disagreed (5.4%) towards the dental team gave choices regarding oral health by the dental team. Patients strongly agreed (70.3%) and somewhat agreed (21.6%) towards reasonable oral health care recommendations from the dental team. Patients strongly agreed (64.9%), somewhat agreed (27%), neither agreed nor disagreed (5.4%) with all needs are checked even if help was only asked for one problem. Finally, patients strongly agreed (64.9%), somewhat agreed (21.6%), and neither agreed nor disagreed (8.1%) that BHCHP dental work helps confidence about dental health (Table 2).

Table 2. Patient Responses to High Satisfaction.

Shown is the QI survey questions with high satisfaction decisions. The responses to each statement, presented in terms of frequency and percentage. Frequency is denoted by "Freq" and percentage by "(%)". The second-to-last column presents the Mean Likert Scale (MLS) number, which indicates the average score across all Likert Scale responses. Likert Scale scores range from 1 (Strongly Disagree) to 5 (Strongly Agree). In the satisfaction decision column, a high satisfaction score exceeds 4.289 (n = 37). Abbreviations: ST/DA: Strongly Disagree, SO/DA: Somewhat Disagree, NA/DA: Neither Agree or Disagree, SO/AG: Somewhat Agree; ST/AG: Strongly Agree, MLR: Mean Likert Ratio.

Statement Question	ST/ DA	SO/ DA	NA/ DA	SO/ AG	ST/ AG		
	Freq (%)	Freq (%)	Freq (%)	Freq (%)	Freq (%)	MLS	Satisfaction Decision
The wait time in the dental waiting room before my dental appointment is acceptable.	1 (2.7)	1 (2.7)	2 (5.4)	9 (24.3)	24 (64.9)	4.46	High
The dental team spends enough time with me at my dental appointment.	1 (2.7)	1 (2.7)	3 (8.1)	8 (21.6)	24 (64.9)	4.43	High
The BHCHP dental clinic is conveniently located.	1 (2.8)	0	3 (8.3)	9 (25)	23 (63.9)	4.47	High
I am able to easily understand what my dental team explains before/after treating me.	5 (13.5)	2 (5.4)	0	0	30 (81.1)	4.30	High
My dental team accepts me as a person and treats me with courtesy and respect.	4 (11.1)	1 (2.8)	1 (2.8)	0	30 (83.3)	4.42	High
After talking to my dental team, I have a good idea of what changes to expect in my dental health over the course of my treatment.	0	5 (13.5)	1 (2.7)	7 (18.9)	24 (64.9)	4.35	High
The dental team gives me choices about what I am going to do about my oral health.	1 (2.7)	1 (2.7)	2 (5.4)	8 (21.6)	25 (67.6)	4.49	High
I find the oral health care recommendations from my dental team to be reasonable.	1 (2.7)	0	2 (5.4)	8 (21.6)	26 (70.3)	4.57	High
The dental team checks all my needs even if I only ask for help with one problem.	1 (2.7)	0	2 (5.4)	10 (27)	24 (64.9)	4.51	High
My dental work helps me feel confident about my dental health.	1 (2.7)	1 (2.7)	3 (8.1)	8 (21.6)	24 (64.9)	4.43	High

As shown in Table 3, 44% of the total of 18 satisfaction items resulted in low satisfaction decision. Patients strongly disagreed (8.3%), somewhat disagreed (2.8%), and neither agreed nor disagreed (5.6%) with the ability to get a dental appointment in a reasonable amount of time. Patients strongly disagreed (5.4%), somewhat disagreed (5.4%), and neither agreed nor disagreed (16.2%) with the ability to be seen quickly by the dental team post dental emergency. Patients strongly disagreed (5.4%), somewhat disagreed (5.4%), and neither agreed nor disagreed (8.1%) the dental clinic hours at BHCHP are good for personal schedule.

Patients strongly disagreed (24.3%) and somewhat disagreed (5.4%) that the dental team listens carefully. Patients strongly disagreed (18.9%), somewhat disagreed (2.7%), and neither agreed nor disagreed (5.4%) that comfort is prioritized during dental work. Patients strongly disagreed (18.9 %), somewhat disagreed (2.7%), and neither agreed nor disagreed (2.7%) towards trust in the dental team to keep oral health care information private. Patients strongly disagreed (10.8%), somewhat disagreed (5.4%), and neither agreed nor disagreed (8.1%) that the BHCHP dental clinic is welcoming towards patients with a history of substance use disorder. Lastly, patients strongly disagreed (14.3%), somewhat disagreed (2.9%), and neither agreed nor disagreed (5.7%) that BHCHP dental clinic is welcoming towards homeless patients (Table 3).

Table 3. Patient Responses to Low Satisfaction.
Shown is the QI survey questions with low satisfaction decision. The responses to each statement, presented in terms of frequency and percentage. Frequency is denoted by "Freq" and percentage by "(%)". The second-to-last column presents the Mean Likert Scale (MLS) number, which indicates the average score across all Likert Scale responses. Likert Scale scores range from 1 (Strongly Disagree) to 5 (Strongly Agree). In the satisfaction decision column, a low satisfaction score is determined when the average mean score falls below 4.289 (n = 37). Abbreviations: ST/DA: Strongly Disagree, SO/DA: Somewhat Disagree, NA/DA: Neither Agree or Disagree, SO/AG: Somewhat Agree; ST/AG: Strongly Agree, MLR: Mean Likert Ratio.

Statement Question	ST/ DA	SO/ DA	NA/ DA	SO/ AG	ST/ AG		
	Freq (%)	Freq (%)	Freq (%)	Freq (%)	Freq (%)	MLS	Satisfaction Decision
I am able to get a dental appointment in a reasonable amount of time.	3 (8.3)	1 (2.8)	2 (5.6)	12 (33.3)	18 (50)	4.14	Low
Following a dental emergency, I am able to be seen quickly by my dental team.	2 (5.4)	2 (5.4)	6 (16.2)	9 (24.3)	18 (48.6)	4.05	Low
Clinic hours at the dental clinic at BHCHP are good for my schedule.	2 (5.4)	2 (5.4)	3 (8.1)	8 (21.6)	22 (59.5)	4.24	Low
The dental team listens to me carefully.	9 (24.3)	2 (5.4)	0	0	26 (70.3)	3.86	Low
My dental team prioritizes my comfort during my dental work.	7 (18.9)	1 (2.7)	2 (5.4)	0	27 (73)	4.05	Low
I trust my dental team to keep my oral health care information private.	7 (18.9)	1 (2.7)	1 (2.7)	0	28 (75.7)	4.11	Low
BHCHP dental clinic is welcoming towards patients with a history of substance use disorder.	4 (10.8)	2 (5.4)	3 (8.1)	0	28 (75.7)	4.24	Low
BHCHP dental clinic is welcoming towards homeless patients.	5 (14.3)	1 (2.9)	2 (5.7)	0	27 (77.1)	4.23	Low

Relationship between Dental Service Usage Factors and Satisfaction

Spearman's rank-order correlation tests were performed to assess the relationship between number of dental appointments and time since most recent dental appointment with satisfaction. As shown in Table 4, the results showed no statistically significant relationships between number of appointments and satisfaction, r_s (35) = -0.114, $p > 0.05$. There was also no significant relationship between time of last dental appointment and satisfaction r_s (35) = -0.168, $p > 0.05$.

Table 4. Spearman's Rank-Order Correlation Tests of Dental Visits and Satisfaction.

Patients who had attended at least one dental appointment (n = 37) were surveyed regarding various aspects of their visits, including: number of appointments and the time since their last visit. Results of Spearman's rank correlation tests found no statistically significant relationships between number of appointments and satisfaction, r_s (35) = -0.114, $p > 0.05$. There was also no significant relationship between time of last dental appointment and satisfaction r_s (35) = -0.168, $p > 0.05$.

Variable	Mean	Standard Deviation	N	Correlation Coefficient	p-value
Satisfaction mean score	4.2952	0.89184	37		
Total number of dental appointments	4.51	2.116	37	0.114	0.503
Time of last dental appointment	2.98	3.195	37	-0.168	0.321

DISCUSSION

The aim of this study was to evaluate the utilization of dental care among BMH medical respite patients at BHCHP over a one-month period (Jan. 11, 2024, to Feb. 17, 2024). The first objective was to determine the number and demographics of patients who had previous or current encounters at the dental clinic. This allowed for separate survey questions that were applicable to patients who had not visited the BHCHP dental clinic and those who had completed at least one dental appointment, including overall satisfaction with services.

Goal 1: Subject Demographics and Utilization

In general, there were more male patients than female patients enrolled in the survey. Specifically, males outnumbered females in the group that had completed at least one dental visit. This finding aligns with other studies conducted among patients at BHCHP (Kaste & Bolden, 1995; Varley et al., 2020) which also reported a higher proportion of males experiencing homelessness in the BHCHP population. Based on the survey results, it appeared that as age increased for both males and females, the likelihood of completing at least one dental appointment decreased in our cohort. Although, not significant due to our small sample size, previous literature has indicated that adults above the age of 65 experiencing homelessness generally have poorer oral health and limited access to dental services compared to younger counterparts (Freitas et al., 2019; van Dongen et al., 2019). These results could suggest that older adults seek dental care elsewhere, do not perceive a need for dental care, struggle with access, or are

unsure how to incorporate dental care into their current stage of life. To account for various reasons, future research should evaluate the role of increasing age in the utilization of dental care at BHCHP with a larger sample size.

The choice of using BHCHP location when having an emergency dental problem (whether or not the patient has completed at least one dental visit at BHCHP), highlights the importance of the location. It seems that BMH patients acknowledge the dental clinic's role in providing emergency care. This is a key finding and supports the important role that BHCHP plays in serving this important role for PEH in Boston. Future research could explore specific associations between OHC emergency encounters with choice in locations such as the BHCHP dental clinic versus the ED at BMC. Additionally, patients who had completed at least one dental visit at BHCHP were less likely to respond with 'I am not sure' when asked where to seek help for a dental problem (Figure 8). Future quality improvement studies at BHCHP could assess patients' knowledge about available dental resources before and after completing their first visit.

The choice of BHCHP as a location specifically catering to PEH further emphasizes the importance of tailored OHC for this population. Previous studies have explored various approaches to reaching, engaging, and delivering quality oral health care for PEH, for instance, implementing oral health screening and dental referrals at a medical respite facility for PEH (Leonardo, 2023). Most studies conclude that enhancing the quality of existing oral health care programs for PEH could overcome barriers and reduce oral health-related diseases (Okunseri et al., 2010), ultimately improving their oral health status as well as potential outcomes such as employment (Ghoneim et al., 2022) or

housing (Nunez et al., 2013). Therefore, understanding the preference for the BHCHP dental clinic, which had the highest responses for choice in location, among BMH patients with oral health problems is crucial for the dental team at BHCHP, public health dentistry, and the dental research community.

Goal 2: Interest in Dental Care at BHCHP and Type of Dental Services of Interest

The aim to assess future dental needs of BMH patients was to clarify interest based on expectations and previous usage of the dental clinic. The survey results showed that a large proportion of BMH patients were interested in dental care, but 15.4% indicated no interest (Figure 9). The reasons for this lack of interest could include having a regular dentist elsewhere, prioritizing other healthcare needs over dental care, believing they don't need dental care due no teeth, or expecting a specific dental procedure not offered at BHCHP. Further investigation is necessary to understand these reasons and facilitate efficient coordination between MRC and the dental clinic when scheduling appointments for BMH patients.

Since these two questions were asked sequentially and may have influenced each other based on how participants interpreted them, it's important to explore if interest in dental care at BHCHP correlates with the type of dental services they are interested in. Currently, the BHCHP dental clinic does not provide root canal, implant, and crown treatments. Therefore, participants' choices regarding the type of dental service at BHCHP are notable.

According to Figure 10, those interested in dental care expressed the greatest interest in cleanings, denture-related services, implants, fillings, crowns, and root canals.

However, those uninterested in dental care at BHCHP showed more interest in cleanings, implants, and extractions. Thus, future research could collect additional evidence over an extended period to examine differences between the type of service desired and BMH patients' knowledge of OHC while receiving dental care at BHCHP.

Goal 3: Satisfaction with BHCHP Dental Appointments and Care

The level of satisfaction among patients experiencing homelessness who had completed at least one dental visit relative to other variables related to that service was assessed. No significant relationships were found between satisfaction and the total number of completed dental appointments or the time of the last dental appointment (Table 4). This suggests there is no correlation between the total number of dental appointments nor the timing of the last dental visit and satisfaction.

High and Low Satisfaction Items among BMH Patients for Quality Improvement

The satisfaction items, totaling 18, were divided into 3 separate areas that focused on accessibility to dental appointments at BHCHP, the second focused on themes that included communication, shared knowledge, respect, trust, inclusion, substance use, and the patient's role in decision-making. The last section touched on themes such as accountability, the patient's role in decision-making, inclusion, committed care, and responsiveness.

High Satisfaction Items

According to the findings from BMH patients, there is a strong consensus that the dental clinic at BHCHP excels in providing shared knowledge and treating patients with

acceptance and respect. The high level of agreement with the dental team's explanations before and after treatment emphasizes the importance of effective communication. It is essential for healthcare providers to establish a relationship based on trust and respect, prioritizing the interests of patients above all else (Varley et al., 2020). This involves maintaining confidentiality to foster an ongoing strong relationship between patients and providers, as well as communicating in a respectful manner (Varley et al., 2020). Additionally, patients expressed gratitude for open conversations and cautioned against using stigmatizing language, as it hampers effective communication (Varley et al., 2020).

The survey conducted among BMH patients reveals a strong agreement with understanding the dental team's explanations before and after treatment. However, this differs slightly from Varley's discussion on shared knowledge. The concept of understanding explanations extends beyond oral health care explanations to other aspects of healthcare. Particularly for PEH individuals, comprehending explanations related to homelessness (King & Gibson, 2003), behavioral health concerns (Hall et al., 2021), and primary care (NHCH, 2015) may have influenced satisfaction with oral health care explanations provided by the dental team.

Considering that OHC is connected to managing other chronic conditions such as diabetes (Eke et al., 2018) or mental illness (NHCH, 2021) it would be beneficial to explore high satisfaction with understanding explanations from the dental team in relation to treatment for chronic conditions or behavioral health issues. By doing so, BHCHP’s communication effectiveness can be tested when it comes to explanations indirectly

associated with OHC. Strong communication by the dental team can be optimized to benefit patients who have multiple complications in addition to their oral health care.

The strongest agreement among patients towards feeling accepted and respected by the dental team at BHCHP indicates an empathetic and accepting provider-patient relationship (McCabe et al., 2001) The theme of respectful engagement includes attributes like not feeling rushed, being respected as an individual, and feeling good about oneself due to being treated with respect (McCabe et al., 2001). In this survey, leveraging the high satisfaction with respectful engagement by the dental team can be valuable for improving the continuity of oral health care, such as enhancing OHC treatment adherence.

The attitudes of PEH towards feeling accepted by the dental team at BHCHP can have an impact on their decision to follow oral health treatment plans. In relation to this, two other factors that contribute to high satisfaction levels are when the dental team provides choices and when the oral health recommendations are considered reasonable. These factors align with feeling accepted and respected by BHCHP dental.

The survey results indicate that patients strongly agree that the dental team offers choices regarding oral health care (Table 2). This aspect was included in the satisfaction survey questions to address the patient's sense of control. It reflects the idea that regardless of being homeless, patients should be presented with similar options when making medical decisions (Varley et al., 2020). Despite some disagreement between patients and Healthcare and Public Health (HPH) regarding the definition of control from Varley et al.'s study, there is a strong consensus among BHCHP patients regarding

choices in oral health care treatment. The patient's role in decision-making aligns with shared decision-making, which has been found to correlate moderately with patient satisfaction levels (Bint et al., 2020). The high satisfaction experienced by respite patients further demonstrates BHCHP dental's respect for patient autonomy in decision-making. Additionally, this aligns with BHCHP dental's practice of inclusion.

Inclusionary care practices are essential for PEH's satisfaction and involve being involved in care decisions while also having the freedom to reject treatment recommendations without negative consequences (McCabe et al., 2001).The BHCHP dental clinic upholds these inclusionary care practices since many PEH have limited choices concerning their overall health, including their oral health. The opportunity to be involved in planning oral health care and freely choosing or refusing treatment demonstrates how BHCHP takes an approach that doesn't impose decisions on patients but rather considers their reality.

Offering patients choices in oral health care may lead to improved oral health outcomes, strengthen the patient-provider relationship, and protect the patient's dignity by allowing them time to consider the feasibility of recommendations. Future research should focus on examining the implementation of inclusive care practices during routine dental exams and cleanings, which is typically when treatment plans are discussed and developed. This research should aim to measure patient satisfaction with the quality of care provided, specifically in relation to a particular type of procedure or the dental provider involved.

Additionally, healthcare providers need to prioritize and recommend treatments that align with the lifestyle realities of individuals experiencing homelessness (McCabe et al., 2001). This approach to oral health care recommendations reflects the high level of satisfaction among patients towards reasonable suggestions made by the dental team. The dental team at BHCHP takes responsibility for considering patient input when recommending realistic treatments. By prioritizing patient choice in oral health care, they demonstrate strong values of accountability and inclusivity, which are important factors for PEH. This question assessing patient satisfaction is significant because it is not commonly included in other surveys that do not specifically cater to the homeless population.

Furthermore, patients express high levels of satisfaction with the comprehensive care provided by the dental team, as it addresses all their needs rather than just focusing on a single chief complaint. This aspect falls under the domain of committed care, which includes qualities such as persistence in treating patients until their problems are resolved and avoiding punitive measures if appointments are missed (McCabe et al., 2001).Despite challenges posed by non-compliant patients who refuse treatment, those utilizing BHCHP dental services report great satisfaction with how well their oral health needs are met. This comprehensive approach to care positively influences overall satisfaction rates and underscores the interconnectedness of various aspects related to high-quality care.

The theme of shared knowledge is closely linked to aspects of respectful, accountable, and inclusive care; inclusivity relates to committed care; and committed care encompasses all aspects. Therefore, it is crucial for BHCHP to effectively leverage these

strengths in addressing areas where satisfaction levels may be low. It is essential to consider these factors collectively rather than in isolation, as each satisfaction item is interconnected with others. Improving satisfaction and the quality of care requires a holistic approach that considers the various aspects discussed.

Low Satisfaction Items

Patients disagreed that the dental team listened carefully and prioritized comfort during dental work, as well as expressing a lack of trust in keeping their oral health information private and being seen quickly after a dental emergency. These statements touch on shared knowledge, respect for patient control, trust, and accountability.

Further investigation is required to understand the issue of low satisfaction with the listening skills of the dental team. This includes examining how well providers and patients listen to each other, as well as communication within the dental team. Studies have compared patients' expectations of how dentists should communicate to how they actually do communicate (Afrashtehfar et al., 2020), revealing limited alignment between patient expectations and reality in dental service provision (Dewi et al., 2011).

To truly grasp the differences between expectations and reality, future research at BHCHP dental clinic should measure patient expectations and compare them to what they actually receive. This would help improve listening skills and identify any misunderstandings that may have occurred over time. BHCHP could enhance careful listening by implementing quality measures such as ensuring transparent and thorough patient notes, consistent follow-up via phone calls, and reaching out to homeless

individuals who are unable to visit the clinic. These efforts would contribute to improving patient satisfaction in this area.

While BHCHP dental excels in shared knowledge and decision-making, some patients feel that the dental team does not listen carefully to them. Understanding and listening are both crucial aspects of effective communication and knowledge sharing between the dental team and homeless patients. The team is proficient at delivering explanations that are understood by patients, but there are certain aspects of their listening skills that require more attention.

In relation to highly satisfactory items, the idea of patients being in control demonstrated a lack of satisfaction regarding the prioritization of comfort during dental procedures. Discomfort and pain related to oral health treatment significantly impact satisfaction with dentists (Luo et al., 2018) as well as controlling for pain through the use of controlled substances (Varley et al., 2020).

Limited research exists on quality improvement measures for substance use disorder treatment in relation to oral healthcare treatment. Oral health and behavioral health are closely intertwined, as neglecting oral health care can result from conditions like depression, anxiety, and psychosis (NHCHC, 2021).Conversely, fear or trauma associated with dental care can lead to high levels of anxiety and stress (NHCHC, 2021).

To enhance both dental and behavioral health services, future research at BHCHP should investigate collaborations between behavioral health providers and oral health professionals. Educational interventions, such as assessing oral health risks by behavioral

health providers, can foster better understanding of pain management practices in the dental setting.

Besides the topics of pain and pain management, opioids are frequently discussed in relationship to the patient's role in control. The findings from this survey indicate low satisfaction with welcoming patients with a history of SUD (Table 3). By collaborating more closely with behavioral health providers to enhance pain management techniques, the dental clinic can improve patient control by prioritizing comfort and developing effective strategies for working with these patients. Further research is needed to investigate pain management initiatives related to oral health treatment for PEH.

Proper assessment can help improve satisfaction levels regarding pain management and patient control among current and previous patients of BHCHP dental. Future quality improvement research should focus on examining the relationship between the amount of pain experienced by patients, continuity of care, treatment adherence, and shared decision-making. These factors are all influenced by patients' role in controlling their pain.

While BMH patients felt highly satisfied with being accepted as individuals and treated respectfully, there is lower satisfaction when it comes to prioritizing comfort during dental treatment at BHCHP. This falls under the theme of respect and compassion. Therefore, QI measures should be implemented to address comfort and pain management during dental treatment.

Patients expressed dissatisfaction with the dental team's ability to keep their oral health care private, indicating a lack of trust (Table 3). According to the PCQ-H and

HSCS model, trust is crucial for ensuring privacy in oral health care among PEH (McCabe et al., 2001; Varley et al., 2020). The HSCS model supports the importance of confidentiality in providing satisfactory care for this population (McCabe et al., 2001). Trust and respectful engagement are also linked to the free flow of information within patient charts (Varley et al., 2020). PEH have highlighted the importance of easily accessing information about their medical care and chart at BHCHP (Varley et al., 2020). However, some surveys neglect to inquire specifically about trust in protecting oral health care information and its confidentiality when releasing records, such as the DVSS, DSQ, and CAHPS.

Factors unrelated to healthcare providers or the BHCHP system may contribute to patients' lack of trust in keeping their oral health care private. Being located in downtown Boston exposes BHCHP patients to others from similar programs or the streets, potentially leading them to choose a different health center where they perceive their oral health care information is less exposed. This suggests that PEH value dental care providers who prioritize confidentiality and offer easy access to dental records within an environment that promotes trust. Thus, BHCHP dental clinic can work on improving quality measures that enhance transparency between the dental team and patients, facilitating the careful and safe sharing of sensitive information. Future research could explore differences in OHC satisfaction between BHCHP patients and those who request copies of their dental records elsewhere.

Additionally, there was low satisfaction among some patients regarding prompt treatment after a dental emergency. This falls under the topic of accessibility and

particularly accountability for addressing emergencies promptly (Varley et al., 2020). Time splits were identified as a theme related to homelessness, with individuals prioritizing immediate care once they know their needs have been understood (McCabe et al., 2001).

Further investigation is needed to understand the needs and challenges faced by PEH and dental emergencies. A deeper understanding of what dental patients experience through interviewing could provide more information to address this problem. Quality improvement measures should focus on optimizing satisfaction with convenient walk-in hours for emergency dental care by identifying the most convenient time for these patients.

Previous literature suggests that dental problems affecting PEH include higher levels of untreated dental disease and more missing teeth (Daly et al., 2010; Hill & Rimington, 2011). These problems are typically identified during preventive appointments such as cleanings and checkups. Studies have shown that waiting until dental problems get worse for dental treatment is a usual pattern for PEH (Conte et al., 2006). Moreover, access to routine and preventative dental care is extremely limited and lack of attendance is common (Caton et al., 2016; Joyes et al., 2021; Paisi et al., 2019).

Preventive treatment plays a critical role in maintaining oral health for everyone, especially PEH. Although establishing consistent recall appointments with this population may be challenging, future quality improvement research at the BHCHP dental clinic could focus on improving satisfaction with emergency treatment by

addressing problems proactively through regular exams and cleanings. This approach aims to catch issues before they escalate.

The survey results indicate that most patients were highly satisfied with the choices provided by the dental team and found their recommendations reasonable, reflecting accountable care. However, there was significant dissatisfaction regarding prompt treatment after a dental emergency. This highlights conflicting perspectives regarding accountable care when it comes to emergency treatment for oral health care. Further understanding patient perceptions regarding choices and recommendations following emergency visits would be valuable information for improving patient satisfaction in these situations.

CONCLUSION

The oral health care at BHCHP Survey for quality improvement project aims to assess the needs and satisfaction of Barbara McInnis House medical respite patients regarding dental care. Using a survey sample of BMH patients who are neither in transitional housing nor unsheltered status, the data collected will provide insights into how medical respite care patients utilize dental services at BHCHP, their level of satisfaction, and their interest in participating in dental services.

The results of the survey indicate that a greater proportion of patients have either used dental services at BHCHP or have done so in the past, compared to those who have not used services. Among those who completed at least one dental visit, the majority were male, White, and aged between 45-54 years old. In terms of satisfaction, more than 50% of the satisfaction questions posed to patients received high satisfaction scores.

Overall, patients expressed interest in receiving dental care at BHCHP compared to those who were not interested. The most requested dental services were cleanings, dentures, and extractions. However, among patients not interested in receiving care at BHCHP were interested in cleanings, implants, and extractions.

High satisfaction reported by surveyed patients suggest that BHCHP dental clinic excels in areas such as shared knowledge, acceptance, and respect, as well as accountable and inclusive care, but especially commitment to care of the patients at BHCHP. However, low satisfaction reported by BMH patients suggest that BHCHP dental clinic could improve in areas such as listening carefully (shared knowledge), prioritization of comfort (respect), trust in keeping OHC private (trust), and being seen quickly following a dental emergency (accountable).

Patient satisfaction is just one aspect of providing quality oral health care and improving the dental clinic at BHCHP. Other perspectives, such as the attitudes of dental staff and stakeholders, are also important for successful QI research and were not evaluated here. This survey serves as the first step in gathering data for implementing a QI initiative. The survey data can help identify areas of high and low satisfaction that require further evaluation.

To enhance reliability and improve the survey, future QI research should extend the study duration, explore satisfaction and interest in dental care at BHCHP medical respite care facility, Stacy Kirkpatrick House and attempt to expand the patient cohort to include a more diverse representation of patients. Ultimately, BMH respite patients expressed high satisfaction with dental care at the BHCHP dental clinic, and those who

have not received dental care showed a strong interest in becoming dental patients at BHCHP.

APPENDIX

Welcome to the Oral Health Care at Boston Health Care for the Homeless Program Survey for Quality Improvement.

On behalf of Boston University Graduate Medical Sciences and the Institute of Research at Boston Health Care for the Homeless Program, we are conducting a survey about the dental care respite patients receive at BHCHP. The dental clinic at Boston Health Care for the Homeless Program (BHCHP) is also called Jean Yawkey Place dental clinic. Please answer to the best of your ability. There are no right answers. We just want your opinion.

Your individual answers are confidential and will not be shared with anyone including your dentist at BHCHP. It will not affect your care or your benefits at BHCHP. This is a voluntary study; you may stop this survey at any time. Thank you for taking the time to participate, you are appreciated.

This survey will take about 10-15 minutes to complete. BHCHP dental clinic quality improvement survey

Q1 How old are you?

- 18-24 years old
- 25-34 years old
- 35-44 years old
- 45-54 years old
- 55-64 years old
- 65+ years old

Q2 Have you had a least one dental visit in the dental clinic at BHCHP?

- Yes
- No

Q3 How many dental appointments in the dental clinic at BHCHP have you completed?

- 1
- 2
- 3
- 4
- 5
- More than 5

Q4 What did you have done at your most recent dental appointment at BHCHP?

- Cleaning and check up
- Deep cleaning
- Filling
- Denture or partial
- Extraction
- Consult for referral
- Dental emergency including pain or broken/lost partial or denture

Q5 When was your last dental appointment completed in the dental clinic at BHCHP?

- Today
- Less than 1 week
- 1-2 weeks ago
- 3- 5 weeks ago
- 1 month ago
- More than 1 month ago
- More than 3 months ago
- I cannot remember

Q6 Do you have a follow up dental appointment scheduled at BHCHP?

- Yes
- No
- Will call the dental clinic to make a future appointment
- Will walk into the dental clinic for emergency hours at the dental clinic

Q7 Did you get referred elsewhere for dental treatment if it was not provided at BHCHP?

- Yes
- No
- Not applicable
- I am not sure

Q8 Which of these services are you a patient of at BHCHP? Select all that apply.

- Case management
- Community Care in Reach Mobile Addiction Program
- Dental care
- Family and youth services
- Hepatitis C care
- HIV care
- Immigrant health
- Medical respite
- Mental health care
- Primary care
- Recovery services
- Street team
- Supportive Place for Observation and Treatment (SPOT)
- Transgender health
- Veterans services
- Women's health

Q9 When you are not staying at Barbara McInnis House, how do you get to the majority of your dental appointments at BHCHP dental clinic?

- Own vehicle
- Public transportation
- Services through medical companies including BHCHP
- A combination of services
- Ride hailing apps such as Uber or Lyft
- Walk
- Friend or family member takes me
- Other _____

Q10 Where would be the first place you go when you have a dental problem?

- BHCHP dental clinic
- Emergency room
- Another Community Health Center
- Combination of places
- Dental school clinic
- Private dentist
- None, I prefer to handle it myself
- I am not sure

Q11 If you have had at least one dental appointment with BHCHP please rate the following in terms of how much you agree or disagree with each statement regarding dental appointments at the BHCHP clinic.

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
I am able to get a dental appointment in a reasonable amount of time.	○	○	○	○	○
The wait time in the dental waiting room before my dental appointment is acceptable.	○	○	○	○	○
The dental team spends enough time with me at my dental appointment.	○	○	○	○	○
Following a dental emergency, I am able to be seen quickly by my dental team.	○	○	○	○	○
Clinic hours at the dental clinic at BHCHP are good for my schedule.	○	○	○	○	○
The BHCHP dental clinic is conveniently located.	○	○	○	○	○

Q12 If you have had at least one dental appointment with BHCHP please rate the following in terms of how much you agree or disagree with each statement regarding your dental care the clinic.

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
I am able to easily understand what my dental team explains before and after treating me.	○	○	○	○	○
The dental team listens to me carefully.	○	○	○	○	○
My dental team accepts me as a person and treats me with courtesy and respect.	○	○	○	○	○
My dental team prioritizes my comfort during my dental work.	○	○	○	○	○
I trust my dental team to keep my oral health care information private.	○	○	○	○	○
BHCHP dental clinic is welcoming towards patients with a history of substance use disorder.	○	○	○	○	○
BHCHP dental clinic is welcoming towards homeless patients.	○	○	○	○	○

Q13 If you have had at least one dental appointment with BHCHP please rate the following in terms of how much you agree or disagree with each statement regarding your dental care at the clinic.

	Strongly agree	Somewhat agree	Neither agree or disagree	Somewhat disagree	Strongly disagree
After talking to my dental team, I have a good idea of what changes to expect in my dental health over the course of my treatment.	○	○	○	○	○
The dental team gives me choices about what I am going to do about my oral health.	○	○	○	○	○
I find the oral health care recommendations from my dental team to be reasonable.	○	○	○	○	○
The dental team checks all my needs even if I only ask for help with one problem.	○	○	○	○	○
My dental work helps me feel confident about my dental health.	○	○	○	○	○

Q14 Select all that apply: What are some things about dental services at BHCHP that you would change?

- Shorter waiting lists
- More treatment types offered
- Better communication and advertisement of the clinic
- More locations for the clinic
- Better management of anxiety
- Greater patience and more gentle dentists
- Supply hygiene products after all appointments
- More space in the waiting room near clinic
- More dental staff
- All of the above
- No changes needed
- None of the above, other

Q15 Select all that apply: Things at BHCHP dental clinic that I like best about the service are?

- Friendly, respectful, and helpful staff
- Professional and knowledgeable staff
- Covered by my insurance
- Time effective
- Comforting and sensitive to anxiety
- Minimal pain
- Consistent dentist
- Ease of making appointments and follow up appointments
- Provides a service that is otherwise unattainable
- All of the above
- Not listed
- Other _____

Q16 Are you interested in having dental care while you are staying at Barbara McInnis House?

- Yes
- No
- I am currently being seen as a dental patient

Q17 If offered, what kind of dental services would you be interested in? Select all that apply.

- Root canals
- Implants
- Crowns
- Fillings
- Extractions
- Cleanings
- Dentures

Q18 When did you get admitted to Barbara McInnis House in your current stay?

- Recently admitted, this is the date: _____
- Within this week
- More than one week ago

Q19 In your current stay, how long are you planning on staying in respite care at Barbara McInnis House?

- Less than a week
- A few weeks
- Not sure

Q20 Please identify your gender.

- Male
- Female
- Non-binary/ third gender
- Prefer to self-describe _____
- Prefer not to say

Q21 Choose one or more races that you consider yourself to be

- White or Caucasian
- Black or African American
- American Indian/Native American or Alaska Native
- Asian
- Native Hawaiian or Other Pacific Islander
- Other
- Prefer not to say

Q22 Are you of Spanish, Hispanic, or Latino origin?

- Yes
- No

Q23 Are you fluent in another language besides English?

- Spanish
- Portuguese
- Mandarin
- Cantonese
- French
- Haitian Creole
- Vietnamese
- Other, not listed_____
- No

REFERENCES

Afrashtehfar, K. I., Assery, M. K. A., & Bryant, S. R. (2020). Patient Satisfaction in Medicine and Dentistry. *International Journal of Dentistry*, *2020*, 6621848. https://doi.org/10.1155/2020/6621848

Al-Abri, R., & Al-Balushi, A. (2014). Patient satisfaction survey as a tool towards quality improvement. *Oman Medical Journal*, *29*(1), 3–7. https://doi.org/10.5001/omj.2014.02

Aldossary, M. S., Alahmary, M. A., Almutawaa, M. M., Alhajri, S. M., Almalki, A. O., Alharbi, K. A., Almuaddi, A. M., & El Dalatony, M. M. (2023). Patient Satisfaction in Dental Healthcare Settings at Saudi Ministry of Health: A Descriptive Study. *Patient Preference and Adherence*, *17*, 2377–2383. https://doi.org/10.2147/PPA.S419978

Allukian Jr, M. (1995). Oral Health: An Essential Service for the Homeless. *Journal of Public Health Dentistry*, *55*(1), 8–9. https://doi.org/10.1111/j.1752-7325.1995.tb02323.x

Baggett, T. P., O'Connell, J. J., Singer, D. E., & Rigotti, N. A. (2010). The Unmet Health Care Needs of Homeless Adults: A National Study. *American Journal of Public Health*, *100*(7), 1326–1333. https://doi.org/10.2105/AJPH.2009.180109

Bahadori, M., Raadabadi, M., Ravangard, R., & Baldacchino, D. (2015). Factors affecting dental service quality. *International Journal of Health Care Quality Assurance*, *28*(7), 678–689. https://doi.org/10.1108/IJHCQA-12-2014-0112

Beaton, L., Humphris, G., Rodriguez, A., & Freeman, R. (2021). Implementing the Smile4life intervention for people experiencing homelessness: A path analytical evaluation. *BMC Oral Health*, *21*(1), NA-NA. https://doi.org/10.1186/s12903-021-01747-1

Bint, Abdulrahman, Alshareef, T. S., Taha, N., Alshaer, D., Alzuhayri, N., Aldosari, M., & Abusalih, H. (2020). *Correlation between dental visit satisfaction and shared decision making among Princess Nourah Bint Abdulrahman university dental clinics female attendees*. https://api.semanticscholar.org/CorpusID:211566254

Bjertnaes, O. A., Sjetne, I. S., & Iversen, H. H. (2012). Overall patient satisfaction with hospitals: Effects of patient-reported experiences and fulfilment of expectations. *BMJ Quality & Safety*, *21*(1), 39–46. https://doi.org/10.1136/bmjqs-2011-000137

Boston Health Care for the Homeless Program. (n.d.). *Dental Care.* Retrieved February 24, 2024, from https://www.bhchp.org/services/dental-services/

Bolden, A. J., & Kaste, L. M. (1995). Considerations in Establishing a Dental Program for the Homeless. *Journal of Public Health Dentistry*, *55*(1), 28–33. https://doi.org/10.1111/j.1752-7325.1995.tb02327.x

Boston Public Health Commission. (n.d.). *Unhoused and Uncounted: Highlights from Behavioral Risk Factor Surveillance System Survey Among Unhoused Bostonians (Boston, Massachusetts 2023).* Retrieved February 28, 2024, https://www.boston.gov/sites/default/files/file/2023/04/HoB%20Survey%20of%20People%20Experiencing%20Homelessness.pdf

Campbell, S., & Tickle, M. (2013). How do we improve quality in primary dental care? *British Dental Journal*, *215*(5), 239–243. https://doi.org/10.1038/sj.bdj.2013.831

Chapko, M. K., Bergner, M., Green, K., Beach, B., Milgrom, P., & Skalabrin, N. (1985). Development and validation of a measure of dental patient satisfaction. *Medical Care*, *23*(1), 39–49. https://doi.org/10.1097/00005650-198501000-00005

Chi, D., & Milgrom, P. (2008). The oral health of homeless adolescents and young adults and determinants of oral health: Preliminary findings. *Special Care in Dentistry*, *28*(6), 237–242. https://doi.org/10.1111/j.1754-4505.2008.00046.x

City of Boston. (2023, June). *City of Boston 2023 Homeless Census Report.* https://www.boston.gov/departments/housing/annual-homeless-census

Cohen, L. A., Manski, R. J., & Hooper, F. J. (1996). Does the elimination of Medicaid reimbursement affect the frequency of emergency department dental visits? *Journal of the American Dental Association (1939)*, *127*(5), 605–609. https://doi.org/10.14219/jada.archive.1996.0272

Coles, E., Chan, K., Collins, J., Humphris, G. M., Richards, D., Williams, B., & Freeman, R. (2011). Decayed and missing teeth and oral-health-related factors: Predicting depression in homeless people. *Journal of Psychosomatic Research*, *71*(2), 108–112. https://doi.org/10.1016/j.jpsychores.2011.01.004

Coles, E., Themessl-Huber, M., & Freeman, R. (2012). Investigating community-based health and health promotion for homeless people: A mixed methods review. *Health Education Research*, *27*(4), 624–644. https://doi.org/10.1093/her/cys065

Conte, M., Broder, H. L., Jenkins, G., Reed, R., & Janal, M. N. (2006). Oral health, related behaviors and oral health impacts among homeless adults. *Journal of Public Health Dentistry*, *66*(4), 276–278. https://doi.org/10.1111/j.1752-7325.2006.tb04082.x

Corah, N. L., O'Shea, R. M., Pace, L. F., & Seyrek, S. K. (1984). Development of a patient measure of satisfaction with the dentist: The Dental Visit Satisfaction Scale. *Journal of Behavioral Medicine*, *7*(4), 367–373. https://doi.org/10.1007/BF00845270

Crall, J. J., Pourat, N., Inkelas, M., Lampron, C., & Scoville, R. (2016). Improving The Oral Health Care Capacity Of Federally Qualified Health Centers. *Health Affairs*, *35*(12), 2216–2223. https://doi.org/10.1377/hlthaff.2016.0880

Csikar, J., Vinall-Collier, K., Richemond, J. M., Talbot, J., Serban, S. T., & Douglas, G. V. A. (2019). Identifying the barriers and facilitators for homeless people to achieve good oral health. *Community Dental Health*, *36*(2), 137–142. https://doi.org/10.1922/CDH_4488Csikar06

Daly, B., Newton, T., Batchelor, P., & Jones, K. (2010). Oral health care needs and oral health-related quality of life (OHIP-14) in homeless people. *Community Dentistry and Oral Epidemiology*, *38*(2), 136–144. https://doi.org/10.1111/j.1600-0528.2009.00516.x

D'Amore, M. M., Cheng, D. M., Kressin, N. R., Jones, J., Samet, J. H., Winter, M., Kim, T. W., & Saitz, R. (2011). Oral health of substance-dependent individuals: Impact of specific substances. *Journal of Substance Abuse Treatment*, *41*(2), 179–185. https://doi.org/10.1016/j.jsat.2011.02.005

Davies, A. R., & Ware, J. E. (1981). Measuring patient satisfaction with dental care. *Social Science & Medicine. Part A, Medical Sociology*, *15*(6), 751–760. https://doi.org/10.1016/0271-7123(81)90019-5

Dawn, A. G., & Lee, P. P. (2003). Patient Satisfaction Instruments Used at Academic Medical Centers: Results of a Survey. *American Journal of Medical Quality*, *18*(6), 265–269. https://doi.org/10.1177/106286060301800607

Dewi, F. D., Sudjana, G., & Oesman, Y. M. (2011). Patient satisfaction analysis on service quality of dental health care based on empathy and responsiveness. *Dental Research Journal*, *8*(4), 172–177. https://doi.org/10.4103/1735-3327.86032

Dolce, M. C., Parker, J. L., Bhalla, P., & Anderson, C. (2018). A Cooperative Education Model for Promoting Oral Health and Primary Care Integration within a Health Care for the Homeless Program. *Journal of Health Care for the Poor and Underserved*, *29*(2), 591–600. https://doi.org/10.1353/hpu.2018.0043

Doran, K. M., Ragins, K. T., Gross, C. P., & Zerger, S. (2013). Medical respite programs for homeless patients: A systematic review. *Journal of Health Care for the Poor and Underserved*, *24*(2), 499–524. https://doi.org/10.1353/hpu.2013.0053

Durey, A., Lette, H., Saunders, J., & Slack-Smith, L. (2022). Community-centred oral healthcare for adults experiencing homelessness in Australia: Perceptions and experiences of key stakeholders. *Health & Social Care in the Community*, *30*(6). https://doi.org/10.1111/hsc.14070

Edelstein, B. (2010). The dental safety net, its workforce, and policy recommendations for its enhancement. *Journal of Public Health Dentistry*, *70*(s1), S32–S39. https://doi.org/10.1111/j.1752-7325.2010.00176.x

Edgington, S. (2012). *Medical Respite Care and Homelessness*.

Eke, P. I., Thornton-Evans, G. O., Wei, L., Borgnakke, W. S., Dye, B. A., & Genco, R. J. (2018). Periodontitis in US Adults. *The Journal of the American Dental Association*, *149*(7), 576-588.e6. https://doi.org/10.1016/j.adaj.2018.04.023

Figueiredo, R., Dempster, L., Quiñonez, C., & Hwang, S. W. (2016). Emergency Department Use for Dental Problems among Homeless Individuals: A Population-Based Cohort Study. *Journal of Health Care for the Poor and Underserved*, *27*(2), 860–868. https://doi.org/10.1353/hpu.2016.0081

Figueiredo, R. L. F., Hwang, S. W., & Quiñonez, C. (2013). Dental health of homeless adults in Toronto, Canada. *Journal of Public Health Dentistry*, *73*(1), 74–78. https://doi.org/10.1111/j.1752-7325.2012.00355.x

Fine, D. R., Dickins, K. A., Adams, L. D., Horick, N. K., Critchley, N., Hart, K., Gaeta, J. M., Lewis, E., Looby, S. E., & Baggett, T. P. (2023). Mortality by Age, Gender, and Race and Ethnicity in People Experiencing Homelessness in Boston, Massachusetts. *JAMA Network Open*, *6*(8), e2331004. https://doi.org/10.1001/jamanetworkopen.2023.31004

Ford, P., Cramb, S., & Farah, C. (2014). Oral health impacts and quality of life in an urban homeless population. *Australian Dental Journal*, *59*(2), 234–239. https://doi.org/10.1111/adj.12167

Frankish, C. J., Hwang, S. W., & Quantz, D. (2005). Homelessness and health in Canada: Research lessons and priorities. *Canadian Journal of Public Health = Revue Canadienne De Sante Publique*, *96 Suppl 2*(Suppl 2), S23-29. https://doi.org/10.1007/BF03403700

Freitas, D. J., Kaplan, L. M., Tieu, L., Ponath, C., Guzman, D., & Kushel, M. (2019). Oral Health and Access to Dental Care among Older Homeless Adults: Results from the HOPE HOME Study. *Journal of Public Health Dentistry*, *79*(1), 3–9. https://doi.org/10.1111/jphd.12288

Ghoneim, A., Ebnahmady, A., D'Souza, V., Parbhakar, K. K., He, H., Gerbig, M., Singhal, S., & Quiñonez, C. (2022). The impact of dental care programs on healthcare system and societal outcomes: A scoping review. *BMC Health Services Research*, *22*(1), 1574. https://doi.org/10.1186/s12913-022-08951-x

Gibson, G., Rosenheck, R., Tullner, J. B., Grimes, R. M., Seibyl, C. L., Rivera-Torres, A., Goodman, H. S., & Nunn, M. E. (2003). A National Survey of the Oral Health Status of Homeless Veterans. *Journal of Public Health Dentistry*, *63*(1), 30–37. https://doi.org/10.1111/j.1752-7325.2003.tb03471.x

Golletz, D., Milgrom, P., & Mancl, L. (1995). Dental care satisfaction: The reliability and validity of the DSQ in a low-income population. *Journal of Public Health Dentistry*, *55*(4), 210–217. https://doi.org/10.1111/j.1752-7325.1995.tb02372.x

Goode, J. (2023). *Improving access to dental services and promoting oral health for adults experiencing homelessness in a non-capital city area of Victoria: A multi methods study* [dataset]. https://doi.org/10.25959/23250416.v1

Goode, J., Hoang, H., & Crocombe, L. (2018). Homeless adults' access to dental services and strategies to improve their oral health: A systematic literature review. *Australian Journal of Primary Health*. https://doi.org/10.1071/PY17178

Gordon, S. J., Grimmer, K., Bradley, A., Direen, T., Baker, N., Marin, T., Kelly, M. T., Gardner, S., Steffens, M., Burgess, T., Hume, C., & Oliffe, J. L. (2019). Health assessments and screening tools for adults experiencing homelessness: A systematic review. *BMC Public Health*, *19*(1), 994–994. https://doi.org/10.1186/s12889-019-7234-y

Hall, G., Dai, W. F., & Lim, S. (2021). Association between primary heath care and dental service use among supportive housing tenants with behavioral health conditions. *Community Dentistry and Oral Epidemiology*, *49*(1), 70–77. https://doi.org/10.1111/cdoe.12579

Han, B., Wells, B. L., & Taylor, A. M. (2003). Use of the Health Care for the Homeless Program services and other health care services by homeless adults. *Journal of Health Care for the Poor and Underserved*, *14*(1), 87–99. https://doi.org/10.1177/1049208902238825

Hanson, G. R., McMillan, S., Mower, K., Bruett, C. T., Duarte, L., Koduri, S., Pinzon, L., Warthen, M., Smith, K., Meeks, H., & Trump, B. (2019). Comprehensive oral care improves treatment outcomes in male and female patients with high-severity and chronic substance use disorders. *The Journal of the American Dental Association (1939)*, *150*(7), 591–601. https://doi.org/10.1016/j.adaj.2019.02.016

Hawkesford, J. L., Lette, H., Saunders, J., & Slack-Smith, L. (2021). Oral health perceptions and client satisfaction among homeless adults attending a community-centred dental clinic. *Australian Dental Journal*, *66*(1), 67–76. https://doi.org/10.1111/adj.12809

Hill, K. B., & Rimington, D. (2011). Investigation of the oral health needs for homeless people in specialist units in London, Cardiff, Glasgow and Birmingham. *Primary Health Care Research & Development*, *12*(2), 135–144. Cambridge Core. https://doi.org/10.1017/S1463423610000368

Hwang, S. W., Orav, E. J., O'Connell, J. J., Lebow, J. M., & Brennan, T. A. (1997). Causes of death in homeless adults in Boston. *Annals of Internal Medicine*, *126*(8), 625–628. https://doi.org/10.7326/0003-4819-126-8-199704150-00007

Iftikhar Ahmad, Allah Nawaz, Shadiullah Khan, Habibullah Khan, Muhammad Adnan Rashid, & Muhammad Hussain Khan. (2012). Predictors of patient satisfaction. *Gomal Journal of Medical Sciences*, *9*(2).

Institute of Medicine & National Research Council. (2011). *Improving Access to Oral Health Care for Vulnerable and Underserved Populations*. The National Academies Press. https://doi.org/10.17226/13116

Joyes, E. C., McGowan, L. J., Adams, E. A., Paisi, M., Burrows, M., Shabaninejad, H., Beyer, F., Haddow, K., Coyte, A., Landes, D., Moffatt, S., Watt, R. G., Sniehotta, F. F., Bambra, C., Craig, D., Kaner, E., & Ramsay, S. E. (2021). Exploring Interventions to Improve the Oral Health and Related Health Behaviours of Adults Experiencing Severe and Multiple Disadvantage: Protocol for a Qualitative Study with Stakeholders. *International Journal of Environmental Research and Public Health*, *18*(22). https://doi.org/10.3390/ijerph182211755

Karimbux, N., John, M. T., Stern, A., Mazanec, M. T., D'Amour, A., Courtemanche, J., & Rabson, B. (2023). MEASURING PATIENT EXPERIENCE OF ORAL HEALTH CARE: A CALL TO ACTION. *The Journal of Evidence-Based Dental Practice*, *23*(1S), 101788. https://doi.org/10.1016/j.jebdp.2022.101788

Kaste, L. M., & Bolden, A. J. (1995). Dental Caries in Homeless Adults in Boston. *Journal of Public Health Dentistry*, *55*(1), 34–36. https://doi.org/10.1111/j.1752-7325.1995.tb02328.x

Keller, S., Col Martin, G. C., Evensen, C. T., & Capt Mitton, R. H. (2009). The development and testing of a survey instrument for benchmarking dental plan performance: Using insured patients' experiences as a gauge of dental care quality. *Journal of the American Dental Association (1939)*, *140*(2), 229–237. https://doi.org/10.14219/jada.archive.2009.0137

Kertesz, S. G., Pollio, D. E., Jones, R. N., Steward, J., Stringfellow, E. J., Gordon, A. J., Johnson, N. K., Kim, T. A., Daigle, S. G., Austin, E. L., Young, A. S., Chrystal, J. G., Davis, L. L., Roth, D. L., & Holt, C. L. (2014). Development of the Primary Care Quality-Homeless (PCQ-H) instrument: A practical survey of homeless patients' experiences in primary care. *Medical Care*, *52*(8), 734–742. https://doi.org/10.1097/MLR.0000000000000160

Kertesz, S. G., Posner, M. A., O'Connell, J. J., Swain, S., Mullins, A. N., Shwartz, M., & Ash, A. S. (2009). Post-Hospital Medical Respite Care and Hospital Readmission of Homeless Persons. *Journal of Prevention & Intervention in the Community*, *37*(2), 129–142. https://doi.org/10.1080/10852350902735734

King, T. B., & Gibson, G. (2003). Oral health needs and access to dental care of homeless adults in the United States: A review. *Special Care in Dentistry: Official Publication of the American Association of Hospital Dentists, the Academy of Dentistry for the Handicapped, and the American Society for Geriatric Dentistry*, *23*(4), 143–147. https://doi.org/10.1111/j.1754-4505.2003.tb00301.x

Kisely, S. (2016). No Mental Health without Oral Health. *The Canadian Journal of Psychiatry*, *61*(5), 277–282. https://doi.org/10.1177/0706743716632523

Koh, H. K., Hrabchak Molinsky, J., Koh, K. A., Roncarati, J. S., Sullivan, M. M., Lazowy, E. E., & O'Connell, J. J. (2023). Establishing Academic Homes for Homelessness: A Call to Action. *Public Health Reports (Washington, D.C.: 1974)*, *138*(5), 838–844. https://doi.org/10.1177/00333549221120453

Lebrun-Harris, L. A., Baggett, T. P., Jenkins, D. M., Sripipatana, A., Sharma, R., Hayashi, A. S., Daly, C. A., & Ngo-Metzger, Q. (2013). Health Status and Health Care Experiences among Homeless Patients in Federally Supported Health Centers: Findings from the 2009 Patient Survey. *Health Services Research*, *48*(3), 992–1017. https://doi.org/10.1111/1475-6773.12009

Leonardo, A. E. (2023). *Implementing Oral Health Screening and Dental Referral at a Medical Respite Facility for Homeless Persons*. ProQuest Dissertations Publishing.

Lewer, D., Aldridge, R. W., Menezes, D., Sawyer, C., Zaninotto, P., Dedicoat, M., Ahmed, I., Luchenski, S., Hayward, A., & Story, A. (2019). Health-related quality of life and prevalence of six chronic diseases in homeless and housed people: A cross-sectional study in London and Birmingham, England. *BMJ Open*, *9*(4), e025192. https://doi.org/10.1136/bmjopen-2018-025192

Locker, D., Clarke, M., & Payne, B. (2000). Self-perceived Oral Health Status, Psychological Well-being, and Life Satisfaction in an Older Adult Population. *Journal of Dental Research*, *79*(4), 970–975. https://doi.org/10.1177/00220345000790041301

Logan, H. L., Catalanotto, F., Guo, Y., Marks, J., & Dharamsi, S. (2015). Barriers to Medicaid Participation among Florida Dentists. *Journal of Health Care for the Poor and Underserved*, *26*(1), 154–167. https://doi.org/10.1353/hpu.2015.0000

Luo, J. Y. N., Liu, P. P., & Wong, M. C. M. (2018). Patients' satisfaction with dental care: A qualitative study to develop a satisfaction instrument. *BMC Oral Health*, *18*(1), 15. https://doi.org/10.1186/s12903-018-0477-7

Macnee, C. L., & McCabe, S. (2004). Satisfaction with care among homeless patients: Development and testing of a measure. *Journal of Community Health Nursing*, *21*(3), 167–178. https://doi.org/10.1207/s15327655jchn2103_4

Mago, A. (2015). *Oral health care related perceptions and experiences of homeless adults in Vancouver's downtown east-side*. https://doi.org/10.14288/1.0221414

Mago, A., Brondani, M. A., MacEntee, M. I., & Frankish, C. J. (2018). A Model Pathway to Oral Health Care for Homeless People. *Journal (Canadian Dental Association)*, *84*, i10.

Mascarenhas, A. K. (2001). Patient satisfaction with the comprehensive care model of dental care delivery. *Journal of Dental Education*, *65*(11), 1266–1271.

McCabe, S., Macnee, C. L., & Anderson, M. K. (2001). Homeless patients' experience of satisfaction with care. *Archives of Psychiatric Nursing*, *15*(2), 78–85. https://doi.org/10.1053/apnu.2001.22407

McCarthy, D., & Waugh, L. (2021, August 19). *How a Medical Respite Care Program Offers a Pathway to Health and Housing for People Experiencing Homelessness*. https://doi.org/10.26099/a5fb-y096

Mokkink, L. B., Terwee, C. B., Knol, D. L., Stratford, P. W., Alonso, J., Patrick, D. L., Bouter, L. M., & de Vet, H. C. (2010). The COSMIN checklist for evaluating the methodological quality of studies on measurement properties: A clarification of its content. *BMC Medical Research Methodology*, *10*(1), 22. https://doi.org/10.1186/1471-2288-10-22

Nair, R., Ishaque, S., Spencer, A. J., Luzzi, L., & Do, L. G. (2018). Critical review of the validity of patient satisfaction questionnaires pertaining to oral health care.

Community Dentistry and Oral Epidemiology, *46*(4), 369–375. https://doi.org/10.1111/cdoe.12377

Narayanan, A., & Greco, M. (2014). The Dental Practice Questionnaire: A patient feedback tool for improving the quality of dental practices. *Australian Dental Journal*, *59*(3), 334–348. https://doi.org/10.1111/adj.12200

National HCH Council and UnitedHealthcare. (2020, April 7). *Medicaid & Medicaid managed care: Financing approaches for medical respite care*. https://www.uhccommunityandstate.com/articles/financing-approaches-for-medical-respite-care.html

National Health Care for the Homeless Council. (2015, June). *Vision and Oral Health among Individuals Experiencing Homelessness: A Quarterly Research Review of the National HCH Council, 3:3. Nashville, TN.* https://nhchc.org/wp-content/uploads/2019/08/in-focus_vision-oral-and-homelessness_june20153.pdf

National Health Care for the Homeless Council. (2019). *Homelessness & Health: What's the Connection?* Https://nhchc.org/wp-content/uploads/2019/08/homelessness-and-health.pdf. https://nhchc.org/wp-content/uploads/2019/08/homelessness-and-health.pdf

National Health Care for the Homeless Council (2020). *Health Insurance HCH Programs, 2018*.https://nhchc.org/wp-content/uploads/2020/01/Health-Insurance-HCH-Programs-2018.pdf

National Health Care for the Homeless Council (2021). *Oral Health and Behavioral Health in Patients Experiencing Homelessness*. https://nhchc.org/wp-content/uploads/2021/07/OH-and-BH_NHCHC-NNOHA-6.2.21162.pdf

National Institute for Medical Respite Care. (n.d.). *Medical Respite Care Directory*. National Institute for Medical Respite Care. Retrieved March 1, 2024, from https://nimrc.org/medical-respite-directory/wpbdp_category/massachusetts/

National Institute of Health. (2021). *Oral health in America: Advances and Challenges*. US Department of Health and Human Services, National Institutes of Health, National Institute of Dental and Craniofacial Research US.

Nebeker, C. D., Briskie, D. M., Maturo, R. A., Piskorowski, W. A., Sohn, W., & Boynton, J. R. (2014). Michigan Dentists' Attitudes toward Medicaid and an Alternative Public Dental Insurance System for Children. *Pediatric Dentistry*, *36*(1), 34–38.

Neely, M., Jones, J. A., Rich, S., Gutierrez, L. S., & Mehra, P. (2014). Effects of cuts in Medicaid on dental-related visits and costs at a safety-net hospital. *American Journal of Public Health*, *104*(6), e13-16. https://doi.org/10.2105/AJPH.2014.301903

Northridge, M. E. (2016). Dental Benefits: "Because Medicaid Has, How Do You Call It? A Limit." *American Journal of Public Health*, *106*(10), 1726–1728. https://doi.org/10.2105/AJPH.2016.303295

Nunez, E., Gibson, G., Jones, J. A., & Schinka, J. A. (2013). Evaluating the impact of dental care on housing intervention program outcomes among homeless veterans. *American Journal of Public Health*, *103 Suppl 2*(Suppl 2), S368-373. https://doi.org/10.2105/AJPH.2012.301064

O'Connell, J. J., Oppenheimer, S. C., Judge, C. M., Taube, R. L., Blanchfield, B. B., Swain, S. E., & Koh, H. K. (2010). The Boston Health Care for the Homeless Program: A public health framework. *American Journal of Public Health*, *100*(8), 1400–1408. https://doi.org/10.2105/AJPH.2009.173609

Okunseri, C., Girgis, D., Self, K., Jackson, S., McGinley, E. L., & Tarima, S. S. (2010). Factors associated with reported need for dental care among people who are homeless using assistance programs. *Special Care in Dentistry*, *30*(4), 146–150. https://doi.org/10.1111/j.1754-4505.2010.00145.x

Omerov, P., Craftman, Å. G., Mattsson, E., & Klarare, A. (2020). Homeless persons' experiences of health- and social care: A systematic integrative review. *Health & Social Care in the Community*, *28*(1), 1–11. https://doi.org/10.1111/hsc.12857

Paisi, M., Kay, E., Plessas, A., Burns, L., Quinn, C., Brennan, N., & White, S. (2019). Barriers and enablers to accessing dental services for people experiencing homelessness: A systematic review. *Community Dentistry and Oral Epidemiology*, *47*. https://doi.org/10.1111/cdoe.12444

Patwardhan, A., & Spencer, C. H. (2012). Are patient surveys valuable as a service-improvement tool in health services? An overview. *Journal of Healthcare Leadership*, *4*(default), 33–46. https://doi.org/10.2147/JHL.S23150

Qualtrics, Provo, UT , (n.d.) Retrieved from https://www.qualtrics.com/blog/citing-qualtrics/ on March 22, 2024

Quiñónez Torres, C., Ieraci, L., & Guttmann, A. (2011). Potentially Preventable Hospital Use for Dental Conditions: Implications for Expanding Dental Coverage for Low Income Populations. *Journal of Health Care for the Poor and Underserved*, *22*(3), 1048–1058. https://doi.org/10.1353/hpu.2011.0097

Raven, M. C., Tieu, L., Lee, C. T., Ponath, C., Guzman, D., & Kushel, M. (2017). Emergency Department Use in a Cohort of Older Homeless Adults: Results From the HOPE HOME Study. *Academic Emergency Medicine: Official Journal of the Society for Academic Emergency Medicine*, *24*(1), 63–74. https://doi.org/10.1111/acem.13070

Sbaraini, A., Carter, S. M., Evans, R. W., & Blinkhorn, A. (2012). Experiences of dental care: What do patients value? *BMC Health Services Research*, *12*(1), 177. https://doi.org/10.1186/1472-6963-12-177

Schanzer, B., Dominguez, B., Shrout, P. E., & Caton, C. L. M. (2007). Homelessness, Health Status, and Health Care Use. *American Journal of Public Health (1971)*, *97*(3), 464–469. https://doi.org/10.2105/AJPH.2005.076190

Seirawan, H., Elizondo, L. K., Nathason, N., & Mulligan, R. (2010). The oral health conditions of the homeless in downtown Los Angeles. *Journal of the California Dental Association*, *38*(9), 681–688. https://doi.org/10.1080/19424396.2010.12221832

Seo, V., Baggett, T. P., Thorndike, A. N., Hull, P., Hsu, J., Newhouse, J. P., & Fung, V. (2019). Access to care among Medicaid and uninsured patients in community health centers after the Affordable Care Act. *BMC Health Services Research*, *19*(1), 291. https://doi.org/10.1186/s12913-019-4124-z

Smith, M. Y., Rapkin, B. D., Winkel, G., Springer, C., Chhabra, R., & Feldman, I. S. (2000). Housing Status and Health Care Service Utilization Among Low-income Persons with HIV/AIDS. *Journal of General Internal Medicine : JGIM*, *15*(10), 731–738. https://doi.org/10.1046/j.1525-1497.2000.91003.x

The BHCHP Institute | Boston Health Care Center for the Homeless. (n.d.). Retrieved March 5, 2024, from https://www.bhchp.org/institute/what-we-do/#toggle-id-2

US Department of Housing and Urban Development. (n.d.). *The 2023 Annual Homelessness Assessment Report (AHAR) to Congress*. Retrieved February 28, 2024, from https://www.hudexchange.info/homelessness-assistance/ahar/#2023-reports

van Dongen, S. I., van Straaten, B., Wolf, J. R. L. M., Onwuteaka-Philipsen, B. D., van der Heide, A., Rietjens, J. A. C., & van de Mheen, D. (2019). Self-reported health, healthcare service use and health-related needs: A comparison of older and younger homeless people. *Health & Social Care in the Community*, *27*(4), e379–e388. https://doi.org/10.1111/hsc.12739

Varley, A. L., Montgomery, A. E., Steward, J., Stringfellow, E., Austin, E. L., Gordon, A. J., Pollio, D., deRussy, A., Hoge, A., Gelberg, L., Riggs, K., Kim, T. W., Rubens, S. L., & Kertesz, S. G. (2020). Exploring Quality of Primary Care for Patients Who Experience Homelessness and the Clinicians Who Serve Them: What Are Their Aspirations? *Qualitative Health Research*, *30*(6), 865–879. https://doi.org/10.1177/1049732319895252

Venguidesvarane, H. G. (2019). *ASSESSMENT OF THE COMMON DENTAL NEEDS AND EVALUATION OF RATE OF ATTENDANCE POST EMERGENCY DENTAL MANAGEMENT AMONG THE HOMELESS POPULATION IN HOUSTON, TEXAS*. https://api.semanticscholar.org/CorpusID:196554620

Weintraub, A. M. (1996). CONTINUOUS QUALITY IMPROVEMENT AND DENTAL PRACTICE: A MARRIAGE OF NECESSITY. *The Journal of the American Dental Association*, *127*(7), 1099–1106. https://doi.org/10.14219/jada.archive.1996.0336

Williams, S., & Stickley, T. (2011). Stories from the streets: People's experiences of homelessness. *Journal of Psychiatric and Mental Health Nursing*, *18*(5), 432–439. https://doi.org/10.1111/j.1365-2850.2010.01676.x

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