Perspectives

Results from a New Global Oral Health Course: A Case Study at One Dental School


Abstract: To channel students’ interest in global oral health and prepare them to respond adequately to the health effects of globalization as future practitioners, new courses in dental curricula may be needed. This article documents the results of Harvard School of Dental Medicine (HSDM)’s new course, Global Oral Health: Interdisciplinary Approaches. To the authors’ knowledge, this is the first course of its kind in dental education. HSDM developed learning objectives for the course based on the literature, the training and experience of HSDM global health faculty, and the mission of the HSDM Global Health Initiative. Dental residents and public health students enrolled, and some dental students audited. The discussion-based critical thinking course examined the extensive relationship between oral health and global health, and concept development was determined by in-class participation. After taking the course, students’ assessments of their global oral health knowledge increased on average 100 percent. Nearly all students reported that they were very likely to use the concepts of global oral health in their careers and that they would definitely recommend the course to others. This course model seems to have met the expectations of students and faculty, and its fundamentals appear to be readily transferrable to other dental schools.

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In recent years, a growing number of medical and dental education programs in North America have reported that student interest in global health and global health-related activities has increased tremendously, driving a surge of new global health curriculum development.1-15 There is a mounting consensus that no one is isolated from such effects of globalization as pandemics, technologies, mobile populations, and inequities and that these issues transcend both national and disciplinary boundaries. In response, global health must become a component of health professions education so that today’s students will be adequately prepared as tomorrow’s global citizens, ready to fulfill their responsibility to vulnerable populations.3,9,11,13,16-24 Despite recognition of the growing need, however, medical and dental education continues to neglect global health as part of their teaching.4,11,17,19,22-25

To channel students’ interest in global oral health and prepare them to respond adequately to the health effects of globalization as future practitioners, new courses in dental curricula may be needed. Schools have been advised to enhance their curricula by creating new courses and experiential learning opportunities—ideally, integrating global health teaching directly into students’ coursework.12,17,26-32

As part of Harvard School of Dental Medicine (HSDM)’s Global Health Initiative, faculty members have developed and implemented a number of pilot global health activities and pedagogies intended to develop global health leaders. These activities include courses, research activities, workshops, cases, and experiential learning opportunities. The pilot phase has allowed the faculty to assess current student understanding and perceptions of global health, gauge the level of student interest, and evaluate students’ abilities to appreciate their roles as oral health care providers in a global context. This article documents the results of one of the initiative’s new courses, Global Oral Health: Interdisciplinary Approaches. To our knowledge, this is the first course of its kind in dental education.
Course Description

Following establishment of the learning objectives, the course director designed the course as a discussion-based critical thinking course that examined the extensive relationship between oral health and global health. Concept development was determined by in-class participation. The timeline for learning objective development, internal peer review, and final course design approval and implementation by the HSDM Curriculum Committee is shown in Figure 1. This half-semester (eight-week) course included twenty-four hours of classroom time, which translates to three hours per week, and eighteen to twenty-four hours of additional course time dedicated to outside reading, course session preparation for participation, and study for the final exam.

By considering the global burden of oral diseases along with discussions of readings by Amartya Sen, Jeffrey Sacks, Paul Collier, and other global players, students began to define the principles of global oral health. These included the ways in which globalization affects oral health and how the oral condition is associated with poverty and other social determinants of health such as infectious and noncommunicable diseases, maternal and child health, mental health, nutrition, tobacco, alcohol, and sanitation. Students discussed how complete health and an end to global poverty are not possible without including oral health. This course was thus designed to demonstrate how interdisciplinary approaches can be incorporated into policy and practice through the lens of oral health.

Since interdisciplinary collaboration is an important concept of global health, interdisciplinary enrollment in the course was encouraged. The class

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<th>Table 1. Learning objectives for Harvard School of Dental Medicine’s course on global oral health</th>
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<td>1. Describe the global burden of diseases and oral diseases and conditions: prevalence, distribution, associated risk factors, and relationship between oral disease, population trends, and global disease patterns.</td>
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<td>2. Identify the range of global oral health research questions and issues of global research conduct and resulting policies, including ethical concerns and human rights considerations.</td>
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<td>3. Demonstrate oral health practitioners’ roles in interdisciplinary collaboration regarding global health policy and practice.</td>
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<td>4. Analyze how global oral health systems impact their respective populations, and describe the variation of those systems such as workforce, financing mechanisms, and service delivery and how they relate to the health system at large.</td>
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<td>5. Explain how oral health may be integrated into global disease prevention and primary care.</td>
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<td>6. List global oral health and related agencies and organizations, and explain their roles in global health.</td>
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<td>7. Demonstrate cultural competence regarding oral health services and interactions with global health systems.</td>
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consisted of fourteen students in the pilot phase. Advanced graduate residents in the specialties of periodontics, orthodontics, prosthodontics, dental public health, and general practice residency were enrolled for elective credit, and some dental students were permitted to audit. We were able to achieve some interdisciplinary collaboration because students from Harvard School of Public Health matriculated, some with a dental background and some without any prior oral health training and an intention to pursue medical school. This interprofessional approach countered the tendency for health education to act in isolation and encouraged development of global oral health concepts in a multiprofessional and team-based context.

The course was an elective didactic course. Students were given assigned readings prior to each session. Global health topics were introduced at the beginning of each session using one or more means: lectures from faculty and guests from the field, cases, online videos, use of an interactive classroom response system, and roleplay. This variety was used to appeal to as many learning styles as possible. Students were expected to come to class prepared to discuss session topics in detail, including bringing thoughtful and in-depth questions based on the assigned readings. Each course session concluded with a section called “Putting it into context through oral health.” In this part of the session, review questions and a discussion drew the connection between broader, critical topics of global health and practical, contextual principles of oral health.

The last course session before the final exam was an in-class activity entitled “Connecting the Dots: Community Examination and Diagnosis” based on Jeffrey Sachs’s discussion of diagnosing communities in _The End of Poverty_. Sachs argues that, similar to diagnosing individual patients, performing an economic diagnosis for entire societies will assist in preventing program failure on a national scale. This session entailed a group assignment that built on his concept and considered other aspects beyond simply economics. Drawing on their course materials and discussions, students teamed up to develop a systematic step-by-step protocol that can be used to perform a thorough “diagnosis” for a hypothetical community prior to implementing a global health intervention. The protocol included gaining a baseline understanding of existing health education, financing, and delivery systems in place in the community so that students can better predict how their activities will impact the local environment. It requested information about how organizations are already involved in similar activities and included...
space for students to analyze previous program successes and failures in the community. Students found that recording unique disease burdens, population trends, and demographics were important in order to target specific needs more effectively. Additionally, students gathered information on common cultural practices and community partners in their efforts. By following this protocol, students noted that they would be able to better match their global and community health-related activities to the objectives they learned in the course. This assignment provided students with a systematic way of critically thinking about how to incorporate global health objectives into practical fieldwork.

Assessment

The final exam was in a short-answer and essay format and required students to individually defend their class design for the community and diagnosis protocol. They were given a fictional community for which they were planning to implement an oral health program. They were told to focus not on the program design, but on the rationale for a systematic “diagnosis” prior to program design. For each section of the protocol, students were required to justify the importance of the information they gathered about the community, validating how and why the information would lead to a more successful oral health intervention in the long term. For example, students included a section in their protocol for the age structure of the community; on the exam, they were expected to explain that the disease burden of a population varies according to the age structure and that resulting health system financing and design are influenced by the burden of disease. Students completed this written exercise for the entire protocol.

Key words and themes demonstrating mastery of the learning objectives were well represented in the students’ responses on the exam. Students discussed concepts that are atypical for the dental education environment and yet are extremely relevant to the practice of global health. Examples include GDP, demographic and epidemiologic transitions, ethical challenges with global health research, horizontal and vertical program targeting, the Millennium Development Goals, life expectancy, government corruption, urbanization, gender roles, community-based participatory action research, and social risk factors for disease. Overall, the students provided clear arguments that connected broad global health concepts to specific oral disease prevention and community oral health program design and intervention. The exam tested the students’ mastery of these concepts, and the community diagnosis exercise tested their ability to work as part of a team—a critical skill in the field of global oral health.

Students were evaluated on class attendance, preparation and participation, and the final exam. They also completed an anonymous survey at the start of the first session and at the conclusion of the last session. The survey measured their assessment of their knowledge of the learning objectives before and after taking the course. It also asked students how likely they were to utilize the concepts of global health in their careers. Qualitative feedback was recorded as well as quantitative. This study was assigned CHS number M22633-101 and was granted the status of exempt by the Harvard Medical School Human Subjects Institutional Review Board.

Results

Thirteen students submitted surveys, both before and after the workshop, that were evaluated for this study. The results from the anonymous course surveys were extremely favorable. After taking the course, students’ assessments of their global oral health knowledge increased on average 100 percent (Figure 2). Also, 100 percent of the students reported that they were likely or very likely to use the concepts of global oral health in their careers and that they probably or definitely would recommend the course to others.

In addition, the qualitative feedback from the students was constructive and positive. Comments included the following: “Very interesting. Nowhere else can you learn this information since there are no courses in dental school or any other school about this subject”; “Great class! Interesting and innovative discussions and subjects. I’ve never had a class like this before”; and “The best aspect of this course was the class composition of students from multiple academic and professional backgrounds.” Students reported that the course broadened their awareness in comments like these: “As someone who is primarily interested in medicine, the greatest insight I gained from this course was the intertwining of oral health with physical/mental health”; and “[I’ve gained] better awareness of the need for change within the dental professional to make a difference in the world; a call for action is needed from every one of us.” The main area students recommended for improvement
The results from our Global Oral Health: Interdisciplinary Approaches pilot course demonstrate that a variety of professional students are capable of thinking critically about the impact of globalization on oral health when equipped with the right tools and learning environment. Considering the outpouring of student interest in global health, providing a formal course allowed students to channel this energy into constructive learning outcomes. Because the course demanded student-directed learning and concept development, students ultimately were able to develop concepts of global oral health through guided discussions with one another. This was possible due to the interdisciplinary composition of the class, which encouraged collaborative thinking and dialogue that challenged students’ independent academic comfort zones. Students with one background were able to compensate for knowledge gaps in students from another background, for example. The end result was a learning environment that led to the collective reasoning necessary for global health practice. Students greatly enjoyed this type of interaction. The success of this course suggests that more opportunities are needed to break down silos and isolated educational settings so that students can translate interprofessional educational opportunities into practice.

Discussion

Oral health continues to be a tremendously neglected global health priority. Numerous strategies by oral health professionals have sought to elevate awareness of oral conditions at a global level. These efforts must continue and even increase, but the dental community must also do a better job of embracing global health. The relationship between global health and oral health is indeed a two-way street. Dentists are currently an untapped resource who can contribute tremendously to the health of the world’s population. We have a responsibility as educators to graduate oral health professionals with this global mindset. Such trends as aging and urbanization are prevalent across the globe, and how these trends will affect health is yet to be seen. Our students as future leaders must be prepared to fill the gap in global health research, policy, and practice. We must demonstrate that they are competent members of an interprofessional team, prepared to address complex challenges in the global health arena.

The results from our Global Oral Health: Interdisciplinary Approaches pilot course demonstrate that a variety of professional students are capable of thinking critically about the impact of globalization on oral health when equipped with the right tools and learning environment. Considering the outpouring of student interest in global health, providing a formal course allowed students to channel this energy into constructive learning outcomes. Because the course demanded student-directed learning and concept development, students ultimately were able to develop concepts of global oral health through guided discussions with one another. This was possible due to the interdisciplinary composition of the class, which encouraged collaborative thinking and dialogue that challenged students’ independent academic comfort zones. Students with one background were able to compensate for knowledge gaps in students from another background, for example. The end result was a learning environment that led to the collective reasoning necessary for global health practice. Students greatly enjoyed this type of interaction. The success of this course suggests that more opportunities are needed to break down silos and isolated educational settings so that students can translate interprofessional educational opportunities into practice.

Figure 2. Students’ perceptions of their global oral health knowledge before and after taking the course (N=13; average scores on scale of 1=very poor, 2=poor, 3=fair/moderate, 4=good, 5=excellent)

Categories of global oral health knowledge measured in assessment:
A=Global burden of oral disease
B=Global population trends, theories, and the relationship to oral health
C=Global disease patterns, theories, and the relationship to oral health
D=Concepts in global oral health research
E=Global oral health organizations
F=The role of primary care in global oral health

was to provide more time for the course (“Perhaps a year-long course,” one suggested) to allow for greater depth of concept development.
The global oral health course is in its infancy and remains an elective for interested students. In the long term, many of its objectives will become more broadly adopted global health competencies for Harvard School of Dental Medicine programs and for the larger Harvard University Global Health Initiative. However, the curriculum is already demanding, leaving little room for new coursework or teaching modules, so reform will take time, particularly at the predoctoral level. After all, dental curricula must prepare students for clinical practice, which means they live in a world of millimeters while in dental school. Translating their thinking from this world of millimeters to a world of millions when teaching global health requires purposeful and calculated approaches to curriculum reform.

There are several limitations to this study, including a small sample size of only thirteen students, which means even fewer from each discipline. Further evaluation is necessary with future iterations of this course. Additionally, dental students may struggle to see the relevance in this type of teaching, finding it challenging to see linkages between their clinically focused training and broad global health principles. The global oral health course is only one aspect of a larger effort under way to integrate global health into the classroom and clinic with the real world. This strategy aims to expand students’ thinking about their role as dentists, recognizing the vast span of health determinants affecting the conditions of their patients in an interconnected world.

Conclusion

This article documented a new course implemented to introduce graduate dental students as well as public health students to the principles of global oral health. This course model appears to have met the expectations of the students and, based on informal discussions, the faculty members. The development of a discussion-based critical thinking course with an interdisciplinary student body addressing a variety of topics proved a successful approach. We will continue to offer this course to the next group of public health students and dental residents and plan to adapt it for the predoctoral students. We believe that the fundamentals of this course are readily transferrable to other dental schools and schools teaching health care professionals.

REFERENCES