



## Oral health knowledge among elderly patients

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eniors account for 13.3% of the American population,<sup>1</sup> and this percentage is expected to increase as baby boomers age. Compared with previous generations, people 65 years or older now are more likely to retain their teeth.<sup>2</sup> Consequently, current seniors are more likely to experience periodontal disease, root caries, and oral cancer.<sup>3-5</sup> These diseases are even more common among people with diabetes and people who smoke. For example, in comparison with people who do not have diabetes, people with diabetes are likely to have deeper average probing pocket depths and more clinical attachment loss.<sup>6</sup> Similarly, current and former smokers are more likely to have periodontal disease than are nonsmokers.<sup>7</sup> Tobacco use also is associated with an increased risk of oral cancer, especially among men.<sup>8</sup> Furthermore, the incidence of oral cancer increases as people age.<sup>8</sup>

Elderly populations face many barriers to receiving dental care. Examples of these barriers include low education levels, low income levels, lack of dental insurance, poor health status, and their belief that they do not need dental care.<sup>9</sup> If older people are not aware of the oral health problems that are prevalent within their age group or do not understand that these

## ABSTRACT

**Background.** The purpose of this study was to determine the level of oral health knowledge among patients 65 years or older to identify areas in which knowledge gaps exist. **Methods.** The authors administered the Comprehensive Measure of Oral Health Knowledge questionnaire to patients 65 years or older at a university-based dental clinic and examined associations between oral health knowledge scores and participants' demographic and dental characteristics.

**Results.** Most participants were familiar with basic dental disease prevention and treatment; however, many participants were unfamiliar with concepts pertaining to periodontal disease, oral cancer, and children's oral health.

**Conclusions.** Advocates for geriatric oral health should educate elderly populations about the risk factors associated with periodontal disease and oral cancer, especially as they become more at risk of experiencing these diseases.

**Practical Implications.** Educational messages aimed at both routine and nonroutine users of dental care should be developed on the basis of universal health literacy principles to facilitate understanding among elderly adults, who have varying literacy levels.

**Key Words**. Aging; dental care for elderly patients; dentistry; patient education; oral health literacy. JADA 2015:146(1):17-26

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problems can be prevented or addressed, they may be less willing to seek dental care in light of the aforementioned challenges. Therefore, it is important to assess their knowledge pertaining to oral diseases.

Oral health literacy is "the degree to which individuals have the capacity to obtain, process and understand basic health information and services needed to make appropriate oral health decisions."<sup>10</sup> Researchers have noted the association of low oral health literacy with poor oral health outcomes.<sup>11-13</sup> Although researchers have conducted studies to assess the oral health literacy of populations in various age groups by using dental word recognition or oral health knowledge tests,<sup>14-19</sup> none of the investigators in these studies has examined the oral health knowledge of an exclusively elderly population.

The purpose of this study was to determine the level of oral health knowledge among elderly patients (65 years or older) at a university-based dental clinic to identify areas in which knowledge gaps exist. This information then can be used by the dental team and advocates of geriatric oral health to develop or select existing interventions aimed at improving the oral health literacy of older people so that that they will be more likely to seek oral health care.

## METHODS

We invited new and existing patients at the University of Iowa College of Dentistry, Iowa City, who were 65 years or older to participate in the study. Research staff recruited potential participants face to face and by way of mailed fliers. Because a portion of the study needed to be conducted in person, research staff sent recruitment fliers only to patients with upcoming dental appointments. The flier text requested that patients return the flier to indicate whether they were interested in participating in the study. Research staff called patients who did not return the fliers to ascertain their interest in participating in the study and to minimize the potential for recruitment bias associated with literacy proficiency. In accordance with the procedures of researchers in similar published exploratory oral health literacy studies,<sup>11,14,16,17,19</sup> the research team set a minimum recruitment goal of 100 participants. Interviewers gave \$5 parking vouchers, which could be used in any university-owned parking lot, to participants who completed the study. Research staff recruited participants between October 2011 and May 2012.

Staff members recruited patients from two College of Dentistry clinics for this study: the Family Dentistry Clinic and the Geriatrics and Special Needs Clinic. We chose these clinics for two reasons. First, the clinics provide comprehensive care, thus reflecting the type of care provided in private practice. Second, we wanted to determine whether differences in oral health knowledge existed for the patients from each clinic. In general, patients treated in the Family Dentistry Clinic are ambulatory adults who live independently. In contrast, patients treated in the Geriatrics and Special Needs Clinic are more likely to be frail elderly patients who have a number of medical conditions.<sup>20</sup> These patients may live independently, in assisted-living facilities, or in long-term care facilities.

The principal investigators (M.R.M. and C.S.) obtained approval from the University of Iowa Institutional Review Board to conduct the study. The interviewers read the approved informed consent document aloud to all participants immediately before conducting the surveys. Participants then signed the informed consent document to indicate their agreement to participate in the study.

Trained interviewers (M.R.M., A.Q., C.S.) administered a questionnaire to the participants in person. The first portion of the questionnaire was composed of the validated Comprehensive Measure of Oral Health Knowledge (CMOHK) survey, which includes 23 oral health knowledge items.<sup>19</sup> The questionnaire also included 5 questions that investigators have examined previously for associations with oral health knowledge.<sup>19</sup> These questions were aimed at ascertaining whether participants had ever been told they had caries (tooth decay), periodontal disease, or oral cancer. They also were aimed at determining whether participants had lost all of their maxillary and mandibular (upper and lower) natural teeth and when participants last had visited a dentist. In addition to the aforementioned questions, the questionnaire included 56 questions to assess participants' demographic characteristics, history of dental care experiences, preferred methods regarding how the dental students who provide the treatment communicate treatment plan options, and beliefs regarding the importance of understanding various components of their proposed dental treatment.

Because participants needed to answer questions pertaining to pictures (such as identifying periodontal disease in a photograph), the interviewers presented the CMOHK questions on slides on a laptop computer. The interviewers read the questions aloud from the computer screen, which provided participants with the opportunity to read the questions concurrently, and then the interviewers recorded the participants' answers on a paper questionnaire. The interviewers checked the answers and then summed the scores to determine the number that were answered correctly (perfect score = 23).

After completing the CMOHK, the interviewers asked the participants to rate their ability to read, and they asked the participants to identify how often they needed to have someone help them read instructions, pamphlets, or other written material from the doctor or

**ABBREVIATION KEY.** CMOHK: Comprehensive Measure of Oral Health Knowledge.

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