Community Dental Health (2021) **38,** 48–52
Received 11 April 2020; Accepted 1 September 2020

doi:10.1922/CDH_00087Tiwari05

Oral Health of African Immigrants: A participatory approach to needs assessment

Tamanna Tiwari and Nayanjot Rai

Department of Community Dentistry and Population Health, School of Dental Medicine, University of Colorado, United States

Objective: Dental care service use is lower in the immigrant population in the US, with the African immigrant population increasing at a much higher rate. We aimed to evaluate the barriers faced by the African immigrant community through a participatory needs assessment approach. ***Methods***: Photovoice, a qualitative research method was used to collect the data. Thirty participants were recruited from community events, churches, and African community-serving organizations. Participants took photographs related to oral health research questions. Focus groups were conducted with the participants to discuss the clicked pictures. The focus group data were transcribed and analyzed using an inductive and thematic approach using Atlas Ti®. ***Results***: The response rate was 90% and six focus groups were conducted. Focus group data demonstrated participants' knowledge of good oral health and preventive oral behaviors; physical, financial and psychosocial barriers to accessing dental care; and cultural and social beliefs of the community. The participants had good knowledge about oral hygiene habits and dietary factors impacting the oral health of their community. Several barriers including, lack of perceived oral health needs, transportation, time, insurance, fear, and trust were identified that prevent them to access dental care. ***Conclusion***: Further research is warranted to understand the cultural norms and perceived needs of the African immigrant community. Increasing our understanding of such knowledge can support in improving the cultural competency of the oral health workforce.

Keywords*: oral health, oral health behaviors, African immigrants, dental care barriers, oral health knowledge, perceived community needs*

Introduction

Since 2010, most years have witnessed a rising inflow of African migrants, asylees, and refugee populations to Europe and the United States (Pew Research Center, 2018). The African migrant population has increased, with 97,000 people from different African countries moving to Europe between 2010 and 2017 (Eurostat Statistics). In the United States, the African immigrants rose from 80,000 in 1970 to 881,000 in 2000 (Anderson, 2017), which is a much higher rate than other immigrant populations, comprising a 41% increase between 2000 and 2013 (Anderson, 2017). Current census data report that the United States is home to 3.8 million (8.7%) African immigrants (Anderson, 2015). By 2060, the proportion of immigrants who are African will rise to 16.5%.

Colorado is home to a 10% immigrant population, with the city of Aurora residing 20% of all immigrant populations in the state (American Immigration Council, 2017). Aurora is known as the minority-majority city, as immigrants outnumber the White, non-Hispanic population (Census Data, 2016). Compared to other immigrant groups, including Asian and Latin American, the African immigrant population is the fastest-growing population in Aurora (Anderson, 2015).

The immigrant population's use of dental care services is less than the general population (Cruz *et al*., 2009). Several factors could account for this difference, including lack of financial recourses, a low priority for oral health, lower perceived need, lack of access to care, and several other factors (Tiwari and Albino, 2017). Within immigrant communities, linguistic and cultural factors can play essential roles in determining access to oral health services, personal oral hygiene practices, and navigating the dental health care system (Tiwari and Albino, 2017). However, each immigrant community faces unique barriers in utilizing dental care and maintaining good oral health.

About 15 percent of the African-born population in the U.S. have less than high school education (Gambino *et al*., 2014). African refugees may have low literacy in English and may maintain the habit of brushing their teeth with a traditional wooden stick ("miswak") (Geltman *et al*., 2014). African refugees often have a lower caries experience than the White or African American population when they arrive in their host countries. With acculturation, including dietary changes towards more processed foods, they may be at a higher risk for developing dental caries (Cote *et al*., 2004). Whilst African immigrant families may change their diet they may not change their oral hygiene practices or their attitudes towards preventive dental visits (Tiwari and Albino, 2017). Other studies have shown that African immigrants regard visiting a dental care provider as a low priority (Obeng, 2007; Amin and Perez, 2012). Our study aimed to address these knowledge gaps in the African immigrant community by gaining insights into what they consider relevant to their communities' oral health. We used an innovative and participatory method to engage the community in a needs assessment.

Correspondence to: Dr. Tamanna Tiwari Email: tamanna.tiwari@cuanschutz.edu

Methods

This study used a participatory research approach: the Photovoice technique. Photovoice is a qualitative research method in which study participants and researchers use photographs as a means of highlighting issues and factors related to any given problem in their community. In this case, it was access to care and optimal oral health (Wang and Burris, 1997). Participatory approaches have been used to increase the understanding of community needs, highlighting social determinants of health and empowering communities to develop solutions based on community needs (Collins *et al*., 2016). Written informed consent was obtained from all participants who took part in the study. Ethical approval for the study was received from the Colorado Multiple Institutional Review Board (protocol number: 18-0463).

A sample of 30 participants was recruited from African immigrant community events, churches, mosques, residential complexes, and African community-serving organizations. Cameras and oral health research questions were distributed to the participants when they were recruited. The oral health questions aimed to gauge participants' understanding of oral health behaviors and perceptions, barriers for utilizing care, and resources need to improve the oral health of the community (Table 1). The participants were asked to take photographs in response to the oral health research questions. The oral health question sheet included the phone number of the principal investigator, and participants could call if they had queries about the activity. After one week of distributing the cameras, the research team reached out to the participants to help solve any issues about using the cameras or understating the assignment. Participants took between 3 to 6 weeks to complete the task of taking the pictures. Participants took between 7 and 19 pictures. After the cameras were collected by the research team and photographs were developed, focus groups were conducted with participants to debrief, discuss the pictures and why they had taken them and some in-depth discussion based on their perceptions. The focus group sessions were held at different places corresponding to participants' convenience.

Participants were from the following countries: Somalia (4 participants), Nigeria (4), Kenya (2), Liberia (7), Congo (5), and Sudan (5). The first focus group included five participants, community stakeholders in leadership positions such as the staff of community organizations, priests, etc. The second group included five adults between 23-50 years of age. The third included five people, 50 years, and older. The other three focus groups included 12 adults (parents of young children under the age of 6 years) between 23-50 years of age. The focus groups lasted between 30-60 minutes, dependent on the time the participants could spare, and their participation.

Focus groups were recorded and transcribed verbatim. Inductive analyses were conducted by two coders separately and then as a team. *A priori* coding was undertaken using the research questions. Themes and codes were developed, and the codebook was created. All analyses were conducted in Atlas TI®.

Results

Of the 30 participants given cameras, 27 returned them and took part in the focus groups. Thus, the response rate of the recruited participants was 90%.

Six focus groups were conducted, where participants discussed their photographs and how they related to their own and their community's oral health. The focus group data were sufficient in scope to produce themes and codes. Both coders were able to reach saturation in the data analysis. Table 1 summarises the research questions and the major themes of the project.

Good oral health was reported as having a healthy smile and teeth free of cavities, free of gum disease. Several participants discussed brushing twice daily with toothpaste as an important component for good oral health. Participants demonstrated oral health knowledge in the focus groups and through their pictures. One participant had taken a photograph of two toothbrushes that demonstrated the importance of brushing twice daily. Several others photographed their children smiling and discussed their desire for their children to have good oral health. Several participants discussed the importance of visiting the dentist to maintain good oral health. Only a handful

Table 1. Research questions for each week and emerging themes

	Research Questions	*Themes*
Week 1	What is good oral health to you?	Disease free Oral health knowledge Oral health behaviors Healthy oral cavity
Week 2	What are the barriers to access oral health care for you?	Physical and financial barriers Psychosocial barriers Attitude towards prevention Perceived need Fear of the dentist
Week 3	What do you consider important behavior to prevent oral health problems for you?	Dietary factors Oral hygiene Access to sugary foods Smoking
Week 4	What are the family and community resources needed to address oral health issues in your community?	Beliefs of the community Educating the community Cultural norms

discussed the use of mouthwash, and even fewer talked about flossing teeth as a vital behavior for good oral health. None of the pictures included dental floss, and when probed by the facilitator, participants said that using dental floss was a new concept for them, and they were still learning how to use it. Several participants said that they had not seen dental floss in their home countries.

"I think it is two toothbrushes (in the picture), and they signify how you are supposed to brush your teeth -- twice a day."
"Good oral health for me is free of cavities, free of gum disease, healthy gums, and healthy oral tissue." So, I took a picture of my child's teeth.
"It means having a healthy smile (that is the picture I took), and also, I think it's more…it's beyond just having a healthy smile. It is having a healthy person because I think when you don't have good dental health; it can also lead to dental illnesses."
"I took a picture of my children smiling. The first thing is a nice smile. That you feel proud of it."

Numerous barriers to access to care were identified by participants. These included financial restrictions, transportation, lack of time, fear of the dentist, lack of trust in the dentist, and, most of all, and a lack of perceived need for dental care. The discussion about the lack of insurance and lack of finances was heavily grounded in the focus group discussion. Most participants had taken photographs of money, showing the dental treatment was expensive and unaffordable. Several participants reported that though they had Medicaid coverage, it was restrictive, and they still needed out-of-pocket payments.

"I took a picture of two $20 bills. One barrier is insurance because going to the dentist cost a lot of money too. So, if we don't, have the money it's not easy. And even if you seem to have a problem you don't have the money for it, you don't worry about it until it gets worse."

Discussions and pictures about transport were used by many participants. There were photographs of buses that demonstrated the long hours it took to reach a dentist. Another participant had photographed a car, which meant that they might not have access to a working vehicle or that one car may be shared amongst several members of a family.

"Because I use the bus, it takes a long time to go to the dentist."

Yet several other participants spoke about lack of time as they spent long hours at work. Participants reported that taking care of a multi-generational household prevented them from visiting the dentist.

"A lot of people cannot take time off from work, or they have other responsibilities so they cannot visit the dentist."

A broader theme that emerged was about the fear of the dentist, or lack of trust in the dental provider, which was intertwined with several other underlying factors. One underlying factor was language as some participants' family members were not able to speak English and thus did not feel comfortable visiting a dental provider who did not speak their language. Participants discussed their fear that by visiting the dentist, they might end up losing more teeth due to financial constraints. They had heard stories or had family members who attended the dentist and ended up having their teeth extracted because they could not afford restorative treatments.

"For my family, the language barrier is a big issue. Some people speak a different language than English, and they are scared of visiting the dental clinic."
"One thing I also would like to mention is that people are afraid to visit a dentist because their perception is the dentist is going to extract their teeth. My brother went to the dentist two times, and each time they extracted a tooth. So I don't want to go there anymore."
"Getting a root canal treatment for a tooth was very expensive, so I got my teeth removed."

Pictures related to oral health behaviors yielded some interesting discussions. Participants had photographed different foods, such as carbonated drinks, confectionary, and fruit juice. They had also photographed the front of a store that sold traditional African foods and another, regular grocery store. The participants discussed the difference in the types of food available in the United States compared to their home countries. Several recognized that their diet patterns had changed since their move to the U.S. Some participants felt that most of their traditional foods were not available in the U.S., which compelled them to buy whatever food was available, and cheaper. Even if they could find their traditional foods, they were expensive, and they could not afford it. They spoke about consuming more sugary foods and drinks including, confectionary, carbonated drinks and juices because they were inexpensive and easily accessible in the U.S. Participants said that consuming sugary foods was the most significant change in their diet and was mainly due to ease of access. Several participants also discussed eating more processed foods due to their faster-paced life, and lack of time to cook traditional meals. Several acknowledged other oral health behaviors such as smoking and tobacco chewing and considered those behaviors to lead to poor oral health.

"We eat everything because it is cheap and easy to buy. But we eat a lot of sweet things here in the U.S."
"It is worst here (in the U.S.) because food packaging is bigger and sugary foods are easy to buy."
"Yeah, soda, chips are available in my home country, but the consumption is not like here how we see in the U.S. We in Liberia eat a lot of traditional food. We love our traditional food."
"If I want to cook traditional dishes, but it is quite expensive. I have to buy what is available easily and is cheap. Sometimes that has too much sugar content."

Lastly, participants discussed cultural norms and perceived needs in their communities. They had found it difficult to take photographs to present these ideas, but wanted to consider them in the focus groups. This discussion emerged mainly in the group with several

stakeholders from the community, who discussed cultural norms in detail. They pointed out that community perceptions related to seeking dental care were based on pain rather than prevention. Several participants described how community members believed that going to the dentist was unnecessary unless they experienced serious dental issues. Preventive dental visits were not a concept in their home country, and thus it would take changing the attitudes about prevention to encourage community members to visit the dentist regularly. They emphasized the need to educate their community about the importance of routine dental check-ups and preventing oral disease. Some parents of children under the age of six years, who participated had received some preventive information from the schools and Head Starts (a program of the United States Department of Health and Human Services to provide comprehensive early childhood education and nutrition to 3-5-year-olds from low-income families). However, there were still beliefs that the primary dentition was not particularly important.

"We (in our community) don't think it is important to go to the dentist."

"As long as you are eating and your teeth are not falling off, and you are brushing your teeth, everything is fine."

"We always wait until we get a toothache to go visit the dentist. And even if you get a toothache, sometimes we take pain killers. If it goes away, we think we are fine."

"People don't take their children for a preventive dental visit because they have baby teeth, which will fall, and so people think let's wait till they have permanent teeth."

Discussion

This study used a participatory approach to conduct an oral health needs assessment with the African immigrant community living in Aurora, Colorado. Study participants had come from six African countries. However, the dental care needs of the community were analogous. Using the Photovoice technique, we were able to engage the African immigrant community actively to describe their oral health needs and current oral health knowledge to gain a deeper understanding of attitudes and perceptions about oral health.

Through the photographs and focus group discussions, it was deduced that the African immigrant community had reasonably good knowledge about oral hygiene habits and dietary impact on the oral health of their community. We also gained a better understanding of the community's perception of oral health needs and of accessing preventive care. There were several barriers, such as financial, transportation, and other obstacles, to accessing dental care that could prevent good oral health for these communities. One of the most significant barriers that emerged was the lack of perceived oral health needs. Similar to several other immigrant communities, African immigrant communities access dental care when in pain and have little understanding about preventive visits for oral diseases (Cruz *et al*., 2009).

As is the case for most immigrant communities, acculturation related to diet was discussed as an underlying factor that could lead to poor oral health in this community (Tiwari and Albino, 2017). They discussed easier access to sugary foods but had limited knowledge of how to improve oral hygiene habits with a fluoride toothpaste to counter higher sugar consumption. Past research has shown a similar impact on Latino immigrants, whose oral health declined due to higher access to sugary foods and gaps in knowledge (Horton and Barker, 2010).

We faced several challenges in conducting this research. Firstly, it was difficult for participants to understand the research method, requiring several information sessions in person and via telephone with individual participants. Secondly, focus groups were difficult to convene as participants canceled often. Participants had competing priorities for oral health, which included work or caring for family members. Thus, we had to reschedule several focus groups so that all participants could attend. Most groups were conducted on weekends or after work hours.

Community stakeholder involvement gave us an insight into the needs of the community and that its leaders understood the knowledge gaps and were eager to find resources that could help the African immigrant community improve its oral health. The project in turn led the African immigrant community organization to collaborate with the School of Dental Medicine to gain funding for oral health screenings and education sessions with over 200 community members in African churches and mosques. The faculty and students at the School were able to examine and refer all community members screened during these events. The School continues to provide oral health education at several community events in the African immigrant community.

This research can be replicated with other immigrant communities around the world. Photovoice can help community members take ownership of their own needs. It can be a powerful tool to energize community members to develop partnerships with organizations to bring services to their community (Wang and Burris, 1997). Photovoice can be used with any population in any part of the world to conduct a community needs assessment.

In conclusion, this study not only highlights the gaps in the knowledge about oral health for African immigrant communities living in the Aurora, Colorado, but also describes a useful tool for researchers who want to work with immigrant communities in any country.

Acknowledgments

Funding for this project was provided through the Colgate Award for Research Excellence.

References

Amin, M. and Perez, A. (2012): Is the wait-for-patient-to-come approach suitable for African newcomers to Alberta, Canada? *Community Dentistry Oral Epidemiology* **40**, 523–531.

Anderson, M. Pew Research Center. African immigrant population in the U.S. steadily climbs. (2017): http://www.pewresearch.org/fact-tank/2017/02/14/african-immigrant-population-in-u-s-steadily-climbs/.

Anderson, M. Pew Research Center. Social and Demographic Trends. A Rising Share of the U.S. Black Population Is Foreign Born. (2015): http://www.pewsocialtrends.org/2015/04/09/a-rising-share-of-the-u-s-black-population-is-foreign-born/.

Collins, C. C., Villa-Torres, L., Sams, L. D., Zeldin, L. P. and Divaris, K. (2016): Framing Young Childrens Oral Health: A Participatory Action Research Project. *PloS one* **11**, e0161728.

Cote, S., Geltman, P., Nunn, M., Lituri, K., Henshaw, M. and Garcia, R. I. (2004): Dental caries of refugee children compared with U.S. children. *Pediatrics* **114**, e733–e740.

Cruz, G. D., Chen, Y., Salazar, C. R. and Le Geros, R. Z. (2009): The association of immigration and acculturation attributes with oral health among immigrants in New York City. *American Journal of Public Health* **99**, S474–S480.

Eurostat: Your key to European statistics: https://ec.europa.eu/eurostat/data/database

Gambino, C. P., Trevelyan, E. N. and Fitzwater, J.T. The Foreign-Born Population From Africa: 2008–2012. (2014): https://www.census.gov/content/dam/Census/library/publications/2014/acs/acsbr12-16.pdf.

Geltman, P. L., Hunter Adams, J., Penrose, K. L., Cochran, J., Rybin, D., Doros, G., Henshaw, M. and Paasche-Orlow, M. (2014): Health literacy, acculturation and the use of preventive oral health care by Somali refugees living in Massachusetts. *Journal of Immigrant and Minority Health* **16**, 622–630.

Horton, S. and Barker, J. C. (2010): Stigmatized biologies: Examining the cumulative effects of oral health disparities for Mexican American farmworker children. *Medical Anthropology Quarterly* **24**, 199–219.

Immigrants in Colorado. (2017): Washington D.C: American Immigration Council, https://www.americanimmigrationcouncil.org/research/immigrants-colorado.

Obeng, C. S. (2007): Culture and dental health among African immigrant school-aged children in the United States. *Health Education* **107**, 343–50.

Pew Research Center. At least a million sub-saharan Africans moved to Europe since 2010. (2018): https://www.pewresearch.org/global/2018/03/22/at-least-a-million-sub-saharan-africans-moved-to-europe-since-2010/#fnref-40235-1

Tiwari, T. and Albino, J. (2017): Acculturation and Pediatric Minority Oral Health Interventions. *Dental Clinics of North America* **61**, 549–563.

Wang, C. and Burris, M. A. (1997): Photovoice: concept, methodology and use for participatory needs assessment. *Health education & behavior: the official publication of the Society for Public Health Education* **24**, 369–387.

Who is Aurora? 2016 Demographic Report. Current Census Data, Key Areas and Comparisons. (2016): https://www.auroragov.org/UserFiles/Servers/Server_1881137/Image/City%20Hall/About%20Aurora/Date%20&%20Demographics/Who%20is%20Aurora%202016%20FINAL%2040MB.pdf.