ORIGINAL REPORT: QUALITATIVE RESEARCH

Acceptability of Chairside Screening for Racial/Ethnic Minority Older Adults: A Qualitative Study

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Abstract: *An aging and more racially and ethnically diverse population, coupled with changes in the health care policy environment, is demanding that the dental profession both redirect and expand its focus. Challenges include providing comprehensive care for patients with complicated medical needs while improving access to care for underserved groups. The purpose of this study is to examine the acceptability of screening for hypertension and diabetes in the dental setting for African American, Puerto Rican, and Dominican older adults who attend senior centers in northern Manhattan, New York City. Focus groups were conducted with 194 racial/ethnic minority men and women aged 50 y and older living in northern Manhattan who participated in 1 of 24 focus group sessions about improving oral health for older adults. All groups were digitally audio-recorded and transcribed for analysis. Groups that were conducted in Spanish were transcribed first in Spanish and*

then translated into English. Analysis of the transcripts was conducted using thematic content analysis. Five themes were manifest in the data regarding the willingness of racial/ethnic minority older adults to receive hypertension and diabetes screening as part of routine dental visits: 1) chairside screening is acceptable, 2) screening is routine for older adults, 3) the interrelationship between oral and general health is appreciated, 4) chairside screening has perceived benefits, and 5) chairside screening may reduce dental anxiety. Reservations centered on 4 major themes: 1) dental fear may limit the acceptability of chairside screening, 2) there is a perceived lack of need for dental care and chairside screening, 3) screening is available elsewhere, and 4) mistrust of dental providers as primary care providers. This study provides novel evidence of the acceptability of screening for hypertension and diabetes in the dental setting among urban racial/ethnic minority senior center attendees.

Knowledge Transfer Statement: *The results of this study may be used by oral health providers when deciding whether to conduct chairside screening for medical conditions such as hypertension and diabetes that could affect, or be affected by, the oral health of their patients. Patient experiences of care—along with clinical outcomes, avoidable hospital admissions, equity of services, and costs—are important outcomes to consider in meeting the needs of an aging and racially and ethnically diverse US population.*

Keywords: African Americans, Hispanic Americans, aging, oral health, hypertension, diabetes

Introduction

In 2000, the release of the landmark US Surgeon General report titled *Oral Health in America* brought to the forefront the interconnected relationships between oral health and general health (US Department of Health and Human

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Services [USDHHS] 2000). Among its authoritative findings is that oral health is a “silent epidemic” with severe impacts on marginalized populations, including persons from historically disadvantaged backgrounds and older adults (USDHHS 2000). Using data from the 2009 to 2010 National Health and Nutrition Examination Survey (NHANES), Dye et al. (2012) found that complete tooth retention in adults aged 45 to 64 y was more common in persons living above the poverty line and non-Hispanic whites compared to persons living below the poverty line and Hispanics and non-Hispanic blacks.

Because the Medicare program for persons aged 65 y and older and disabled adults does not cover routine dental care, many older adults are unable to afford the necessary preventive and restorative treatments they need. In 2012, high-income beneficiaries were nearly 3 times as likely to receive dental care as low-income beneficiaries, of whom nearly three-quarters received no dental care (Willink et al. 2016). An analysis using 2014 National Health Interview Survey (NHIS) data found that regardless of age, income, or insurance type, participants reported that the costs associated with obtaining dental care were the most prohibitive of any type of health care and resulted in large numbers of people foregoing annual dental visits (Vujicic et al. 2016). New strategies must be devised, implemented, and evaluated to improve access to oral health care and enhance associated health outcomes for older adults who are at the highest risk of chronic oral diseases and general health conditions.

On the other hand, there is a segment of the population that visits a dentist and not a primary medical provider each year. Using data collected in 2008 as part of the Medical Expenditure Panel Survey (MEPS), Strauss et al. (2012) found that of the 24.1% of adults who did not access general outpatient health care, 23.1% visited a dentist. Hence, chairside screening for chronic conditions such as hypertension and diabetes with referrals to primary care where indicated has the

potential to identify persons who are unaware of their disease status, improve patient health, and lower costs if patients identified during screening in a dental setting are referred to a physician, complete their referrals, and start pharmacological treatment (Nasseh et al. 2014; Holm et al. 2016).

A conceptual model, titled *ecological model of social determinants of oral health for older adults*, was devised for thinking about mechanisms whereby social determinants at various scales influence oral health and related health outcomes, toward promoting healthy aging (Northridge et al. 2012). In this multiscale model, oral health in older adults is due to the lifelong accumulation of advantageous and disadvantageous experiences at multiple scales, from the micro-scale of the mouth to the societal scale that involves inequalities in the distribution of material wealth and educational attainment and ideologies such as ageism and racism. Note that this model is compatible with the life course perspective, as both view oral disease as cumulative (Northridge and Lamster 2004; Fisher-Owens et al. 2008).

Research conducted with racial/ethnic minority older adults who attend senior centers in northern Manhattan, New York City, found lower levels of tooth loss than in US national samples (Northridge et al. 2012). To learn from what is working well in this older adult population, the investigators began a social science investigation focused on utilization of services at the community scale, care-seeking behaviors at the interpersonal scale, and the acceptability of hypertension and diabetes screening in the dental setting for racial/ethnic minority older adults at the individual scale.

While previous qualitative research has assessed the willingness of dental professionals to incorporate screening for primary care sensitive conditions at chairside (Greenberg et al. 2010; Northridge et al. 2016), the perspective of racial/ethnic minority older adults—with large unmet oral and primary health care needs—is notably lacking.

Hence, the purpose of this study is to examine the acceptability of screening for hypertension and diabetes in the dental setting for African American, Puerto Rican, and Dominican older adults who attend senior centers in northern Manhattan. We hypothesize that screening for hypertension and diabetes at chairside is acceptable to racial/ethnic minority older adults.

Methods

Conceptual Model for the Study

Recently, a multilevel model, titled *factors that influence disparities in access to care and quality of health care services, by level*, was derived from a systematic review of the complex factors that influence health equity (Purnell et al. 2016). The end points of interest include clinical outcomes, avoidable hospital admissions, patient experiences of care, equity of services, and costs. A simplified schematic of this model is provided in Figure 1 that delineates and highlights the guiding theory for this study: the 4 levels of influence (policy and community; organization and provider; family, friends, and social support; individual patient), the associated intervention targets at each of these levels (from neighborhood and community resources at the policy and community level to patient education and clinical care at the individual patient level), the health care processes (principally interactions between patients and support networks and their health care providers), and the outcomes (notably patient experiences of care).

It is the patient perspective on chairside screening that we focus on in this article, particularly that of racial/ethnic minority older adults (see also Northridge 2016; Northridge, Shedlin et al. 2017; Northridge et al. Forthcoming).

Focus Group Approach and Participants for the Study

Focus groups were conducted with a sample of 194 racial/ethnic minority men and women aged 50 y and older living in northern Manhattan who participated

Figure 1. Factors that influence chairside screening, by level. This graphic is derived from the conceptual model, *factors that influence disparities in access to care and quality of health care services, by level*, created from the analysis of findings from systematic reviews by Purnell et al. (2016). The focus in this simplified schematic as well as in this article is on factors at multiple levels that result in patient experiences of care resulting from chairside screening of primary care sensitive conditions.

in 1 of 24 focus group sessions about improving oral health for older adults. The investigators of the study selected focus groups over individual interviews because group discussions may facilitate greater disclosure by participants through reciprocity (i.e., disclosure by one participant may prompt greater disclosure by others) (Morgan 2002). Furthermore, focus groups allow participants to respond to and elaborate on topics raised by fellow participants, thus facilitating discussion of a greater breadth of topics (Morgan 2002). Finally, focus groups may be less fatiguing than individual interviews, which may be particularly important when interviewing older adults (Wenger 2002).

Focus group participants had to meet the following criteria: 1) aged 50 y or older, 2) attended a senior center or other community locale where older adults gather in northern Manhattan, 3) speak fluent English or Spanish, and 4) self-identify as African American, Dominican, or Puerto Rican. The demographic characteristics of the focus group participants are presented in the Table.

Participants ranged in age from 50 to 92 y (mean, 69.5 y; standard deviation [SD], 10.0 y). The sample included approximately equal numbers of women

(53.6%) and men (46.4%). Just over half (54.1%) of the participants reported receiving dental care in the past year.

Recruitment Procedure, Sampling Strategy, and Context

Field recruitment staff visited senior centers in northern Manhattan and directly approached older adults to explain the study, screen them for eligibility, and solicit participation in the focus groups. Senior centers were selected rather than places where older adults receive dental care to obtain a sample of individuals who did not necessarily have access to or seek dental care. Senior centers have been identified as important “third places” (as distinct from homes or “first places” and worksites or “second places”) where older adults may be targeted for health promotion activities (Northridge, Kum et al. 2016). Both field recruiters were bilingual in English and Spanish and had several years of experience working with racial/ethnic minority older adults and senior center directors in northern Manhattan.

To ensure geographic and demographic representation of northern Manhattan, approximately equal numbers of participants were recruited from senior centers in each of 3 northern

Manhattan neighborhoods: Central/West Harlem (home to large numbers of African Americans), Washington Heights/Inwood (home to large numbers of Dominicans), and East Harlem (home to large numbers of Puerto Ricans). These 3 neighborhoods have historically been considered as racial/ethnic enclaves, with large numbers of recent immigrants and many residents qualifying for Medicaid and other forms of public assistance. Further details of the recruitment and screening procedures are available elsewhere (Northridge, Shedlin et al. 2017).

Units of Study and Ethical Safeguards

The study design of 24 focus groups was selected a priori to obtain multiple groups of each demographic segment, thereby allowing conclusions about each demographic segment to be based on multiple focus group discussions rather than on a single focus group discussion. Consistent with standard focus group techniques (Krueger and Casey 2009), the groups were segmented based on important characteristics that may influence the issues discussed or the ability of the members to build rapport. A total of 24 focus groups were conducted, including 12 groups of men and 12 groups of women. Within each sex set, 4 groups were conducted with African Americans, 4 groups were conducted with Dominicans, and 4 groups were conducted with Puerto Ricans. Within each sex/ethnic/racial set, half of the groups were conducted with participants who had visited a dentist in the past year, and half were conducted with participants who had not visited a dentist in the past year. Ten groups were conducted in English (including 2 groups with Puerto Ricans who preferred to speak English), and 14 groups were conducted in Spanish (see Fig. 2).

A total of 625 potential participants were screened for eligibility. Of these potential participants, 564 older adults were eligible to participate in a focus group. After accounting for eligible older adults who were unable to be scheduled, not interested in participating,

Table.

Sociodemographic Characteristics of Older Adult Participants in Focus Groups by Race and Ethnicity and for the Total Sample, New York, NY, 2013–2015.

Characteristic	African American	Dominican	Puerto Rican	Total Sample
Participants, <i>n</i>	72	69	53	194
Focus groups, <i>n</i>	8	8	8	24
Age, <i>y</i>				
Mean	68.3	71.6	68.5	69.5
Standard deviation	10.2	9.6	10.0	10.0
Range	50–92	50–90	50–91	50–92
Age group, % (<i>n</i>), <i>y</i>				
50–54	11.1 (8)	4.3 (3)	13.2 (7)	9.3 (18)
55–59	6.9 (5)	1.4 (1)	7.5 (4)	5.2 (10)
60–64	15.3 (11)	20.3 (14)	17.0 (9)	17.5 (34)
65–69	20.8 (15)	15.9 (11)	11.3 (6)	16.5 (32)
70–74	23.6 (17)	15.9 (11)	20.8 (11)	20.1 (39)
75–79	8.3 (6)	21.7 (15)	18.9 (10)	16.0 (31)
80–84	5.6 (4)	11.6 (8)	7.5 (4)	8.2 (16)
85–89	4.2 (3)	5.8 (4)	0 (0)	3.6 (7)
90–92	4.2 (3)	2.9 (2)	3.8 (2)	3.6 (7)
Sex, % (<i>n</i>)				
Male	44.4 (32)	49.3 (34)	45.3 (24)	46.4 (90)
Female	55.6 (40)	50.7 (35)	54.7 (29)	53.6 (104)
Time of last dental visit, % (<i>n</i>)				
Within past year	54.2 (39)	59.4 (41)	47.2 (25)	54.1 (105)
1–3 y ago	26.4 (19)	29.0 (20)	26.4 (14)	27.3 (53)
More than 3 y ago	19.4 (14)	11.6 (8)	26.4 (14)	18.6 (36)
Primary language, % (<i>n</i>)				
English	100 (72)	0 (0)	18.9 (10)	42.3 (82)
Spanish	0 (0)	98.6 (68)	49.1 (26)	48.5 (94)
Both	0 (0)	1.4 (1)	32.1 (17)	9.3 (18)
Neighborhood of residence, % (<i>n</i>)				
Inwood	4.2 (3)	13.0 (9)	1.9 (1)	6.7 (13)
Washington Heights	13.9 (10)	58.0 (40)	5.7 (3)	27.3 (53)
East Harlem	15.3 (11)	5.8 (4)	79.2 (42)	29.4 (57)
Central Harlem	30.6 (22)	4.3 (3)	5.7 (3)	14.4 (28)
West Harlem	20.8 (15)	8.7 (6)	3.8 (2)	11.9 (23)
Other	15.2 (11)	10.1 (7)	3.8 (2)	10.3 (20)

The racial and ethnic groups did not differ significantly on any of the listed sociodemographic characteristics, with the exceptions of primary language and neighborhood of residence, in accordance with the sampling strategy.

Figure 2. Focus groups conducted with racial/ethnic minority older adults. This graphic by research team member Susan Kum displays the 24 focus groups conducted with racial/ethnic minority older adults in New York from 2013 to 2015, segmented by race/ethnicity (African American/Dominican/Puerto Rican), sex (women/men), with or without a dental visit in the past year (with dental/no dental), and language (where EN = English and SP = Spanish). Printed with permission of Susan Kum.

African American				Dominican				Puerto Rican			
Women		Men		Women		Men		Women		Men	
With Dental	No Dental	With Dental	No Dental	With Dental	No Dental	With Dental	No Dental	With Dental	No Dental	With Dental	No Dental
EN 2	SP 0	EN 2	SP 0	EN 2	SP 0	EN 2	SP 0	EN 0	SP 2	EN 0	SP 2

or whose sex/racial/ethnic/dental care segment had been previously filled, a total of 277 older adults were scheduled to participate in a focus group. In the end, 194 older adults (70.0%) actually attended a session, signed a written informed consent, and participated in a focus group. Details of the screening results, including the reasons for ineligibility and nonparticipation, are available elsewhere (Northridge, Shedlin, et al. 2017). The institutional review boards at Columbia University, New York University, and University at Buffalo reviewed and approved all study procedures. All Health Insurance Portability and Accountability Act (HIPAA) safeguards were followed.

Data Collection Methods and Instruments

Focus groups were conducted with an average of 8 participants per group (SD, 2.4; range, 5–14 participants). Group discussions were held from October 2013 through June 2015 in 2 locations (1 in Central Harlem and 1 in Washington Heights) to better ensure that participants did not need to travel far from their residential neighborhoods to attend a session. Importantly, all participants were offered the services of a taxi driver to pick them up at their homes or at a senior center, bring them to the focus group, and take them home afterward.

This strategy was crucial in ensuring focus group attendance, particularly for older adults with mobility problems.

The focus groups were moderated by 1 of 2 senior qualitative researchers, one of whom spoke fluent Spanish, along with an experienced bilingual (English and Spanish) assistant moderator who ensured that signed consent forms were obtained from all participants, audio-recorded the focus group, took notes during the conversation, and provided honoraria to each participant upon completion of the group discussion. To facilitate a conversational environment, a catered meal and beverages were provided prior to the start of all groups. After the meal, the moderator explained the purpose of the study, and all participants provided written informed consent.

Next, the racial/ethnic minority older adults participated in a semi-structured focus group interview using techniques that were originated by Merton et al. (1990) and elaborated on by Krueger and Casey (2009). The groups were conducted using an interview guide, also known as a questioning route (Krueger 1998; Krueger and Casey 2009), consisting of a series of semi-structured questions (Merton et al. 1990) to explore the community-, interpersonal-, and individual-level factors that serve as facilitators or barriers to obtaining oral

health care (Northridge et al. 2012).

The interview guide was not used as a structured interview schedule but rather as an outline of topics of potential importance to be covered in the interview (the topic guide is available upon request from the authors). Focus group moderators, therefore, asked about topics raised by the participants (regardless of whether they were in the guide) and addressed them in the order in which they were brought up by the participants.

Among the questions explored in each group were the perceived importance of having blood pressure and blood sugar levels checked regularly, whether older adults would be willing to have their blood sugar and blood pressure checked when they visited the dentist, what they would like or not like about being screened for these medical conditions in a dental setting, and whether they thought this medical screening service would make people more or less likely to go to the dentist. The current report is largely based on conversations among group participants in response to these questions. Nonetheless, other portions of the transcripts where these issues were raised were also included in the analysis and presentation of the findings. Note that the moderators allowed for discussion of issues that deviated from the topic guide. Focus groups lasted an

average of 1.3 h (SD, 13 min; range, 55 min to 1.7 h). Participants each received \$30 after the focus group discussion was completed.

Data Processing, Data Analysis, and Techniques to Enhance Trustworthiness

All groups were digitally audio-recorded and transcribed for analysis. Groups that were conducted in Spanish were transcribed first in Spanish and then translated into English. To ensure accurate transcription and translation, the assistant moderator who is bilingual (English and Spanish) and was present at all focus group sessions compared the transcripts against the original audio recordings. Analysis of the transcripts was conducted using thematic content analysis (Boyatzis 1998; Braun and Clarke 2006). To enhance the validity of the coding scheme, multiple members of the study team began the data analysis by each independently reading some or all of the transcribed focus groups to identify the topics discussed. For example, one of the codes identified was "Hypertension and Diabetes Screening."

Next, the study team met to discuss the topics identified and to construct a list of topic codes. Although many of the identified topics were directly explored with questions in the interview guide, some of the original guide topics were collapsed, and unanticipated codes were identified and included in the analysis. In addition to the aforementioned qualitative researchers, members of the study team included a public health dentist, a geographer/modeler, a sociologist, and an epidemiologist/implementation scientist. These multiple perspectives proved important in discussing themes and checking interpretations of the data. Consensus among the research team members was achieved.

To identify the text in which participants discussed hypertension and diabetes screening, all transcripts were read to identify sections of text in which hypertension and diabetes were discussed, and relevant sections of the text were extracted from the transcripts.

Next, relevant quotes were organized to identify the specific views described by the study participants. The most commonly reported views reported by the participants are presented in this report and identified by the focus group number and group characteristics. Quotes were selected for inclusion here that best represent the perceptions described by the participants.

Results

The following 5 themes were manifest in the data regarding the willingness of racial/ethnic minority older adults to receive hypertension and diabetes screening as part of routine dental visits: 1) chairside screening is acceptable, 2) screening is routine for older adults, 3) the interrelationship between oral and general health is appreciated, 4) chairside screening has perceived benefits, and 5) chairside screening may reduce dental anxiety. Nonetheless, different dimensions of these themes and dissenting views were also present. Quotes were selected that best represent the perceptions described by the majority of participants regarding these 5 themes, which are discussed in turn next.

1. Chairside screening is acceptable.

Many of the older adult participants believe that adding primary care screening to their dental care visits would constitute both acceptable and necessary services.

It would be an important service.
(Group 14: Dominican women without dental care translated from Spanish)

It should be mandatory. (Group 4: Dominican women with dental care translated from Spanish)

Yes. That would be fabulous. (Group 10: Dominican women with dental care translated from Spanish)

For me, it would be great, because I have number 2 [diabetes]. (Group 19: Puerto Rican women with dental care translated from Spanish)

I think it's good. Because you go to the dentist and you can check your blood and check your sugar. A lot of people would go and say, "OK. I'm going to the dentist and let me check it because it's free." (Group 24: African American men with dental care)

2. Screening is routine for older adults.

An emerging theme is that screening is considered by racial/ethnic minority older adults to be a standard part of health care visits. Participants believe that chairside screening helps identify diseases, thus enabling both patients and providers to be more informed about the overall health status of patients. Participants have thus come to expect that they will be asked about their health at dental visits and whether or not their chronic diseases are under control.

It would solve a problem, because that way the dentist would know my sugar level and blood pressure in order to work on me . . . it should be obligatory. (Group 4: Dominican women with dental care translated from Spanish)

Monitoring is something you should always do. If you get your mouth checked, you need to have your sugar checked first. If not, you can't do the oral health [care]. (Group 6: Dominican men without dental care translated from Spanish)

Now when you go, they will ask . . . if you have asthma, diabetes, high blood pressure. (Group 21: Puerto Rican men without dental care translated from Spanish)

Because you need to know if you are OK or not. If it's high or if it's low. It's the silent enemy. (Group 16: Dominican women without dental care translated from Spanish)

3. The interrelationship between oral and general health is appreciated.

As mentioned previously, an unanticipated finding in this study is that participants were knowledgeable about the interrelationship between oral and general health and believe that patients need to stay abreast of their general

health status because it may affect their oral health.

No, that's what is wanted, to get someone who aware of a person's whole body to interact with people. (Group 6: Dominican men without dental care translated from Spanish)

It's important to stay up-to-date if you have that illness or not. (Group 10: Dominican women with dental care translated from Spanish)

People that take blood thinner pills. They need to be checked for by the dentist to know they are taking blood thinners because they, if they don't ask and they work on you, you could bleed to death. (Group 20: Puerto Rican men with dental care in English)

The educated people know that there is a lot, a lot, a lot of nerves inside of your mouth and just by pulling a tooth, by giving an injection, by giving you anesthesia, they could affect your body. (Group 18: Puerto Rican women without dental care in English)

For me, in the past people worried more about their teeth. Now everyone worries about cancer, diabetes, high blood pressure. There are so many more illnesses that people concentrate more on those and forget about their teeth, because that is not so important. Especially if you are sick, like me. I have high blood pressure, I have diabetes, eh . . . and because of diabetes I lost some teeth. But when I was younger, I did not think too much about my own teeth. I only began to do this when I got sick, that I realized that I was losing my teeth, then I made an effort that I said, this will be my priority. Teeth first. (Group 22: Puerto Rican men without dental care translated from Spanish)

Because in that way, in the moment your pressure is very high and they are about to extract a tooth, they can't do it. (Group 14: Dominican women without dental care translated from Spanish)

4. *Chairside screening has perceived benefits.*

Many participants believe that combining primary care screening with

oral health care appointments would have a positive impact on their health and might motivate older adults to visit dentists.

I think that this proposal that you are making is very interesting because two important things would be included, as is the case when it comes to blood pressure and diabetes. (Group 15: Dominican men with dental care translated from Spanish)

I would say that the person would feel before because it is a time, it's a minute that makes a difference in making the person feel comfortable. Whoa, they are checking my blood pressure and my blood sugar at the same time! And my blood sugar because I have diabetes or I don't have diabetes . . . is co-relational. (Group 19: Puerto Rican women with dental care translated from Spanish)

I think that it is the case because if I, right now, have diabetes 2 and if I had to go to the dentist, I would go to take care of two things, to check my blood sugar, that many people don't check their blood sugar. (Group 19: Puerto Rican women with dental care translated from Spanish)

I see you keep going back to dentists. If they offered all of that, that's good. You have to get that individual to wanna go to the dentist. (Group 3: African American women without dental care)

The dental office that has those services will make good progress because the service is very, very special. (Group 22: Puerto Rican men without dental care translated from Spanish)

5. *Chairside screening may reduce dental anxiety.*

Several participants commented that certain older adults have experienced anxiety related to dental visits. They believe that providing primary care screening at chairside might help to ease these concerns.

It'd be good to do that at the dental office. . . . It's good, because there are people who get very nervous and maybe their blood pressure goes up

just because of how nervous they get. (Group 2: Puerto Rican women without dental care translated from Spanish)

Maybe they take a chance to see the dentist if they have something wrong or are in pain. . . . But some of them are scared of the dentist. Going there . . . to check your blood and all that, high blood pressure, maybe they calm down, maybe they go there to fix their teeth. (Group 24: Puerto Rican men with dental care translated from Spanish)

And people start to lose fear and people also begin to de-stress when they start you with the blood pressure, they start checking your sugar . . . like when you go to a regular doctor and they weigh you, they get your pressure, they do a lot of things. By the time you see the doctor, you have relaxed. (Group 14: Dominican women without dental care translated from Spanish)

An unexpected finding in this study given the widespread lack of knowledge concerning oral health in underserved populations is that racial/ethnic minority older adults are well aware of the interrelationship between oral and general health. Multiple participants remarked that if their chronic conditions were not under control, then their dentists would not be able to treat them, given possible adverse effects.

While the majority of focus group participants believe that chairside screening would be beneficial for older adults, certain participants raised concerns. These reservations centered on 4 major themes: 1) dental fear may limit the acceptability of chairside screening, 2) there is a perceived lack of need for dental care and chairside screening, 3) screening is available elsewhere, and 4) mistrust of dental providers as primary care providers. Quotes were selected that best represent these concerns, which are discussed next.

1. *Dental fear may limit the acceptability of chairside screening.*

Despite the majority view that chairside screening may relieve patient anxiety at

dental visits, several participants believe that patient fear around dental visits or with dentists might limit the acceptability or usefulness of chairside screening.

'Cause dentists now, when you go, they do take your blood pressure. 'Cause if it's too high, they may have to let you sit and wait a while and try to bring it down because your nerves from what is called a white coat. (Group 9: African American women with dental care)

And you are more certain of how you are, because sometimes blood pressure goes up because of nerves and of waiting and of knowing what they are going to do to you. The blood pressure goes up. (Group 14: Dominican women without dental care translated from Spanish)

That's a good food for thought because me, personally, I know when I go to the dentist, the night before my blood pressure is sky high so I need to take my medication the day before and the day of. And also to take something to keep me calm because once you get excited and nervous, your blood pressure goes sky high and if you are diabetic like she says, your sugar goes out of whack. So now you are nervous, you are upset, your blood pressure. Then your head starts pounding and you just say oh wow. So that's why I'm not going because it's not worth all of this mental anguish and stress. (Group 18: Puerto Rican women without dental care in English)

2. *There is a perceived lack of need for dental care and chairside screening.*

Several participants believe that routine dental visits are unnecessary, especially for older adults with dentures, and that natural remedies are effective in preventing oral diseases.

I don't like to say this but they've been holding off going to the dentist. Figuring that maybe the teeth will hold out or whatever. (Group 3: African American women without dental care)

Some people will say I don't need it. They may need a[n] eye exam, but they won't go for their teeth. (Group 3: African American women without dental care)

Exactly what she's saying, oh, I'll get by you know. . . . Go home, take the food home and eat it and I'll be happy about the whole thing. Put my teeth in when I go to a party. I'll put my teeth in then. (Group 3: African American women without dental care)

I know my pressure's up but oh I'm gonna go next week or oh it'll be all right. Let me take some garlic. What do they say? The garlic and I'll bring it down. All these little remedies and stuff. (Group 3: African American women without dental care)

3. *Screening is available elsewhere.*

Because many older adults are able to access medical screening services at drug stores, clinics, and senior centers, certain participants thought that integrating screening for diabetes and hypertension with oral health care at chairside is unnecessary.

There are clinics that also offer that service . . . and the drugstores too . . . oh yes. That service is available in a lot of places . . . many services . . . in Rite Aid. (Group 16: Dominican women without dental care translated from Spanish)

People don't go to the dentist to get all that done. They go to a clinic. Why would they go to a dentist to get those done? (Group 24: Puerto Rican men with dental care translated from Spanish)

That's what I'm saying. The clinic is the right place for that. (Group 24: Puerto Rican men with dental care translated from Spanish)

What I think is that because you have that service it doesn't mean that people would come to the dentist just for that because they already have any other place for that. But I think is a good idea. It is good. (Group 24: Puerto Rican men with dental care translated from Spanish)

4. *Mistrust of dental providers as primary care providers.*

A few of the participants believe that the mistrust of dental providers as

primary care providers among certain older adults would deter them from seeking and participating in chairside screening for hypertension and diabetes.

I don't let a doctor, if I don't know him, examine me, where I would be kind of leery about letting somebody go in my mouth that quick. You understand? So . . . people are more trusting to doctors than just to let anybody stick their hand in you[r] mouth for whatever reason. (Group 18: Puerto Rican Women without dental care in English)

I would not consider a dentist a physical doctor, so I would not go. (Group 20: Puerto Rican Men with dental care in English)

Discussion

The main findings of this qualitative study are that most of the focus group participants believe that incorporating screening for hypertension and diabetes into routine dental visits would be useful and, furthermore, that chairside screening for medical conditions that may affect, or be affected by, their oral health would constitute meaningful additional services to them. Indeed, many of the participants viewed screening as a routine part of health care. From the patient perspective, chairside screening would enable older adults to receive health assessments for both oral and general health at a single visit, considered analogous to "one-stop shopping." Finally, participants believe chairside screening may potentially enhance patient and provider knowledge.

To our understanding, this is the first focus group study to examine the willingness of racial/ethnic minority older adults to receive primary care screening for hypertension and diabetes at dental visits. The majority of the research conducted to date on the topic of chairside screening for primary care sensitive conditions has relied on surveys and interviews with dental providers. Nonetheless, acceptance by patients of chairside medical screening in a dental setting is a critical element for successful

implementation of this strategy (Greenberg et al. 2012).

Overall, most of the racial/ethnic minority older adult participants in this focus group study believe that chairside screening for primary care sensitive conditions is acceptable and that it holds the potential to both enhance patient and provider knowledge and avert adverse health outcomes. Most of the participants also believe that chairside screening may decrease dental anxiety and motivate older adults to seek dental care. Likewise, Greenberg et al. (2012) found that most patients who completed a self-administered questionnaire were willing to have a dentist conduct screening for heart disease, high blood pressure, diabetes, human immunodeficiency virus (HIV) infection, and hepatitis infection. Respondents to this questionnaire also reported that their opinion of the dentist would improve regarding the dentist's professionalism, knowledge, competence, and compassion if the dentist conducted chairside screening (Greenberg et al. 2012).

In a US national study, Greenberg et al. (2010) found that dentists considered medical screening to be important and were willing to incorporate it into their practices. Nonetheless, the authors advised that additional education and practical implementation strategies are necessary to address perceived barriers, including time, cost, liability, and patients' willingness (Greenberg et al. 2010). Hence, the findings reported here that chairside screening for medical conditions is acceptable to racial/ethnic minority older adults affirm the necessity of gaining the patient perspective rather than relying on the impressions of providers.

Indeed, previous research has consistently found that diabetes testing in the dental office is feasible, minimally time-consuming, and acceptable by most patients and dentists (Barasch et al. 2012; Genco et al. 2014). A randomized clinical trial found that for patients identified with potential diabetes at chairside and referred to a physician, there was a statistically significant reduction in

glycosylated hemoglobin (HbA1c) levels at 6-mo follow-up (Lalla et al. 2015). Hence, diabetes risk assessment and education by dental professionals of affected individuals unaware of their status may contribute to improved patient outcomes (Lalla et al. 2015). Rosedale and Strauss (2012) found that both patients and dental providers alike believe that the periodontal visit is an opportune site to screen for diabetes. Moreover, gingival crevicular blood may be collected during a dental visit to screen for diabetes or monitor for glycemic control (Strauss et al. 2015).

The implications of this study may be linked back to the conceptual model, *factors that influence disparities in access to care and quality of health care services, by level*. As the focus group discussions made clear, racial/ethnic minority older adults are aware of the interrelationship between oral and general health, as well as the consequences for themselves and one another of failing to screen for medical conditions that affect, or are affected by, their oral health (individual patient level and family, friends, and social support level). Furthermore, they understand that chairside screening for primary care sensitive conditions helps both patients and dental providers be more informed about the overall health status of patients, which may help avoid adverse outcomes (organizational and provider level). Screening for hypertension is already within the scope of practice of dental providers. Enabling more dental providers to provide chairside screening across settings for other medical conditions such as diabetes, HIV, and hepatitis C will require policy changes at the state level, yet may well result in enhanced utilization of health services by older adults before their medical conditions become severe (policy and community level).

The limitations of this study include that the focus group participants were recruited from senior centers and other places where older adults gather in northern Manhattan. Hence, the findings may not be generalizable to older adults who are institutionalized or living in other locales. Moreover, hypertension

and diabetes screening were specifically queried about in the focus group discussions. Thus, the acceptability of chairside screening for other medical conditions such as HIV and hepatitis C among racial/ethnic minority older adults is not known. Finally, the study participants self-identified as African American, Dominican, or Puerto Rican. Whether or not chairside screening for hypertension and diabetes is acceptable to other racial/ethnic older adults cannot be known with certainty.

Notwithstanding these limitations, this qualitative study provides novel evidence of the acceptability of screening for hypertension and diabetes in the dental setting among urban racial/ethnic minority senior center attendees. The larger research initiative within which this study was conducted is dedicated to understanding how community assets shape familial and peer interactions and contribute to oral health promotion and care seeking behaviors as adults age. Ongoing modeling exercises are providing guidance on the policies and programs needed to improve outcomes for disadvantaged older adults, including clinical outcomes, avoidable hospital admissions, patient experiences of care, equity of services, and costs.

Author Contributions

A.P. Greenblatt, contributed to conception, design, and data interpretation, drafted the manuscript; I. Estrada, contributed to conception, design, and data acquisition, critically revised the manuscript; E.W. Schrimshaw, contributed to conception, design, and data acquisition, drafted the manuscript; S.S. Metcalf, C. Kunzel, contributed to conception and design, critically revised the manuscript; M.E. Northridge, contributed to conception and design, drafted and critically revised the manuscript. All authors gave final approval and agree to be accountable for all aspects of the work.

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