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RESEARCH REPORT

Discrimination Reduces Utilization of Routine Dental Care

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Key Findings

- Increased exposure to lifetime discrimination experiences is associated with a decreasing likelihood of having a routine dental visit in the past 12 months

Participants that reported 4 or more discrimination experiences were

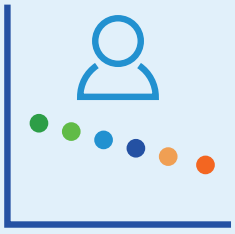
36% less likely to have a routine dental visit in the past 12 months

- Among other factors included in the analysis:
  - increasing age,
  - being female,
  - being insured,
  - higher income status,
  - having an education status of college or more and
  - good overall physical health

were all significantly associated with having routine dental visits

Introduction

Discrimination tied to immutable characteristics such as race, gender identity, and sexual orientation exists as both a symptom and a driver of inequities in health and oral health.[1] Discrimination is also associated with long-term detrimental health outcomes, including lower self-esteem, especially among those experiencing interpersonal racial discrimination.[2,3] As such, discrimination, and the subsequent resulting trauma, produce poor health outcomes for communities that face overlapping systematic barriers to health and well-being.[4] These experiences and outcomes of discrimination compound over time, affecting the ability to achieve personal growth and development, as evident in the relationship between educational attainment and household income.[5]



With every additional discrimination experience participants were 6% less likely to have a routine dental visitin the past 12 months

Limited dimensions of discrimination have been documented within health care.[6,7] However, the relationship between the experience of discrimination and the utilization of routine dental care is not well known. Understanding this relationship is critical given the historical and pervasive degrees to which discrimination exists, coupled with the compounding relationship between disparate oral health outcomes and dental care utilization among those more likely to experience discrimination.[8-10]

In this study, we define discrimination as the accumulation of socially structured actions resulting in unfair or unjustified harm to the individual over the course of their lifetime.[11] We used a measure designed to capture experiences of unfair treatment that can affect life chances, such as job loss or being denied medical service. We hypothesize that participants with a greater exposure to such experiences will be less likely to utilize routine dental services. This report contributes to a necessary health equity dialogue focused on dismantling systems of oppression by addressing the intersectional dimensions of oral health and discrimination.

In this study, we define discrimination as the accumulation of socially structured actions resulting in unfair or unjustified harm to the individual over the course of their lifetime.

Methods

Data for this study came from the National Survey of Midlife Development in the United States (MIDUS) Refresher (2011–2014).[12] The MIDUS Refresher is a national probability sample of 3,577 adults aged 25–74 years.[13] Participants were selected using a combination of random-digit dialing (RDD) to landlines and cellphones of noninstitutionalized English-speaking adults in the United States. Further details on the MIDUS data and methodology are available elsewhere.[12]

Dependent variable

Experiencing a routine dental visit in the past 12 months served as the dependent variable in this analysis. The analytical sample for this study was limited to 2,499 participants that had valid responses for the question, *"In the past 12 months, how many times did you visit a dentist for a routine check-up or exam?"* The dependent variable was coded as 0 for no dental visits and 1 for one or more dental visits.

Primary Independent variable

Lifetime discrimination served as the independent variable and was measured using self-reported experiences in the question: *"How many times in your life have you been discriminated against in each of the following ways because of such things as your race, ethnicity, gender, age, religion, physical appearance, sexual orientation, or other characteristics?"* Lifetime discrimination experiences across 11 items were evaluated, including: 'discouraged by a teacher or advisor from seeking higher education', 'denied a scholarship', 'not hired for a job', 'not given a job promotion', 'fired', 'prevented from renting or buying a home in the neighborhood you wanted', 'prevented from remaining in a neighborhood because neighbors made life uncomfortable', 'hassled by the police', 'denied a bank loan', 'denied or provided inferior medical care', and 'denied or provided inferior service by a plumber, car mechanic, or another service provider'. A continuous scale variable was created as a count of discrimination type across the 11 items (see Appendix 1). This measure has been widely used in studies of discrimination and is considered a valid and reliable scale.[15-21]

Covariates

Covariates were selected using Andersen's Behavioral Model of Health Service Use, a widely used theory of service utilization.[22, 23] This model contends that factors associated with utilization of health services can be grouped into three categories: predisposing (individual characteristics, i.e., age, gender, race), enabling (structural factors, i.e., insurance status, education status and household income status), and need (overall physical health). (Table 1).

Data Analysis

Weighted descriptive estimates were reported for all variables including perceived lifetime discrimination, age, sex, race, insurance, education status, income status and self-rated physical health, stratified by experiencing a routine dental examination in the past 12 months. Multivariable logistic regression models were conducted to test association between lifetime discrimination experience and routine dental examination visits, adjusting for age, sex, race, insurance, education status, income status, and self-rated physical health. A separate multivariable regression model was used to categorize the primary independent variable of lifetime discrimination experiences as no discrimination experience, 1–3 experiences, and 4 or more experiences. Descriptive analyses were weighted to account for the complex sampling design and to obtain nationally representative estimates. The threshold for identifying statistically significant associations was set at $\alpha = 0.05$.

Results

Table 1 provides weighted descriptive estimates for the study sample stratified by routine dental visits. Analyses indicated 72% of respondents reported at least one routine dental examination in the past 12 months. Mean count of lifetime discrimination experiences was higher in respondents who had no dental visits in the past 12 months (1.44±0.10) as compared to respondents who had at least one visit (0.99±0.04). The multivariable logistic regression model, which used lifetime discrimination as the primary independent variable, revealed that with every additional lifetime discrimination experience, participants were 6% less likely to have a routine dental visit. Among the 7 predisposing, enabling, and need factors included in the model, increasing age, being female, having dental or health insurance or both, having an education status of college or more, higher income status, and having good/very good/excellent self-rated physical health were associated with higher odds of having a routine dental visit (Table 2). Figure 1 shows adjusted predicted probability of at least one routine dental visit in the past 12 months by lifetime discrimination scale, where the predicted probability of a routine dental visit shows a linear decline with increasing discrimination experiences over the course of their lifetime. In addition, using lifetime discrimination experiences as a categorical variable, multivariable regression models showed that respondents who had discrimination experiences across 4 or more items were 36% less likely to have had a routine dental visit in the past 12 months.

Table 1. Weighted descriptive characteristics by routine dental visit in the past 12 months

	N=2,499		
	Mean (SE) or Percentage	No dental examination (n=611)	At least one dental examination (n=1,888)
Lifetime discrimination scale	1.12 (0.04)	1.44 (0.10)	0.99 (0.04)
Age	50.21 (0.30)	47.88 (0.63)	51.13 (0.33)
Sex			
Male	45.4%	30.9%	69.0%
Female	54.6%	25.8%	74.2%
Race			
White	84.1%	26.9%	73.0%
Black and/or African American	8.7%	32.7%	67.3%
Native American/Asian/Pacific Islander/other	7.3%	35.2%	64.8%
Insurance			
None	10.3%	67.6%	32.4%
Either dental or health insurance only	27.5%	39.9%	60.0%
Both	62.2%	16.3%	83.7%
Education			
Less than high school	6.9%	50.0%	50.0%
High school graduate	30.3%	40.1%	59.9%
College or more	62.8%	19.9%	80.0%
Income			
Less than $25,000	17.0%	45.9%	54.1%
$25,000-$49,999	17.5%	37.2%	62.8%
$50,000-$74,999	17.6%	22.7%	77.3%
$75,000 or more	47.8%	12.7%	87.3%
Physical health			
Poor/fair	17.8%	44.2%	55.8%
Good/very good/excellent	82.2%	24.6%	75.4%

Table 2. Logistic regression model examining factors associated with routine dental visits using lifetime discrimination as primary independent variable

	Odds ratio	95% CI	p-value
Lifetime discrimination scale	0.94	[0 .88, 0.98]	0.046
Age	1.02	[1.01, 1.03]	<0.001
Sex			
Male		Ref	
Female	1.58	[1.27,1.97]	<0.001
Race			
White		Ref	
Black and/or African American	0.92	[0.59,1.42]	0.693
Native American/Asian/Pacific Islander/other	0.74	[0.51,1.05]	0.094
Insurance			
None		Ref	
Either dental or health insurance only	2.33	[1.58,3.44]	<0.001
Both	6.24	[4.28, 9.11]	<0.001
Education			
Less than high school		Ref	
High school graduate	1.42	[0.83,2.43]	0.198
College or more	2.64	[1.58,4.39]	<0.001
Income			
Less than $25,000		Ref	
$25,000-$49,999	1.03	[0.75,1.41]	0.875
$50,000-$74,999	1.64	[1.16,2.31]	0.005
$75,000 or more	2.75	[1.99,3.79]	<0.001
Physical health			
Poor/fair		Ref	
Good/very good/excellent	1.56	[1.18, 2.06]	0.002

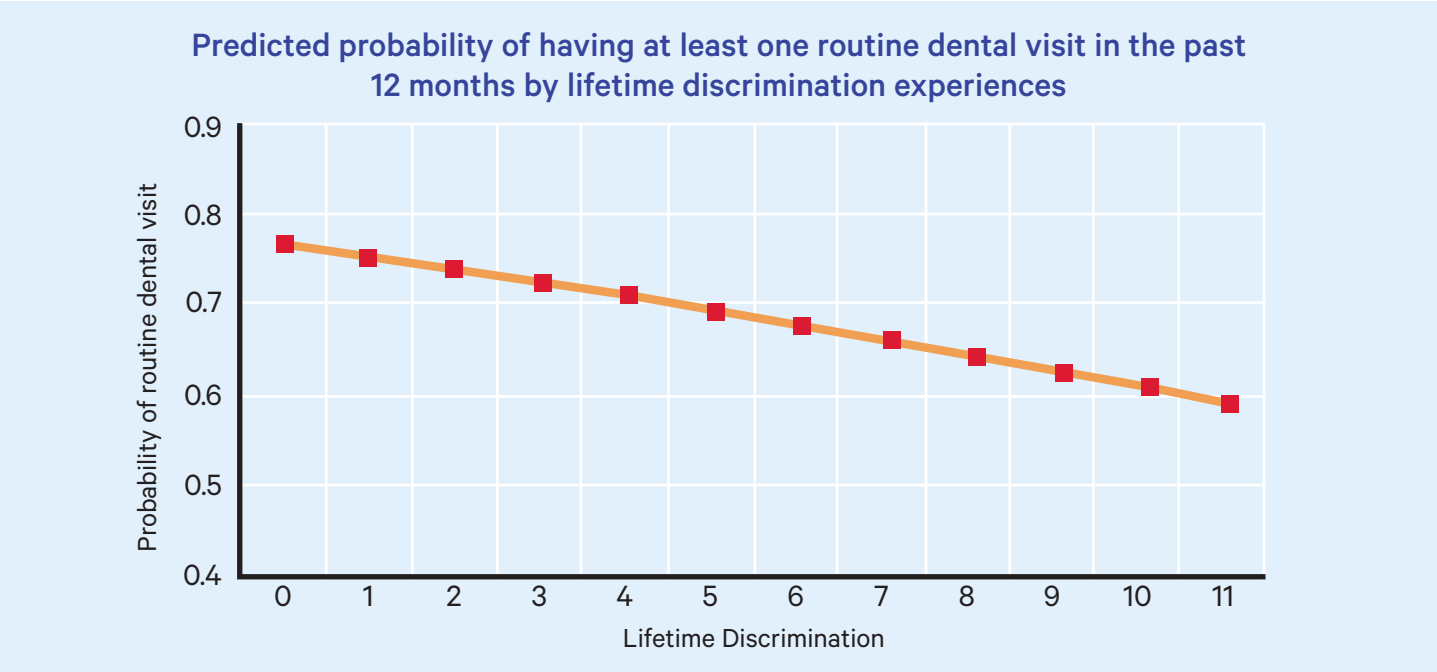


Figure 1: Predicted probability of having at least one routine dental visit in the past 12 months by lifetime discrimination experiences

Discussion

People who report discrimination experiences in their lifetime across a variety of factors, characteristics, and social environments are less likely to have a routine dental visit in the past 12 months. Moreover, this analysis shows a compounding and linear relationship whereby greater exposure to discrimination experiences across one's lifetime further decreases the probability of having at least one routine dental visit. This association can potentially be explained by Major and O'Brien's conceptual framework of stigma-induced identity threat where receipt of health care services is influenced by perceptions of discrimination experiences.[24]

Over time, repeated discriminatory experiences, particularly within a health care setting, creates mistrust or fear in marginalized communities that can further impede the probability of patients accessing needed care.

While dental disease is largely preventable, the potential implications from reduced utilization of routine and preventive care for individuals includes poor oral health outcomes as well as broader health impacts beyond the oral cavity.[25] Chronic lack of preventive care could precipitate more invasive and expensive treatment, resulting in an additional financial burden. Over time, repeated discriminatory experiences, particularly within a health care setting, creates mistrust or fear in marginalized communities that can further impede the probability of patients accessing needed care.[26]

Given that the lifetime discrimination scale is representative of multiple experiences of unfair treatment due to age, race, sex and/or other characteristics, efforts to reduce discrimination in order to increase the likelihood of accessing care must be multi-tiered and intersectional. The types of discrimination reported upon include those both inside and outside the medical care environment, suggesting that discrimination experienced outside the medical setting could impact the utilization of medical services, thus pointing to the potential for medical and cross-sectoral interventions.

There are several methodological limitations to this study. Gender was only captured as binary and therefore may be missing the experiences of gender diverse individuals, an already under researched area in all health sectors, including oral health. Further, due to the cross-sectional nature of the data we are unable to draw conclusions related to causal relationships.

Moving forward, more rigorous analysis of the causes and impacts of discrimination have the potential to uncover how individual behaviors connect to the systemic disenfranchising of certain populations, and vice versa. Health surveillance systems should seek to assess the impacts of discrimination, given its established connection with health outcomes. More longitudinal research is needed to understand long-term impact of discrimination on health outcomes, specifically within oral health. Dental offices should routinely provide staff training to promote an inclusive environment, understand the impact of discrimination on oral health and overall health, and practice trauma-informed care. The results of this study underscore the need to address historic disparities that can result in unmet dental needs, while modernizing the oral health system to create more equitable outcomes.

References

1. Davis BA. Discrimination: A Social Determinant of Health Inequities. Health Affairs Blog. February 25, 2020. Accessed October 29, 2020. doi:10.1377/hblog20200220.518458.
2. Goosby BJ, Heidbrink C. Transgenerational consequences of racial discrimination for African American health. *Sociology Compass.* 2013;7(8):630-643. https://doi.org/10.1111/soc4.12054
3. Versey HS, Curtin N. The differential impact of discrimination on health among Black and White women. *Social Science Research.* 2016;57:99-115. doi:10.1016/j.ssresearch.2015.12.012
4. DeLilly CR, Flaskerud JH. Discrimination and health outcomes. *Issues in Mental Health Nursing.* 2012;33(11):801-4. https://doi.org/10.3109/01612840.2012.671442
5. Halanych JH, Safford MM, Shikany JM, et al. The association between income, education, and experiences of discrimination in older African American and European American patients. *Ethnicity & Disease.* 2011;21(2):223-9.
6. Stepanikova I, Oates GR. Perceived discrimination and privilege in health care: the role of socioeconomic status and race. *American Journal of Preventive Medicine.* 2017;52(1S1):S86-S94. https://doi.org/10.1016/j.amepre.2016.09.024
7. Sabbah W, Gireesh A, Chari M, Delgado-Angulo EK, Bernabé E. Racial discrimination and uptake of dental services among American adults. *International Journal of Environmental Research and Public Health.* 2019;16(9):1558. https://doi.org/10.3390/ijerph16091558
8. Horowitz JM, Brown A, Cox K. Views on Race in America 2019. Pew Research Center Social and Demographic Trends Web site. https://www.pewsocialtrends.org/2019/04/09/race-in-america-2019/. April 9, 2019. Accessed October 29, 2020.
9. Schwartz SB, Sanders AE, Lee JY, Divaris K. Sexual orientation–related oral health disparities in the United States. *Journal of Public Health Dentistry.* 2019;79:18-24. doi:10.1111/jphd.12290.
10. Chazin S, Glover J. Examining Oral Health Care Utilization and Expenditures for Low-Income Adults. Hamilton, NJ: Center for Health Care Strategies, Inc.; 2017.
11. Office of Disease Prevention and Health Promotion, U.S. Department of Health and Human Services. Social Determinants of Health: Discrimination. Healthy People 2030 Web site. https://health.gov/healthypeople/objectives-and-data/social-determinants-health/literature-summaries/discrimination. Updated October 8, 2020. Accessed October 30, 2020.
12. Weinstein M, Ryff CD, Seeman TE. Midlife in the United States (MIDUS Refresher): Biomarker Project, 2012–2016. Inter-university Consortium for Political and Social Research [distributor], 2019-11-18. National Archive of Computerized Data on Aging Web site. https://doi.org/10.3886/ICPSR36901.v6
13. Brim OG, Baltes PB, Bumpass LL, et al. Midlife in the United States (MIDUS 1), 1995–1996. Inter-university Consortium for Political and Social Research [distributor], 2019-09-09. National Archive of Computerized Data on Aging Web site. https://doi.org/10.3886/ICPSR02760.v18
14. Williams DR, Yu Y, Jackson JS, Anderson NB. Racial differences in physical and mental health: socioeconomic status, stress, and discrimination. *Journal of Health Psychology.* 1997;2(3):335-51. https://doi.org/10.1177/135910539700200305
15. Essed P. Understanding Everyday Racism. Newbury Park, CA: Sage; 1991.
16. Feagin JR. The continuing significance of race: Anti-black discrimination in public places. *American Sociological Review.* 1991;56(1):101-116.
17. Luo Y, Xu J, Granberg E, Wentworth WM. A longitudinal study of social status, perceived discrimination, and physical and emotional health among older adults. *Research on Aging.* 2012;34(3):275–301. https://doi.org/10.1177/0164027511426151
18. Gonzales E, Lee Y, Padula WV, Jung LS. Exploring the consequences of discrimination and health for retirement by race and ethnicity: results from the Health and Retirement Study. July 2018. CRR WP 2018-6. SSRN Web site. http://dx.doi.org/10.2139/ssrn.3240735
19. Friedman EM, Williams DR, Singer BH, Ryff CD. Chronic discrimination predicts higher circulating levels of E-selectin in a national sample: the MIDUS study. *Brain, Behavior, and Immunity.* 2009;23(5):684-92. https://doi.org/10.1016/j.bbi.2009.01.002
20. Pascoe EA, Smart Richman L. Perceived discrimination and health: a meta-analytic review. *Psychological Bulletin.* 2009;135(4):531-554. https://doi.org/10.1037/a0016059
21. Beatty Moody DL, Waldstein SR, Tobin JN, Cassells A, Schwartz JC, Brondolo E. Lifetime racial/ethnic discrimination and ambulatory blood pressure: The moderating effect of age. *Health Psychology.* 2016;35(4):333-42. doi: 10.1037/hea0000270.
22. Andersen RM. Revisiting the behavioral model and access to medical care: does it matter? *Journal of Health and Social Behavior.* 1995;36:1-10.
23. Andersen R, Newman JF. Societal and individual determinants of medical care utilization in the United States. Milbank *Memorial Fund Quarterly.* 1973;51(1):95-124.
24. Major B, O'Brien LT. The social psychology of stigma. *Annual Review of Psychology.* 2005;56:393-421. doi:10.1146/annurev.psych.56.091103.070137.
25. DentaQuest Partnership for Oral Health Advancement. June 2020. Impacts Beyond the Mouth. DentaQuest Partnership for Oral Health Advancement. Boston, MA. DOI:10.35565/DQP.2020.4002
26. Meng X, Heft MW, Bradley MM, Lang PJ. Effect of fear on dental utilization behaviors and oral health outcome. *Community Dentistry and Oral Epidemiology.* 2007;35:292-301. doi:10.1111/j.1600-0528.2007.00315.x.

Appendix 1. Measures of major lifetime discrimination

Lifetime discrimination

a. You were discouraged by a teacher or advisor from seeking higher education.

b. You were denied a scholarship.

c. You were not hired for a job.

d. You were not given a promotion.

e. You were fired.

f. You were prevented from renting or buying a home in the neighborhood you wanted.

g. You were prevented from remaining in a neighborhood because neighbors made life so uncomfortable.

h. You were hassled by the police.

i. You were denied a bank loan.

j. You were denied or provided inferior medical care.

k. You were denied or provided inferior service by a plumber, care mechanic, or other service provider.

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