Improving Oral Health Literacy – The New Standard in Dental Hygiene Practice

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Abstract

Purpose: Oral diseases continue to burden a significant portion of the American public, especially those in low-income groups. The misconception that oral health is less important than general health exists among America's citizens even though it has been 13 years since the Surgeon General's report affirmed oral health as an essential component of general health. Research has shown that poor oral health literacy (OHL) affects oral health, can negatively influence quality of life and has a significant financial impact on society. National initiatives to increase the OHL levels of American citizens include training health care professionals about effective communication skills and disseminating oral health information to groups outside of dentistry. This paper describes a new course on OHL and communication techniques for dental hygiene students at the University of Maryland, School of Dentistry.

Keywords: oral health literacy, effective communication skills, oral health disparities, patient - provider interactions

This study supports the NDHRA priority area, **Health Promotion/Disease Prevention:** Assess strategies for effective communication between the dental hygienist and client.

Introduction

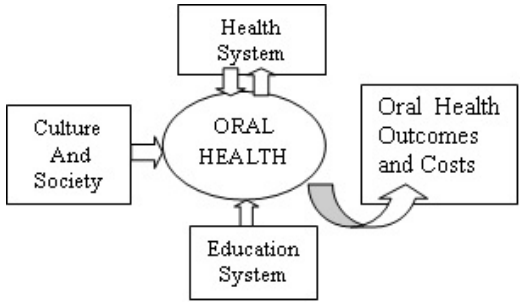
Dental caries, periodontal disease and oral and pharyngeal cancers continue to burden a significant portion of the American public. According to the most recent NHANES survey (1999 to 2002), 41% of children ages 2 to 11 had tooth decay in their primary teeth, 50% ages 12 to 15 had tooth decay in their permanent teeth and 95% of adults ages 40 to 59 had a history of coronal tooth decay.[1] Untreated decay is close to crisis proportions in children from lower income families, with children and adolescents having twice as much untreated decay as those from higher income families.[1] The proportion of children ages 2 to 5 years with dental caries is disproportionately concentrated among families who qualify for Medicaid coverage.[2] In addition, 1 in 4 U.S. adults ages 60 and over are completely edentulous with a higher prevalence found among lower income adults.[1] Oral cancer also continues to affect lives in America with an estimated 36,000 citizens diagnosed annually and more than 7,800 cases ending in death.[3] Oral health diseases can negatively impact quality of life and often lead to difficulty with concentration and speech, low self-esteem, inadequate nutrition, and hours lost from work and school. Additionally, emergency room visits, hospital stays and treatment requiring general anesthesia increase with dental problems. The Centers for Disease Control estimates that Medicaid expenditures for operating room cases range from $1,500 to $5,000 per child per year.[3]

Oral Health Literacy

Thirteen years following the Surgeon General's report affirming that oral health is an essential component of general health,[4] the misconception that oral health is less important than general health continues to exist among American citizens, including health care workers, legislators, insurance companies, educators, and community leaders. At a recent Institute of Medicine (IOM) meeting, U.S. representative Elijah Cummings stated that "People don't know what they don't know," drawing attention to the significance of oral health literacy (OHL) as a method to improving oral health (Cummings, personal communication, March 29, 2012). Health literacy and OHL have been increasingly visible in the literature since the release of the 2004 Institute of Medicine's report emphasizing the right of all individuals to receive health care information in ways that can be understood.[5] Literacy skills impact an individual's health more than age, income, employment status, education level, and racial or ethnic group.[6] The U.S. Department of Health and Human Service's Healthy People 2010 report defines health literacy

and OHL as "the degree to which individuals have the capacity to obtain, process and understand basic (oral) health information and services needed to make appropriate oral health decisions."[7] Skills associated with OHL include the ability to read, comprehend verbal communication, speak clearly, write competently and use math. In addition to one's own literacy, OHL involves the ability to navigate an increasingly complex health care system which is affected by an individual's culture and the context in which information is communicated.[8] For example, cultures differ in their communication styles, the meanings they assign to words and gestures, and their comfort levels when discussing the body, health and illness.[5] These cultural influences, combined with patient anxiety, fear, pain or other physical discomforts, may affect the comprehension of information exchanged, which can limit the patient's ability to make positive health decisions. The health care system continues to become more complicated while the mismatch between the literacy demands in the health system and the health literacy skills of most American adults persists.[5] The U.S. educational system also plays an important role in improving health literacy by educating the country's youth about health and teaching basic literacy skills. Figure 1 illustrates the intricacy of the factors affecting health literacy in the U.S.[5]

Figure 1: OHL Framework



OHL and the Dental Setting

In the dental setting, a patient's OHL level, or ability to decipher oral health information and act upon it, factors into whether they will consent to treatment procedures and/or follow health behavior recommendations. The terminology and printed materials used by oral health care providers to explain disease status and care regimens can be obstacles if they are not communicated at a level that the patient can understand. When these important messages are lost, it is less likely that patients will be empowered to make positive health decisions. Oral health care professionals may think they are being understood when communicating with patients, however, if the patient's ability to understand the terminology and comfort-level are not considered by the provider, messages may not get through to the patient as intended. Professional terms such as periodontal disease, dental caries and pH levels are often foreign to non-dental individuals. With the increase in cultural diversity in the U.S., language barriers are more likely to occur between patient and provider. In addition, fear, emotional stress and/or lack of trust can prevent patients from being open to self-care recommendations and dental treatment options. When patient–provider channels of communication are compromised, OHL levels are negatively affected, which may lead to increased oral disease.[5,9,10]

Patient populations with limited OHL skills are associated with the highest levels of disease and the worst oral health outcomes.[5,9,10] The effects of low OHL can have a domino effect on society and may be passed down from generation to generation.[11-13] Children of parents/caregivers with low OHL levels tend to have more dental infections which may result in difficulty eating, concentrating in school, increased emergency room visits and hospitalizations.[14] Children who suffer from dental disease often grow into adults with dental problems, which may lead to difficulty in acquiring a job, decreased self-esteem and poor general health.[15] Incorporating OHL and effective communication techniques into oral health care practice, together with disseminating this knowledge to individuals outside of dentistry, can help address the oral health care crisis among America's most vulnerable patient populations.

Dental hygienists are in a unique position to make a difference in the national movement to improve oral health through increasing OHL. Providing oral health education has been a significant component of dental hygiene practice since the early 1900s, yet a significant portion of the population remains affected by oral disease. This discrepancy may be improved if information from oral health professionals was presented in a more effective manner. Because one of the primary roles of dental hygienists is effectively communicating with patients to improve health outcomes, it is logical that they be at the "center" of improving the OHL of American citizens. Through the use of effective, 2–way communication, dental hygienists can inspire patients to begin valuing oral health and to take an active role in their health decisions. When patients trust their health care provider and the information presented, oral health messages have a better chance of resonating with the patient. Studies in medicine have shown a correlation between physician-patient communication

and following recommended health care protocols - this correlation could apply to oral health outcomes as well.[16]

In addition to improving the OHL levels of patients, dental hygienists are in a position to disseminate oral health knowledge beyond the dental setting to community leaders, educators and health care providers outside of dentistry in an effort to shift the focus from treating oral disease to preventing oral disease. If messages such as this are promoted to outside groups, perceptions of oral health may begin to change in America. Dental hygienists can embark on this challenge by networking in professional organizations such as the American Dental Hygienists Association (ADHA) and the American Dental Association (ADA), state-level advocacy groups, and through outreach activities such as community oral health presentations in elementary schools, Boys and Girls Clubs, and similar organizations that reach beyond the dental setting and have the potential to impact lives.

OHL and Dental Hygiene Curricula

A key element to advancing oral health in America is changing the communication practices of oral health professionals. According to the 2004 IOM report, health professionals have limited education and practice opportunities to develop communication skills that result in optimal provider-patient interactions that can lead to positive oral health outcomes.[5] Between this limited training and the increase in oral health disparities among American citizens, the need to incorporate communication skills into professional education at the undergraduate, graduate and continuing education levels has been recognized by several health professions as a vital component to meeting the goal of improving health in America.[5] To fulfill the charge of improving provider communication skills, the American Medical Association (AMA), the ADA and the ADHA have integrated effective provider communication into their standards of care, thus recommending the inclusion of communication instruction into professional health curricula in the fields of medicine, nursing, pharmacy, dentistry and dental hygiene.[17-19]

Oral hygiene instruction has been a part of dental hygiene curricula since the profession was established. Dental hygiene students are traditionally taught about oral diseases and become experts on numerous self-care devices and techniques to encourage patients to improve their self-care habits. In recent years, research has shown that assessing patients' health literacy levels and applying compatible communication techniques should be incorporated into oral health practice, beginning with its insertion into dental and dental hygiene education and continuing education programs.[17,20] Infusing these topics into dental hygiene curricula will help prepare dental hygienists to effectively communicate with patients during and following their formal academic training. Interpersonal relationships, which are built upon the quality of patient-provider communication, appear to be as important to patients as the clinical aspects of oral health care.[21] According to Rozier and Horowitz, negative provider-patient interactions are more likely to result in negative oral health outcomes, whereas positive provider-patient interactions have been shown to decrease anxiety, and increase motivation and satisfaction.[22] If students can develop and embrace the importance of high-quality communication techniques during their formative education, there is an increased likelihood that these skills will continue into professional practice following graduation.

OHL Course Description

The dental hygiene program at the University of Maryland, School of Dentistry incorporated a 1 credit, stand-alone OHL and communication course into the required core curriculum for the first time during the Fall 2011 term. The course prepares dental hygiene students to effectively communicate with patients from diverse groups. Introductory information focuses on defining OHL, its role in general health, how it affects patients' oral health status, and its relevance to dental and dental hygiene practice. The importance of inter-personal relationships between the dental hygienist and the patient is emphasized as a critical component to addressing the oral health crisis in America. Students learn how to assess patient literacy levels both informally, through specific responses and interactions when collecting health history and risk assessment data (e.g., continual sipping of soda and/or gestures indicating confusion with the dialog may indicate a lower OHL level) and formally, through the use of validated literacy assessment questions such as those developed by Chew et al[12] and Pfizer's health literacy assessment tool called The Newest Vital Sign.[23] Oral administration of formal health literacy instruments is suggested in situations when a patient's reading or language skills are in question. Students are then introduced to specific communication techniques compatible with various OHL levels.

The next component of the course focuses on barriers to effective communication and basic

techniques to overcome these obstacles. These barriers can be road blocks in the exchange of information between health provider and patient. Barriers are unique to the individual and can be physical, psychological and/or sociocultural in nature. Physical and psychological barriers may include fear, lack of trust and physical discomforts in the dental chair (e.g., pain, loud noise, temperature discomforts). Sociocultural hurdles, such as language barriers and perceived insensitivity by health care providers, could influence patient frequency of dental visits, adherence to self-care recommendations and oral health outcomes.[24] The course explores various cultures via small group discussions to help prepare students to recognize and appreciate diverse attitudes, values, and self-care habits within and between cultures. Students learn that "non-verbal cues make up 80% of interpersonal messages" and may indicate feelings of discomfort, surprise, fear and/or confusion.[25] Some examples include not making eye contact, opening eyes widely and cocking the head to one side.[26] It is explained that non-verbal cues may indicate a potential barrier to patients making positive oral health decisions and achieving optimal oral health outcomes. Regardless of the specific barrier, students learn the significance of their role in eliminating communication obstacles. This, in turn, increases the likelihood of improving OHL and positive health outcomes.

Following course instruction on communication barriers, specific communication techniques are presented to help elicit accurate information from the patient and ensure a clear understanding of information between provider and patient. Examples of communication techniques that are covered in the course include:

1. The use of plain language instead of scientific jargon (Table I)
2. Maintaining eye contact while speaking with patients
3. Asking open ended questions such as "What do you do to take care of your teeth?" as opposed to "How often do you brush and floss?"
4. Presenting a limited number of concepts at one time
5. Utilizing patient-friendly visual materials
6. The "teach back method" which enables providers to confirm if patients understand and can perform health information and techniques presented

As students become more culturally competent and proficient in assessing OHL and using communication techniques, the course shifts its focus to the application of these techniques in all aspects of dental hygiene care, beginning with the gathering of health history and risk assessment data. It is essential that health care providers communicate in a manner that elicits accurate information from the patient in order to determine disease risk and formulate customized dental hygiene care plans.

Course Activities and Assessments

Course content is delivered primarily via classroom presentation and videotaped samples of interactions between dental hygiene students and patients, and dental hygiene students and supervising dentists. Students participated in role-playing activities with fellow classmates to gain experience with the various communication techniques prior to utilizing them in the clinical setting. The culminating course assignment is a video role-play based on an assigned patient case history. Students work in groups and "act out" all interactions between health care provider and the patient and/or caregiver. Students also include a presentation to a "dentist" to demonstrate their ability to adjust their communication style from a patient with low OHL to an oral health professional with high OHL.

By watching the communication techniques applied in the video, student comprehension of course concepts was assessed by the course instructor, including the student's ability to adjust their methods when needed. Because students were aware that they would be on camera, they carefully selected roles for each group member and prepared a script with dialog that was consistent with the OHL data for the patient in their assigned case. Many students even donned costumes to extenuate their given part (e.g., a wig, hat and a mustache to play a father of a patient). Students learned to consider details such as when to sit the patient up to achieve eye contact and when to use specific terminology to explain dental caries and/or periodontal disease that was different from those learned in their basic science and pre-clinical courses. In addition, they had to consider when and how to adjust the inflection of their voices when patients or caregiver student actors appeared anxious, angry or perplexed about what was being discussed.

Student Feedback of the Course

Students evaluated the course anonymously via an opinion/Likert scale evaluation instrument, with questions rating the quality of the audiovisual material, scheduling, correlation between the material presented and what was assessed on the assignment in addition to an overall rating of the

Table I: Dental terms and plain language alternatives

Dental Term/Phrase	Plain Language Alternative	Dental Term/ Phrase	Plain Language Alternative
Caries	Cavities, Tooth decay	Erosion	Wearing away of tooth surface due acid in foods and drinks
Periodontal disease	Gum disease/infection	PH level	Acid level
Inflammation	Pain, swelling, heat, redness	Gingival margin	A turtle- neck of tissue around the tooth
Bacteria	Germs or bugs	Calculus	Hardened plaque
Root canal	Removal of damaged tooth nerve	Palate	Roof of your mouth
Extraction	Pull a tooth	Abscess	Pocket of infection
Amalgam or composite	Filling material	Extraction	Pull a tooth
Crown	Cap or cover over your teeth	Halitosis	Bad breath
Denture	False teeth	Tempromand-ibular	
Joint	Joint that attaches jaw to skull		
Sealants	Coating painted on teeth to prevent cavities	Side effect	Effect caused by a medicine you take
Xerostomia	Dry mouth	Pulp	Tooth nerves
Orthodontics	Braces	Chronic	Constant; life–long condition
Carcinoma	Cancer	Probe reading	Measurement of how much gum is supporting the teeth
Plaque	Whitish substance made from germs / bugs that build up on the teeth and gums like dust		
Caries disease process	Acid attack - when sugar and bacteria/ plaque bugs combine on a tooth surface, it results in holes or cavities to form		
Periodontal disease process	When plaque is not removed, it hardens and sits on the gums causing them to become puffy and red. If not removed, it builds up under the gums and sits on the bone that supports the teeth. The longer it sites on the bone, the more the bugs in the plaque and calculus will eat away at the bone. The more the bone is eaten away, the less support there is for the teeth. The less support there is, the more likely teeth can become loose and fall out.		

course. Overall responses were positive. Students indicated that the videotaped role-playing assignment allowed them to pull the course concepts together in a fun and meaningful way. Overall, students felt the course helped further prepare them to interact with patients in the clinical setting, however, some expressed that scheduling of the course during winter semester was stressful due to requirements in other courses. Some students commented that the videotaped role-playing assignment was to time consuming for a 1 credit course, and that student comprehension and ability to apply course concepts could be evaluated in a manner that was less time intensive.

Modifications to the Course Based on Evaluation Results

Based on student feedback and faculty discussion, learning activities and evaluation strategies related to OHL and patient communication will be delivered at multiple points throughout the 2–year dental hygiene curriculum at the University of Maryland. The majority of the course concepts will be presented in the classroom toward the end of the fall term for first-semester dental hygiene students. Students will then practice communication techniques through role-playing activities in a simulation lab which will enable multiple faculty members to provide feedback to student groups. Evaluation strategies for the fall 1 credit course

Table II: Learning activities and evaluation strategies

Learning Activities	Topic(s)	Evaluation Strategies
• Classroom presentation with group discussion • Videos of student interactions with patients and supervising dentists • Role play activities based on patient caries or periodontal disease case histories with faculty supervision	• Defining OHL, its role in general health, its effect on oral health and dental and DH practice. • Barriers to effective communication • Assessing OHL levels • Cultural Competency • Communication techniques • The OHL framework, (Figure 1) is used to describe the numerous factors affecting OHL in the USA	• Quiz evaluating students' comprehension of terms and concepts presented in class • Group assignment to develop a script for a videotaped role- play of interactions between student RDH and patient, and student RDH and supervising dentist based on patient case histories • Student interactions with patients are evaluated in clinic by supervising dental hygiene faculty members • Group video based on previously submitted script • Students' communication techniques and oral health behavior sessions with patients in clinic are evaluated routinely.
• Guest presentations and classroom discussion	• The role of oral health in health care reform • Medical - Dental Collaboration regarding the role of oral health in general health • The Maryland Oral Health Plan • Maryland Dental Action Coalition Program (MDAC) and initiatives to improve oral health in Maryland	Oral health presentations to target groups such as: • Healthy Start - clients and paraprofessionals • Woman Infants & Children (WIC)- clients and paraprofessionals • Judy Center- elementary school children • Head start program – children and caregivers • Hospital nursing staff • Professional students outside of dentistry **Participants will complete a pre and post-test to evaluate effectiveness of student presentations

will include a quiz on concepts presented in class and a group assignment to submit a script for a video role-play. The script will encourage students to apply communication techniques but will take less time than developing a full-length video.

Senior dental hygiene students will have the opportunity to utilize OHL course concepts both with patients in clinic and for combined assignments from community oral health and senior seminar courses. Student groups are required to develop plans for a community oral health program to address access to care needs for a low-income population for the community oral health course, which provides a target audience for students to a deliver an oral health presentation for the senior seminar course. Combining requirements from the 2 courses will encourage dissemination of oral health information, providing students with more experience using communication techniques. This also aligns closely with Maryland's Oral Health Plan which aims to improve the oral health of at-risk communities. Lastly, students will gain additional exposure to individuals from various cultural, socioeconomic and geographic groups, further developing their cultural competency.

Conclusion

Oral disease still plagues a significant portion of the American public even though it is, in most cases, preventable. Those most affected by oral

disease are from lower-income groups, as they lack the health care knowledge and financial resources to seek treatment. Poor oral health impacts overall health and negatively influences quality of life in terms of nutrition, self-esteem and the ability to attend work and/or school. Challenges of navigating an increasingly complex health care system persist, further perpetuating oral disease in America. Disease experienced in childhood may continue into adulthood, increasing the likelihood of inadequate parent modeling of proper oral health behaviors to their children. A solution to this vicious cycle is to shift the focus in America from treating oral disease to preventing disease through increasing OHL. Once American citizens, including health care workers, legislators, insurance companies, educators and community leaders, perceive oral health and general health as equally important, the goal of improved oral health in America is attainable.

Increasing OHL among all population groups is critical in addressing poor oral health in the U.S. Dental hygienists are in a unique position to make a difference in this initiative as their primary role is prevention via patient education and establishing positive patient interactions. Communicating more effectively with patients can overcome a cadre of barriers and assist in empowering patients to make positive oral health decisions. Educating dental hygienists on effective communication techniques and on the significance of increasing OHL levels are consistent with national initiatives to integrate this content into professional health education curricula. This OHL and communication course was a success as measured by student evaluations, and could serve as a model for other dental hygiene programs.

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