# Dry Mouth, A Mobile Web App

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## Background

- Dry mouth, or "xerostomia," is a commonly overlooked symptom typically associated with salivary gland hypofunction (SGH) (reduced salivary flow) (1), affecting millions of people across the United States.
- It is caused by medications or combinations of medications, as a side effect of medical treatments, social habits, such as smoking and alcohol use, and dehydration.
- The prevalence varies widely depending on health status, medication use, and age (2), but prevalence is unknown in Texas.
- Dry mouth increases the risk of numerous oral conditions including:
  - Decay
  - Altered taste sensation
  - Difficulty chewing
- The previous stages of the study found that it is important for the community to have access to information to aid in early recognition and be able to communicate with their health providers.

## Significance

- Dry mouth is **prevalent in the community** but often goes underreported because of the lack of awareness that it can be addressed.
- Dry mouth **may be a symptom** of a systemic disease and can contribute to problematic oral conditions.
- The current study focused on **enhancing communication** between community members and their health care providers by developing of an **simple mobile web app** aimed at the community with self-assessment and results that will help patients engage in a conversation to address dry mouth symptoms.
- South Texas Oral Health Network (STOHN) led the study in 2018 **partnering** with the Madonna Neighborhood Center (MNC), and Bexar County Translational Advisory Board (TAB) and have developed a beta mobile web application to utilize in community organizations.

Want to try the app for yourself? Scan the QR code and download on your Apple iPhone!

## Methods

- Two focus groups were conducted, one with oral health practitioners and Bexar County TAB members (n=29) and the other included community members from the Edgewood area at the Madonna Center (n=23).
- All participants completed a brief demographic and knowledge and awareness questionnaire about dry-mouth.
- Technology of Participation (ToP®) method was used to develop the information and functionality of the web app based on the following question:

*"What information do you feel a dry mouth web application should have to increase understanding, awareness, and communication about dry mouth?"*

- Answers were grouped thematically, discussed, and refined to become major components for the development of the beta web application (see **Figure 1**).

## Results

- Among participants, both focus groups consisted of dentists (4%), dental hygienists (14%), TAB members (31%), community members (49%), and University residents (2%, see **Table 1** below for demographics).

**Table 1. Demographics**

| | Professional Group (%), n= 29 | Community Group (%), n= 23 |
|---|---|---|
| **Gender** | | |
| Male | 24% | 26% |
| Female | 76% | 74% |
| **Race** | | |
| White | 66% | 70% |
| Black or African American | 3% | - |
| Asian | 17% | - |
| American Indian or Alaska Native | 7% | - |
| Other or Declined to Answer | 7% | 30% |
| **Education** | | |
| High School/GED or less | 7% | 87% |
| Associates or Bachelor's | 28% | 13% |
| Graduate Degree | 65% | - |

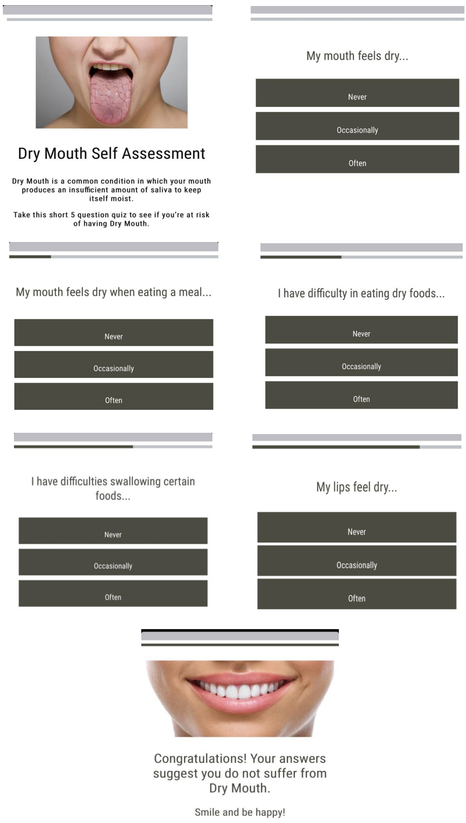
## Results (cont.)

- All participants were asked about their belief of dry mouth prevalence, factors associated with dry mouth, and how confident they were in identifying symptoms and treatment management (see **Table 2**).

**Table 2. Participant Knowledge and Awareness of Dry Mouth**

| | Professional Group (%), n= 29 | Community Group (%), n= 23 |
|---|---|---|
| **Prevalence** | | |
| Don't know | 3% | 22% |
| 19% or less | 14% | 26% |
| 20% to 39% | 31% | 13% |
| 40% or more | 52% | 39% |
| **Factors (answered "Yes")** | | |
| Multiple Medications | 100% | 83% |
| Age | 83% | 57% |
| Radiation Treatment | 90% | 44% |
| Illness | 90% | 87% |
| Dehydration | 97% | 87% |
| Smoking | 100% | 61% |
| Drinking Alcohol | 79% | 61% |
| **Confidence (answered "Very confident")** | | |
| Recognizing Symptoms | 25% | 22% |
| Taking care of Dry Mouth | 28% | 13% |

**Figure 1. Dry Mouth Web Application**




## Conclusions & Next Steps

- The data from the community was validated by 5 regional coordinators for the graphics, usability, clarity, and usefulness of the web application.
- Diverse groups are important to enhance communication about under reported oral health issues that impact quality of life. The partnerships between providers and the community is increasingly valuable and necessary in order to address the needs of research and community members.
- This app will help bridge the existing gaps in communication between patients and providers by increasing knowledge and awareness about dry mouth and encouraging communication.
- Our next steps include:
  - Piloting the app to a large community sample to gain more feedback on graphic design and usability.
  - Making the application available to Android and other computer systems.

## References

1. Plemons JM, Al-Hashimi I, Marek CL. American Dental Association Council on Scientific Affairs. Managing xerostomia and salivary gland hypofunction: executive summary of a report from the American Dental Association Council on Scientific Affairs. J Am Dent Assoc. 2014 Aug; 145(8):867-73.
2. Hopcraft MS, Tan C. Xerostomia: an update for clinicians. Aust Dent J. 2010; 55(3):238–244.

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