UNIVERSITY OF CALIFORNIA, MERCED

Intersecting Inequities: Linking tobacco use to oral health disparities among Blacks, Hmong, Latinx, and Older Adults

A dissertation submitted in partial satisfaction of the requirements for the degree

Doctor of Philosophy

In

Public Health

By

Tashelle B. Wright

Committee in charge:

Professor Nancy J. Burke, PhD, Chair

Professor Mariaelena Gonzalez, PhD

Professor Whitney Pirtle, PhD

Professor Irene H. Yen, PhD, MPH

The Dissertation of Tashelle B. Wright is approved, and it is acceptable in quality and form for publication on microfilm and electronically:

Mariaelena Gonzalez, PhD	Date
Whitney Pirtle, PhD	Date
Irene H. Yen, PhD, MPH	Date
Nancy J. Burke, PhD, Chair	Date

University of California, Merced

2021

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Acknowledgements

I would like to thank all the individuals and families I interviewed for this study, who shared their stories and lived experiences with me. I am immensely grateful for my dissertation committee: Dr. Nancy J. Burke, Dr. Mariaelena Gonzalez, Dr. Whitney Pirtle, and Dr. Irene H. Yen for their support, kindness, understanding, and mentorship. I would like to thank my family for their love and encouragement throughout my academic journey. My son, Colby Wright, was instrumental in motivating me and a great research buddy. I would like to thank my mentors: Ms. Marian Howe-Taylor, Dr. Clifton Sanders, and my dad, Abraham Y. Lincoln. I also would like to thank my Tobacco Related Disease Research Program Officer, Dr. Norval Hickman, UC Merced administrators: Leann Nascimento, Carmen Middleton, Frances Davenport, Eric Cannon, and countless others.

This dissertation is dedicated to my mom, Carol Ann Wright, who passed away in August 2021. She was an amazing cheerleader and always wanted to know about my research. Her passing at the age of 50, reinforces the importance of advancing health equity among women. I would also like to dedicate this dissertation to Mr. Mark Anthony Ramirez Sr., who passed away in June 2021. Mark was a dynamic Central Valley community member who I had the opportunity to interview. As lastly, I would like to dedicate this dissertation to those who have lost their lives due to inequities in the healthcare system and who have been impacted by structural racism.

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Curriculum Vita

TASHELLE B. WRIGHT

PO Box 571463 • Salt Lake City, UT 84157 • (801) 879-2285
Email: wright.tashelle@gmail.com

ACADEMIC POSITIONS

2022 **Postdoctoral Fellow at the Dalla Lana School of Public Health**
DLSPH Black Postdoctoral Fellowship Program, University of Toronto

EDUCATION

2021 **PhD in Public Health,** *University of California, Merced*
2018 **Master of Science in Public Health**, *University of California, Merced*
2016 **Bachelor of Science in Public Health,** *Westminster College*
2014 **Associate of Science in Biology,** *Salt Lake Community College*

AREAS OF INTEREST

Aging and caregiver health | Black/African/Afro-Latinx health | community-based participatory research | equity, diversity, and inclusion | gender and health | global health | health disparities | health equity | homelessness | incarceration | Latino/a/x health | LGBTQIA+ health | mental and behavioral health | oral health | race and health | social determinants of health | sociology of health | substance abuse and tobacco use | women's health

RESEARCH EXPERIENCE

2020 – **Regulating Menthol Cigarettes Project Data Analyst & Community Liaison**
PI: Dr. Karen Beard | Team Members: Sonya Young Adams & Von Fisher
California Black Women's Health Project

2020 – 2021 **Graduate Student Research, Racialized and Gendered Impacts of Covid-19**
PI: Dr. Whitney Pirtle
University of California, Merced

2020 – **Coronavirus and Lifestyle: Impact on Mothers and Babies (CLIMB) Study**
PI: Dr. Jennifer Hahn-Holbrook | Team Members: Kimberly Meraz & Jessica Marino
University of California, Merced

2020 – 2021 **COVID-19 Public Health Research Team**
PIs: Dr. Paul Brown & Dr. Maria-Elena Young
University of California, Merced

2019 – **TRDRP Pre-doctoral Fellow, Dissertation Research**
Dissertation Title: *Intersecting Inequities: Linking tobacco use to oral health disparities among Blacks, Latinx, and Older Adults*
Dissertation Chair: Dr. Nancy J. Burke
Committee Members: Dr. Mariaelena Gonzalez, Dr. Whitney L. Pirtle, Dr. Irene H. Yen
University of California, Merced

2019 – **Editorial Assistant, Black Feminist Sociology Edited Volume**
"Black Feminist Sociology: Perspectives and Praxis"
Editors: Drs. Whitney Pirtle & Zakiya Luna | Co-Assistant: Jasmine Kelekay
Available at: https://blackfeministsociology.com/read-the-book/
University of California, Merced & University of California, Santa Barbara

2018 – 2019 **Graduate Student Researcher, Oral Health Project**
PIs: Dr. Nancy J. Burke & Dr. Mariaelena Gonzalez | Team member: Jazmine Kenny
University of California, Merced

Fall 2017 **Fairmead Community Needs Assessment**
Faculty Advisor: Dr. Nancy J Burke | Team Lead: Andrea Lopez, MPH
University of California, Merced

2017 – 2018 **UC Smoke and Tobacco Free Fellowship Research**
Title: *Understanding E-cigarette use among college aged individuals.*
Faculty Advisor: Dr. Nancy J Burke | Team Members: Andrea Lopez & Jazmine Kenny
University of California, Merced

2017 – 2018 **UC Merced Blum Center Seed Grant** | *Group Awarded: ($8,000.00)*
Title: *Overcoming Malnutrition in non-Institutionalized Elderly Citizens.*
PI: Dr. Paul Brown | Co-PI: Dr. Nancy Burke
University of California, Merced

Summer 2017 **Graduate Student Researcher, Air Quality Project**
PI: Dr. Paul Brown | Co-PI: Dr. Ricardo Cisneros
University of California, Merced

2017 – 2018 **Graduate Student Researcher, Long Term Care & Food Security**
Faculty Advisors: Dr. Paul Brown & Dr. Nancy J Burke
University of California, Merced

Spring 2017 **Graduate Student Researcher, Caregiving & Aging**
Faculty Advisor: Dr. A Susana Ramirez
University of California, Merced

2016 – 2017 **Communication, Culture and Health Research Team Member**
Faculty Advisor: Dr. A Susana Ramirez

Spring 2016 **Assessing Racial and Ethnic Disparities in Access to Oral Health Care**

Faculty Mentors: Dr. Han Kim & Dr. Colette McAfee
Westminster College, Utah

Summer 2015 **African American Health Disparities and Community Involvement in Utah**
Faculty Mentor: Dr. Han Kim
Westminster College, Utah

Summer 2014 **Neuroscience Attentional Blink Task Programming** Faculty Mentors: Dr. Russ Costa & Dr. Lesa Ellis

RESEARCH GRANTS & EXPERIENCE

2020 – 2021 **UCM Black Research Fellowship** | *Awarded: ($2,500.00)*
Title: *Stories and Meaningful Statistics: A mixed-method, intersectional approach to exploring Black Health and Black Identity among faculty, students, and staff at UC Merced*
PI: Tashelle Wright, MSPH, PhD Candidate
University of California, Merced

2020 – **Equity, Diversity, and Inclusion Grant** | *Group Awarded: ($5,000.00)*
Title: *Scholars with Dependents Network*
PI: Tashelle Wright, MSPH | Co-PI: Hope Reuschel, MS
University of California, Merced

2019 – 2021 **Tobacco Related-Disease Research Program (TRDRP) Pre-doctoral Fellowship** | *Awarded: ($122,757.00)* | Grant Number T30DT0825
Title: *Intersecting Inequities: Linking tobacco use to oral health disparities among Blacks and Latinx*
PI: Tashelle Wright, MSPH
University of California, Merced

2019 – 2021 **Interdisciplinary Small Grants Program** | *Group Awarded: ($3,000.00)*
Title: *Black Feminist Sociology Symposium: A Celebration of Interdisciplinary and Intersectionality Research*
PIs: Whitney Pirtle, PhD & Tashelle Wright, MSPH
University of California, Merced

2019 – 2020 **Diversity, Equity, and Inclusion Grant** | *Group Awarded: ($5,000.00)*
Title: *Cultivating Diversity and Inclusion in Academia: Applying to Graduate School Workshop Series*
PI: Tashelle Wright, MSPH | Co-PI: Avia Gray, MA
University of California, Merced

PUBLICATIONS

Peer Reviewed Academic Publications

Laster Pirtle, W. N., and **Wright, T.** (2021). Structural Gendered Racism Revealed in Pandemic Times: Intersectional Approaches to Understanding Race and Gender Health Inequities in COVID-19. Gender & Society. https://doi.org/10.1177/08912432211001302

Gonzalez, M, Sanders-Jackson A, and **Wright T**. "Web-Based Health Information Technology: Access Among Latinos Varies by Subgroup Affiliation." *Journal of medical Internet research* 21.4 (2019): e10389.

Other Academic Publications

Luna, Z., & Pirtle, W. (2021). *Black Feminist Sociology: Perspectives and Praxis*. Routledge. Roles: **Wright T**. Contributor, Editorial Assistants' Reflection p. xxiii-xxiv

Wright T. (2018) Understanding the role of social capital in the lives of caregivers in rural California, a qualitative study. Escholarship.org. Master's Thesis.

Wright T. (2016) African American Health Disparities and Community Involvement in Utah. *Westminster College McNair Research Journal: Westminster McNair Journal 2015 and 2016.*

Article Manuscripts Under Review & In Progress

Wright T, Kenny J, Nunez A, Kwan K, Singh R, Brown P and Burke N J. Family caregiving and nutrition: Navigating change in rural California. Identifying Journal. (Submitting January 2022)

Wright T, Gonzalez M, Yen I, and Burke N J. Social support and rural caregiving: At the crossroads of aging in place and health. Target journal: Social Science and Medicine.

Wright T. Oral health inequities among elderly populations in rural California, "a key group forgotten about". Target journal: The Gerontologist (Dissertation Chapter 1: Under development)

Wright T. The mouth, body connection: Tobacco use and oral health in Central California. Target journal: AJPH (Dissertation Chapter 2: Under development)

Wright T. Fear, Finances and Fundamentals: Perceptions of oral health care in California's Central Valley. Target journal: AJPH (Dissertation Chapter 3: Under development)

Public Writing: Public Health & Sociology

Wright T and Pirtle W. The Pandemic Reveals: Home, Work, and Health Care Disadvantages for Women of Color. Gender and Society Blog. (2021) Available at: https://gendersociety.wordpress.com/2021/03/06/the-pandemic-reveals-home-work-and-

health-care-disadvantages-for-women-of-color/

Public Health Podcasts, Webinars & Radio

Howe-Taylor M, MacDonald A, and **Wright T**. Culture Bytes Podcast: Black Storytellers of Utah and Creating the Beloved Community Project. Utah Cultural Alliance. (2021) Available at: https://www.utahculturalalliance.org/podcast_culture_bytes

Wright T, Stanton S, and Walton J. We Got Us! Black Health Matter Series | Season 2, 7 episodes (January 2021 to July 2021) Available at: https://podcasts.apple.com/us/podcast/we-got-us/id1535983067

Wright T, Stanton S, and Walton J. We Got Us! Health Policy & Voting 101 Series | Season 1, 6 episodes (October 2020 to November 2020) Available at: https://open.spotify.com/show/2rGt9hLQ51vDQI7OY4pEMJ?si=rZWe3Im8SvSa0iSlCcpVkw&dl_branch=1

TEACHING EXPERIENCE

Summer 2021 **Instructor, PH 181 Public Health Research** | Online
University of California, Merced

Summer 2020 **Instructor, PH 005 Global Health** | Online
University of California, Merced

2019 – 2020 **Instructor, Cultivating Diversity, and Inclusion in Academia Seminar Series**
Co-IOR: Avia Gray
University of California, Merced

Spring 2018 **Teaching Assistant, PH 105 Global Health**
University of California, Merced

Fall 2017 **Teaching Assistant, PH 181 Public Health Research**
University of California, Merced

Fall 2016 **Teaching Assistant, PH 101 Intro to Public Health**
University of California, Merced

INVITED LECTURES

2020 – PH 106 Health Policy: Tobacco and E-Cigarette Policy: A Focus on Advocates, UC Merced

2019 – PH 181 Public Health Research: Oral Health Needs Assessment Process, Community Health Improvement Plans & Evaluation Plans, UC Merced

2019 – SPARK Big Sugar Lecture Day 1 and Day 2: Oral Health and Community Needs Assessments, UC Merced

2017 – PH 181 Public Health Research: Community Needs Assessments – Collecting Primary Data and Finding Secondary Data, UC Merced

PROFESSIONAL EXPERIENCE

2021 – **Health Initiatives Coordinator & Consultant** | Salt Lake City, Utah
Project Success Coalition, Inc.
- Emergency Rental Assistance Program (ERAP)
- COVID-19 Community Partnership (CCP)

2020 – 2021 **McNair Scholars Program Coordinator** | Salt Lake City, UT
Ronald E. McNair Postbaccalaureate Achievement Scholars Program at Westminster College

2020 **UROC Summer Undergraduate Research Institute (SURI) Graduate Research Mentor** | Merced, CA
Undergraduate Research Opportunities Center (UROC)

2019 **Grant Program Staff & Health Specialist** | Merced, CA
Healthy House within a MATCH Coalition (3-month contract)
- Homelessness and Mental Health in Merced County
- Tobacco and Nicotine Prevention
- AFYA: African American Maternal/Child Health Network

2019 **UROC Summer Undergraduate Research Institute (SURI) Graduate Research Mentor** | Merced, CA
Undergraduate Research Opportunities Center (UROC)

2018 – 2020 **Associate Researcher & Program Evaluator**| Merced, CA
Alliance for Community Research and Development (ACRD)

2017 **Summer Bridge Graduate Student Mentor** | Merced, CA
University of California, Merced

2015 – 2016 **Health Liaison, Office of Health Disparities** | Millcreek, UT
Utah Department of Health

2015 – 2016 **Intern, Office of Emergency Preparedness** | Millcreek, UT
Utah Department of Health

2015 – 2016 **East High LEAD Mentor and Data Analyst** | Salt Lake City, UT
East High School

2014 – 2015 **Utah Scholars Coach** | Kearns, UT
Utah System of Higher Education

2009 – 2011 **Certified Nurse Assistant** | West Valley City, UT
Rocky Mountain Care

CONFERENCE PRESENTATIONS

Luna Z, Pirtle W, and **Wright T**. Black Feminist Sociology: Commitment, Critiques and Collaboration (Part 1 of 2). Oral presentation at: Association of Black Sociologists; August 5, 2021.

Luna Z, Pirtle W, **Wright T**, Kelekay J, and Brown M. Creating Black Feminist Communities and Interventions in Academia. Oral presentation at: Sociologists for Women in Society Summer Meeting 2021; July 9, 2021.

Wright T, Stanton S, and Walton J. We Got Us!: Black Health Matters and Activism in Utah. Oral presentation at: 2021 Black Feminist Health Science Studies Collaboratory; May 15, 2021.

Wright T. Stories and Meaningful Statistics: A mixed-method, intersectional approach to exploring Black Health and Black Identity among faculty, students, and staff at UC Merced. Oral presentation at: Black Excellence Research Symposium; May 7, 2021.

Meraz K, Marino J, **Wright T,** and Hahn-Holbrook J. Infant Food Insecurity During COVID-19. Roundtable presentation at: Sociologists for Women in Society Winter Meeting 2021; January 27, 2021.

Wright T, Avellaneda F, Restrepo I, Monterrosa A, and Salinas M. I Holler, But Do You Hear Me?: Violence Against Black and Brown Women. Virtual poster presentation at: American Public Health Association Annual Meeting 2020; October 26, 2020, *online due to the COVID-19 pandemic.*

Wright T, Gonzalez M, Yen I, and Burke N J. Fear, finances, and fundamentals: Perceptions of oral health care in California's central valley. Virtual oral presentation at: American Public Health Association Annual Meeting 2020; October 28, 2020, *online due to the COVID-19 pandemic.*

Wright T. Fear, finances, and fundamentals: Perceptions of oral health care in California's central valley. Oral presentation at: Sociologists for Women in Society Summer Meeting 2020; August 8, 2020.

Wright, T. Black Health Matters: Gaps in oral health and tobacco-related disparities research. Presentation at: Joining Forces 2020 – Ending the Tobacco Epidemic for All; *abstract accepted for poster presentation – postponed due to the COVID-19 pandemic.*

Wright, T. The mouth, body connection: Tobacco use and oral health in Central California. Presentation at: Joining Forces 2020 – Ending the Tobacco Epidemic for All; *abstract accepted for oral presentation – postponed due to the COVID-19 pandemic*.

Salinas M, Avellaneda F, **Wright T**, Monterrosa A, and Restrepo I. I Holler, But Do You Hear Me?: Violence Against Black and Brown Women. Workshop Presentation at: Sociologists for Women in Society Winter Meeting 2020; February 1, 2020, San Diego, CA.

Salinas M, Vega C, Muniz J, Monterrosa A, Martinez A, Avellaneda F, and **Wright T.** At the Intersections of the Academic Labyrinth: WOC on Intersectional Challenges Across Academia. Workshop Presentation at: Sociologists for Women in Society Winter Meeting 2020; January 31, 2020, San Diego, CA.

Wright T, Kenny J, Alnahari S, Gonzalez M, and Burke N J. Oral health inequities among elderly populations in rural California, "a key group forgotten about". Oral presentation at: American Public Health Association Annual Meeting 2019; November 5, 2019, Philadelphia, PA.

Wright T. "Black Health Matters": Intersectionality and gaps in oral health and tobacco-related disparities research. Poster presentation at: American Public Health Association Annual Meeting 2019; November 3, 2019, Philadelphia, PA.

Chavez L, Roussos S, and **Wright T**. Tailoring Tobacco Control Evaluation and Research for Culturally Diverse Communities. Poster presentation at: American Public Health Association Annual Meeting 2019; November 4, 2019, Philadelphia, PA.

Kenny J, **Wright T,** Gonzalez M, and Burke N J. Understanding the multi-level influences on Early Childhood Caries from the perspectives of key informants from three rural California counties. Poster presentation at: American Public Health Association Annual Meeting 2019; November 4, 2019, Philadelphia, PA.

Wright T, Kenny J, Gonzalez M, and Burke N J. Oral health inequities among elderly populations in rural California, "a key group forgotten about". Oral presentation at: San Joaquin Valley Oral Health Symposium: A Celebration of Collaboration; April 19, 2019, Merced, CA.

Kenny J, **Wright T**, Gonzalez M, and Burke N J. Providers' Perspectives on Children's Oral Health in the San Joaquin Valley. Oral presentation at: San Joaquin Valley Oral Health Symposium: A Celebration of Collaboration; April 19, 2019, Merced, CA.

Wright T, Kenny J, Gonzalez M, and Burke N J. Oral health inequities among elderly populations in rural California, "a key group forgotten about". Poster presentation at: Society for Applied Anthropology Annual Meeting; March 22, 2019, Portland, OR.

Wright T, Kenny J, and Burke N J. Food insecurity and malnutrition in the "breadbasket of the world": An exploration of how rural older adults and their caregivers navigate limited food environments. Session: Why does it matter how we talk about food security?

Oral presentation at: Society for Applied Anthropology Annual Meeting; March 22, 2019, Portland, OR.

Kenny J, **Wright T**, Gonzalez M, and Burke N J. Systematic Barriers to Parent Oral Health Knowledge around Early Childhood Caries: A Qualitative Study. Poster presentation at: Society for Applied Anthropology Annual Meeting; March 22, 2019, Portland, OR.

Wright T, Kenny J, Nunez A, Brown P, and Burke N J. Access and Affordability: An Exploration of Food Insecurity and Malnutrition among Rural Older Adults and their Caregivers. Poster presentation at: American Public Health Association Annual Meeting; November 12, 2018, San Diego, CA.

Lopez A, **Wright T**, and Burke N J. Rural Community Health Survey: Reflections on "partnership" in CBPR. Poster Presentation at: American Public Health Association Annual Meeting; November 12, 2018, San Diego, CA.
Nunez A, Singh R, Kwan K, Kenny J, **Wright T**, Brown P and Burke N J. Predictors of malnutrition in the older adults: Analysis of California hospitalization data. Poster presentation at: American Public Health Association Annual Meeting; November 12, 2018, San Diego, CA.

Wright T, Gonzalez M, Yen I, and Burke N J. Social capital and rural caregiving: At the crossroads of aging in place and health. Poster presentation at: American Public Health Association Annual Meeting; November 12, 2018, San Diego, CA.

Wright T, Gonzalez M, Sanders-Jackson A, and Burke N J. Health information seeking differences based on nativity among US-born and Foreign-born Blacks. Poster presentation at: American Public Health Association Annual Meeting; November 11, 2018, San Diego, CA.

Lopez A, Kenny J, **Wright T** and Burke N J. In social settings and stressful situations: Why UC Merced students use e-cigs and marijuana. Oral presentation at: UC Smoke and Tobacco Free Fellowship Meeting; May 3, 2018, Oakland, CA.

Wright T, Kenny J, Nunez A, Brown P, Burke N J. Understanding the lived experiences of caregivers in rural California: A qualitative study. Poster presentation at: Society for Applied Anthropology Annual Meeting; April 5, 2018, Philadelphia, PA.

Ramirez S, **Wright T**. Understanding the health information needs and barriers of older adults: Implications for interventions to reduce health disparities. Poster presentation at: Alzheimer's Disease Diversity and Disparities in Family Caregiving Conference; May 3, 2017, Davis, CA.

Wright T, Kim H. An exploration into the health priorities of African Americans in Utah. Oral presentation at: Utah Public Health Association Annual Conference; April 11,

2016, Salt Lake City, UT.

Wright T, McAfee C. Assessing racial and ethnic disparities in access to oral health care. Poster presentation at: Westminster College; April 2016, Salt Lake City, UT.

Wright T, Kim H. An exploration into the health priorities of African Americans in Utah. Oral presentation at: UC Berkeley McNair Scholars Symposium; July 30, 2015, Berkeley, CA.

Wright T. An exploration into the health priorities of African Americans in Utah. Oral presentation at: Westminster College McNair Scholars Symposium; July 23, 2015, Salt Lake City, UT.

Wright T. Exploring the various components of the Westminster Neuroscience Lab. Oral presentation at: Westminster College McNair Scholars Symposium; July 23, 2014, Salt Lake City, UT.

INVITED PRESENTATIONS

Wright T. Black, African & Afro-Latinx Community Remembrance and Community Health Worker Acknowledgment. Día de Los Muertos Press Event; November 1, 2021, Utah State Capitol.

Wright T. Fear, Finances and Fundamentals: Perceptions of tobacco use and oral health care in California's Central Valley; October 26, 2021. Online at the University of Toronto, Division of Social and Behavioural Sciences Seminar Series.

Wright T. Elder Abuse Training: Older Adult Health, Caregiver Health and Older Adult Oral Health; September 12, 2021. Online at Fresno State University.

Wright T. Keynote Speaker at the DDI Vantage Early Head Start Family Advocate Conference; April 28, 2021. Online in Salt Lake City, Utah.

Wright, T. Making Health Justice Happen in Our Community: Black & African American Health Disparities; April 23, 2021, Online. Hosted by: Aoki Center, UC Davis Health, UC Davis School of Law.

Wright T. Elder Abuse Training: Caregiver Health and Older Adult Oral Health; February 6, 2021. Online at Fresno State University.

Wright T. Elder Abuse Training: Caregiver Health and Older Adult Oral Health; October 3, 2020. Online at Fresno State University.

Wright T. Healthy Stores for a Health Community (HSHC) Key informant Interview Training; October 3, 2019. Merced, California.

Wright T. Condoms and Nutrition HSHC Training Modules. Oral presentations at: Healthy Stores for a Healthy Community Volunteer Training; April 20, 2019. Merced, California.

Wright T. Tobacco Retail Licensing Training Presentation. Merced County ACCT Coalition Quarterly Meeting; March 12, 2019. Merced, California.

Wright T and Kenny J. Key Informant Interview Training. Merced County ACCT Coalition Workshop; September 28, 201. Merced, California.

Wright T, Gonzalez M and Burke N J. Assessing Oral Health Related Issues in Stanislaus County. Oral presentation at: Stanislaus County Oral Health Advisory Committee; September 26, 2018. Modesto, California.

Wright T. Exploration of caregiver social networks to reduce health inequities in the San Joaquin Valley. Oral presentation at: Lyceum Speaker Series; April 18, 2018. Merced, California.

PANEL PRESENTATIONS

Black Feminist Sociology: Perspectives and Praxis Book Launch Panelist– Washington University in St. Louis | October 2021
Beloved Community Screening Panelist, Spy Hop – Salt Lake City, Utah | September 2021
Beloved Community Screening Moderator, Weber State University – Davis Campus | June 2021
Admitted Graduate Students Panel, UC Merced | April 2021
Expect the Great Panel: Transition to Post Graduate Experiences | March 2021
School of Social Sciences, Humanities & Arts Graduate Student Panel | February 2021
Beloved Community Screening Facilitator & Panelist, Salt Lake Community College | February 2021
Beloved Community Screening Facilitator & Panelist, Utah Film Center | February 2021
UC Merced Public Health Society Panel, UC Merced | November 2020
First Generation Week Panel, Westminster College | November 2020
Beloved Community Screening Panelist, Brolly Arts & Utah State University | October 2020
Effective Working Relationships with Your Faculty Advisor, UC Merced | July 2020
A Guide to: Graduate School, UC Merced | April 2019
UROC Graduate Student Panel, UC Merced | July 2018
Health Disparities Awareness Panel. Valley Children's Hospital, Fresno, CA | July 2017
Center for Engaged Teaching and Learning Teaching Assistant Panel, UC Merced | August 2017
Competitive Edge Summer Bridge Program Graduate Student Panel, UC Merced | June 2017

Graduate Diversity Panel, UC Merced | August 2016
The Shifting Terrain of Financial Aid and Student Loans, Westminster College | April 2016

REPORTS

University of California, Merced

Gonzalez M, **Wright T**, Kenny J, Ramirez E, Alnahari S, and Burke N J. Stanislaus County Oral Health Improvement Plan (CHIP).

Gonzalez M, **Wright T**, Kenny J, Ramirez E, Alnahari S, and Burke N J. Merced County Oral Health Improvement Plan (CHIP).

Gonzalez M, Kenny J, **Wright T,** Ramirez E, Alnahari S, and Burke N J. Madera County Strategic Plan and Community Health Improvement Plan. Available at: https://www.maderacounty.com/home/showpublisheddocument?id=17040

Gonzalez M, **Wright T**, Kenny J, Goliaei Z, and Burke N J. Stanislaus County Oral Health Needs Assessment. Available at: https://169.236.240.21/nburke2/intellcont/Stanislaus%20County%20Health%20Services%20Agency%20-%202018%20Oral%20Health%20Needs%20Assessment-1.pdf

Gonzalez M, **Wright T**, Kenny J, Goliaei Z, and Burke N J. Merced County Oral Health Needs Assessment. Available at: https://169.236.240.21/nburke2/intellcont/REV.FINAL--LOHP--NeedsAssessment-Merced%20County-1.pdf

Gonzalez M, Kenny J, **Wright T,** Goliaei Z, and Burke N J. Madera County Oral Health Needs Assessment. Available at: https://www.maderacounty.com/home/showpublisheddocument?id=17038

Utah Department of Health, Office of Health Disparities

Moving Forward in 2016: Fifteen Years of Health Data Trends by Race and Ethnicity for American Indians/Alaska Natives in Utah, 2016. Available at: http://www.health.utah.gov/disparities/data/race-ethnicity-report/AIANMovingForward2016.pdf

Moving Forward in 2016: Fifteen Years of Health Data Trends by Race and Ethnicity for Utah Native Hawaiians/Pacific Islanders, 2016. Available at: http://www.health.utah.gov/disparities/data/race-ethnicity-report/NHPIMovingForward2016.pdf

Moving Forward in 2016: Fifteen Years of Health Data Trends by Race and Ethnicity for Utah Hispanics/Latinos, 2016. Available at:

http://www.health.utah.gov/disparities/data/race-ethnicity-report/MovingForward2016Latinos.pdf

Moving Forward in 2016: Fifteen Years of Health Data Trends by Race and Ethnicity for Utah Blacks/African Americans, 2016. Available at: http://www.health.utah.gov/disparities/data/race-ethnicity-report/MovingForwardAA2016.pdf

Utah Language Data Report, 2016. Available at: http://www.health.utah.gov/disparities/data/ohd/UtahLangaugeDataReport2016.pdf

Moving Forward in 2016: Fifteen Years of Health Data Trends by Race and Ethnicity for Utah Asians, 2016. Available at: http://www.health.utah.gov/disparities/data/race-ethnicity-report/MovingForward2016Asians.pdf

Behavioral and Mental Health Provider Assessment Summary, 2016. Available at: http://www.health.utah.gov/disparities/data/ohd/BHMHSummaryReport.pdf

Voices of South Salt Lake Residents, 2016. Available at: https://health.utah.gov/disparities/data/ohd/VoicesofSSLFinal.pdf

LEADERSHIP & SERVICE ACTIVITIES

University of California | Merced, CA

2020 – 2021	Mentor, GRAD-EXCEL Peer Mentoring Program. *Awarded: ($300.00)*
2020 – 2021	Graduate Representative, UC Merced Black Student Leaders
2020 – 2021	Graduate Representative, Valuing Black Lives @UCM: Staff and Faculty Recruitment and Retention Subcommittee
2020 –	UC Merced Black Alliance
2019 – 2020	Gateway to Merced: Oral Histories Project
2018 – 2021	UC Merced Graduate Representative, UC Parenting Students Workgroup
2018 –	Graduate Student Voting Member, UC Merced Student Fees Advisory Council
2017 – 2018	Graduate Student Representative, UC Merced Police Advisory Board
2017 – 2018	Climate, Diversity and Equity Officer, UC Merced Graduate Student Association
2016 – 2018	Member, UC Merced Graduate Dean's Advisory Council on Diversity
2016 –	Co-Founder, Black Graduate Scholars Association at UC Merced 2019 – Black Graduate Research Symposium. *Awarded: ($1,000.00)* 2019 – Grant & Fellowship Writing Retreat. *Awarded: ($700.00)*

Westminster College | Salt Lake City, UT

2021 – Member, Humanities Research Working Group
2016 – 2017 Student Representative, Westminster College Retention Committee
2015 – 2016 President, Westminster College Black Student Union

Salt Lake Community College | Taylorsville, UT

2015 – 2016 Visit Coordinator, SLCC STEM & Arts College
2012 – 2015 Staff Member, Slick Science Youth Program, Salt Lake Community College
2011 – 2015 Club President, MESA/STEP Program, Salt Lake Community College
2011 – 2014 Executive Assistant & Member, Salt Lake Community College Black Student Union

Professional

2021 – Selection Committee Member, SWS Barbara Rosenblum Dissertation Scholarship Award
2019 – Abstract Peer Reviewer, Student Assembly of the American Public Health Association
2019 – Member, African American Tobacco Control Leadership Council

Government

2018 – 2020 Researcher, Merced County Oral Health Advisory Committee, CA
2018 – 2020 Researcher, Stanislaus County Oral Health Advisory Committee, CA
2018 – 2020 Researcher, Madera County Oral Health Advisory Committee, CA
2015 – 2016 CODA Health Subcommittee Member, UT
2015 – 2016 Liaison for Utah African American Health Task Force, UT

California Community

2019 – Advisory Council Member, Rural Initiatives Strengthening Equity (RISE)
2019 – 2020 Consumer Member, Merced County Collaborative for Children and Families
2018 – 2019 Community Volunteer, Project GROW, Community Initiatives for Collective Impact
2018 – 2019 Chair, A Community Counteracting Tobacco (ACCT) Coalition, Merced County
2017 – Member & Social Media Lead, A Community Counteracting Tobacco (ACCT) Coalition
2017 – 2020 Member, AFYA: African American Maternal/Child Health Network, Merced County

Utah Community

2020 – Beloved Community Project, Black Social Change 2.0, Brolly Arts
- Grant Writing Assistant
- Film and Discussion Screening Facilitator

2016 – Storyteller & Advocate, Black Social Change Utah
2015 – Utah's Black, African, and African American Health Task Force
2009 – 2012 Policy Council Secretary, Early Head Start Program
2009 – 2011 Advocate, Young Parent Program

FELLOWSHIPS & SCHOLARSHIPS

2020 – 2021 Lyndon Haviland Student Assembly Annual Meeting Scholarship. *Awarded: ($257.00)*
2019 – 2020 Fred and Mitzie Ruiz Fellowship. *Awarded: ($1,000.00)*
2019 – 2020 Spring 2020 Public Health Travel Award. *Awarded: ($750.00)*
2019 – 2020 UC Merced GSA Travel Award. *Awarded: ($400.00)*
2019 – 2020 Ethel O. Gardner P.E.O. Scholarship Fund. *Awarded: ($1,770.00)*
2019 – 2020 Evelyn M. Reed Scholarship Fund. *Awarded: ($1,000.00)*
2018 – 2019 Graduate Fellowship Incentive Program. *Awarded: ($200.00)*
2018 – 2019 Del Jones Travel Award, Society for Applied Anthropology. *Awarded: ($500.00)*
2018 – 2019 CETL Instructional Internship, Level 1 Scholarship. *Awarded: ($100.00)*
2017 – 2018 UC Smoke and Tobacco Free Student Fellowship. *Awarded: ($3,000.00)*
2016 – 2017 Graduate Dean's Relocation Award. *Awarded: ($500.00)*
2016 – 2017 Graduate Group Recruitment Fellowship. *Awarded: ($5,000.00)*
2015 – 2016 Pastor France A. Davis Scholarship, Calvary Baptist Church. *Awarded: ($2,000.00)*
2015 – 2016 NAACP Scholarship Recipient – Salt Lake Branch. *Awarded: ($1,000.00)*
2015 – 2016 Paul Millsap Scholarship, Calvary Baptist Church. *Awarded: ($1,000.00)*
2015 – 2016 Delta Airlines Scholarship – Academics & Leadership. *Awarded: ($1,500.00)*
2015 – 2016 Forbush Endowed Scholarship, Westminster College, Utah. *Awarded: ($600.00)*
2014 – 2019 Collester Scholarship, Community Foundation Utah. *Awarded: ($17,920.00)*
2014 – 2016 Westminster College Transfer Dean's Scholarship. *Awarded: ($22,000.00)*
2014 – 2015 Gump and Ayers Scholarship, PEO Utah Chapter. *Awarded: ($2,500.00)*
2014 – 2015 Auxiliary Services Book Scholarship, SLCC. *Awarded: ($400.00)*
2013 – 2016 MESA/STEP Scholarship. *Awarded: ($4,000.00)*
2013 – 2014 Daniel's Foundation Scholarship, SLCC. *Awarded: ($4,600.00)*
2012 – 2013 Student Support Services (TRiO) Scholarship, SLCC. *Awarded: ($600.00)*
2011 – 2013 Departments of Natural Sciences Award, SLCC. *Awarded: ($5,400.00)*
2011 – 2012 Wagner Foundation Scholarship, SLCC. *Awarded: ($2,000.00)*

HONORS & AWARDS

2020	2020 Women of Vision Scholar, 2020 Women of Vision Conference | Lehi, Utah *Awarded: ($1,097.00 includes registration and airfare)*
2019	Intersectionality Scholar, Intersectional Qualitative Research Methods Institute for Advanced Doctoral Students (IQRMI-ADS) | University of Texas at Austin
2018	Honorable Mention, APHA 2018 Aging and Rural/Environmental Health Award | Annual APHA Manuscript Award, *Awarded: ($125.00)*
2014	McNair Scholar, Ronald E. McNair Postbaccalaureate Achievement Program

PROFESSIONAL DEVELOPMENT, ADVANCED TRAINING & CERTIFICATIONS

2021 –	HIPAA Security Awareness Training – FY2021 Utah Department of Health | Salt Lake City, UT
2021 –	Ethics 101 | Utah Department of Health | Salt Lake City, UT
2021 –	Workplace Harassment and Abusive Conduct Prevention Utah Department of Health | Salt Lake City, UT
2021 –	A Class About C.L.A.S.: Culturally and Linguistically Appropriate Services, Utah Department of Health | Salt Lake City, UT
2021 –	Culturally and Linguistically Appropriate Services in Mental/Behavioral Health Settings, Utah Department of Health | Salt Lake City, UT
2021 –	Health in 3D, Utah Department of Health | Salt Lake City, UT
2021 –	UC Merced Summer Dissertation Boot Camp | Merced, CA
2020	BOLD Leader Development Program | Merced, CA
2020 –	Conducting Oral Histories: Gateway to Merced Project | Merced, CA
2020 –	UC Merced Summer Dissertation Boot Camp | Merced, CA
2020 –	Central Valley Asian American, Native Hawaiian and Pacific Islander (AANHPI) Leadership Summit Training | Merced, CA
2019 –	SpARC Training: GIS Essentials | Merced, CA
2019 –	UC Merced Summer Dissertation Boot Camp | Merced, CA
2019 –	Grant Writing 101, Building Healthy Communities | Merced, CA
2019 –	Tobacco Coalition Partners Training | Pacific Grove, CA
2019 –	Healthy Stores for Healthy Community (HSHC) Data Collection | Sacramento, CA
2017 –	ATLAS.ti: Qualitative Data Analysis Software | UC Berkley
2016 –	Collaborative Institutional Training Initiative | UC Merced *Human Research – Social/Behavioral Research*
2016 –	Mastering the Classroom with 1st Generation College Students | Merced

2016 – Developing Teaching Strategies | Merced, CA
2016 – Improving Teaching by Assessing Learning | Merced, CA

PROFESSIONAL AFFILIATIONS

2019 – Sociologists for Women in Society (SWS)
2019 – Tobacco Related-Disease Research Program (TRDRP) Grantee
2019 – Nicotine and Cannabis Policy Center (NCPC), University of California, Merced
2017 – Society for Applied Anthropology (SfAA)
2017 – Health Sciences Research Institute (HSRI), University of California, Merced
2016 – American Public Health Association (APHA)
Alcohol, Tobacco and Other Drugs (ATOD)
Oral Health Section (OH)
Aging & Public Health Section (APH)
Black Caucus of Health Workers
2016 – 2017 Utah Public Health Association (UPHA)
2014 – McNair Scholars Program and Alumni Network

INSTITUTIONAL AFFILIATIONS

2018 – Sociology of Health and Equity (SHE) Lab | UC Merced
Lab PI & Dissertation Committee Member: Dr. Whitney L. Pirtle
2017 – 2020 Center for Health Economics and Evaluation Research (CHEER) Lab | UC Merced
Lab PI: Dr. Paul Brown
2017 – 2021 Health Equity Research (HER) Lab | UC Merced
Lab PI: Dr. Nancy J. Burke
2016 – 2017 Communication, Culture, and Health Lab | UC Merced
Lab PI: A. Susana Ramirez

PROFESSIONAL WEBSITES

ORCID ID: https://orcid.org/0000-0002-8156-112X
LinkedIn: www.linkedin.com/in/tashellewright
CDIA Website: https://cdia.weebly.com [last edited 06/2020]

Abstract

This dissertation uses fundamental cause theory to understand how providers, essential staff, and Black, Hmong, and Latinx community members perceive the oral health and tobacco environment in a rural region of California's Central Valley. According to Link and Phelan, fundamental cause theory states that certain social conditions, mechanisms, and "factors that put people at risk of risk" remain persistently associated with health disparities over historical time despite changes in diseases and health interventions. Using ethnography and qualitative in-depth interviews with Central Valley residents, I identify and elaborate on the social conditions and variable mechanisms that may be responsible for the persistent tobacco-related oral health in the region. Social conditions explored include: poverty, rurality, and exposure.

CHAPTER 1: Introduction

This chapter serves as the introduction to my dissertation *Intersecting Inequities: Linking tobacco use to oral health disparities among Blacks, Hmong, Latinx, and Older Adults*, which includes three substantive chapters. This research is supported by a Tobacco-Related Disease Research Program (TRDRP) Predoctoral Fellowship (Grant # T30DT0825).

First, I present my positionality statement. As part of the dissertation process, I felt it was important to be reflect on who I am (my identity) and the experiences that inform my connection to the research I conducted (Holmes, 2020). Second, I present a brief introduction to California's Central Valley and the three counties my research focuses on – Madera County, Merced County and Stanislaus County. Third, I present the significance of oral health and tobacco research. Fourth, I present a review of fundamental cause theory (Link & Phelan, 1995) as the overall conceptual framework for my dissertation. Last, I introduce the emergence of this study, the study populations, and the overall methods for analysis.

Positionality Statement

Growing up in Utah I lived in a place and in spaces where those who identified as Black or African American often swept their identity under the rug to fit in to protect themselves or sadly, out of self-hatred. I grew up in an LDS (Mormon), lower-middle class home with a father who emigrated from Ghana, West Africa in 1990 and a mother who was born and raised in Utah. As the oldest of three daughters, I saw a lot of things my younger sisters didn't see. For example, I saw firsthand the struggles my parents went through as an interracial couple with biracial children. In our early years of life, we were disowned by many of our white family members, and this had a profound impact on our mother and father's relationship.

My sisters and I were labeled "mixed" and "biracial" from birth and were the only children that looked like us in daycare, elementary and middle school. Without even realizing it, we grew up in a way of conforming/assimilating to the acceptable "American" way. This included straightening our hair at a young age to appear more "well kept" and ensuring we don't speak in a way deemed "ghetto" or "urban", whatever that means. Ghanaian family members were the only people we saw that even closely resembled us. Like many Black children born in predominantly white cities and states, we did not see people who looked like us reflected anywhere… Not in school… Not on TV… Not at the stores or church. Growing up being "not enough" has been a resounding theme in my life and stepping out of that head space has been difficult. In many instances I was not white enough, not Black enough, and not smart enough and this had taken a toll on my identity formation.

It wasn't until I graduated high school and started my college journey that I learned any Black history and the important contributions Black, African and African Americans have made in this world. As exciting as it was to learn about the amazing achievements of Black individuals and groups, learning Black history also meant learning about the systematic, societal, structural, and environmental differences and inequities. It

was heart breaking to read and see how all institutions around me were built on injustice and racism. Prior to this point, I purposely self-identified as biracial, as I was taught. There were also settings in which I would identify myself as "Shelly" because (1) I had been told countless times that Tashelle was too difficult to say, (2) people would totally butcher my name, or (3) people would treat me differently based on which name I provided.

Luckily, after reading several books and joining the Black Student Union, I sincerely felt more comfortable identifying as Black and using my given name. This required a shift in my thinking and acceptance of who I was in the world I lived in. Coming to know myself as a single mother, first-generation student, cisgender, Black woman continues to be a difficult journey and has required continuous self-reflection, asking hard questions, and acknowledging who I am and what I bring to each space and interaction. Even through personal progress, I have always felt like an imposter in academic spaces and continue to feel defeated and insecure. I have been in numerous settings where my voice and experiences did not matter. Along with coming to terms with my identities, I also recognize the privileges I have. I was born in the United States (US), speak two languages, grew up with parents who cared about education, am able bodied, and am of lighter complexion, all characteristics that afford certain privileges depending on the space.

This brings me to the current moment in the final stages of my dissertation and PhD program. If it was not for one-of-a-kind mentors of color, I would not be writing this today. I will never forget the first time I had a Black professor. To date, I consider this a life changing experience (and opportunity). Starting at a community college with a certified nursing assistant (CNA) license, my hopes were to earn a bachelor's in nursing, become a registered nurse (RN) and apply to become a nurse practitioner (NP). I loved helping people and enjoyed working with older adults, especially those with limited social support. The vision for myself changed when I met my mentor and she introduced me to the McNair Scholars Program and talked to be about earning a PhD. I did not even know what a PhD was at the time but took their advice and applied for McNair.

As a McNair Scholar, I was introduced to a whole new world of academia. I learned what it meant to conduct research that was meaningful, and why becoming a researcher and professor could be an exciting option. From this moment on, I looked for ways to become involved with research being conducted in Utah, specifically on the populations I felt were forgotten in the state – Black and African folks. I shifted from working as a CNA to working for the state health department on projects focused on address health disparities and advancing health equity. I also conducted two summers of mentored undergraduate research. These opportunities gave me both practical and research experience. When it came time to apply for graduate school, I felt excited and prepared. I was accepted into ten programs and chose the University of California, Merced (UC Merced).

Why UC Merced? This is a question I have been asked often. When I decided to leave Utah, I wanted to attend a graduate program that was not too far from home, in a state that was more diverse. I looked up the demographics of California as a whole and specifically Merced and was excited to see higher Black/African American and Hispanic/Latino/a/x populations. I also looked forward to gaining research experience in

rural areas and apply the expertise I gained while working for a health department and conducting community-based research. Another reason for choosing UC Merced was seeing the diverse student population and knowing I would be a teaching assistant (TA). I couldn't wait to engage, teach, and mentor students of color.

Over the last 5 years, I've had the opportunity to work on many different research projects with some wonderful faculty who have helped me develop as a public health scholar. The most rewarding part of my time has been working with community-based organizations, community coalitions, and community members focused on advancing health equity and working with undergraduate and graduate scholars of color. Being in so many spaces that I felt unseen and unacknowledged, I am grateful I've been able to use these experiences to provide guidance, support, and mentorship. I have had amazing mentors and it has always been a goal to pay it forward. I am still an emerging scholar in the field of public health and sincerely focused on developing my knowledge around Intersectionality and now, Black Feminist Theory, Black Feminist Sociology, and Critical Race Theory. As a Black Postdoctoral Fellow at the University of Toronto, I will continue to develop my skills as mixed-methods researcher and devote time to learning more about theory and how to apply it.

SIGNIFICANCE OF ORAL HEALTH AND TOBACCO USE

According to the Centers for Disease Control and Prevention (CDC) (2018), "oral health disparities are profound in the United States. Despite major improvements in oral health for the population as a whole, oral health disparities exist for many racial and ethnic groups, by socioeconomic status, gender, age and geographic location". Tobacco use is a contributing factor to oral health diseases and disparities (Janakiram & Dye, 2020; K. Singh & Khan, 2018).

Blacks and Latinx in the SJV are vulnerable to poor oral health outcomes connected to tobacco use. In the San Joaquin Valley (SJV), populations are particularly vulnerable to tobacco-related oral health diseases due to limited access to healthcare and prevention services. The SJV is also a unique case as there is a healthcare provider shortage (Lessard et al., 2016; Schwartz & Pepper, 2009), including dental providers (Alnahari, 2021; Simmons, 2017). Thus, the provider to patient ratio is much lower than other regions in California (Simmons, 2017). According to AskCHIS (2018), 14% of Black adults in the SJV reported being a current smoker, compared to 12% of Black adults at the state level and 15.6% of SJV Latinx teens reported ever trying e-cigarettes compared to 5.9% of Latinx teens at the state level. Vaping and e-cigarette use are becoming increasingly common among adolescents and young adults and SJV providers are seeing the harmful effects to mouth health, especially among youth groups. Tobacco use and exposure has clear implications on one's oral health (Al–Mahozi et al., 2017). Thus, it is important to explore how these factors intersect and how these intersecting factors might amplify diseases and disparities.

Oral health inequities among older adults and elderly go unrecognized, especially among underserved rural populations. In the SJV, 11.6% of older adults had not been to the dentist in more than 5 years compared to 7.7% statewide (AskCHIS, 2017). Furthermore, only 59.1% of older adults in the SJV reported having dental

insurance (AskCHIS, 2017). This is important to consider as mouth health often declines through the life course, causing increased susceptibility to oral disease (i.e., periodontal diseases, oral cancer). Once an individual reaches the age of 65, they become eligible for Medicare, which is a national health insurance in the US (Goldsmith-Pinkham et al., 2020). Those who have Medicare have access to health care services, however, oral health is a domain of health not covered by Medicare (Poudel et al., 2020). Thus, those with Medicare must have dual eligibility for Medicare and Medicaid or pay out of pocket for oral health services (Elmaleh-Sachs & Schneider, 2020; Rahman et al., 2015). In the SJV, those eligible for the Medi-Cal Dental Program (California's Medicaid) depend on it for their oral health needs.

Oral health disparities are a neglected public health topic, especially within marginalized groups including the elderly, Blacks, Latinx, refugees, migrant workers (Henshaw et al., 2018; Satcher & Nottingham, 2017). Blacks generally have the poorest oral health of all the racial and ethnic groups in the United States (Northridge et al., 2020) and untreated caries (tooth decay) are more prevalent among Latinx and Black adults compared to non-Hispanic White adults (Henshaw et al., 2018). Periodontal disease is higher in men than women, is greatest among Mexican Americans and non-Hispanic Blacks, and affects those with less than a high school education (P. D. Smith et al., 2021). According to Henshaw and colleagues, Black and Latinx also experience higher rates of tooth loss. In the SJV, 51.8% of Latinx adults and 64.9% of Black adults have dental insurance compared to 71.5% of non-Hispanic White adults (AskCHIS, 2017). Researchers, providers, and individuals often view the oral-overall health relationship as two separate phenomena (Chalmers et al., 2017; Glick et al., 2017; Tiwari & Franstve-Hawley, 2021). When asked to rate the condition of their teeth, fewer older adults in the SJV rated the condition of their teeth as "excellent" or "very good", compared to older adults statewide (AskCHIS, 2019).

Blacks have been historically targeted by tobacco marketing and Latinx are increasingly being targeted and affected by tobacco. Tobacco and tobacco-related health diseases affect Blacks more than any other racial/ethnic group in the United States (Nguyen et al., 2017; Shevorykin et al., 2021). For the past five decades, public health departments and communities alike have pushed for the banning of tobacco sales, marketing, and flavored products, specifically menthol cigarettes which account for 88.5% of all tobacco sales to Black individuals (Giovino et al., 2015). The reasons for this are many. Historically Blacks have been targeted by tobacco companies in advertisements and marketing (Grilo et al., 2021; McDonald et al., 2020; Moran et al., 2017; Robinson et al., 2018) and in location of tobacco retail stores (Ribisl et al., 2017). For example, a recent study in Orange County found that a higher percentage of census tracts with vape stores were located in areas with large foreign-born populations and greater poverty than those without vape stores (Bostean et al., 2018). Also of growing concern is the increased access and use of electronic smoking devices among youth, specifically Latinx youth (Wang et al., 2018), who have traditionally had lower rates of tobacco use. We can anticipate rates will continue to increase among Latinx youth due to exposure to advertisement and specific targeting from companies like JUUL (Huang et al., 2019), which is a company known for e-cigarette devices that look like USB drives (Kavuluru et al., 2019).

Tobacco use contributes to the three leading causes of death among Blacks: heart disease, cancer, and stroke (Xu et al., 2016). The risk of developing diabetes, which is the fourth leading cause of disease among Blacks, is also higher for tobacco users than non-users (Benjamin et al., 2019). In addition to firsthand smoking disparities, Black children and adults are more likely to be exposed to secondhand smoke than any other racial or ethnic group (Drope et al., 2018; Homa et al., 2015; Neophytou et al., 2018) which is commonly attributed to being in low SES neighborhoods. What is disturbing about these disparities are, contrary to what it may seem, (1) Black youth and younger adults have a lower prevalence of smoking cigarettes than Hispanics and Whites (T. Singh, 2016), (2) Blacks smoke fewer cigarettes per day than Whites (Schoenborn et al., 2013), (3) most Black smokers want to quit smoking and have tried (Babb, 2017), and (4) Blacks initiate smoking at a later age compared to Whites (Li et al., 2019), yet Blacks are more likely to die from smoking-related diseases than Whites (McCuistian et al., 2021; Valera et al., 2019).

Tobacco use and exposure among Hmong populations is important to explore. In a systematic review, Maichou Lor discussed how those who identify as Hmong "may bear a disproportionate burden of poor health", including higher rates of tobacco use and lower level of awareness of smoking cessation resources (Lor, 2018). Regarding cessation, research suggests Hmong smokers viewed doctors positively, however they did perceive quitting related resources helpful (Fu et al., 2007). Although there is limited research on Hmong populations and tobacco use, a recent article by Youseff M. Roman and colleagues discusses the role of tobacco use in gout diagnoses (Roman et al., 2021). It is important to expand research on tobacco use and exposure among Hmong populations and how this impacts oral health.

Hmong are susceptible to oral health diseases. Similar to tobacco research among Hmong populations, there is limited research on oral health among Hmong populations. Many of the studies on Hmong oral health are a bit dated, which suggests the need for additional research. For example, in a 2008 pilot study by Okunseri and colleagues, approximately half of the study population rated their oral health and access to dental care as poor (2008). This study also highlights the importance of culturally competent dental providers (Okunseri et al., 2008). In the article *Prevalence of Periodontal Disease in the Fresno Hmong Community*, researcher Mai Zong Her emphasizes the lack of resources and community outreach on basic oral care and the very minimal attention in regards to dental health (Her, 2014). Poor dental health outcomes were linked to poverty (low SES), lower educational attainment and both cultural and social barriers (Her, 2014).

Tobacco use and oral health disparities intersect. Most studies on tobacco and smoking-related disparities and health outcome differences focus on race/ethnicity, gender identity (male vs female vs LBGT), and SES, but few explore how these characteristics intersect (Hooper, 2018; P. H. Smith et al., 2017) and how this might affect health outcomes and intervention effectiveness (Bowleg, 2012; Viruell-Fuentes et al., 2012). Research suggests there are several factors that contribute to these disparities such as: insurance status, income or SES, lifestyle behaviors like tobacco use, mental health, and dietary choices and preferences (Arora et al., 2017; J. Y. Lee & Divaris, 2014; Satcher & Nottingham, 2017). These disparities may be even greater based on

immigration status (Nicol et al., 2014; Wilson et al., 2018), literacy level (Baskaradoss, 2018; Dyk et al., 2018) and the level of trust in dentists (Armfield et al., 2017; Okah et al., 2018).

Oral diseases, such as cancer, are linked to tobacco use (Montero & Patel, 2015; Sultan et al., 2018). Tobacco use also has a direct impact on mouth health and health of the overall body (Liu et al., 2017; K. Singh & Khan, 2018). Both oral health and tobacco disparities are prevalent in underserved areas such as: rural areas characterized by poverty, lack of opportunity, and limited access to affordable and quality health care services. Tobacco use (i.e., cigarettes, cigars, pipes, and smokeless tobacco) is an important risk factor for preventable oral health diseases and increases one's risk of developing oral cancer (El-Zaatari, Chami, & Zaatari, 2015; Pepper, Emery, Ribisl, Rini, & Brewer, 2015). Oral cancer includes cancers of the mouth, tongue, the tissue lining the mouth and gums, and the area of the throat at the back of the mouth (Montero & Patel, 2015).

Providers may play an under recognized role in tobacco-related oral health disease prevention. Smoking cessation information and quit line referral interventions are necessary for patients who use tobacco (Holliday et al., 2021) and have been shown to reduce instances of non-communicable oral diseases (Bendotti et al., 2021). Oral health inequities are further increased among those who use or are exposed to tobacco and tobacco related products (Crall & Forrest, 2018). This may be exacerbated by providers' lack of cultural awareness and linguistic barriers (Arora et al., 2017; Atchison et al., 2018; Hoben et al., 2017). Cultural awareness of a community's beliefs and practices regarding oral health and tobacco use is necessary as the central valley is home to many migrant groups and residents that speak Hmong and Spanish. It is important to consider provider-patient interactions as providers are often a patient's point of contact for talking about tobacco use and play a significant role in influencing behavior change (Frost et al., 2018).

Providers and community members often have different perspectives of health and health disparities. As researchers, it is important to understand and acknowledge the perspectives of individuals and groups that hold different positions in communities and how these may vary (Gessert et al., 2015; Young & Rabiner, 2015). Local health departments, medical and dental providers, and the individuals they serve, especially those vulnerable populations, often have different agendas and perspectives on their health (Chen et al., 2016) and their everyday priorities (Barnett et al., 2018). Too often, interventions and medical advice are given as a "one size fits all" instead of acknowledging that individuals and marginalized populations may see and experience things differently (Chen et al., 2016; Hibbard, 2017; Martinez Tyson et al., 2016). One-way providers have begun bridging the communication and understanding gap with patients is through Community Health Workers (CHWs) (Brownstein et al., 2011; Villalta et al., 2019). Historically, CHWs worked with CBOs and non-profit organizations, but there has been a recent shift where hospitals, clinics and other health systems are now hiring and utilizing CHWs (Malcarney et al., 2017). CHWs may serve as interpreters and aid providers of all types in better understanding what their patients are experiences and what their primary concerns are (Barnett et al., 2018).

DISSERTATION OVERVIEW

California's Central Valley

My dissertation is situated in California's Central Valley, which is sometimes used interchangeably with the San Joaquin Valley (SJV) although there is a distinction. The Central Valley encompasses all or part of 19 California counties that are central in the state, whereas the SJV refers to eight of the southernmost counties. My rationale for using Central Valley in the context of this research is because although key informant interviews took place in three counties within the SJV, interviewees were from all throughout the Central Valley. Whether they were born, raised, went to school, or worked in the Central Valley, this informed their lived experiences. I specifically focus on Madera County, Merced County, and Stanislaus County, however, interviewees also lived and/or worked in surrounding counties including Fresno County, San Joaquin County, and Sacramento County.

Methods & Analysis

According to the Centers for Disease Control and Prevention (2019), smoking is the leading cause of preventable death and tobacco use is the main risk factor associated with destructive periodontal disease and oral cancer. As a TRDRP Predoctoral Fellow, my dissertation research focuses on the links between tobacco use and oral health among specific populations. This project stems from research I conducted in 2018 as a Graduate Student Researcher (GSR). The original project was a university-community partnership to assess oral health system gaps the three counties. I was particularly interested in responses focused on tobacco, aging, and how interviewees described working in the Central Valley with marginalized populations.

Building upon preliminary analyses of in-depth interviews with dental care professionals, governmental agency staff, and community-based organization staff, I proposed and conducted a systematic analysis of these in-depth interviews to inform my first two chapters. Next, I conducted additional in-depth interviews with Black, Hmong and Latino/a/x community members for my third foundational chapter.

My **overall objectives** are to create new knowledge about and provide an understanding of the intersecting factors that contribute to tobacco-related oral health disparities. The goals of this dissertation are: (1) to assess how tobacco use intersects with oral health in the Central Valley, and (2) to produce and disseminate empirical data that has implications for tobacco-related oral health interventions.

The **specific aims** of my dissertation research are described below. Each aim serves as the basis of one of my dissertation chapters. I utilized qualitative methods to achieve each aim:

Aim 1: To examine how dental providers, governmental agency and community-based organization staff discuss oral health and the implications of tobacco use among older adults and elderly individuals in the Central Valley.

a. Analyze in-depth qualitative in-person interviews (n=90) conducted with dental providers, community-based organization, and local government agency staff.

Aim 2: To describe how dental providers, governmental agency and community-based organization staff perceive and describe the connection(s) between tobacco product exposure/use and oral health disparities in the Central Valley, specifically among rural underserved Black and Latinx populations.

a. Analyze in-depth qualitative in-person interviews (n=90) conducted with dental providers, community-based organization, and local government agency staff.

Aim 3: To determine the unique oral health challenges, barriers and needs of Black, Hmong, and Latinx populations in the Central Valley and how tobacco use and/or exposure to tobacco products impacts self-reported oral health (i.e., tooth loss, periodontal diseases, oral cancer).

a. Conduct and analyze in-depth qualitative interviews with Black, Hmong, and Latinx community members (n=30).

b. Use intersectionality as an analytical tool to describe the ways multiple sectors/factors (i.e., structural inequality) influence community members' oral health practices and tobacco use.

The qualitative analytic process for each interview included formatting transcripts for compatibility with ATLAS.ti qualitative data analysis software, working to develop both inductive and deductive codes for an initial codebook, coding transcripts in ATLAS.ti, writing theoretical memos, discussing findings with my dissertation committee, conducting "queries" of coded transcripts to identify patterns and themes in the data, and presenting these data and findings to both academic and community audiences. My dissertation research was also informed by past and current collaborations with local tobacco coalitions and oral health advisory councils.

Conceptual Framework

For my dissertation, I employ fundamental cause theory. Fundamental cause theory provides a lens through which we can better understand, conceptualize, and explain "why the association between socioeconomic (SES) and mortality has persisted despite radical changes in the diseases and risk factors that are presumed to explain it" (Link & Phelan, 1995). Fundamental cause theory was originally developed by Drs. Jo C. Phelan and Bruce G. Link as a way of explaining the persistence of SES inequalities over time, their link to increased mortality and other health disparities for specific groups, and how it is crucial to understand the social factors that affect disease outcomes (i.e., SES status, social support, knowledge, power) (Link & Phelan, 1995; Phelan & Link, 2013). More specifically they argue:

> (1) "that individually-based risk factors must be contextualized, by examining what puts people at risk of risks, if we are to craft effective interventions and improve the nation's health"; and

> (2) “that social factors such as socioeconomic status and social support are likely "fundamental causes" of disease that, because they embody access to important resources, affect multiple disease outcomes through multiple mechanisms, and consequently maintain an association with disease even when intervening mechanisms change.” (Link & Phelan, 1995)

Phelan and Link’s work emphasizes the importance of better understanding/explaining these underlying risk factors and conditions that lead to persistent, unequitable disease outcomes (Link & Phelan, 1995; Phelan & Link, 2013), including the impact of structural racism on health (Phelan & Link, 2015). Their elaboration of these relationships has implications for those in the Central Valley who live in persistent poverty, which is often generational.

According to Phelan and Link, fundamental cause theory challenges/asks us to take into account underlying risk factors that contribute to worse outcomes for specific groups and how these individually based risk factors need to be considered when creating interventions (Link & Phelan, 1995). In my dissertation, I evoke fundamental cause theory to illustrate the impacts of poverty, rurality, and other related mechanisms on the health and wellbeing of marginalized communities through their lived experiences. Each chapter focuses on specifically on fundamental causes of oral health and tobacco-related disparities through interviews with dental care professionals, essential agency staff members, and community members from California’s Central Valley.

Applying fundamental cause theory, I identify social factors that impact individuals and families served by oral healthcare providers who may be in perceived positions of power and prestige. The social factors examined are: rurality, poverty – socioeconomic status (SES) and insurance status, smoking status and exposure to tobacco, and beneficial social connections (social and/or family support). These factors are contextualized to better understand the oral health and tobacco-related health outcomes and access gaps among aging and underserved individuals (i.e., Black, Hmong, Latino/a/x).

As there is a dearth of oral health providers and essential healthcare workers in the Central Valley, lack of access to dental care, and higher tobacco use rates (often co-occurring scenarios), fundamental cause theory offers a meaningful frame for describing health outcome differences on an individual, and more importantly, on a societal level by highlighting crucial risk factors that perpetuate health disparities (i.e., poverty and rurality). My dissertation research explores the lived experience of those who live and work in California’s Central Valley and how they perceive the oral health and tobacco environments through three foundational chapters.

CHAPTER 2: Oral Health Inequities Among Elderly Populations in Rural California, "A Key Group Forgotten About"

"We tend to focus a lot on children now. And I think, unfortunately, that the elderly population gets forgotten about. And they have a lot of needs too… If not more."
– Madera County Dental Provider

Often when we hear the terms "oral health" or "dental care" we think of children. The focus on children is evident in the literature on oral health and dental care disparities. There is also a larger body of research on the oral health of families with young children. Older and elderly adults (those 65 years of age of older) historically receive less attention in terms of oral health for a number of reasons. For example, aging adults may have already experienced and participated in health behaviors that impact their teeth (i.e., alcohol, tobacco, and other drug use, sugar consumption). Those at a younger age remain in a category where prevention and health education can help determine their health choices, contributing to their oral health later in life (Stein et al., 2018). Adults are also usually seen as capable of maintaining their own oral hygiene and getting to and from dental appointments. These reasons may be true for many adults, however, those who are elderly or experiencing cognitive impairment need similar attention and prioritization (Kossioni, 2018).

Oral Health in California's Central Valley

As discussed in my dissertation introduction, in California's Central Valley most counties are considered rural or semi-rural. These counties are health provider shortage areas, which includes low health provider to patient ratios. Oral health disparities are endemic in many areas of the Central Valley, exacerbated by lower income, lower educational attainment, limited or lack of access to insurance coverage, and as mentioned above, lack of access to dental services and providers (Henshaw et al., 2018). As rural older adults and elderly populations in these counties are an underserved population group, I am interested in exploring how age and rurality intersect with insurance status and access to care.

According to the California Health Interview Survey (CHIS, 2017), in California's Central Valley only 59.1% of older adults reported having dental insurance and 11.6% have not been to the dentist in more than 5 years compared to 7.7% statewide. In the Central Valley, 47.2% of individuals over the age of 65 also did not have access to dental insurance compared to 43.8% at the State level (CHIS, 2019). Those over the age of 65 in the Central Valley who are eligible for the Medi-Cal Dental Program (California's Medicaid) depend on it for their oral health needs (Kumar & Jackson, 2018).

Oral Health and the Life Course

Older adults and elderly, in particular, are a group vulnerable to poor oral health outcomes (Yellowitz & Schneiderman, 2014). Oral health related disparities impact thousands of adults nationwide and as individuals grow older, oral health declines. As research indicates, mouth health often worsens through the life course, causing increased susceptibility to oral diseases (e.g., periodontal diseases, oral cancer) (Henshaw et al., 2018). A number of factors contribute to worse outcomes over time, including: personal hygiene, diet and nutrition, medications used to treat acute and chronic diseases, and use of tobacco related products (i.e., smokeless tobacco, cigarettes). This is significant as poor oral health outcomes directly impact overall health and cognition (Kossioni, 2018). There are also policy level and systematic barriers that impact one's chances of having better oral health as they age, such as lack of dental insurance coverage for those on Medicare (Altman & Frist, 2015) and limitations to accessing dental care in rural areas (Caldwell et al., 2017; Gaber et al., 2018), which I will discuss in depth later in this chapter.

Oral health education throughout the life course is also crucial. Lack of or limited knowledge of preventative oral health practices can lead to severe health consequences, in the mouth and in the body overall (Stein et al., 2018). Cavities (tooth decay), gum (periodontal) disease, and oral cancer are acute and chronic diseases that have been directly linked to poor oral health among older adults (CDC, 2020). Oral hygiene is one of the primary factors that impacts an individual's oral health across their life course. Good oral hygiene includes brushing and flossing daily and regular visits to a dentist. According to the American Dental Association (2020), the current recommendation is visiting the dentist every 6 months.

Specifically, for older adults, activities of daily living (ADLs) and ability to perform a daily care routine may decrease. This includes the ability to chew and swallow food and the dexterity needed to do the step-by-step process of brushing one's teeth adequately (i.e. putting tooth paste on a toothbrush, the motor skills of brushing teeth) (Kim et al., 2017). Taste and appetite often change with age as well. Kossioni describes how poor nutrition or malnutrition affect one's cognitive health and one's oral health (2018) and highlights the relationship between oral health and nutritional status. She finds that one's efficacy and ability to chew and swallow impacts food selection, nutritional intake and oral health throughout the life course (Kossioni, 2018). Lastly, research indicates medications may effect ones' overall health and ones' mouth health (Barbe, 2018). Several medications have side effects that both directly and indirectly impact oral health including increased prevalence of hyposalivation, taste disturbances, and dry mouth (xerostomia). As one ages, there are a number of medications that cause dry mouth and lack of saliva production. This is problematic for oral health because dry mouths increase the chance of sores, irritated gums, oral disease progression, and increased pain, impacting ones' overall quality of life (Barbe, 2018).

Tobacco use and use of tobacco-related products is a known contributor to oral health diseases, especially among adults and older adults (Henshaw, Garcia, & Weintraub, 2018; Hooper, 2018; Liu, Roosaar, Axéll, & Ye, 2017). These disease disparities include caries, periodontal disease, and oral cancers ("Disparities in Oral

Health," 2018; Russell & More, 2016), which are all preventable with access to quality oral care and with proper oral hygiene practices (Edelstein & Chinn, 2009; Flores & Lin, 2013; Shariff & Edelstein, 2016). These issues exist among older adults who are past or current tobacco users (Vora & Chaffee, 2019). Vora and colleagues conducted a cross-sectional assessment of the Population Assessment of Tobacco and Health study, and their findings support previous research linking tobacco use to poor periodontal health. This is evident in self-reported oral health outcomes and by oral health screening reports by providers (Vora & Chaffee, 2019).

Medicare Policies and Lack of Oral Health Benefits

Older adults who don't have access to oral health care and adequate resources often suffer from oral health related disparities and face financial disadvantages related to insurance coverage and the high cost of non-preventative services (Willink et al., 2016). Willink and colleagues describe how many Medicare insurance holders and beneficiaries forego seeking dental care due to the significant costs. In the US, Medicare, a national health insurance, is available to individuals once they reach the age of 65 (Altman & Frist, 2015). Those who are Medicare eligible have access to health care services, however, oral health is a domain of health not covered by Medicare (Willink et al., 2016). In order for those individuals covered by Medicare to receive dental health services, they must qualify as dually eligible for Medicare and Medicaid, pay for a separate dental insurance policy or pay out of pocket for expenses (Rahman et al., 2015). As Rahman et al. (2015) discuss, this often creates additional barriers for older individuals who are on a fixed income or are low-income.

There have been ongoing policy debates about the inclusion of oral health benefits for Medicare recipients. Although there are many in support of this change, there are also lawmakers against this. Having oral health excluded from coverage by Medicare creates additional barriers for older adults. The lack of dental coverage further limits access to care and the ability to pay for oral health services. As a result, many low-income older adults elect for problem teeth being pulled or only seek dental care in emergency settings to avoid the high costs of dental care (Willink et al., 2016). Emergency room visits for dental related reasons could be avoided if older adults on Medicare had access to affordable preventative services, which would decrease oral health related disparities among this population (Willink et al., 2016).

In the article, Medicare and Medicaid at 50 Years: Perspectives of Beneficiaries, Health Care Professionals and Institutions, and Policy Makers, Altman and Frist (2015) discuss Medicare and Medicaid through the last five decades and how policies have changed and shaped our current health care system. Both programs provide health coverage to about 111 million people, or 1 in 3 Americans, including 10 million Americans that qualify as dual-eligible. Medicare is defined as a national social insurance program administered by the federal government to insure Americans reaching retirement age. Medicaid is defined as a joint state and federal program providing need-based insurance to low-income individuals. Medicaid provides services to low-income children and adults, and it provides services to those individuals with disabilities and low-income elderly.

Since the enactment of Medicare in 1965, the program has played a role in increasing life expectancy and reducing disparities in health care. Medicare is an important topic for the demographic it serves, and few older adults have the ability to pay for health care without it. Traditional Medicare has high-cost sharing and no limit to out of pocket spending, which is why many with Medicare still struggle to pay medical bills. It also does not cover dental care, hearing aids, or long-term care services. Despite limits, it is still popular and older Americans are resistant to changing the current policies, thus most recent Medicare reform proposals focus on future beneficiaries.

In this chapter, I focus on the association between rurality, poverty (SES) and age among rural older adults with poor oral health outcomes. My primary research question is "How do rural dental providers and essential staff describe the fundamental causes of persistent tobacco-related oral health disparities?" I utilize qualitative data to describe some of the intervening mechanisms detailed in interviews conducted with dental providers and essential staff. My goal is to contribute to how rurality and SES are understood as explanatory variables accounting for oral health differences and how these social conditions may contribute to the neglect or lack of attention (falling through the cracks) of older adults in the region.

CONCEPTUAL FRAMEWORK

According to Link and Phelan, fundamental cause theory provides a lens from which we can better understand and conceptualize the "factors that put people at risk of risk" (1995, p. 85). Fundamental cause theory asks us to take into account underlying risk factors and mechanisms that contribute to worse outcomes for specific groups or individuals and how these individually based risk factors need to be considered when creating health interventions (Link & Phelan, 1995). Link and Phelan describe how SES should be thought of as a "fundamental cause" of health outcomes because SES implies "access to resources that help individuals avoid diseases and their negative consequences through a variety of mechanisms. Thus, even if one effectively modifies intervening mechanisms or eradicates some diseases, an association between a fundamental cause and disease will re-emerge. As such, fundamental causes can defy efforts to eliminate their effects when attempts to do so focus solely on the mechanisms that happen to link them to disease in a particular situation" (1995, p. 81).

For this chapter, I use fundamental cause theory to guide the analysis of interviews conducted with dental providers and essential staff at government agencies and community-based organizations in California's Central Valley. Fundamental cause theory can help us identify and understand the social factors that impact marginalized aging individuals and families served by essential key informants. The social factors examined are: rurality (i.e., transportation), poverty (i.e., insurance status), and age (i.e., dexterity, chronic disease, cognitive decline, and lifetime exposure to tobacco). These factors are contextualized to better understand the oral health and tobacco-related health outcomes and access gaps among aging individuals. These perspectives are from essential key informants, who may be in perceived positions of power and prestige.

As there is a dearth of dental providers and essential healthcare workers in the Central Valley (Magaña, 2020; Traje & Capitman, 2009), lack of access to dental care,

and higher tobacco use rates (often co-occurring scenarios), fundamental cause theory offers a meaningful frame for describing health outcome differences on an individual, and more importantly, on a societal level by highlighting crucial risk factors that put people at risk and perpetuate health disparities (Link & Phelan, 1995; Phelan & Link, 2013).

METHODS

Research Team

Data for this study comes from a larger collaborative project involving three different county health departments, two UC Merced faculty who served as Principal Investigators (PIs), two UC Merced graduate student researchers – including myself, and a team of undergraduate research assistants. For this chapter I also received guidance and feedback from a Registered Dental Hygienist Alternative Practice (RDHAP), who is a Central Valley native and actively engaged in providing dental care services and trainings to local providers and health department staff.

Design

This study uses a qualitative exploratory design with a coding and conceptualization process rooted in the grounded theory approach (Charmaz, 2014; Glaser et al., 1968). This approach was deemed suitable as this method allows for exploring areas where little is known and when a deeper understanding of an area is desired. This approach was used specifically with service providers as they have unique perspectives based on their lived experiences working with aging and vulnerable populations on a daily basis.

Following institutional review board approval, 90 key informants were identified and recruited in three Central Valley counties, through community contacts, local oral health advisory boards and word of mouth to participate in in-depth qualitative interviews. Thirty interviewees were rural dental providers, including dentists, dental assistants, and dental office staff. Thirty interviewees worked for a governmental agency that served rural and/or vulnerable populations, including staff from Women, Infant, and Children Programs (WIC) and local health departments. The remaining thirty were staff members at local community-based organizations (CBOs), including Family Resources Centers (FRCs). I conducted 49 of the 90 interviews.

Another graduate student researcher and I conducted in-depth, open-ended interviews at each interviewee's office or a local coffee shop between July 2018 and September 2018. Informed consent was collected from each participant and no personally identifiable information was gathered. Each interview was conducted in person, with the exception of two that were conducted by telephone as requested by the participants due to their location over 100 miles away at the time interviews were being conducted. Several hours and/or days were allotted between each interview to allow time for transcription, reflection, and review of the data. Interviews ranged from 25 minutes to 75 minutes each.

Interview questions focused on perceptions and challenges of the oral health environment for older adults in the counties each interviewee lived in and/or worked in and each interviewee was asked to share possible solutions and/or resources to barriers to oral health care for older adults. Dental providers, governmental agency staff and CBO staff were also asked a series of questions about their personal perspective on oral health, including background knowledge on oral health related terminology (i.e., caries, cavities, tooth loss, fluoride) and their perspective on oral health in the Central Valley. In addition to these exploratory questions, specific open-ended questions were asked about older adult populations:

(1) Can you share some oral health related issues you see or hear about with older adult and/or elderly populations you serve?
    a. Have you observed any behaviors that may increase oral diseases or cavities?
(2) Can you walk me through what you do for older adults and/or elderly individuals with oral health related concerns?
(3) Where do you refer older adults with oral health care needs?
    a. What challenges do you see with referrals?

Audio-recordings were transcribed verbatim for analysis. Data were read to obtain a preliminary understanding of the text. Consistent with grounded theory, ongoing comparisons and data analyses were conducted after each interview (Charmaz, 2014). Interpretive memos were created for each interview as a means to organize and condense the data and to facilitate ease in locating supportive evidence for themes and exemplars. Interpretive memos included demographic data, field notes, potential codes, and interpretive commentary for each participant. These also included each researcher's reactions, judgements, thoughts, and methodological decisions that occurred during data collection and interpretive analysis. Through subsequent review of interviews and reading the data, coding terms emerged directly from the transcripts, field notes and memos.

Initially data codes and excerpts emerged from line-by-line coding, where a codebook of key terms was created to identify similar excerpts. Second, focused codes were used to analyze data. Focused coding entailed the comparison of codes and data being grouped into specific categories. Methodological and analytical documentation was supported with the identification of key phrases and quotations, similar experiences, themes, and documentation of the rationale for decisions throughout the research process.

Data coding and analyses was facilitated by ATLAS.ti 8 (2017), a qualitative data analysis software. Multiple interviews, specific inclusion criteria, and faithful representation of data obtained from the participants support the credibility of the research. Consensual validation was garnered through collaboration with an interpretive research group led by an expert in grounded theory. What makes this analysis unique is I specifically identify instances where older adults or elderly patients were discussed by key informants. Using ATLAS.ti, I filtered by "older adult", "elderly", "aging", and "adult" in the case I missed any relevant excerpts.

FINDINGS

Findings reported herein draw upon analysis of 90 interviews conducted with dental providers, dental office staff, governmental agency staff and community-based organization staff. Although each interviewee may not have spoken in-depth, everyone provided feedback on the question(s) concerning older adults. What is distinct about this group is the majority of staff members interviewed provide oral health programming, education, and resources to children and families, however the majority did not provide direct oral health services (i.e., dental screenings, fluoride varnishing). Providers and staff offered unique perspectives about older adults and elderly patients and their oral health, as they serve aging and vulnerable populations on a daily basis.

When asked about oral health among the older adult populations, several providers and community stakeholders described seeing fewer older adults or "only their regulars". Those participants who did provide direct oral health services shared their older patients would often come to their appointments with a partner or family member. These providers acknowledged that there are many older adults and elderly that are home, or facility bound and unable to get dental clinics/offices. Participants also discussed the older adults that reside in rural areas of the Central Valley like Winton (Merced), Dos Palos (Merced), Newman (Stanislaus), Patterson (Stanislaus), Oakhurst (Madera), Chowchilla (Madera) and Snelling (Merced) are at greater risk of not being seen or having their oral health needs met. Many individuals and families must travel by bus to get to a dental appointment and those reliant on Medicare for insurance, would have to pay out of pocket. This is a concern as many are already on a limited income and interviewees noted housing prices in the region are increasing. Providers interviewed also described that they didn't see older adults prioritizing dental visits the way parents with young children did. They speculated that this could be due to insurance coverage or that school aged children have school requirements for dental screenings.

Applying the lens of fundamental cause theory, my findings document how participants discuss the challenges and social factors that impact oral health outcomes among aging individuals. The three primary social conditions that I explore are: poverty (i.e., income and insurance status), rurality (i.e., transportation), and age (i.e., dexterity, chronic disease, cognitive decline, and lifetime exposure to tobacco). These social conditions are driving factors that contribute to older adults and elderly being an underserved and forgotten group.

Rurality as a Fundamental Cause

In order to contextualize rurality as a social condition, I present exemplars that highlight challenges and barriers related to transportation. As this research was conducted in rural and semi-rural settings, one of the most common themes that emerged was transportation and mobility barriers that limited access to quality dental care. Participants indicated that transportation and proximity to dental services may explain why fewer elderly patients and families were accessing and seeking care. The participants who provide direct services to elderly patients reported that the patients they saw on a regular

basis usually had family that were willing and able to bring them, while the elderly patients seen less frequently did not have transportation to and from the dentist. Participants also reported that it was very difficult for patients with mobility limitations (i.e., needing a wheelchair or walker) to travel to and move about in a dental office. Several dental providers described these difficulties and limitations:

> *They [elderly patients] come in with their caretakers... some can't even walk, they come in wheelchairs.*
>
> – Merced County Dentist

> *I feel like the older people that come in with family members are usually okay, but there's a lot of them [older people] that come from the elderly facilities, and they are not okay. They usually have more problems.*
>
> – Merced County Dental Hygienist

When asked about providing dental care to older patients who live in rural areas of Madera County, one provider discussed how transportation barriers and financial barriers are "often interwoven":

> *Well, here's how we kind of address those individuals, because it's different for the elderly that can't afford get to the dentist on their own. These clients who are wheelchair bound and bed bound need a different level of care compared to those older patients that are still mobile and can get to the dentist and financially can afford it.*
>
> – Madera County Dentist

One participant who worked at a hospital in Merced County shared how older patients coming from rural areas of Merced would come in for an emergency (i.e., heart attack scare, broken bones from falling) and many would leave with a dental referral, or a dental provider would be called on the spot, if one was available:

> *I know that what I've done in the past with older adults, especially when I worked in the hospital, is give them [the older adult] or their family member a list of dental referrals… I've seen really bad teeth; we've actually asked the doctor if we can maybe get a dental assistant or even a dentist to come see if they can help them [the older adult]. Some of them can't get out [to go to the dentist], so they'll [a dental provider] do a consult.*
>
> – Merced County Government Agency Staff

Poverty and SES as Fundamental Causes

Many rural older adults were described as having low SES and limited or no insurance coverage. As described in my introduction chapter, Medicare policy does not cover dental care services for eligible older adults. This gap in coverage was described by dental providers and their staff in a number of instances. For example, one dentist reported, "it is hard to turn away patients who only have Medicare, who are retired and living on a fixed income". There were a few providers who discussed seeing patients who had Medi-Cal (California's version of Medicaid), but these patients were few and far between. Providers and their staff described their experiences with older adults when it comes to affordability and insurance, or lack thereof:

> *Finance-wise... They [older adults] figure it's easier and cheaper to pull the tooth than to fix it.*
>
> – Merced County Dentist

> *Patients seem to not want to come for services because of the cost and they either don't have insurance or the insurance costs too much for their budgets. Here [in Merced] older people I know are on limited income and don't qualify for MediCal.*
>
> – Merced County Provider

Another provider discussed the implications of serving individuals with lower SES and how many older adults who are in pain or looking for care go to places that are free or will work on a sliding scale.

> *We see a lot of elderly people because most of them do not have dental insurance. Most of them are low-income and our dental hygiene clinic is free or low-cost.*
>
> – Stanislaus County Dental Provider

A Registered Dental Hygienist Alternative Practice (RDHAP) working in Madera County, described how changes in policy and dental care have impacted her ability to work and provide affordable and accessible services to older patients. She discussed how private patients are "the most sought out" because Medi-Cal takes "forever" to reimburse and that reimbursement amounts "don't even cover it [the cost of service or care]". She also discussed additional barriers RDHAPs faced when trying to provide care to the most isolated (rural) and in need.

> *Before two years ago, we were able to go in and treat their [older adults'] periodontal issues. We know that 70 percent of people over age 65 have periodontal disease. We know that if you live in a skilled nursing facility, you're living there because you can't take care of yourself. Somebody else*

> *has to take care of you. And if you can take care of yourself, most of the time, you can floss, and, you know, take care of your dental needs.*
>
> *So, working there two years ago, there were cuts to the periodontal maintenance reimbursement rate. They cut it by 60 percent without federal approval, and then they required a TAR (Treatment Authorization Request) prior to doing the SRPs (scaling and root planning). There was a lawsuit filed. AARP joined that lawsuit. The state lost because it didn't get federal approval before they changed the rate codes with the supplemental payment amendment and that's now in appeals.*
>
> – Madera County RDHAP

Several RDHAPs we interviewed in the Central Valley described how the lack of financial stability and dental insurance coverage for elderly community members left many without dental care options. They talked about how important their [the RDHAPs] work is in the Central Valley, especially for older adults, elderly, those on Medicare, and those without insurance coverage altogether.

> *We had a lot of elderly people because most elderly people do not have dental insurance. And if they do [have insurance], it's usually bad. So, most of us, when we [RDHAPs] see elderly, we pay cash. So, you know, I don't know how much you know about assisted living, but it's so expensive… It's so expensive to have somebody say, I'm gonna spend another $150.00 on a cleaning for my mother… sometimes they just don't have that [the money].*
>
> – Stanislaus County RDHAP

In addition to elderly individuals and their families, policy and financial limitations impact rural dental offices and other organizations that serve families, including many of the government agencies we spoke with.

> *We go to 23 different sites including Family Resource Centers and Healthy Starts. This year starting in July, it's gonna be a little bit different because of the funding. First Five had budget cuts, and so they are funding us way less money and* ***there is no money for adult or older adult oral health services****. So, we reduce our sites to only focus our education to just the Healthy Starts [program for children].*
>
> – Stanislaus County Dental Provider

Age as an Intervening Mechanism

In my analysis of these qualitative data, age emerged as an intervening mechanism that increases individual's risk of being at risk. My findings specifically highlight how dexterity and implications of chronic disease impact oral health outcomes. As described in the introduction of this chapter, oral health naturally declines over the life

course. Although oral health changes may be expected, oral health is an important health priority. A key age-related theme that emerged while interviewing participants was the fact that older adults are forgotten, prioritized less and not seen – meaning their voices are not heard and/or their oral health care needs are not being met.

> *It's really unfortunate when we see elderly patients that are 70, 80 and sometimes 90, that don't understand why they keep having multiple cavities. Because in your mind when you think cavities, you think children.*
>
> – Merced County Dental Provider

> *We primarily work with parents and kids and listen to what their needs are…We know that older adults probably have a lot of service needs, but we actually need to sit down with them and listen… we never have them at the table to really give us their perspective on what they are thinking or needing and what is not going to work... We should work on bringing in people that work with seniors…*
>
> – Stanislaus County FQHC Dental Provider

As many of the providers shared, lack of rural older adults being seen in dental settings and limited dental hygiene practices done in home or facility settings, combines to constitute older adults as an "at-risk" group for a number of reasons. There are barriers that come with age, including overall changes to oral health and health behaviors that impact oral health. Some providers shared how older adults were in a sense "to blame" for their poor oral health outcomes or they themselves "should have" made their oral health a priority, without speaking to why that may be. One provider in particular described in depth why many of their older patients have ongoing issues with decay and periodontal diseases and why these issues progress to tooth loss:

> *They [older adults] want to eat their sweets because they have no flavor anymore, so they're snacking all of the time and its usually carbohydrates and sweets that they love… so now all of this plaque and bacteria is sitting on their teeth, and now most of them have some sort of bone loss, so their roots are exposed, so those roots are less dense…it's like bone. So, they're softer than the enamel, and the enamel is the hardest substance of the body. So, now that plaque decays that.* ***So, what we're seeing is because they're not getting as much care or someone's not getting in there and brushing their teeth as much or that they're having root decay, and then over a period of time they just – their teeth break off.*** *So, they're having loss of teeth, or they have so much bone loss from periodontal disease that they can't get in to get it cleaned that they have a loose tooth and then they'll just lose them –– but mostly just teeth broken off at the gum line.*

> ***Even if they can get into the dentist if the dentist will see them, there's not a lot that they can do depending on their age, their health condition, and their mental status. It's more like do what you can. If there's no pain and there's no infection, we just kind of keep the status quo because there's too much stress and trauma to sedate them or to try and take it out or do the work***.
>
> – Madera County Provider

Rural providers and essential staff discussed how caregivers, formal and informal, were crucial to providing oral health care and other services to aging individuals. Caregivers also played a role in when compliance and independence were limited.

> ***Obviously with older patients we're not going to bring in the parents.*** *With kids we talk to parents because they need the aid…* ***however if they [older adults] have a caregiver we always like to get the caregiver involved***.
>
> – Merced County Provider

Older adults with dexterity and cognition issues are at an increased risk of poor oral health outcomes, especially when they did not have caregiving in place or social/family support. Three providers in Madera County shared that there is one primary older adult facility that they get patients from "once in a while". These providers highlighted the importance of oral health education for older adult patients and their caregivers (formal or informal). One stated that at a certain age "education about dental care stops". Another shared:

> *I find adult patients who are coming from, maybe facilities where… I don't know what you'd call those facilities… places where they're [older adults] not in charge of their own care. I think those places should have a little more education on how to, either do it [oral hygiene] themselves, or help the resident take care of their teeth. Because what I find is, there's a lot more root caries… Because they're also taking a lot more medication. Dry mouth becomes an issue.* ***Their dexterity may decrease as they age, and so they might need a little more help from their caretakers.***
>
> – Madera County Provider

Motor skills, dexterity and cognition declines are said to be part of the aging process; however, these declines have important implications for oral health. Both oral health providers and their staff, in each of the counties, highlighted the challenges older adults have to effectively clean their teeth and maintain a healthy mouth:

> *Their dexterity is not what it was, so they [elderly patients] think they're brushing their teeth, but they're not getting around or they don't, they forget. Or they just don't want to.*
>
> – Madera County Dental Hygienist

> *There's cleaning obstacles, if someone has chronic arthritis or if they have a stroke... If they have a hard time seeing, that's also an obstacle when cleaning your own teeth.*
>
> – Madera County Provider

> *So, when you get into elderly, geriatric kind of ages, a lot of times their problems come when they start experiencing arthritis or things like that. They have difficulty with holding the toothbrush or being able to really manipulate and… have the dexterity to clean [their teeth] as well. Plus, I think that may be the issue.*
>
> – Merced County Provider

> *Sometimes there's cleaning obstacles, you know, if someone has any sort of chronic arthritis issue or, you know, if they have a stroke, losing their hand, those are all obvious obstacles. If they have a hard time seeing, that's also an obstacle when it comes to cleaning your own teeth.*
>
> – Madera County Provider

Dental care providers spoke about the changes in cognition over time and the implications of cognitive impairment (i.e., Alzheimer's Disease and Parkinson's Disease) on older adults' oral health and hygiene practices:

> *Those who have Alzheimer's and are still living in the home, and they have these moments of… they have a lot of confusion, and they have very little moments of clarity. So, those clients are different, but we still want to try to help a lot. I feel fortunate that there's families that will help with the care of their teeth, will call, and say, "I want you to come in and clean them," but a lot of those patients maybe that are still home are not getting that care that I don't even know about. You know what I mean?*
>
> *And so, when I do see them though, the biggest issue is that they've gone every six months to the dentist, they've paid to have all of this dental work, and now they don't remember. They can't – it's like a child. They may say they can't reach [their teeth] or that they aren't going to do it [brush their teeth].*
>
> – Madera County Provider

An RDHAP in Stanislaus County, shared their experience working with elderly patients who have issues with cognition and dexterity in the Central Valley. As an

RDHAP, she specifically provides mobile services and sees a lot of patients who are aged 65+.

> *At least with kids, we have parents who are trying to force them to brush their teeth. But, a lot of times, once they go into a nursing facility, they don't have that parent forcing them to brush their teeth. It doesn't get done. Also, the CNAs and nursing assistants, who take care of them, it's not their scope of practice to be able to floss their teeth. So, there's not flossing being done. It's just basically brushing.*
>
> *To all my patients, every single time, I've applied silver diamine fluoride. For one patient I use it as a holding pattern because her teeth were hurting. She was in a nursing facility. She has Alzheimer's, you know? And so, that was a huge benefit to her. Fluoride varnish is my number one go to.*
>
> – Stanislaus County RDHAP

This RDHAP worked with many patients that were homebound which required that their children, caregivers, or sometimes a church member reach out to her. For many of her patients, taking care of their teeth had not been a priority and now these patients were suffering from issues beyond preventative oral care.

> *These elderly people, their teeth are starting to fall out if they start to get cavities around the tooth or filling, especially an old filling. These will fall out and cause bacteria to spread and often a lot of pain. It's very hard because usually the people that we see are the people who have taken really good care of their teeth all their lives. And we do not see the ones with the most need. And now, they're at the point where they can't take care of their teeth or can't take care of their teeth and their children are saying, "can you help my mom take care of her teeth?*

She continues by using her husband as an example.:

> *…Because if somebody like my husband never really took care of his teeth. He doesn't take care of his teeth and if anything happened to me, the last thing he'd think of would be to have somebody come and help him take care of his teeth.*
>
> – Stanislaus County RDHAP

Two different Merced County providers shared some of their strategies for helping older adults who are having difficulty brushing their teeth. They said it was usually best when an older patient came with a caregiver, especially those that were forgetful.

> *Sometimes they're missing teeth and – you know what I mean? We have a lot of patients who have dementia. And so, you tell them something and if*

their caretaker isn't with them –they're not gonna repeat it or say it and it's kinda a losing battle. You know? One caretaker brings them... Another is actually with them in the house. And even though I don't know what the whole purpose of your study is, if you had to find an age group to focus on, I would stay it's the elderly.

– Madera County Provider

Yeah, the older people tend to have deeper pockets. I mean, some young ones can if it's a heredity thing but, a lot of times when they get older, they don't have the dexterity to brush really well either, so, we'll recommend an electric toothbrush at that point.

– Merced County Provider

Lastly, providers discussed the deleterious effects of chronic disease on oral health outcomes, including lifetime use of tobacco-related products. Similar to dexterity declines, as one ages, the chances of suffering from a number of chronic diseases increases for some. According to CHIS, in the Central Valley, rates of those ever diagnosed with diabetes are higher than the overall state, 13.6% compared to 9.9% (2019). Hypertension (high blood pressure) rates are also higher in region, 30.6% compared to 25.9% at the state level (CHIS, 2019). The reasons this is important are many, and interviewees shared their concerns about the impacts diseases like diabetes have on individual's teeth and gums:

For those with diabetes, insulin levels do numbers on their teeth... they have inflammation... bone loss and progressive periodontal disease over the years... We're not just treating the mouth; it's the whole body.

– Madera County Dental Hygienist

They have plaque sitting in there, they have bone loss, their roots are exposed, so now they're getting decay much easier. All that plaque in there is causing them, aspiration pneumonia along with, not to mention, all of that bacteria, plaque, and all of that causes inflammation and infection… ***this with their insulin levels, and, I mean, that's hard enough for our body… if they have diabetes for them, it's always fighting itself, but when we [RDHAPs] come, we treat infection as diabetes can make it even worse because it affects the glucose levels and the insulin levels***.

– Madera County RDHAP

Providers and their staff also discussed the effects that certain medications have on teeth and gums, which can create additional oral health issues and increase chances of oral diseases. One Madera County community-based organization staff member talked about her experience serving community members of all ages and giving health referrals, which includes dental referrals, she said *"… with the elders, it's always the loss of teeth because of a chronic disease."* In addition to medications causing dry mouth (xerostomia), medication side effects may also impact patients' dexterity.

> *A lot of elderly patients are on several medications and one of the major side effects is dry mouth... now you have patients that are taking several medications and they're getting older... the combination really can cause havoc in someone's mouth. It can really proceed to cavities.* |
>
> – Stanislaus County Dentist

In the Central Valley, 8.6% of the population are current smokers, compared to 6.9% at a state level (CHIS, 2019). Lifetime tobacco use and the use of alcohol were also described as risk factors that impacted the teeth and mouth health of patients in the different counties. Four (4) interviews that were conducted with community-based organization staff, two (2) health department staff and (2) providers reiterated how the Central Valley has increased access to tobacco-related products and high alcohol use. One of the major tobacco-related issues indicated was tooth loss and tobacco users being more likely to need dentures or partials:

> *Older adults who have used tobacco and drugs means more prosthetics at that point. It's sometimes them having two or three savable teeth where that's all we can save. This is due to perio disease and bone loss; we have to extract all these [unsavable teeth]. You know when there's too much mobility in the tooth, it will not be able to hold. Many of these smokers have dentures and partials.*
>
> – Madera County Provider

In addition to tooth loss, older adults who currently use or had used tobacco products in the past had a greater prevalence of periodontal disease and gum recession. Most of the damage is irreversible so providers described their processes of trying to maintain the teeth individuals had and promoting ways to prevent further damage.

> *So, elderly who smoke have continuing issues with periodontal disease. That's usually the biggest concern, especially as they get older. We tend to see some of those deeper pocketing, that we prefer not to see… so we want to make sure that they're maintaining what they have and not letting anything get worse. For example, recession is very common too in elderly who smoke, missing teeth, some are having to get partials, implants, and other expensive work.*
>
> – Madera County Provider

Lastly, providers discussed additional long-term effects of tobacco use. Not only did individuals have lifelong issues with cavities and recession due to tobacco use and smoking, but they also experienced stigma related to bad breath, stained teeth, and their clothing, cars and homes smelling like smoke.

> *The older generation, which is, 40s and older, and they do consume tobacco products, you can definitely tell that they have more damages in their teeth or gums. I think it's easier to distinguish the older individuals*

who have been smoking for let's say 20 plus years… It's a bigger impact and it's more noticeable… you can tell that they have their stained teeth, the stained yellow teeth, maybe the tobacco breath, the smell kind of sticking onto their clothes… it's harder to tell if someone who is middle aged or early 20s is using tobacco products just by their teeth, their mouth.

– Merced County Community Based Organization Staff

DISCUSSION

As described herein, the social conditions of rurality, poverty (SES), and aging are mechanisms that increase this population's risk of being at risk for persistent and perpetual oral health disparities. Tobacco use and tobacco product exposure also increases this risk. Collectively these mechanisms foster unique and complicated scenarios that amplify health inequities experienced by older adults. Findings highlight the connection between poverty in the region and how lower SES and limited insurance coverage creates inequitable access to care and services.

Both access and affordability are issues older adults face when trying to meet their oral health needs. For those who are home bound, or care facility bound in rural cities (i.e., Winton, Chowchilla, Newman) it is even more difficult to access care and access oral health information. In this study, providers highlighted the importance of older adults and elderly individuals receiving services, especially those who are not able to provide their own care. These are significant issues for rural providers, government agencies and community-based staff, as even those who expressed concerns with reaching and identifying older adults with oral care needs, meeting these needs relied on those individuals: (1) who have insurance coverage or financial resources, (2) have access to transportation to and from dental services, and (3) have a caregiver (formal or informal) or patient representative who can communicate and/or translate provider recommendations, especially for older adults with dexterity issues and cognitive impairment.

Findings expand our understanding of what should be included in oral health care for aging and elderly individuals including access to reliable transportation and affordable dental care options. Elderly individuals have unique oral health care needs that are often forgotten and overlooked, and part of this may be due to elderly adults not being seen in dental care offices, clinics, or by mobile dental providers, like RDHAPs. Participants discussed the necessity of affordable dental care options being amplified in rural areas, where access and utilization of the few services is often difficult. Several providers described the financial limitations as the "greatest" access issue (poverty), next to rurality – meaning being able to get to a dentist and/or being able to be seen as there were not many dental providers in that city or county.

Providers also described their concerns with their limited options for helping older adults, especially due to the costs of providing care. Pulling teeth was one of the primary options for helping patients that didn't have the finances and needed to save money. Although older patients may have some relief from their teeth being pulled, as research suggests, prevention and quality oral health care involves more than simply

pulling teeth (Willink et al., 2016). Where many patients over the age of 65 had Medicare as their primary insurance, lack of Medicare coverage of dental care made prioritizing physical health easier than making oral health a priority. Even those who were dual-eligible for Medicare and Medi-Cal, low rates of dental insurance reimbursement undermined oral health amount rural older adults. There is also the issue with providers not taking patients with Medi-Cal or limiting their number of Medi-Cal patients. This coupled with the issues of provider scarcity, fosters an environment that is not conducive to quality oral health outcomes for all, if not most.

Decreases in dexterity and cognition barriers emerged as important factors for older adults and their oral health outcomes. As research indicates, dexterity decreases throughout the life course, as can mobility (Laurence et al., 2006), however, when natural progressions of aging are combined with chronic disease, comorbidity, and medication use, outcomes are often worse (Haverhals et al. 2011). Findings from this study add to what is known about these phenomena in relation to oral health, from provider perspectives. Dry mouth as a side effect for many of the medications prescribed to older adults is known and well documented (Barbe, 2018). My findings showcase these implications from providers' perspectives, including some of their solutions to address these concerns. These suggestions include prescribing special mouthwashes and having conversations about medications with their patients or their patients' caregiver(s).

Lastly, tobacco and alcohol use were identified as a health behavior that leads to preventable oral health diseases. Consistent with tobacco and oral health research, tobacco use exacerbated oral health issues many providers saw in their older patients, including those who were currently diagnosed with other chronic diseases (Al–Mahozi et al., 2017; Liu et al., 2017; Vora & Chaffee, 2019) Providers shared it was usually quite easy to identify which older patients were current or past smokers. When community-based program staff were asked about tobacco use and oral health among older adults, many linked this to the rural environment and residents having more access to tobacco-related products than other areas of California. Providers shared that their older patients were the ones most likely to be smokers, as it was generational and more common in years past. Fundamental cause theory enables us to draw connections between the social factors highlighted in these findings. Rurality, poverty, limited insurance coverage, and aging all play an important role in potential oral health disease and tobacco-related disease outcomes. These factors are necessary to think about when we as public health researchers and practitioners are crafting and designing interventions that focus on specific individuals and groups within marginalized communities.

LIMITATIONS

Social and structural disadvantage are persistent causes of inequitable health outcomes across populations in the Central Valley. Age and social location are important factors to consider when exploring oral health and tobacco, as older adults who qualify for Medicare do not have their dental health covered and this issue is exacerbated in the Central Valley where there are limited providers and dental health services. It is important to note that these interviews were conducted in 2018, prior to the current COVID-19 pandemic (2020-2021), however, findings may be the same. For example,

older adults in the Central Valley may still have very limited access to oral health care and services or accessing oral health services may be even more difficult now. This warrants additional qualitative research on oral health care and access among older adults during and post COVID-19 pandemic.

CONCLUSIONS

In summary, it is important to identify and explore the fundamental causes of significant and persistent oral health disparities in the Central Valley. Rurality, poverty, and age are driving factors for why older adults in the region may be forgotten or neglected. In rural areas like California's Central Valley, there is an urgent need for additional dental services and avenues for older adults and elderly individuals to received quality oral health care. Most of these areas are underserved and considered health provider shortage areas, which included lack of dental providers (i.e., dentists, dental hygienists, dental assistants). Improved access to oral health can decrease usage of emergency settings for oral health needs and increase quality of life among older adults. For home and facility bound older adults, affordable mobile dental services would be beneficial. It would be meaningful for local oral health programs and health policymakers to advocate for these mobile services in rural settings and include older adults in their programming and needs assessments. Interventions that focus on oral health and the elderly in rural areas and areas with limited oral health providers would be an important next step.

Access and affordability (rurality and poverty) go hand in hand; thus, it is crucial we advocate for inclusion of dental benefits for Medicare recipients. Financial barriers delay older adults from getting the dental services needed to improve daily life (i.e., smiling, chewing, swallowing). This issue is exacerbated among older adults experiencing chronic disease(s) that impact oral health like diabetes and the medications they take that have oral health-related side effects like dry mouth. Education on how medications and chronic disease conditions impact oral health would be helpful for older adults and caregivers, both formal and informal. From this research we can develop a better understanding of the mechanisms that put older adults at risk and how to create interventions that consider these mechanisms.

CHAPTER 3: Poverty, Rurality, and Exposure: Provider and Essential Staff Perspectives on the Oral Health and Tobacco Environment

"They [patients] don't realize the effects the mouth has on the overall body and that there is a mouth body connection… Oral health is part of the body".
– Stanislaus County Dental Provider

Oral health impacts one's overall health, yet is often viewed as separate from the health of the body by providers and patients alike (Chalmers et al., 2017; Yap, 2017). Tobacco use also has a direct impact on mouth health and overall health (K. Singh & Khan, 2018). According to the CDC, "oral health disparities are profound in the United States. Despite major improvements in oral health for the population as a whole, oral health disparities exist for many racial ethnic groups, by socioeconomic status, gender, age and geographic location" (2018). These disease disparities include caries, periodontal disease, and oral cancers ("Disparities in Oral Health," 2018; Russell & More, 2016), which are all preventable with access to quality oral care and with proper oral hygiene practices (Edelstein & Chinn, 2009; Flores & Lin, 2013; Shariff & Edelstein, 2016). Relatedly, it has also been well documented that tobacco use amplifies the risk of oral health diseases (Vora & Chaffee, 2019).

The high association between chronic disease and poor oral health places oral health as a general predictor of a population's overall health (Guo, 2014; Griffin et al., 2012). Overall health status is also associated with dental insurance coverage (Chalmers et al., 2017). A person's oral health status can also affect their quality of life (Feldens et al., 2016; Gaber et al., 2018; Sheiham, 2005) and income (Glied & Neidell, 2010), as the costs of dental care are high, with and especially without insurance (Vujicic et al., 2016). Additionally, many medical conditions and chronic diseases have oral manifestations and some of the medications used to treat other issues have side effects that lead to poor or compromised oral health (i.e. dry mouth, jaw function disabilities, periodontal diseases, bleeding gums) (Yap, 2017).

The most common oral health diseases are dental caries (cavities) and periodontal disease, including gum diseases (L. Gao et al., 2018). The implications of oral diseases are countless, including impacting one's ability to eat, chew, smile and speak (Rosli et al., 2018; Souza et al., 2018). Furthermore, overall health can influence access to oral care through a number of mechanisms; for example, caring more about one's health and having regular visits with a consistent doctor can lead to the same behaviors when it comes to visiting a dentist (Simon, 2016). Other chronic diseases like diabetes and systematic inflammation have recognizable impacts on oral health (Cardoso et al., 2018). According to a recent systematic review, poor oral health may be linked with medical conditions and chronic diseases such as heart disease, stroke, pneumonia, and other respiratory diseases (Yap, 2017). Findings emphasize the importance of oral health's contribution to overall health and the potential linkages to chronic and infectious diseases.

Tobacco use and use of tobacco-related products are known contributors to oral health diseases, especially among adults and older adults (Henshaw, Garcia, & Weintraub, 2018; Hooper, 2018; Liu, Roosaar, Axéll, & Ye, 2017).Oral health inequities

are further increased among those who use or are exposed to tobacco and tobacco related products (Crall & Forrest, 2018). This may be exacerbated by providers' lack of cultural awareness and linguistic barriers (Arora et al., 2017; Atchison et al., 2018; Hoben et al., 2017). It is important to consider provider-patient interactions as providers are often a patient's point of contact for talking about tobacco use and play a significant role in influencing behavior change (Frost et al., 2018). Many studies document the impact and effectiveness of dentists and dental care professionals providing tobacco cessation education and resources (Holliday et al., 2021). In a recent study, Richard Holliday and colleagues found that advice and support from dental professionals is most useful for smoking cessation, including tobacco and e-cigarette use (2021). Another study by Chaffee, indicates that dental professionals are well positioned to provide tobacco education to their patients, however, access to additional tools and resources is recommended to increase self-efficacy among dental professionals (Chaffee et al., 2020).

In California's Central Valley, populations are particularly vulnerable to tobacco-related oral health disparities due to limited access to healthcare and prevention services (Lewis et al., 2016). Tobacco exacerbates oral health problems and oral health diseases increasing these inequities among those who use or are exposed to tobacco and tobacco-related products (Vora & Chaffee, 2019). Data trends indicate vaping and e-cigarette use is increasingly common among adolescents and young adults (CHIS, 2019) and Central Valley dental care providers report seeing the harmful effects to mouth health, especially among youth groups. As many Central Valley counites are rural or semi-rural, addressing this growing phenomenon is challenging.

According to the US Census (2019), a "poverty area" is defined as an area where 20% of more of the population lives below the poverty level. In Madera County, 22.1% of the population live below the poverty level. In Merced County, 24.2% of the population live below the poverty level. And in Stanislaus County, 18.2% of the population live below the poverty level. Health literacy is also an important consideration. Health literacy is defined as "the degree to which individuals have the capacity to obtain, process, and understand basic health information needed to make appropriate health decisions" (HRSA, 2019). In the San Joaquin Valley, which is eight counties out of the nineteen Central Valley counties, 21.2% of the population has less than a high school education compared to the overall State of California at 14% (CHIS, 2020). Additionally, in the San Joaquin Valley 12.1% of the population expressed experiencing delays in dental care in the past year compared to 9.8% statewide.

Among U.S. adults, the burden of oral health diseases is similar to the burden of chronic diseases, which fall heaviest on vulnerable populations, including: elderly, children, LGBTQ+, pregnant women and ethnic minorities (Azofeifa et al., 2016; Russell & More, 2016; Satcher & Nottingham, 2017; Scannapieco & Cantos, 2016) and those in rural environments (Caldwell et al., 2017; Gaber et al., 2018). The association between low oral care utilization and poor oral health outcomes has been identified as a contributor to both urban and rural disparities in oral health status (Caldwell et al., 2017; Gaber et al., 2018). The lower rates of oral care observance tend to be among U.S. rural populations (Bolin et al., 2015), and oral visits among these rural populations tend to be problem-based rather than prevention-oriented (Douglass & Clark, 2015; Guo et al., 2014; McQuistan et al., 2015).

In areas with low provider to patient ratios, limited availability of dental appointments and high cost dental care options, individuals wait until pain, infection, or tooth damage requires pursuit of oral health care (Bolin et al., 2015; Gaber et al., 2018). Rural status impacts quality of care. Individuals living in more rural areas are at increased risk of receiving lower quality of care (Caldwell et al., 2017; Gaber et al., 2018). This is not necessarily due to poor quality of providers, but more so due to the lack of resources. The ratio of healthcare clinics to the population can be decreased in rural areas, as well as the distance, time, and access to transportation required to access a healthcare clinic or hospital (Gaber et al., 2018; S. S. Gao et al., 2019). All of this has clear implications for oral health and overall health.

Researchers, providers, and individuals often view the oral-overall health relationship as two separate phenomena (Chalmers, Wislar, Boynes, Doherty, & Nový, 2017; Glick et al., 2017), thus the purpose of this chapter is to describe how providers and essential program staff in California's Central Valley perceive tobacco use, the oral-overall health relationship, and what their recommendations and/or cessation strategies include. To date, there have been limited qualitative studies on tobacco use, other substance use, and oral health in rural and semi-rural counties of California. This chapter aims to answer the following research question: How do rural dental providers and essential staff in the Central Valley describe potential underlying social conditions that impact tobacco-related oral health outcomes?

In this chapter, I focus on the association between education (including health literacy), environment (including rurality and exposure), and socioeconomic status (SES) among underserved rural community groups from the perspective of dental providers and essential staff in the Central Valley. More specifically, I utilize narratives from interviews conducted with these informants to illustrate some of the intervening mechanisms described that impact oral health and overall health. Using fundamental cause theory (Link & Phelan, 1995; Phelan & Link, 2013) as a guide to frame this research, my goal with this chapter is to contextualize (1) poverty and rurality, (2) exposure, (3) education and oral health/tobacco literacy as explanatory variables accounting for oral health disparities in this rural setting.

METHODS

Research Team

Data reported herein is drawn from community needs assessments and health improvements plan development with three Central Valley counties. This collaboration included: three different county health departments, two UC Merced faculty who served as Principal Investigators (PIs), two UC Merced graduate student researchers – including myself, and a team of undergraduate research assistants. Like my first chapter, I had the guidance and feedback from a Registered Dental Hygienist Alternative Practice (RDHAP), who is a Central Valley native, active in the community, and in providing dental care services and trainings to local providers and health department staff. I describe her role and the role of RDHAPs in my introduction chapter. I also acknowledge the guidance and feedback from California Health Collaborative (CHC) Tobacco

Program Staff. From 2017 to 2021, I have been an active member of the tobacco and oral health coalitions in Merced, Madera, and Stanislaus counties. These experiences have helped inform my dissertation work

Design

This study uses a qualitative exploratory design with a coding and conceptualization process rooted in the grounded theory approach (Charmaz, 2014; Glaser et al., 1968). This approach was deemed suitable as this method allows for exploring areas where little is known and when a deeper understanding of an area is desired. This approach was used specifically with service providers as they have unique perspectives based on their lived experiences working with Central Valley community members and vulnerable populations on a daily basis.

Participants

Following institutional review board approval, 90 key informants were identified and recruited in three Central Valley counties, through community contacts, local oral health advisory boards and word of mouth to participate in in-depth qualitative interviews. Thirty interviewees were rural dental providers, including dentists, dental assistants, and dental office staff. Thirty interviewees worked for a governmental agency that served rural and/or vulnerable populations, including staff from Women, Infant, and Children Programs (WIC) and local health departments. The remaining thirty were staff members at local community-based organizations (CBOs), including Family Resources Centers (FRCs).

Data Collection

Another graduate student researcher and I conducted 90 interviews at the interviewee's office or a local coffee shop between July 2018 and September 2018. Informed consent was collected from each participant, pseudonyms were assigned to all interview participants, and no personally identifiable information was gathered. Each interview was conducted in person, with the exception of two that were conducted by telephone as requested by the participants due to them being over 100 miles away at the time interviews were being conducted. Several hours and/or days were allotted between each interview to allow time for transcription, reflection, and review of the data. Interviews ranged from 25 minutes to 75 minutes each. Interview questions focused on perceptions and challenges of the oral health and tobacco environments in the counties each interviewee lived in and/or worked in and each interviewee was asked to share their practices and strategies for discussing and addressing tobacco use and oral health among their patients. Detailed narratives were recorded and transcribed verbatim, some by a member of our research team (including myself) and some transcriptions were completed by Rev.com and checked for accuracy.

Dental providers, governmental agency staff and CBO staff were asked a series of questions about their personal perspective on oral health, including background

knowledge about oral health related terminology (i.e., caries, cavities, tooth loss, fluoride) and their perspective on oral health in the Central Valley. In addition to these exploratory questions, specific open-ended questions were asked about tobacco use, including the use of smokeless tobacco and vaping.

Data were read to obtain a preliminary understanding of the text. Consistent with grounded theory, ongoing comparisons, simultaneous data collection, and data analyses were conducted after each interview (Charmaz, 2014). Interpretive memos were created for each interview as a means to organize and condense the data and to facilitate ease in locating supportive evidence for themes and exemplars. Interpretive memos included demographic data, field notes, potential codes, and interpretive commentary for each participant. These also included each researcher's reactions, judgements, thoughts, and methodological decisions that occurred during data collection and interpretive analysis. Through subsequent review of interviews and reading the data, coding terms emerged directly from the transcripts, field notes and memos.

Initially data codes and excerpts emerged from line-by-line coding, where a codebook of key terms was created to identify similar excerpts. Second, focused codes were used to analyze data. Focused coding entailed the comparison of codes and data being grouped into specific categories. Methodological and analytical documentation was supported with the identification of key phrases and quotations, similar experiences, themes, and documentation of the rationale for decisions throughout the research process.

Data coding and analyses was facilitated by ATLAS.ti 8 (2017), a qualitative data software. Multiple interviews, specific inclusion criteria, and faithful representation of data obtained from the participants support the credibility of the research. Consensual validation was garnered through collaboration with an interpretive research group led by an expert in grounded theory. Using ATLAS.ti, I filtered by "tobacco", "vaping", "vape", "e-cigarettes", "chew", "smoke", "smoking" and "cessation" in the case I missed any relevant excerpts.

FINDINGS

Informed by fundamental cause theory (Link & Phelan, 1995), I highlight findings from the detailed and rich narratives of key informant interview participants recruited from Madera, Merced, and Stanislaus Counties. Participants reported on the tobacco and oral health environments. Three themes emerged when analyzing what social conditions put individuals served at higher risk for poor oral health outcomes: (1) poverty and rurality, (2) exposure, (3) education and oral health/tobacco literacy.

Poverty and rurality

The last theme this chapter explores is SES and the related mechanisms that impact individuals in the Central Valley. Some of the exemplars I present are interconnected with education and environment, however, SES stood out as an important factor impacting health behaviors and health outcomes. Participants who had interactions with tobacco users and/or individuals who use tobacco, alcohol, and other drugs on a

regular basis shared that these behaviors were often related to stress. They described stress among patients and clients that stemmed from work (or lack of employment), financial struggles, and family issues in the home. For many individuals, health, especially oral health, was not a top priority. Tobacco use, in particular chewing tobacco, was described as a coping mechanism.

A key informant who worked for a governmental agency in Merced reported that most of his clients say they smoke because they are stressed. The agency he worked for provided resources and classes for low-income individuals and families and tobacco use came up often. He felt it did not make sense to tell people to stop smoking or using tobacco products without understanding why they were doing so. When discussing tobacco use, he told me he would often tell people the goal is to "find something else." An example he shared is saying "let's try and think about something else that you can do that will relieve your stress without smoking." He tells clients interested in quitting that quitting is "kind of like replacing a really bad thing with something healthy, like meditating or yoga." He said he feels people are okay with him giving the advice and suggestions because people know they are not being judged. This interviewee also spoke about his experience of people telling him to stop smoking when he was younger. It is a "touchy subject for smokers because they know that they're hurting themselves and the people around them. It's more of a shame that they feel, and I completely understand."

Another provider shared that he sees many patients that are a "drug user, or a smoker, or a high tobacco user" and this was mostly patients who were low-income or lived in poverty. Of the patients his office sees who use tobacco or other drugs, "it does eat the teeth and cause cavities." He also said, "high tobacco use can cause the gums to deteriorate and the fall into gum disease." He was among a few other providers that said that if a patient is a drug user, "they're not caring for any of their hygiene" and "they're not caring about their general health." This provider said he "would exclude anybody that's using cannabis for health reasons", because "they are using it for their health."

In Merced County, several interviewees talked about the connections between tobacco and alcohol use in rural and poor areas of their counties. For this reason, many providers included questions about tobacco use on their office intake forms. For example, one provider who included a question about tobacco on his office's intake form shared that although the office didn't have a question on alcohol, staff members and providers asked about this as well.

> *Each time when someone checks the tobacco user box [on an intake form], I kind of encourage them to quit smoking, and I double check if they drink alcohol as well, because these combined make risks of having cancer much higher… So usually I tell people pick one, quit one, and once they quit one, then we can approach the other one.*
>
> – Merced County Dental Provider

Another provider spoke at length about the advice and ideas he gives his patients about cessation. This provider said he had done extensive research on tobacco, as he had several patients who have smoked for years and many who did ask for advice on quitting. He said the smokers often paid the most for care and their care took more time, so saving

money did motivate some. He also provided oral cancer screenings at their office and said many dentists in Merced did not or would refer patients there.

> *We also just do the normal head and neck cancer screening as well just kind of feeling everything and talking about it. Certain patients we have taken oral pictures, especially for tumors, so when you chew tobacco a lot of the times patients will hold it down in their lower lip. A lot of times they hold it in one spot, and so that part of the tissue can appear different. So, it's really important that we write a description with measurements inside so that we can kind of track the area…*
>
> *We always encourage you to quit, but we also understand that that's a very hard task. I know that health insurances, a lot of the time if they have health insurance, they cover programs or different things to help them quit. Also, if we know that, I always educate on oral cancer, and I will show – like if I know they're tobacco users – I'll even show them [how to screen] at home. Women are encouraged to do self-breast check exams. Why are tobacco users not encouraged to do oral cancer exams? So, it's something that you can do at home. If they're interested in quitting but feel like they can't I always recommend looking into your health insurance and what options they have. A lot of the times they have options for helping with that because non-smokers are a lot healthier than smokers.*
>
> – Merced County Dental Provider

Providers in the City of Merced reported concerns about the impacts of using tobacco products on one's oral health. One provider who worked for a government funded dental program stated, "it doesn't matter if you smoke or if chew tobacco, it'll affect your gums." This same day, I interviewed a second provider in Merced who said that "tobacco is under the drug category, so even chewing tobacco is under the drug category." This provider noted that she encourages the dental assistants in training to ask patients if they smoke and if so, to explain to them [the patients] "how it slows the healing process down if you have oral health issues. If they have periodontal disease, which is a gum disease, it really slows things down there. And if they [patients] chew, they can get oral cancer." This provider also said she encourages those in training to refer people to their primary care doctors if they are interested in quitting or want additional information.

Our interview team had the opportunity to interview four registered dental assistants that worked for one of the FQHCs in Merced County. These dental assistants worked with low-income and unsheltered (homeless) patients each day. The clinic director set up the interview to take place during their lunch. The first interviewee said she felt like a lot of the patients she sees say they "sometimes [smoke], but they aren't everyday smokers." The second interview participant shared that the primary issue she sees is patients who use chewing tobacco, which has a great impact on oral health. She also indicated educating these patients on the high risk of oral cancer and gum recession. She reported thinking that a couple of her patients were smokers due to having very yellow teeth, but these patients say they do not smoke. Her coworker said that a "telltale"

way of identifying patients that use tobacco is "on the lower front teeth where you see a lot of buildup" and she agreed that when patients are using chewing tobacco you "see a lot of gum recession because they put it in the bottom of the lip in the front". The third dental assistant said "they [chewing tobacco users] end up losing those teeth because there's nothing there to hold them." Lastly, the fourth interview participant said "there's a clear look of what tobacco users' mouths look like too. Even if they didn't want to disclose, you can typically tell something's going on."

Another provider in Merced County discussed their perception of tobacco use in the region and in their specific practice. This provider, like several others interviewed touched on tobacco use and cessation protocol. He said:

> *We do screen everybody for tobacco use… and ask everybody who comes in as a screening question if they use drugs, alcohol, or tobacco. I think a lot of people are smoking now too, like younger people. I don't know what the actual statistics are on it, but I just feel like I see a lot more younger people smoking and I don't know if that contributes, probably partially, to the younger people with really bad teeth that I'm seeing.* ***Those people also tend to be like – you know in that 20-30 age range, a lot of times they don't have insurance yet.*** *So, I do encourage them to stop smoking… I'd say probably the patients that come in who are having a [health] problem related to smoking, so you know, cough, asthma, or high blood pressure, chest pain, or anything that could be exacerbated by tobacco use… Those are the people I'm probably going to really focus on and tell them… give them tips on how to talk to their doctor about quitting smoking, you know.*
>
> – Merced County Dental Provider

One of the last interviews conducted in Merced County was with a provider that had her own practice, but also volunteered for a couple different mobile dental clinics. This interview lasted over an hour, and she shared a number of examples from her 20 years of working in Merced, Winton, and Atwater (all cities in Merced County). She shared that several of her patients who smoke disclose this information when she asks why their teeth are the way they are. One of her strategies was to show current or past smokers x-rays of their teeth. She usually would tell them, "You know you might want to consider changing your habits", when talking about prevention. This was one of the only interviews that highlighted patient successes in quitting tobacco and/or in her words "outgrowing" it. For her patients that smoked cigarettes, this provider thought the cost increase of tobacco (tobacco tax) played a significant role in people quitting.

> *Over the years I think a lot of patients have stopped smoking. They're very proud that they have stopped smoking. They'll even, when we update their health history, they'll let us know that without even us asking them. They'll say, "I stopped smoking in..." And I'll say, "Oh, cool! Well, what are you using?" "I'm using the patch, or I did this, and I did that." And I think a lot of it was because the cost went up on cigarettes. And I think a lot of patients, especially the men that do the tobacco in their lip, just kind of outgrow that country guy, rough, tough thing. I think they just kind of... they're grown up now and they're*

becoming parents and they... I don't know if it's just a young kid freedom thing, but they kind of outgrow that. Not everybody, but I can think of a bunch of different people in my office that have done that.

– Merced County Dental Provider

In July 2018, I interviewed a CBO staff member who lives in Oakdale, a rural city in Stanislaus County. I was excited for this interview because I had never been to Oakdale, and I was meeting at a center that serves underserved women and children. There is also a substance abuse disorder group that meets there once a week. This day a class for Spanish speaking mothers of newborns or infants under 24 months was taking place. I was able to hand out some toothbrushes and hear a bit of their meeting. After this meeting, the interviewee and I met in her office. She described the city and demographics, telling me that the population was primarily white and Hispanic, and that there was one dental office in town. She also discussed her concerns about tobacco, specifically chewing tobacco. She said:

I do see it in the community. You know, this is a very agricultural rich area… a lot of farmers, and we have a rodeo here. You know, we're the cowboy capital of the world. We have a rodeo that is known nationwide… So, you do see chewing tobacco a little bit more amongst that population of farmers and just people who work in agriculture… I see smoking sometimes, but I've definitely felt like it's more rare now than it used to be. I will say, amongst our SUD population here, the people that come to the group for substance use disorders… definitely a high percentage of them use tobacco. So, they kind of trade in one bad habit for another. It's super common. So, like we have a smoking area in the back, and most of the people that go to that group use it.

– Stanislaus County Community-based Organization Staff

When interviewing a Stanislaus County dental provider who primarily served patients from Patterson, she had similar comments to the CBO staff member in Oakdale. She shared:

There's so many ranchers and cowboy folk around here and I think that we do see tobacco use… I wouldn't say it's a problem, but there are a lot of teenagers that use tobacco, and lot of younger men in their, maybe 20s that we do see that. And so that contributes, of course, it just puts them at a higher risk for [needing] oral care service and we discuss that when they come in.

– Stanislaus County Dental Provider

One afternoon in mid-August, I met a staff member at the health department in Stanislaus. She worked on programing that served low-income families in the community. Many of the families were Spanish speaking. She discussed the screening process and some of the requirements. This program served primarily families with low SES status, low educational attainment, and many with no to low English proficiency. One of the required screening questions asked was about tobacco use in the household.

The question read: “Does somebody smoke inside the house and if so, how often?” She also said, “If a client does say they are smoking inside the house or smoking while pregnant, then we address that with them. The dangers of, you know, smoking while pregnant or the dangers of smoking inside the house around your child. But that is asked to every certified participant, along with alcohol use and drug use.” Tobacco education was not discussed if the client did not disclose that they smoked, even if smoking was suspected.

Another provider in Modesto mentioned that he primarily sees patients that have Denti-Cal (Medicaid) and a few that have insurance through their own or spouse’s employer. Occasionally, a patient comes in and pays for services in cash. These patients do not have any insurance, so the office works with them to develop a payment plan. He has several patients who use tobacco and if these patients express interest in quitting or needed resources, his office provides them the information. These resources included a pamphlet of local cessation groups in Modesto and the quit line phone number. He would also refer some to their primary care provider.

One provider I interviewed described his experiences serving a large Native American population. This is the only interview out of the 90 across the three counties that mentioned Native communities. This provider shared that many of his Native patients are smokers, so he has made it a goal to have resources available, should his patients want the information. He also made it a point to speak about cultural sensitivity and the role tobacco may play when it comes to poverty.

> *We do refer out to 1-800-NO-BUTTS if we find that somebody is [using tobacco]. We also get referrals from a doctor saying someone identified as a smoker needs outreach to them. We put messaging out about if you're trying to quit smoking, here’s the services.* ***I think that looking at our county and just looking around, smoking does play a part in the poverty.*** *And we [my partner and I] were talking about how tobacco was introduced to the Native Americans, it was introduced for cultural reasons. And then it just became… now it’s become a norm, and there's a high high number of smokers in that population, and we know what it's doing… But to go in and just tell them, don’t do it, would not be very culturally sensitive. And so, I think that we need to understand why some of the behaviors are the way they are before we actually go in and tell them, “Don’t do this.”*
>
> – Stanislaus County Dental Provider

Social and physical environment: Exposure in rural settings

The second theme that emerged is environment, including related social conditions and mechanisms that put individuals at greater risk of being at risk. Youth, in particular, were described as a group of greatest concern. Under the umbrella of environment, participants discussed instances of increased exposure to tobacco products (chewing tobacco and vapes) and tobacco marketing in the rural Central Valley cities. Here I highlight exemplars of participants speaking about vaping and tobacco use in their county and the implications of exposure to these products.

On a Wednesday afternoon in July 2018, I met one of our interviewees downtown in the City of Merced at his office. He worked for a local non-profit and was a recent graduate of UC Merced. He was born and raised in Los Banos (Merced County), thus, excited to talk about health in Merced County. His primary concern as a community leader and non-profit staff member was tobacco-related device use among youth that had been growing in popularity.

> *I think that the State (California) has pushed for more tax to be on it [tobacco] and I think that's great, but again, it's [tobacco] something that kids are like gravitating to once again because of the introduction of e-cigarettes and all these vapes… vapes pens and things like that… People make it look cool based on how you use it. They're [vapes] flavored. They taste like candy at times. They smell like candy. So, it gives that perception that this is not bad for you because it's kinda like candy. [Quietly] Even though candy is bad for you anyway.*
>
> – Merced County Community-based Organization Staff

In Madera County, essential staff identified tobacco as an important topic for community health. This included the concerns shared about access to vaping and electronic tobacco devices. Oral health providers reported that they discuss tobacco with their patients and patients' parents. They shared that there had been an increase in tobacco use among youth, specifically e-cigarette use and vaping. CBO staff and oral health providers alike spoke about vaping and the impact it continues to have on their community.

> *Tobacco prevention programs did a really good job. I think the taxes impacted a lot…and then the craze of vaping came out. So, I think among kids and adults even, you're seeing a lot more of that…the education around vaping [is needed]*
>
> – Madera County Community-based Organization Staff

While conducting interviews with CBO staff in Stanislaus County, I spoke with a woman who had worked for the same CBO for 22 years. I asked her about tobacco, and she said that she doesn't see tobacco use anymore. She described how in the past she and her colleagues would see little [cigarette] butts around their building, but this has not been the case for a while now. She proceeded to state, "I think they [smokers in the community] have transitioned to vaping."

Many other interviewees shared similar thoughts – vaping is the new issue, not tobacco (i.e., cigarettes, smokeless tobacco, chew). This sentiment was shared by government agency staff, CBO staff and dental providers interviewed. One interviewee who worked and lived in Madera County (the City of Madera) her whole life, described her experience with seeing tobacco and vape device use in her hometown:

> *To be honest, I don't see a ton of tobacco use. I'd be curious to see if we have high rates of tobacco. I'm sure it's in our community health assessment, which I'm not familiar with. The vaping is the concern. We've heard it over and over*

again…with the youth vaping… But in terms of tobacco, I haven't seen a ton of that anymore.

– Madera County Community-based Organization Staff

Another provider that I met in the City of Turlock (Stanislaus County) discussed vaping at length. He reported that many teens in junior high and high school are starting to use vaping products and e-cigarettes. *"They think the vapes are cool and not harmful because of the smell. Some even tell me that there isn't enough research… Kids are "doing" their own research and that makes it even more difficult."* I proceeded to ask what impacts he sees vaping has had on mouth health and overall health. He said:

We've seen it [vape use] in patients where they've had changes to their tissues because of the heat and the chemicals… their tissues don't look right. So, they're already getting cellular changes in the tissue at a younger age… that can increase their risk for it to turn into a cancerous lesion. You know, the more your cells are changing, the more chance there is of developing a cancer.

– Stanislaus County Dental Provider

Two of the interviews I conducted on the same day took place at a local community center in West Modesto. This center was right next to a park and a Boys and Girls Club Program. When I arrived, I was greeted, and they offered to give me a tour of the center. There was a senior group meeting in one of the spaces and they were setting up snacks for kids in a different space. The staff told me that the kids from Boys and Girls Club go there after school for some programming and meals since it was a larger space. They said they serve a lot of low-income community members and homeless in the West Modesto area, as there was a high level of poverty and violence. The first interviewee briefly discussed tobacco use around their center:

We don't have programming for tobacco here. We know how to make referrals to tobacco programs, but again, we are in a park. We are right next to a park now. Of course, you know, there's a no smoking ordinance in the parks, but we do see people who still continue to smoke… A lot of times they're smoking in the park, but you know, a lot of the people that participated in our programs see that as a major issue for them [smoking].

– Stanislaus County Community-based Organization Staff

The second key informant had worked at this center for over 15 years and lived in the Modesto area her whole life. She spoke at length about the lack of resources in the community, lack of health service professionals (including dentists), and even more so, the lack of information. She described how the lack of information extends to the category of tobacco and marijuana.

I do see that there's a lot of lack of information especially now with dispensaries. It's not necessarily tobacco but with smoking in general and then flavored tobacco [e-cigarettes]. I think that because there's not a lot of knowledge on it

[flavored tobacco]. There's confusion as to whether it's better or if it's less harmful. So that's something that I know has come up, because we're right by Modesto High and by the junior high and so that [topic], like the flavored tobacco, the hookah, all that stuff has come up… We see it at the park, and it is just everywhere… You know it's in the middle of summer, we have liquor stores everywhere we have one right here and they sell these all of that [tobacco related products]. So, you know, sometimes you'll see like junior high to high school-aged kids and they'll be walking around the park and sometimes they'll be smoking something, but if they see us, they'll leave. Not that that makes it better, you know? But it's not an anomaly, like it's not something rare [to see youth smoking].

– Stanislaus County Community-based Organization Staff

One of the providers that I met with worked in two Stanislaus County cities, Turlock (a semi-rural college town) and Patterson (a rural city). Our interview took place during her lunch hour in her office. She provided insight into the oral health environment in Stanislaus County and tobacco use. She had hoped to be working as a dentist in the Bay Area but recognized the need in the County was greater than many areas of California. When discussing tobacco use and oral health, she described her concerns:

We also have certain populations use a lot of chewing tobacco and cigarettes. All of those things definitely impact oral health… but we're definitely seeing the rise in tobacco use among youth because e-cigarettes are easy to get. They have all those flavors you know? They marketed that beautifully to kids and teens. Some of them [e-cigarettes] are even being marketed as smoking cessation devices which is absurd!

– Stanislaus County Dental Provider

Education and oral health/tobacco literacy

Educational attainment and health literacy, including access to reliable and accurate health information are important for overall health and wellbeing. Participants in this study discussed the need to address lack of health education and information about oral health and tobacco use and how to address low health literacy on these topics. For example, participants reported that individuals they serve often did not see a connection between oral health and overall health. To support this, participants across the three counties described instances in which medical care and oral health do not connect, despite the clear linkage between the two in terms of health outcomes.

During an interview conducted with a Madera County Governmental Agency Staff, I gained a deeper understanding of how she and others in her department understand the links between oral health, tobacco, and overall health, including the limitations the separation creates. She stated,

And you know the other thing that strikes me – contrary [taps table] to what we're doing with kids where you can go into your pediatrician and maybe get some oral health care, ***I don't know that our medical providers and our primary***

care doctors [turns pages] are necessarily talking to adults about, "Oh, you're a tobacco user. Do you know what that's doing to your teeth or what that's doing to your gums?" So, I think they think that that's the job of the dentist, but you could often have an adult who's seeing a primary care doctor but is not seeing a dentist, and so therefore, that issue is never really being linked together. *I think they're thinking about you shouldn't be smoking because it's going to give you heart disease, or emphysema, or those kinds of things, but* ***I'm not convinced that they necessarily link it [tobacco use] to oral health as well which could be a good intervention to be doing in the community in terms of, you know, highlighting that for primary care doctors to start adding that to their list of things they want to talk to somebody about who's a tobacco user.***

– Madera County Governmental Agency Staff

In August 2018, I interviewed two Madera providers who worked for the same clinic in Madera City and sometimes the City of Chowchilla. The first provider had been in practice for 20 years and the second had been at the practice for 4 years. Each shared their perspectives on tobacco use and how they navigate conversations with tobacco users. This included discussions about screening and prevention of further tobacco-related oral health diseases. These providers also talked about referring patients to other services in their clinic and emphasizing the concept of treating the whole body, not just the mouth. The provider that had been at the clinic for 4 years shared:

So, we do have a good percentage of our population that do smoke either tobacco or marijuana, and a lot of people that smoke marijuana think that that's not an issue, but any time you light up anything, you're exposing yourself to carcinogens. So, we try to reach that population too… In regard to tobacco, oral cancer is something where the diagnosis is late, which it usually is, because people aren't looking around their mouth very often. It's usually found in later stages, so it's really important for smokers to come in regularly to the dentist, not just for their, you know, cavities and cleanings, but also just to have an oral cancer screening…. So, we try to gear it [education] more towards how it affects their oral health, but, of course, remind them that ***it's not good for their entire body****. We do have many services here at Camarena [health clinic].* ***We do have some counseling and social health type services, so if they do show an interest, we can do an internal referral for that.***

– Madera County Dental Provider

One of the Women, Infants and Children (WIC) staff members I interviewed in Stanislaus County talked about working with low-income moms and families. She described loving being able to interact with babies and helping moms get the resources they need. She talked at length about the health education needed around the implications of tobacco use on the "oral health and physical health of both mom and baby." I asked her about tobacco use among the populations they [WIC] serve:

We have some of the moms that are smoking, and some that will quit during the pregnancy and then they go back after the baby is born. Some don't [quit] at all. Most of the women won't admit to smoking. So, most of them tell us no, that they are not smoking.

– Stanislaus County Government Agency Staff

Another key informant who worked for a governmental agency in Stanislaus County and worked with pregnant women shared her perspective of having worked in a number of federally funded programs. She discussed how she addressed low health literacy with mothers. She specifically brought up tobacco use as an important issue not only for oral health but for the health of the baby and mother:

I've had experience mostly with pregnant mommies and breastfeeding mommies, obviously. But I do tend to encounter that [tobacco use] with pregnant moms. And so, we ask them, have you talked to your doctor about what are the risks of smoking while you're pregnant and when you're breastfeeding? When it comes to breastfeeding, we do let them know that it's to the best interest of the baby and herself to decrease [smoking] as much as they can. To change clothes when they're actually gonna get the baby to breastfeed, so the baby is not inhaling the fumes from the cigarettes.

– Stanislaus County Government Agency Staff

She continued to say that they suggest for the mothers that smoke to check in with their doctors on a regular basis. And like other programs, they give the card with information on the No BUTTS campaign. She talked about how many of the mothers tell them they are already working with their doctors on quitting, while some are open to discussing cessation. She did say "most of our mommies are already connected to services but we do touch bases on making sure that they are getting the support they need to either stop or help them decrease and hopefully eventually stop."

Lastly, a dental provider who worked in Stanislaus County discussed his work in a clinic that had both medical and dental services and how this work promotes oral health literacy among his patients. He shared his experience working with low-income community members and providing education on oral health and overall health. When I asked his perspective on oral health and tobacco use, he spoke from his expertise as a dentist and as a past smoker:

We treat it [smoking] just like as a medical issue, a medical ramification. I don't preach… I don't preach to them because we all have habits, bad habits. But smoking is hard to quit… So, I can speak from experience there. I mainly just try to educate. With tobacco usually they'll have change in the tissue. I teach them how to do their oral exam on a frequent basis at home. And most people will say "okay". I also say, "you know that this can happen, or this can happen, and most patients with throat cancer will not survive." I just tell them what we've experienced; people in the past, and from my own personal experience, two

adults, two parents that died at 60 years old. Because nothing speaks louder than personal experience.

– Stanislaus County Dental Provider

Providers in Madera County noted that the key to addressing oral health issues that can stem from the use of tobacco products, like vapes, is to educate people. Health education and increasing health literacy on vape usage is crucial and can be quite difficult as vapes appear to be "a less harmful alternative" and "there is more research needed on the impact of vaping devices on one's mouth health".

Tobacco. So, it's actually a question on our intake form. Um, whether they use chewing tobacco or do traditional smoking. We even have a question on recreational drugs. And if they mark yes to any of those, or if they mark no but we smell something, then we go ahead and we talk to them about the dangers. Not only of lung cancer, but oral cancer, staining of teeth, all of that...

– Madera County Dental Provider

Another Madera County provider from this office shared:

I think the thing we need to be aware of going forward is also the vaping. I don't think people realize that even though it's not necessarily a cigarette, how bad these other alternatives are. And I think there's a huge need to educate, especially the younger population, on those. Because I'm seeing that as something that is probably in the community just as much as smoking is, if not more.

– Madera County Dental Provider

These exemplars highlight the need for additional education around how tobacco use impacts oral health and overall health. Participants shared their perceptions of gaps in understanding and information. Language and cultural barriers also added another layer of difficulty when it came to educating patients and clients. Some clinics had information in English and Spanish, but many did not.

DISCUSSION

Poverty, rurality, exposure, and oral health/tobacco literacy are essential social conditions that put rural community members at increased risk of being at risk for poor oral health outcomes. Findings highlight how dental care providers and essential staff in three Central Valley counties conceptualize the link between oral health and tobacco use by describing the underlying conditions that influence vulnerability and exposure in rural settings. These themes were present in participant descriptions of the challenges faced by individuals living in the Central Valley of California and were identified as impacting the confluence of tobacco and oral health disparities in the region.

Individuals interviewed serve rural and semi-rural individuals and families. They serve individuals and families that have lower educational attainment, lower income, are primarily Spanish-speaking, and are Medi-Cal and Medi-Cal Dental eligible or have limited or lack of insurance overall. Important to note, the Central Valley is home to other underserved groups; Native Americans and non-English speaking migrant groups who primarily work in agriculture. These distinctions are crucial when thinking about access to care, access to resources, culturally and linguistically appropriate outreach and care, and how to improve health equity for all in the Central Valley.

Many of the organizations and agency groups interviewed had some tobacco and oral health related programming and/or cessation resources, however, the majority did not. Tobacco programs were more common and consistent than oral health programs, seemingly due to funding and access to providers who served their target populations which included low-income, homeless, Medi-Cal eligible, and those located in rural communities. Whether organizations had programming in place, key informants who worked for community-based organizations, and government agencies expressed similar concerns as providers about tobacco use and oral health outcomes in their communities.

Findings reported herein contribute to current research on the role the social environment plays in oral health outcomes. Environment includes rurality and environmental exposures such as tobacco products and tobacco marketing. Vaping and e-cigarette use was described as a growing issue in the Valley. This was particularly of concern among rural youth, as youth exposure and targeting seemed to be "at an all-time high". Providers reported that the consequences of vaping and electronic devices were starting to become evident, especially in the prior few years. The primary impact of vaping on oral health was inflamed gums, attributed to the device creating heat and causing burns on tongues and gums. Providers also discussed their concerns about youth using electronic smoking devices due to changes in the cells in the mouth, which can be cancer causing and have lasting impacts on mouth and gum health. Vaping, being more socially acceptable than cigarette smoking and having flavors that target youth, has made it challenging to promote tobacco and smoke free health behaviors. Those who worked with college aged students discussed that vaping was commonly seen and not cigarette use, even with most campuses in their counties being smoke-free.

Many individuals and families in the Central Valley experience persistent and intergenerational poverty. Providers and essential staff described the impact of poverty on oral health access, particularly with regard to the impacts of limited or no insurance. For example, those without insurance will go without care or only fix the issues they can afford. Some patients would come in with severe issues because they did not have insurance until their twenties or thirties Providers and essential staff also discussed the role of poverty and SES in health behaviors. Rural and underserved individuals disclosed that they use tobacco products to cope with stress that often stemmed from work environments (i.e., working in agriculture) or from not being able to afford basic needs for them or their family. This highlights how poverty and environment are interconnected for rural residents.

In all three counties, Madera, Merced, and Stanislaus, chewing tobacco came up quite often, especially when key informants brought up the more rural areas of their County. Chewing tobacco use was usually described in tandem with rural cities and

areas, “cowboy culture”, and/or sports, specifically baseball. A few participants also shared some farm workers used chewing tobacco, as it enabled them to use tobacco hands free. What I found unique is that chewing tobacco came up a more often than I thought going into interviews. This challenged what I believed about tobacco products commonly used in the Central Valley, thinking cigarettes or e-cigarettes would be described as more an issue. Providers described how concerning chewing tobacco was for oral health outcomes, with the most prominent issues being severe gum recession in the areas chew is placed and those using chew having an increased chance of developing oral and throat cancer.

Most providers interviewed spoke about their methods for addressing health literacy and their cessation related conversations with patients or family members of patients that smoke or vape. These conversations usually included a description of what smoking, chewing, or vaping does to mouth health and warnings about potential further damage or oral cancer developing in the future. Providers and agencies referred smokers to cessation resources, often 1-800-NO-BUTTS or to local cessation classes. Some referred individuals to their primary care provider for additional cessation information and resources. For those who had tobacco programming in place at their organizations, they usually provided print materials or dental clinic referrals. Providers also talked about referring patients to other services as well, emphasizing the concept of treating the whole body, not just the mouth. For example, a couple shared how smokers often use tobacco as a coping mechanism. Lastly, participants often used stories and vignettes to discuss their perspectives and knowledge around tobacco product education and cessation. Dental visits were an important opportunity for providers to share their concerns and provide ideas and resources to individuals and families.

LIMITATIONS

This study reports the perspectives of dental providers, governmental agency staff, and community-based organization staff serving individuals and families in three counties in a rural region of California. Thus, these findings may not resonate with the perspectives of providers in urban or more affluent areas. Additionally, interviews were conducted prior to the COVID-19 pandemic (2020-2021), and this may have an impact on patient interactions and the resources and services available to rural residents.

CONCLUSIONS

Disadvantaged populations are often those most impacted by tobacco and oral health disparities. This chapter highlights the perspectives of providers and essential staff on tobacco use and the impacts on oral health and identifies the social conditions that underly the poor oral health of Central Valley residents. In rural areas of the Central Valley, tobacco product use – chewing and cigarettes are still common in many areas and the implications for mouth health are very clear. Participants also identified marijuana, alcohol, and other drugs as concerning. This may suggest the need for accessible educational materials for more than just tobacco when it comes to oral health issues related to substance use. My last chapter takes this conversation a step further by focusing on the perspectives of community members and their experiences.

CHAPTER 4: Poverty, Rurality, and Exposure: Community Member Perceptions on Oral Health and Tobacco in the Central Valley

"I would prefer to go to a dentist that looks like me, but there are no Black dentists… I wish the dentists here were easier to access and that it didn't take 6 months to get an appointment... Our community knows oral health is important, but we have bigger issues right now… I would rather feed my family and pay rent than pay to fix my teeth…"
- Black Community Member, Merced County

According to the Centers for Disease Control and Prevention (2018), "oral health disparities are profound in the United States. Despite major improvements in oral health for the population as a whole, oral health disparities exist for many racial and ethnic groups, by socioeconomic status, gender, age and geographic location". Tobacco use is a contributing factor to oral health diseases and disparities (K. Singh & Khan, 2018). These disease disparities include caries, periodontal disease, and oral cancers ("Disparities in Oral Health," 2018; Russell & More, 2016), which are all preventable with access to quality oral care and with proper oral hygiene practices (Edelstein & Chinn, 2009; Flores & Lin, 2013; Shariff & Edelstein, 2016).

This research focuses on the Central Valley, however, demographic, health behavior, and health outcome data available are specific to the San Joaquin Valley (SJV), which comprise the southernmost eight counties in the Central Valley. In California's SJV, Black, Hmong, and Latinx populations are particularly vulnerable to tobacco-related oral health disparities due to limited access to healthcare and prevention services. Based on data from the Health Resources and Services Administration (HRSA), the Central Valley and SJV are known for being a health professional shortage area (2020). Many of the counties within the Central Valley have high poverty levels, including Merced County, where 24.2% of the population live below poverty level and Madera County, where 22.1% of the population lives below poverty level (Census, 2020).

In the SJV, 51.1% of the region is of Latino/Hispanic origin (CHIS, 2020), 5.4% of the region identifies as Black or African American (CHIS, 2020), and 8.3% of the region identifies as Asian (CHIS, 2020). The California Health Interview Survey (AskCHIS) data does not report the percentage that specifically identifies as Hmong. According to AskCHIS (2020), 4.5% of Black adults in the SJV reported being a current smoker, compared to 8.2% of Black adults at the state level and 9.1% of Latino adults in the SJV reported being a current smoker, compared to 5.9% at the state level. AskCHIS (2017) also reported15.6% of SJV Latinx teens reported ever trying e-cigarettes compared to 5.9% of Latinx teens at the state level. This is the last year AskCHIS reported on this specific question for Latino/a/x teens. Vaping and e-cigarette use are becoming increasingly common among adolescents and young adults and SJV providers are seeing the harmful effects to mouth health, especially among youth groups. This is no longer a traditional and smokeless tobacco problem.

Blacks generally have the poorest oral health of all the racial and ethnic groups in the United States (Lee & Divaris, 2014) and untreated caries (tooth decay) are more prevalent among Latinx and Black adults compared to non-Hispanic White adults (Henshaw et al., 2018). Black and Latinx also experience higher rates of tooth loss

(Henshaw et al., 2018). According to the *E-Cigarette Use Among Youth and Young Adults* report by U.S. Department of Health and Human Services, periodontal disease is higher in men than women, is greatest among Mexican Americans and non-Hispanic Blacks, and affects those with less than a high school education (2016). In the SJV, 70.8% of Latinx adults and 78.5% of Black adults have dental insurance compared to 71.9% of non-Hispanic White adults (CHIS, 2020).

Using fundamental cause theory (Link & Phelan, 1995), this chapter aims to contribute to further understanding of these inequities and to answer the question: "How do rural community members describe the fundamental causes of persistent tobacco-related oral health disparities?" I utilize qualitative data to describe some of the intervening mechanisms detailed in in-depth conversational interviews conducted with Black, Hmong, and Latinx Central Valley community members. My goal is to contribute to current understandings of how SES, exposure, and rurality are understood as explanatory variables accounting for oral health differences among marginalized community members in the region.

Tobacco Use Among Black Populations

Several disparities in oral health among Blacks and Latinx can be attributed to the use of tobacco-related products. Blacks have been historically targeted by tobacco marketing and Latinx are increasingly being targeted and affected by tobacco (J. G. L. Lee et al., 2015; Mantey et al., 2016; Moran et al., 2017; Soneji et al., 2019). Tobacco and tobacco related health disparities affect Blacks more than any other racial/ethnic group in the United States (Benowitz, Blum, Braithwaite, & Castro, 1998; Moolchan et al., 2007; Nguyen, Robinson, O'Brien, & Zhao, 2017). Historically Blacks have been targeted by tobacco companies in advertisements and marketing (Moran et al., 2017; Ribisl et al., 2017; Robinson et al., 2018) and in location of tobacco retail stores (Ribisl et al., 2017). For the past five decades, public health departments and communities alike have pushed for the banning of tobacco sales, marketing, and flavored products, specifically menthol cigarettes which account for 88.5% of all tobacco sales to Black individuals (Giovino et al., 2015). The reasons for this are many.

Tobacco use contributes to the three leading causes of death among Blacks: heart disease, cancer, and stroke (Xu, Kochanek, Murphy, & Tejada-Vera, 2016). The risk of developing diabetes, which is the fourth leading cause of disease among Blacks, is also higher for tobacco users than non-users (Services, 2014; Xu et al., 2016). In addition to firsthand smoking disparities, Black children and adults are more likely to be exposed to secondhand smoke than any other racial or ethnic group (Drope et al., 2018; Homa et al., 2015; Neophytou et al., 2018), which is commonly attributed to living in low SES neighborhoods. What is disturbing about these disparities is, contrary to what it may seem, Black youth and younger adults have a lower prevalence of smoking cigarettes than Hispanics and Whites (T. Singh, 2016); Blacks smoke fewer cigarettes per day than Whites (Schoenborn, Adams, & Peregoy, 2013); most Black smokers want to quit smoking and have tried (Babb, 2017); and Blacks initiate smoking at a later age

compared to Whites (Cantrell et al., 2018; Li et al., 2019), yet Blacks are more likely to die from smoking- related diseases than Whites (Assari, 2018; Cunningham et al., 2017).

Tobacco Use Among Latinx Populations

Latinx are increasingly being targeted and affected by tobacco (Huang et al., 2019). For example, a recent study in Orange County found that a higher percentage of census tracts with vape stores were located in areas with large foreign-born populations and greater poverty than those without vape stores (Bostean, Sanchez, & Lippert, 2018). Also of growing concern is the increased access and use of electronic smoking devices among youth, specifically Latinx youth (Wang et al., 2018), who have traditionally had lower rates of tobacco use. We can anticipate rates will continue to increase among Latinx youth due to exposure to advertising and specific targeting from companies like JUUL (Huang et al., 2019), which is a company known for e-cigarette devices that look like USB drives (Kavuluru, Han, & Hahn, 2019).

Oral health inequities also affect Latinx children and adolescents. In fact, most of the studies that focus on Latinx oral health are focused on children's oral health (Hilton et al., 2007; Hoeft et al., 2015, 2016) and the oral health of immigrant or migrant populations (Reza et al., 2016; Wilson et al., 2018). Wilson and colleagues found that there are particular oral health disparities by immigration status. For example, they found that more than half of non-citizens had been diagnosed with periodontal disease and about 40% had been diagnosed with caries (Wilson et al., 2018). This study also controlled for current tobacco smoking status and found that US native groups had nearly double the percentage of current smokers, yet non-citizens still had higher rates of periodontal disease (Wilson et al., 2018).

Tobacco Use Among Hmong Populations

The Hmong are a population that migrated to the Central Valley often as their second point of migration (Warner & Mochel, 1998). The majority of Hmong came to the US after the Vietnam War and settled originally in three cities. Many chose the Central Valley as their secondary migration site in order to farm (work in agriculture), as this is what they did in their home country (Warner & Mochel, 1998). Since being in the Central Valley, Hmong communities continue to experience poverty and worse health outcomes than other population groups (Pinzon-Perez, 2006; Vang et al., 2020; Warner & Mochel, 1998). In a systematic review, Maichou Lor discussed how those who identify as Hmong "may bear a disproportionate burden of poor health", including higher rates of tobacco use and lower level of awareness of smoking cessation resources (Lor, 2018). Regarding cessation, research suggests Hmong smokers viewed doctors positively, however they did perceive quitting related resources helpful (Fu et al., 2007). Although there is limited research on Hmong populations and tobacco use, a recent article by Youseff M. Roman and colleagues discusses the role of tobacco use in gout diagnoses (Roman et al., 2021).

It is important to expand research on tobacco use and exposure among Hmong populations and how this impacts oral health.

Intervening Risk Factors of Tobacco Use and Oral Health Related Disparities

Research suggests there are several factors that contribute to oral health and tobacco disparities such as: insurance status, income or SES, lifestyle behaviors including tobacco use, mental health, and dietary choices and preferences (Arora, Mackay, Conway, & Pell, 2017; Lee & Divaris, 2014; Satcher & Nottingham, 2017). These disparities may be even greater based on immigration status (Nicol, Al-Hanbali, King, Slack- Smith, & Cherian, 2014; Wilson, Wang, Borrell, Bae, & Stimpson, 2018), literacy level (Baskaradoss, 2018; Dyk, Radunovich, & Sano, 2018; Geltman et al., 2013) and the level of trust in dentists (Armfield, Ketting, Chrisopoulos, & Baker, 2017; Okah, Williams, Talib, & Mann, 2018; Tinker et al., 2018). Most studies on this topic utilize quantitative data and identify contributing factors, rather than the ways in which these multidimensional disparities intersect (Aguirre et al., 2016; Douglas, 2014, 2015).

Oral diseases, such as cancer, are linked to tobacco use (Montero & Patel, 2015; Sultan, Jessri, & Farah, 2018). Tobacco use also has a direct impact on mouth health and health of the overall body (Liu, Roosaar, Axéll, & Ye, 2017; K. Singh & Khan, 2018). Both oral health and tobacco disparities are prevalent in underserved areas such as: rural areas characterized by poverty, lack of opportunity, and limited access to affordable and quality health care services. Tobacco use (i.e., cigarettes, cigars, pipes, and smokeless tobacco) is an important risk factor for preventable oral health diseases and increases one's risk of developing oral cancer (El-Zaatari, Chami, & Zaatari, 2015; Pepper, Emery, Ribisl, Rini, & Brewer, 2015). Oral cancer includes cancers of the mouth, tongue, the tissue lining the mouth and gums, and the area of the throat at the back of the mouth (Montero & Patel, 2015).

This chapter serves as the third and final chapter for my dissertation. Chapters 1 and 2 discussed the perspectives and experiences of individuals and organizations who serve individuals and families in the Central Valley. This chapter focuses on describing the social and economic factors that contribute to oral health and tobacco-related health disparities among marginalized and minoritized (e.g., Black, Hmong, and Latinx) groups living in California's Central Valley.

METHODS

Using fundamental cause theory (Link & Phelan, 1995), this chapter describes the social and economic factors that contribute to oral and tobacco-related health disparities among specific marginalized (e.g., Black, Hmong, and Latinx) groups. This chapter expands on research conducted for Chapters 1 and 2 of my dissertation. To determine the unique oral health challenges, barriers and needs of Black, Hmong, and Latinx populations in the SJV and how tobacco use and/or exposure to tobacco products impacts self-reported oral health (i.e., tooth loss, periodontal diseases, oral cancer) I conducted in-depth, in-person and virtual conversational interviews with Black (n=16), Hmong (n=4),

and Latinx (n=10) community members who live in the SJV. Interviews explored (1) perceptions of the tobacco and oral health environment, (2) experiences with tobacco-related oral health diseases, and (3) experiences accessing oral health services. Tobacco-related oral health questions were open-ended. Interviews lasted approximately one hour and were audio recorded for transcription purposes.

Detailed field notes were taken after each interview and used for analyses. Field notes include observations (before, during and after each interview) and any emerging ideas or themes specific to that interview. These notes were used to understand nuances and context that may not have been captured by the recorded interview. This is important as some interviewees began talking prior to recording and some continued to share experiences after the recording had ended. This was particularly important when two interviewees asked not to be recorded when they shared certain stories.

All participants have been given pseudonyms to protect their confidentiality, and all participant information is stored on a password protected drive on a university computer in a locked lab. I transcribed six interviews by hand, and I used a transcription service for the remaining interviews. Using a coding and conceptualization process rooted in the grounded theory method (Charmaz, 2014; Glaser et al., 1968), I analyzed community member narratives and exemplars of tobacco use and oral health in detail. This allowed for in-depth analysis and identification of common themes and significant tobacco-related exemplars. I developed a codebook to guide my analysis and analyzed interview and focus group data utilizing ATLAS.ti 8 (2017). Lastly, I identified potential gaps in understanding of the interconnectedness of tobacco use and oral health, including identifying specific risk factors that contribute to these inequities and other mechanisms that impact persistent poor health outcomes.

FINDINGS

In the following I highlight findings from interviews conducted with Black, Hmong, and Latinx community members living in Madera, Merced, and Stanislaus Counties. First, I focus on three social conditions which I posit serve as fundamental causes (Link & Phelan, 1995) of persistent disparities, and provide empirical examples. I explore poverty, rurality, and exposure as social conditions, from the perspective of community members. These data, coupled with the perspectives of providers reported in Chapter 2, illustrate the profound and persistent effects of poverty on oral health and tobacco exposure in this region. I have incorporated salient quotes and summaries of conversations with community members on their perceptions of oral health, tobacco use and how living and growing up in the Central Valley connects to these two topics. From the first to the last interview, the difference between the stories and experiences I was hearing from those collected in provider and program staff interviews became apparent. My first interviews (n=18) were conducted in-person, and the last interviews (n=12) were conducted via Zoom due to the ongoing COVID-19 pandemic beginning in March 2020.

Poverty as a Social Condition

Those who live and work in the Central Valley are no strangers to poverty and have seen the cycle of poverty throughout their lives (Census, 2020). For many, choosing to go to the dentist for themselves or a family member meant sacrificing something else like paying a bill or groceries for the week. Having to choose between what to prioritize also meant that dental care was not at the top of the list. Interviews with SJV community members clarified that there was an overall inability to afford necessary dental care.

Community members reported that the cost of dental care discouraged them because affording dental services was often out of their range or meant they would not have enough to pay for other bills. The inability to afford dental care was twofold: poverty (i.e., low paying jobs, lack of employment, cost to travel to dental clinics) and lack of insurance coverage. Some families reported being just above the threshold for qualifying for Medi-Cal and Medi-Cal Dental, while others described not being able to find providers who take Medi-Cal Dental patients, thus were not able to afford care. Of the clinics that did accept patients with Medi-Cal Dental or no insurance, it was difficult to get an appointment. There were also some dental care procedures not covered in full by Medi-Cal Dental, usually restorative care procedures. This meant people would need to enroll in a payment plan to cover the additional costs or most often, go without the restorative care. One Latino community member from Stanislaus County shared that he had never had dental insurance, despite being employed at the same place for eight years*: "I don't have dental insurance... I never have and there are not clinics or dental places that will take me."*

I interviewed a Black community member from Merced County who expressed concerns about her oral health and others in her family. As a past smoker, she expressed knowing dental care was important. She shared, "I am sure I have more issues than just stains from smoking", however she felt she was unable to go to the dentist due to insurance status and being low income. During the interview she said, "finally being able to be approved for Medicaid was going to help a lot". Her tone changed to one of disappointment when she talked about going to the dentist two years prior and being told that most of the services she needed were not covered in full or not covered at all. She tried to get a second opinion, but after she and her daughter called several dental offices, all, with the exception of one clinic 40 miles away, did not take Medi-Cal Dental. She continued, "I need a lot of dental work done. I am a past smoker, and it really effected my smile and my teeth. I cannot afford to fix my teeth… the cost it too high and not many dentists take Medi-Cal."

Another Black community member from Merced County I interviewed was eager to share about her experiences. She was "a past smoker, turned anti-tobacco advocate" due to losing a parent to tobacco-related diseases. She said smoking was a norm growing in the Merced and Dos Palos. She started smoking at the age of 13, after being the one asked to go buy cigarettes for her aunt and uncle almost every day. She said she did not see the link between tobacco use and oral health until she was an adult and went to the dentist for the first time. She said she would never forget when the dentist told her that in order to "fix all her problems" they would need to schedule a number of appointments, surgeries and that her insurance would only cover a small portion. When the community

member asked for a "quote" on the cost for dental services, she was told at least $10,000.00. This figure discouraged her in such a way that she had not been back to the dentist since. As she stated, "I have not been to the dentist in 10 years… I will only go if I have a dental emergency… The dentist is too far and too expensive."

Related to cost and touching on cultural consonance, many community members shared stories of their family members or themselves going to Mexico for dental care versus finding care in their County or California more broadly. A few Latino/a/x participants talked about the money they'd save going to Mexico for their oral health needs. For example, one participant said she was quoted $2,500.00 for fixing two teeth and was able to get the "same work done in Mexico for $200.00". She was not the only one; another Latina community member from Madera County discussed instances where she would go with her family members to Mexico for dental care throughout her childhood.

> *I can also remember my mom, my tia (aunt), and grandma would go to Mexico for any dental needs they had to avoid American dentists and save money… They also preferred going where people know the language… Spanish… One time my mom said she would save over $3,000.00 on dental work she and my grandma needed, and my dad happily gave her $800.00 for gas and the costs of fixing their teeth… I did not get to go that time because I was in school.*
>
> – Latina Community Member, Madera County

Rurality as a Social Condition

Rurality plays a crucial role in the ability of community members to get to and from dental offices and clinics. The Central Valley is also known for being a health care provider shortage area, in this case meaning there are fewer dental care providers in the region (HRSA, 2021). Several community members discussed having to travel 50+ miles to a dental clinic and over an hour or two each way. Due to these challenges in distance and transportation, community members often chose not to go to the dentist unless it was for an emergency or required by their child's school. Because of these delays in care or only seeking care in emergency settings, community members expressed great fear and mistrust of the dentist stemming from their experiences.

Community members discussed their experiences with seeking dental care in the Central Valley at length. Many shared they were fearful of the dentist and described their reasons. One of the primary reasons that people feared the dentist was because their last encounter(s) with the dentist were in an emergency setting (i.e., the emergency room) or when their oral health was at its worst (i.e., severe pain, infection, injury). Community members described having missed the opportunity for preventative care and expressed trauma and discomfort surrounding dental visits. In some cases, community members rated their oral health as poor but dreaded the idea of how painful restorative care would be. One Hmong community member from Merced shared, "I have only been to the dentist twice, and both times was because of a supposedly life-threatening infection…abscess I guess they call it."

Other reasons for fearing the dentist surrounded connecting dental visits to pain and trauma as a child. One Black community member from Madera discussed how the only time she had been to the dentist was when her face had swollen up in grade school and the school sent her to the closest emergency room (ER), which was about 25 miles away. She shared, "Going to the dentist is the last thing I would ever want to do… the last time I went, I experienced so much pain… I never want to go through that again."

Community members discussed the many challenges of being able to utilize dental services for themselves and their family and how most would rather not go unless they absolutely had to. Some community members had only been to the dentist when school or insurance required that they go. For example, two individuals from Merced County shared that Medi-Cal and Medi-Cal Dental (California's version of Medicaid) required their mothers to take them annually when they were under 18. They both felt this was the only reason they went to the dentist as kids and "hated" the experience every time because the wait was long and dental work was painful. One Latina community member in Merced shared how her dislike of the dentist stemmed from going as a child because "the school told their mom they had to go". She remembered her mom having to borrow a van from a church member to take her and her three siblings to the dentist and they were scared to go.

> *Since before I can remember, I have not liked the dentist. My mom only took us a few times because we were scared of the dentist… She did not go because she felt the dentist wanted her to pay a lot of money and she did not have insurance… She thought they were lying to her to get more money, which we did not have…*
>
> – Latina Community Member, Merced County

When asked about their experiences in a dental office, many individuals described how cold and unwelcoming these spaces seemed and how this added to their fear and anxiety. One Latina community member from Merced vividly described the "cold gray walls and serious looking receptionist" at a local free clinic. She said "no one ever looked happy at the clinics, not the staff, not the patients…" She also said that they had overheard the dentist complaining time and time again about seeing younger patients with parents that did not speak English. This added to their feelings of anxiety and not feeling welcome.

> *Growing up I would always translate for my mom. She knew some English, but medical and dental terms were harder for her. I was usually nervous to help, and it was worse at the dental clinic we went to in Merced, but I remember staff speaking really fast and not being patient with us… This was another reason we did not like going to the dentist.*
>
> – Latina Community Member, Merced County

When discussing dental care with community members, several people mentioned one dental clinic franchise/chain, in particular, as not providing good care, treating patients and families poorly, and "taking advantage of people". This is worth mentioning, as the same clinic franchise came up in most interviews and had locations in each county.

This clinic was often the only dental care facility people had access to due to proximity/location and insurance status. Community members provided explicit examples of "horrible" dental care experiences and long waits due to overbooking and limited staff. Several community members described patients who were paying out of pocket or had "better", or "preferred" insurance (private insurance) were treated more quickly and prioritized. Better or preferred insurance meant any non-Medicaid insurance and those who did not lack insurance coverage. Community members depicted lobby scenarios of parents trying to communicate with clinic staff with no interpreters available to help translate. These sorts of experiences impacted the way many people viewed going to the dentist and created a sense of mistrust.

In these rural and semi-rural counties, there is a great deal of diversity and representation from different cultural groups. Mistrust and desire for culturally competent care was also described in interview narratives. Community members described preferring providers that shared a cultural background and language. I interviewed four Hmong community members and each one spoke about travelling to the closest Hmong speaking dentist for themselves and/or their family members. Each described that they would have to travel over an hour's distance from Merced to Clovis or Fresno, both in Fresno County, to see a Hmong dentist. In addition to the challenge of distance, the limited number of Hmong dental providers meant the demand on these providers was high and waits were long. Another challenge described was the responsibility of getting older Hmong individuals to the dentist that often fell on their children and/or grandchildren, who would need to take time off work or miss school (high school or college). Hmong youth would often act as interpreters, due to the absence of and limited dental/medical terminology in the Hmong language. As one Hmong community member from Merced County told me, "The closest place we will and can go to the dentist is Fresno. This is two hours away. My parents won't go anywhere else… This is the only Hmong dentist we know of and the only dentist they trust…"

SES and rurality play a crucial role in whether people had access to a vehicle of their own or even access to a family member or friend's vehicle. In many cases, interviewees described what it was like using the bus and ride share services (i.e., taxis, Lyft, Uber, or carpooling). One of the Latina mothers I interviewed described her struggles with getting her family to the dentist and how due to unforeseen cancellations, she was reluctant to go. "To go to the dentist for myself or for my kids, I would have to take a bus for 3 hours one way and 3 hours back. I did this before and one time we got there [to the dental office] and the appointment was cancelled." (Latinx Community Member, Merced)

Rurality also plays a role in families seeking certain specialty dental services. For example, those with children on Medi-Cal Dental who needed oral surgery or procedures that required sedation would need to travel to Salida, California which is over an hour drive for many people. Although not an uncommon phenomenon, of those I interviewed who were parents and grandparents of younger children and teens, most described prioritizing the oral health of their children and grandchildren over their own and being willing to drive further. As described by a Latina community member from Madera County:

> *It may sound bad, but I will take the time off and travel to my son's and daughter's dentist appointments at a clinic that is good for kids… I just have a hard time justifying taking time off to go for myself. It is a 45-minute drive one way to a dentist that takes my insurance, and I would rather use my limited PTO for my kids… I keep hoping the dental office down the street will start taking new patients.*
>
> – Latina Community Member, Madera County

Exposure as a Social Condition

Exposure to tobacco-related products and advertising was not uncommon for community members in the Central Valley. Community members discussed lifelong and generational tobacco use. Community members I interviewed had been impacted by tobacco one way or another and this had implications for their oral health later in life. For some there was a very personal connection to tobacco use, while for others tobacco use did not impact them as directly. The one commonality among community members was the exposure to tobacco and/or tobacco advertising during their youth. One of the Black community members from Stanislaus County I interviewed discussed what it was like growing up in a home of smokers. The smoke did not bother her until she started going to school and kids ridiculed her for the way she smelled of cigarette smoke. She continued to tell me that she went home and told her mother what the kids were saying. She remembers her mother feeling bad and although she could not recall exactly when, her mother stopped smoking shortly thereafter and her father and grandmother started only smoking outside. She never forgot how meaningful this was, as many of her friends' parents never quit smoking.

> *Smoking was not a problem or something to be ashamed of in our family… Everyone I looked up to smoked and they were not bad people. I did not start smoking nor was I encouraged to, but to this day I do not judge people… My dad smoked to deal with stress and said it was better than drinking. My grandma smoked because it helped her relax and feel less sad. My mom quit when I started elementary because kids would make fun of us… She [my mom] said all the women smoked in her family, but she was glad she stopped and that I did not start.*
>
> – Black Community Member, Madera County

A Black community member from Merced County I interviewed spent most of his life in Dos Palos but had lived in Merced for the previous six years. He worked with youth at a nearby school and said Merced was a much better place for youth to live. In Dos Palos, tobacco use and smoking was commonplace, and you would see advertisements and cigarette litter everywhere. The community member had started buying cigarettes for his family members as a kid and did not mind because he "got to keep the change [laughter]." He [the community member] did not see it as harmful, and it did not seem like anyone else did either. He felt that growing up alcohol and gang violence were much more of an issue than tobacco use, and that "using cigarettes and

cigars made you look older and cooler". It wasn't until he started going to junior college that he learned about the health issues that come from using tobacco products and how tobacco impacts oral health.

> *Now that I know more about tobacco, I see it as a generational curse. Tobacco has impacted our [Black] communities more than any other. I have seen many friends and family members die from tobacco related complications and honestly tobacco has kept us in poverty, especially in Dos Palos. Many like me don't see the problems with smoking other than the smell… it definitely impacts your teeth too… and now it [tobacco] is impacting the youth with vaping and e-cigarettes and kids are getting suspended and expelled for that nonsense… I am sad for Black and Brown kids who are usually the target and the ones in trouble.*
>
> – Black Community Member, Merced County

Similarly, another Black community member from Stanislaus County shared, "all my friends smoke, and I smoked, it was the thing to do back in the day." Growing up in Stanislaus County (specifically Modesto) and moving to Merced was a hard transition for him. His father had lost his job and his family needed to move in with his grandma. He could recall his father started smoking a lot more once they moved and this was a source of conflict in the home. He recalled starting to smoke in junior high and having friends whose older brothers or cousins would get them Newports (menthol cigarettes) from the corner store. He shared, "back then, they [cigarettes] were not as expensive and easier to get" and "by the time I was in high school, the store owners knew me by name and would save me packs each Friday when I got paid". He said that as a community advocate now, he wishes he would have known that Black people, like himself, were sought out to buy tobacco products.

> *It is one of those situations that if I had only known, I would have not smoked at all. I would have saved money and been in better health to this day. I don't smoke anymore, but I am still dealing with the consequences… and boy would my teeth look better. Oral health is another one of those things you don't really think about when you are a smoker… You just think about it maybe impacting your lungs and breathing.*
>
> – Black Community Member, Stanislaus County

Most community members I interviewed identified a clear link between exposure to tobacco and oral health outcomes. Several interviewed were past smokers, a few were current smokers, but only one described receiving cessation information from the dentist. Community members who stopped using tobacco products attributed the decision to family members influence and/or the cost of tobacco products rising. Some shared that their appearance and teeth became more of a priority as they got older, and stopping smoking helped with this. Several discussed wishing, they had known more about tobacco's impact on their oral health, not simply the impacts of tobacco on lungs. Youth accessing tobacco products like vaping devices and e-cigarettes was of great concern and some suggested having programming around oral health and tobacco focused on youth as

"youth nowadays seem to care a lot about their appearance." [Black Community Member, Merced County]

DISCUSSION

Using fundamental cause theory (Link & Phelan, 1995), this chapter illustrates community members' perspectives and experiences with oral health and tobacco. Community members identified three social conditions – poverty, rurality, and exposure – that increase rural individuals' risk of being at risk for poor oral health outcomes. Community members highlighted their personal histories and living situations in this rural region, and how this impacted their perceptions of dental care and use or non-use of tobacco products. Each community member interviewed described their racial/ethnic background, their social location, and geographical location. Many elaborated and spoke about their upbringing, current and past family dynamics, and their impressions of health in the Central Valley overall. Interviews conducted with community members were longer and more detailed than the interviews described in chapters two and three conducted with providers and essential staff who worked for government agencies and community-based organizations. This may be due to community members sharing personal stories and examples and relating topics to not only themselves but to close family members and friends. These interviews highlighted why poverty, exposure, and rurality are important to explore in this specific context.

Community members discussed the clear implications of poverty and rurality on their ability to access oral health care and how this played a role in their exposure to tobacco products. Those who identified as Latino/a/x and Hmong described distinct challenges finding dental providers with similar cultural backgrounds and who speak the same language. Due to these barriers and limitations, community members travel long distances to receive care from providers with these characteristics. Latino/a/x community members would travel as far as Mexico for care (Garner, 2019; Macias & Morales, 2001; Vargas Bustamante, 2020) and Hmong community members would travel over an hour one way for a Hmong dentist.

Several community members connected their fear of going to the dentist that began when they were in their youth to having accessed dental care in emergency settings (i.e., infections or pain requiring an ER visit). When community members encountered the dentist when their oral health was at its worst, they missed the option for preventative care and expressed deep trauma about pain and discomfort from needing restorative care. In some cases, they had infections that were potentially life threatening and had only been to the dentist or had dental type care in an emergency room. For many community members, this trauma and fear carried into adulthood and added to their reluctance to go to the dentist. There were also those who had horrible dental care experiences at local clinics due to those areas being short staffed and dentists being less interested in serving low income, non-English speaking patients.

The overall inability to access and afford dental services due to poverty and insurance status was made very clear. In many of these rural areas, where there was already a provider shortage, providers did not see new patients and more specifically, did not see patients who had Medi-Cal Dental. This significantly decreased dental care

options for low-income community members and families in the Central Valley. This issue of access and affordability extended to those with insurance as well. Even those who had insurance said that the work they needed due to limited access to dental care before was too expensive and they would rather prioritize basic needs (i.e., paying rent, buying groceries). Most knew the importance of dental care, but also had to be realistic with their budgets and time.

Two additional barriers to seeking care in rural areas of the Central Valley described in interviews were transportation and distance. There are some areas in each county that were 50+ miles from a dental office or clinic. This coupled with limited access to transportation, created extremely difficult situations for individuals and families. Community members interviewed each had a story or experience that discussed how far dental care was. For those who used the bus system in their County, it was difficult to schedule appointments and manage this with their work schedules. Some bus schedules were consistent, while others were sporadic and would take hours to get from one place to another. Trying to navigate transportation with young children made going to the dentist more discouraging and inconvenient. There were community members with no access to transportation who relied on family, friends, or church members for rides to appointments, which was not always an easy ask for them. Distance coupled with the expense of gas and missing work made decision making around seeking dental care difficult for low-income individuals and families.

Tobacco use and exposure to tobacco products impacted community members individually and their family and friends. Tobacco use also had severe implications for self-reported oral health (i.e., tooth loss, periodontal disease, yellow teeth, oral cancer) and overall health (i.e., COPD, lung cancer). The presence of tobacco in homes and in the surrounding environment and community was described as normal. Community members recalled seeing advertisements at corner markets and stores from a young age and several discussed being the one to purchase and light cigarettes for their family members. Community members did not note the consequences of tobacco use until later in life and expressed deep concern about youth as vaping is trendy and becoming normalized as well.

LIMITATIONS

This research was conducted with community members from three counties within the Central Valley. One limitation to this research is only four interviews were conducted with Hmong individuals and these were conducted in English. Future research would benefit from additional in-depth qualitative interviews with Hmong individuals. Another limitation is the shift from in-person interviews to virtual interviews. A number of interviewees originally scheduled either (1) did not feel comfortable interviewing virtually or (2) did not know how to use Zoom.

IMPLICATIONS

Findings suggest the need for (1) advocacy for accessible dental services for those in rural cities and counties, (2) advocacy for rural dentists to accept Medicaid (Medi-Cal

Dental) patients and families, (3) education on the impacts of tobacco use on oral health on overall health, and (4) recruitment of ethnically diverse providers.

(1) Increasing access to mobile dental care is a potentially viable option to ease access and transportation challenges. This is of particular importance for those in rural areas with migrant populations who need affordable and culturally and linguistically appropriate dental care.

(2) Advocating for dental care professionals to accept Medi-Cal Dental patients, including reducing dental cost premiums and reducing the "red tape" for getting most dental care services approved.

(3) Limiting youth access to tobacco-related products. This is of growing concern, as there is limited research on the long-term impacts of vaping and e-cigarette use on oral health. Educational programming and resources focused on oral health and tobacco use is crucial for individuals and families in the Central Valley. As research indicates, cessation conversations between patients and dentists can be very effective (Holliday et al., 2021).

(4) Recruiting ethnically and linguistically diverse dental care professionals that reflect the population of the region. This is important as individuals and families often look for providers that share a cultural background.

CONCLUSIONS

This chapter addresses oral health and tobacco use in the Central Valley. Tobacco-related health disparities disproportionately affect Blacks, Hmong, and Latinx, especially those with lower income, increased exposure to tobacco and residence in rural areas, as these groups are often specifically targeted by tobacco marketing and have greater access to tobacco products than oral health services (i.e., preventative care) and basic needs (e.g., nutritional food, affordable housing). Tobacco-related oral health disparities in rural, communities of color need to be addressed as poor oral health outcomes continue to be prevalent and have devastating effects on children, teens, adults, and older adults.

Fundamental causality presents both a challenge and an opportunity for researchers in public health, social and behavioral sciences, policy makers and social justice advocates to better understand the mechanisms that impact how tobacco use and oral health disparities persist across time and contribute to overall poor health outcomes. To date, very little qualitative research on tobacco use and oral health uses fundamental cause theory (Link & Phelan, 1995; Phelan & Link, 2013, 2015) as an approach. Using fundamental cause theory to contextualize the social conditions that put these populations at greater risk of being at risk provides an opportunity to fill the gap in research, specifically pertaining to understanding perpetual, unjust health inequities among Black, Hmong, and Latinx populations.

CHAPTER 5: Conclusion

The dissertation research reported herein explores the lived experience of those who live and work in California's Central Valley and how they perceive the oral health and tobacco environments. This dissertation is comprised of three foundational chapters. Evoking fundamental cause theory (Link & Phelan, 1995), the overarching themes of this research are (1) how poverty is associated with poor oral health care access and oral health outcomes, (2) the impacts of rurality on oral health, and (3) how increased exposure to tobacco in the environment effects oral health and overall health outcomes across the life course. These social factors increase risk of being at risk for poor health among rural, marginalized individuals.

Across the chapters of this dissertation, I explore narratives of rural community members, oral health providers and essential staff to provide a detailed description of the complexity of oral healthcare in a region with a dental provider shortage. These narratives highlight the implications of rurality, poverty and tobacco use on oral health outcomes. These narratives also illustrate the importance of engaging differently positioned individuals to enable a detailed description of the complex barriers, challenges, and intervening mechanisms to accessing oral health care. Using fundamental cause theory (Link & Phelan, 1995) to analyze this qualitative data enabled me to conduct an in-depth analysis of underlying factors and variable mechanisms that impact oral health, overall health, and the role of tobacco. Poverty and rurality had a profound effect on marginalized and underserved communities, including those who identify as Black, Hmong, Latinx, and older adults.

Chapter 2, my first foundational chapter, employs fundamental cause theory to explore oral health and tobacco use among aging and older adults in the Central Valley. This chapter highlights the oral health challenges and barriers that exist for aging and older adults and the impacts of tobacco use on oral health throughout the life course. Providers interviewed described the social conditions of poverty, rurality, and age as mechanisms through that limited access to care and quality of oral health. This highlights the need for more mobile options for those who are homebound, or facility bound in rural areas of the counties. Participants also described their patients who were current or past smokers not being aware of the implications of tobacco use until later in life, when restorative care was the only option to improve their oral health. From the perspective of dental care professionals and essential staff that serve older adults, I conclude that rural older adults need access to affordable dental care options and an increase in accessible care, like mobile dentistry, is crucial for their oral health and overall health.

Chapter 3, my second foundational chapter, explores dental care professionals' and essential staff in the Central Valley perceptions of the social conditions that underly tobacco-related oral health disparities and the challenges and barriers that exist around oral health care and tobacco use and cessation. These social conditions include education and health literacy, exposure, and poverty. Providers and essential staff described the importance of having conversations about how tobacco use impacts oral health versus only impacting the lungs. This chapter also details the importance of education and awareness about vaping and e-cigarette use, especially among youth. From the perspective of dental care professionals and essential staff that serve low income and

rural marginalized groups, I conclude there is a clear link between oral health, tobacco use and overall health. It is important that we increase access to dental care services to rural communities and promote collaborative efforts to disseminate educational information on oral health and tobacco use, specifically, materials focused on vaping among youth and chewing tobacco use that is linguistically and culturally appropriate.

Chapter 4, my third foundational chapter, explores community members' lived experiences as related to oral health and tobacco use in the Central Valley and details the roles of poverty, exposure, and rurality on health. The inability to afford care and past tobacco use are two primary risk factors community members described that had a significant impact on their oral health to date. From the perspective of Black, Hmong, and Latinx community members, I conclude exposure (tobacco smoke and advertising), geographic rurality (geographic location), poverty - including income and insurance status - and lifetime exposure to tobacco have important implications on the oral health and overall health of community members living in the Central Valley.

The research described in my dissertation provides empirical evidence and support for the use of fundamental cause theory to study oral health and tobacco disparities. Oral health and tobacco-related disparities involve numerous social conditions and variable mechanisms that are "factors that put people at risk of being at risk" (Link & Phelan, 1995). Oral health is also predictive of one's overall health and tobacco use, and exposure have clear implications on one's oral health (Al–Mahozi et al., 2017). Thus, it is important to explore how these associated mechanisms effect health outcomes and how to apply the crucial fundamental causes to tailored interventions based on several factors, instead of one or two.

This dissertation highlights the synergistic effects of poverty and low health literacy. As Lutfey and Freese contend, "When knowledge exists of how to prevent, treat, or manage disease, then those with greater resources are better able to take advantage of this knowledge to attain lower likelihoods of adverse health outcomes" (Lutfey & Freese, 2005, p.1328). If culturally and linguistically appropriate health information is provided and disadvantaged populations are both able to access and utilize this health information and experience economic and housing security, oral health and tobacco related health inequities may be more adequately addressed and reduced.

IMPLICATIONS

Preventable and perpetual oral health and tobacco-related disparities are just two of the many health inequities that significantly impact Blacks, Hmong, Latinx and older adult populations. This presents both a challenge and an opportunity for researchers in public health, social and behavioral sciences, policy makers and social justice advocates.

Implications for Practitioners

Both dental care professionals and community members discussed the implications of poor oral health and how oral health is a priority despite barriers such as affordability and access to care (i.e., limited providers, distance to care). Participants described how untreated oral diseases can affect one's quality of life. This includes:

smiling, eating, appearance and confidence, chronic pain, etc. Regarding the impacts of tobacco on oral health, findings across chapters highlight a potential disconnect between community members and providers. Providers discussed having conversations with patients who used tobacco products, however only one community member shared their dental provider had talked to them about tobacco. It is crucial to increase community awareness about the impacts of tobacco use on oral health (and overall health) through education and/or referral to cessation resources. Due to the transportation challenges for individuals and families living in rural areas, I argue practitioners should consider providing more flexibility with appointments. Additionally, there is a need for culturally and ethnically diverse providers.

Implications for Researchers

The detailed descriptions included in this dissertation highlight the value of an inductive approach to understanding the ways in which tobacco use and oral health impact lives of older adults and Black, Hmong, and Latinx community members and the ability of providers to support them. Although there are some limitations, using fundamental cause theory (Link & Phelan, 1995) to inform this research acknowledges mechanisms that influence inequities and how these effect the persistence of health disparities. My contribution is the application of this approach to qualitative oral health and tobacco research in rural settings.

Implications for Policymakers

This dissertation research has implications for policymakers in two ways. First, it is important to continue advocating for the inclusion of dental care benefits in Medicare. As discussed in Chapter 1, excluding dental benefits from Medicare leaves an important gap in care, that has implications for overall health attainment. Older adults who are eligible for Medicare and do not have dual eligibility (also meaning Medicaid eligible), are required to pay out of pocket for care. For those who cannot afford dental care, especially preventative care, they often forego care or only receive care in emergency settings (i.e., an ER visit or having teeth extracted versus saving their teeth). For example, providers in Chapter 2 illustrated that older adults will opt to have teeth pulled versus paying for the costs of restorative care. Continued advocacy for the inclusion of dental services for individuals with Medicare is crucial for older adults who cannot afford the out-of-pocket costs of care. It is important that policymakers work with tobacco policy advocates and promote policies that limit youth access and targeted exposure to tobacco products. And lastly, the health care provider shortage needs to be addressed throughout the Central Valley.

Limitations

This dissertation addresses perceptions of oral health and tobacco use from the perspectives of (1) dental providers, (2) governmental agency staff, (3) community-based organization staff, and (4) community members from three rural and semi-rural counties

in the Central Valley. I provide a rich and contextual understanding of the social conditions that lead to adverse health outcomes. However, this was conducted in three counties in one rural region, thus findings may not resonate with the perspectives and experiences of providers and community members in urban or more affluent areas.

It is important to note that provider and essential staff interviews were conducted in 2018, prior to the current COVID-19 pandemic (2020-2021) and perspectives may have shifted. Community member interviews were conducted in-person and virtually, which impacted the participation of some potential interviewees. Overall, this work warrants additional qualitative research on oral health care and access among providers, Blacks, Hmong, Latinx, and older adults during and post COVID-19 pandemic.

Next Steps

Findings and any related reports will be made accessible to community groups and community members and providers in the Central Valley. I presented pieces of this dissertation at conferences and will edit each foundational chapter in the format of three peer-reviewed manuscripts describing the outcomes of qualitative interviews. The results of the interviews will add to the literature on the tobacco-related oral health perceptions of Black, Hmong, Latinx, and older community members, essential staff (governmental agency and community-based organization staff), and dental care providers in California's Central Valley.

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