Research

Exploring the Integration of the Dental Hygiene Diagnosis in Entry-Level Dental Hygiene Curricula

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Abstract

Purpose: The purpose of this study was to investigate how dental hygiene educational programs currently incorporate dental hygiene diagnosis (DHDx) into entry-level, dental hygiene curriculum.

Methods: An exploratory, quantitative, descriptive cross-sectional study was designed to assess the extent to which DHDx is integrated into entry-level dental hygiene curriculum. A 30-item survey was designed and content validity established using a subset of dental hygiene faculty and researchers as well as participants from the American Dental Hygienists' Association. Data was collected using the Qualtrics® electronic platform; two electronic mailings were sent to all entry-level dental hygiene programs. All surveys included a consent form and confidentiality was maintained. Descriptive statistics were used to analyze data.

Results: Of the 334 surveys e-mailed, 198 responses (n=198) were received for a 59% response rate. Of the program respondents, 98% (n=191) reported that the dental hygiene process of care and concepts specifically relating to the DHDx were being taught. In addition, 79% (n=153) of respondents confirmed that they "always" require students to write a DHDx statement for the patients. Of the respondents, 80% (n=150) recognized that formulating a DHDx should result in improved patient outcomes and 76% (n=143) indicated that formulating a DHDx increases the dental hygienist's accountability in patient care.

Conclusion: This exploratory study assessed the extent to which the DHDx is taught in entry-level dental hygiene programs. Findings confirmed that the DHDx is an integral component of dental hygiene education, but there is a need for standardization and faculty calibration for DHDx concepts and terminology. These results support adding DHDx into the Commission on Dental Accreditation (CODA) standards.

Keywords: dental hygiene diagnosis, dental hygiene education, dental hygiene process of care, accreditation standards

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Introduction

Health care professionals practice to promote, improve and facilitate the health and well-being of individual patients and societal populations. Dental hygienists have expertise in the prevention, education and treatment of oral diseases while working in partnership with dentists and other health care specialists.[1] In order to assist in the understanding of a dental hygiene diagnosis (DHDx) for the purpose of collaborating with multiple health practitioners, terminology needs to be clear and consistent. The term diagnosis, is used by all health care professionals as it pertains to their specific discipline.[2-6]

Educational standards and requirements for the clinical practice of dental hygiene are foundational in understanding what is expected of a licensed dental hygienist. The discipline of dental hygiene is defined by the American Dental Hygienists' Association (ADHA) as the "art and science of preventive oral health including the management of behaviors to prevent oral disease and promote health."[7] Prevention of oral diseases first requires an astute recognition of the particular disease, including the associated causes and risks. Promotion of health necessitates an understanding of how to improve and maintain the body in a state of health. Dental hygiene education, licensing, and practice incorporate health prevention and promotion strategies in order to address a client/patient's individual oral health needs. Needs are assessed and recognized through the use of a DHDx. Strict guidelines have been established by accrediting and licensing bodies to ensure the competency of dental hygienists in all areas of practice.

Entry-level dental hygiene programs educate and prepare graduates to gain licensure and competency for clinical practice. In order to be licensed as a dental hygienist, a candidate must graduate from an accredited dental hygiene program, pass a comprehensive written examination and a clinical examination.[1] All states within the United States (U.S.) accept the American Dental Association Joint Commission on National Dental Examinations National Board Dental Hygiene Examination to meet the comprehensive written examination component. "Diagnosis" is specifically listed as a possible test topic in the study guide for this 350 question examination.[8]

Dental hygiene programs are accredited through the Commission on Dental Accreditation (CODA). In 2010, CODA removed DHDx from the Accreditation Standards for Dental Hygiene Education Programs (Standard 2-13), even though DHDx had been included in the Standards since 1998.[9,10] Although the term DHDx is not specifically included in the CODA dental hygiene patient care competencies, graduates are expected to exhibit competence in the dental hygiene process of care.[11] The dental hygiene process of care involves standards established by the ADHA that provide consistency, accountability and responsibility within the dental hygiene profession in regards to the care provided to clients/patients.[1] These standards for clinical dental hygiene practice provide guidance for the oral health professional regarding the relationship between patient and provider. Further, the dental hygiene process of care helps the oral health care provider to "identify the causative or influencing factors of a condition that can be reduced, eliminated, or prevented by the dental hygienist." [1] The DHDx is a critical element of the process of care for the provision of quality, comprehensive care. Because CODA requires knowledge and application of the dental hygiene process of care, graduates must be taught and prove competence in DHDx, the second standard in the ADHA process of care.[11] Therefore, it has been recommended that educators prepare students and faculty to formulate and use DHDx in the classroom and clinical setting.[10]

Components of the dental hygiene process of care include: assessment, DHDx, planning, implementation, evaluation, and documentation (ADPIED). DHDx is defined as "the identification of an individual's health behaviors, attitudes, and oral health care needs for which a dental hygienist is educationally qualified and licensed to provide. A dental hygiene diagnosis requires evidence-based critical analysis and interpretation of assessments in order to reach conclusions about the patient's dental hygiene treatment needs. The dental hygiene diagnosis provides the basis for the dental hygiene care plan."[1] The ADHA standard for the DHDx is shown in Figure 1.[1]

Figure 1. ADHA Standards for Clinical Practice: Dental Hygiene Diagnosis (Standard 2)[1]

The ADHA defines dental hygiene diagnosis as the identification of an individual's health behaviors, attitudes, and oral health care needs for which a dental hygienist is educationally qualified and licensed to provide. The dental hygiene diagnosis requires evidence-based critical analysis and interpretation of assessments in order to reach conclusions about the patient's dental hygiene treatment needs. The dental hygiene diagnosis provides the basis for the dental hygiene care plan.

Multiple dental hygiene diagnoses may be made for each patient or client. Only after recognizing the dental hygiene diagnosis can the dental hygienist formulate a care plan that focuses on dental hygiene education, patient self-care practices, prevention strategies, and treatment and evaluation protocols to focus on patient or community oral health needs.

I. Analyze and interpret all assessment data.

II. Formulate the dental hygiene diagnosis or diagnoses.

III. Communicate the dental hygiene diagnosis with patients or clients.

IV. Determine patient needs that can be improved through the delivery of dental hygiene care.

V. Identify referrals needed within dentistry and other health care disciplines based on dental hygiene diagnoses.

The ADHA DHDx White Paper clearly differentiates between a dental diagnosis and a DHDx by stating, "dentists focus on diagnosing and treating those conditions for which they are educated and licensed in the same manner that dental hygienists diagnose and provide care within the scope of their education and license."[10] Dental hygienists analyze information collected during the assessment phase of patient care including overall health, clinical findings, and risk assessment data, in order to determine the DHDx appropriate for the individual client/patient.[1] Examples of a DHDx are as numerous and diverse as the patient population.[12,13] Accuracy of DHDx requires analyzing all of the assessment data and utilization of the clinician's critical thinking skills. Proficiency in developing diagnostic statements and formulating a DHDx is introduced as part of the dental hygiene education program and is refined with experience.

Assessment provides the foundation for formulating a DHDx. Health history data provides a DHDx related to a patient's medical risk status according to the American Society of Anesthesiologists Physical Status Classification System (ASA)[14] along with vital sign evaluation, social history,

current and past medications, and hospitalization history. Dental hygienists are responsible for the safety and welfare of the clients/patients within their care. Additional care and possible referral might be indicated for a patient who exhibits a high ASA classification or who presents with elevated blood pressure. Dental hygiene programs incorporate emergency prevention strategies into multiple courses in order to prevent possible complications associated with a patient's medical health during dental hygiene care. Knowledge and experience must be obtained during the dental hygiene education process to ensure adverse health status is identified and accurately documented as part of a DHDx.

Clinical assessment findings dictate other identifiable DHDx for an individual. Examples of diagnoses might involve other specific classifications of periodontal diseases as outlined by the American Academy of Periodontology, the presence of oral conditions such as xerostomia, and/or the evidence of current or past dental caries. Additionally, risk assessment evaluation provides a DHDx relating to any trait increasing the risk for oral disease such as tobacco use. Each DHDx is addressed in the dental hygiene care plan and discussed prior to obtaining informed consent. Explaining the specific states of disease assists the individual in understanding the rationale for treatment. Patients are given the DHDx, recommended interventions, risks for treatment and alternative options, and expected outcomes. Individuals cannot be expected to give informed consent without receiving and understanding their particular DHDx.[1]

Concepts related to DHDx in the literature are limited. Literature searches of the term "dental hygiene diagnosis" showed no published research studies. However, historically, professional associations such as the ADHA and the Canadian Dental Hygienists Association (CDHA) have incorporated DHDx as part of their practice standards. The CDHA reference to DHDx is found in Standard 2: Dental Hygiene Process: Assessment 2.5 "Analyze all information to formulate a decision or dental hygiene diagnosis."[15] Various models of the DHDx have appeared in dental hygiene textbooks since the early 1990s. Gurenlian[16] presented a model for diagnostic decision making in 1993; followed by Mueller-Joseph and Petersen's[17] model for developing and formulating a DHDx. In 1995 Darby and Walsh[18] proposed a DHDx system based on the human needs conceptual model which has appeared in each subsequent edition of their textbook. Although DHDx has been discussed in textbooks for over twenty years, there have been no published studies that have addressed how students are taught to formulate a DHDx. The ADHA White Paper referred to an unpublished survey of program directors conducted in 2015 indicating that some information related to DHDx was covered in clinical education courses, but no specific details were provided.[10] The purpose of this study was to investigate the incorporation of the DHDx into current entry-level dental hygiene curriculum by examining the following questions: Is DHDx integrated into entry-level dental hygiene curriculum?; How is DHDx integrated into the curriculum?; How is the DHDx distinguished from a dental diagnosis?

Methods

An exploratory, quantitative, descriptive cross-sectional study was designed to assess the extent to which DHDx is integrated into entry-level dental hygiene curriculum using an original 30-item survey instrument. Variables addressed included type of entry-level dental hygiene program and the dimensions of DHDx. The survey was reviewed by a subset of expert dental hygiene faculty and researchers and participants from the ADHA to establish content validity. Feedback was provided and minor modifications were made in the instrument. The study design and survey underwent IRB review and was approved by the University of Idaho's Human Subjects Committee (IRB-FY2016-193).

Clinic coordinators from 334 entry-level dental hygiene programs were invited to participate in the survey; program directors were asked to distribute the questionnaire to the clinic coordinators. Clinic coordinators from the sites of the principal investigators were excluded from the study. The electronic platform Qualtrics® was used to distribute the questionnaire via two electronic mailings during the spring semester of 2016. All surveys included a consent form and confidentiality was maintained. Descriptive statistics were utilized to analyze data.

Results

Of the 334 surveys sent, 198 (n=198) responses were received for a response rate of 59%. The majority of the respondents were from associate degree programs, were aged 56-65 years, and had been teaching in a dental hygiene program for at least 11-15 years. Demographic information is summarized in Table I.

Dental Hygiene Diagnosis Overview

The majority of respondents, 98% (n=190) indicated that they teach the utilization of the dental hygiene process of care; one individual indicated that the dental hygiene process of care is not taught at their institution and three respondents were unsure. Four individuals chose not to answer this item. When asked whether the program teaches concepts related to DHDx, 98% (n=191) responded in the affirmative, 2% (n=3) were unsure, and 2% (n=4) did not respond. The majority,

Table I. Demographic Information

Type of Entry-level Program	n =198	
Technical/certificate	2	1
Associate degree	161	81
Baccalaureate degree	32	16
Other (recently approved to transition to BAS-DH, community college, MSDH)	2	2
Clinical Supervisory Role	**n =198**	**%**
First year clinical coordinator	44	22
Second year clinical coordinator	54	27
Clinical coordinator/director	64	32
Other (both first and second year clinical coordinator; program director; dental administrative chair; third, fourth and fifth semester clinical coordinator)	36	18
Age	**n =191**	**%**
25-35	14	7
36-45	30	16
46-55	64	34
56-65	81	42
65+	2	1
Years Teaching in a Dental Hygiene Program	**n=194**	**%**
<5	27	14
5-10	47	24
11-15	52	27
16-20	22	11
20+	46	24

98% (n=190) of clinic coordinators reported teaching specific DHDx terms while 2% (n=4) indicated that they do not teach specific terms in particular dental caries and medical terms; 2% (n=4) did not respond.

Dental Hygiene Diagnosis Statements

The majority of programs, 79% (n=153), reported teaching students to "always" write DHDx statements on all patients and 86% (n=162) reported the use of specific diagnostic terms. A majority of programs, 80% (n=149) favored diagnostic statements that include related causes 80% (n=149) used signs and symptoms, 93% (n=171) utilized etiologies, and 94% (n=177) incorporated risk factors. Table II highlights how respondents teach students to describe DHDx statements.

Teaching Concepts Related to Dental Hygiene Diagnosis

Clinic coordinators were provided with a series of six statements related to DHDx and asked to identify which concepts were taught in their programs. The concept receiving the majority, 99% (n=186) of the responses was "the dental hygiene diagnosis is individual for each patient." The statement receiving the least number of responses, 76% (n=143) was "formulating a dental hygiene diagnosis increases the dental hygienist's accountability in patient care."

The majority of the respondents indicated teaching all six concepts as shown in Table III.

Differences Between Dental Diagnosis and Dental Hygiene Diagnosis

Participants were asked whether their program taught the difference between a dental diagnosis and a DHDx. The majority of respondents, 93% (n=177), indicated "yes" while 3% (n=5) replied "no," and 5% (n=9) responded "unsure". When asked to describe what they teach as the difference between the two terms, examples of responses for dental diagnosis included: dental diagnosis is the identification of disease activity and the plan for intervention/treatment/definitive diagnosis/specific disease; dental diagnosis is the overall diagnosis and treatment by the dentist; dental diagnosis is in regard to repair of existing dental disease such as restorative work; and dental diagnosis is something only the dentist can diagnosis such as decay and pathological conditions/the dentist had the legal and ethical responsibility for. Responses provided for DHDx were: DHDx relates to interventions legal within the dental hygiene scope of practice; pertains to the treatment of periodontal disease and contributing factors; aids in treatment planning and implementation; is based on assessment data; must be agreed upon/confirmed by the dentist; is based on the human needs conceptual model; and identifies existing or potential oral health problems that the dental hygienist is qualified and licensed to treat.

Additional Educational Parameters

Clinic coordinators were asked to identify in which term the program implemented instruction in the DHDx. Of the 84% (n=166) respondents to this question, 45% (n=74) indicated beginning DHDx instruction in the first term of the first year, while 48% (n=79) reported beginning instruction in the second term of the first year. Respondents were asked if multiple DHDx were allowed per patient. The majority of the respondents to this item 71% (n=128) answered in the affirmative while 16% (n=28) stated "no" and 13% (n=24) were "unsure." Case studies were used as a teaching method by a majority, 96% (n=173) of the respondents, 2% (n=4) do not and 2% (n=4) were unsure. Only one clinic coordinator reported using the term "dental hygiene diagnostician." A majority of the respondents, 82% (n=147) indicated that DHDx statements are part of student evaluations while16% (n=29) did not include DHDx statements and 2% (n=4) were unsure. Written examination questions regarding DHDx were included by 91% (n=163)

Table II. DHDx Statements Defined

Are Dental Hygiene Diagnosis terms defined?	n=195	%
Yes	183	94
No	3	2
Unsure	9	5
Approximately how many dental hygiene diagnosis terms are taught?	**n=190**	**%**
1-6	17	9
7-12	41	22
13-18	48	25
>18	84	44
Do students write dental hygiene diagnosis statements on all patients?	**n=193**	**%**
Always	153	79
Frequently	22	11
Seldom	11	6
Never	4	2
Unsure	3	2
Are specific dental hygiene diagnosis terms used in the statements?	**n=189**	**%**
Yes	162	86
No	13	7
Unsure	5	3
Dental hygiene diagnostic statements are not written	9	5
Do the statements include related causes?	**n=188**	**%**
Yes	142	76
No	29	15
Unsure	10	5
Dental hygiene diagnoisis statments are not written	7	4
Do the statements include signs and symptoms?	**n-187**	**%**
Yes	149	80
No	19	10
Unsure	9	5
Dental hygiene diagnoisis statments are not written	10	5
Does your program teach the etiologies of dental hygiene diagnosis?	n=184	%
Yes	171	93
No	3	2
Unsure	10	5
Does your program include risk factors in the dental hygiene diagnosis?	n=188	%
Yes	177	94
No	8	4
Unsure	3	2

Table III. DHDx Concepts Taught in Dental Hygiene Programs

Concept	n	%
Formulating a dental hygiene diagnosis will improve patient outcomes	150	80
Formulating a dental hygiene diagnosis increases the dental hygienist's accountability in patient care	143	76
The dental hygiene diagnosis is a necessary component of dental hygiene care	185	98
The dental hygiene diagnosis is legal within the dental hygiene scope of practice	146	78
The dental hygiene diagnosis is individual for each patient	186	99
The dental hygiene diagnosis determines dental hygiene interventions	184	98

of the respondents while only 2% (n=3) indicated not including them and 7% (n=3) were unsure.

When asked whether the specific DHDx was discussed with the patient, the majority, 89% (n=160) of the clinic coordinators responded affirmatively, while 6% (n=11) indicated the DHDx was not discussed with patients and 5% (n=9) were unsure. Rationales for not discussing the DHDx included: "patients are educated on their problems, but it is not phrased as a DHDx," "it has never been addressed in faculty meetings," "we use a comprehensive treatment plan that providers more detail than a simple statement," and, "we focus on their needs deficits not the diagnosis."

Responses to the question whether a written DHDx has led to higher quality patient treatment and documentation were mixed with 50% (n=89) of the respondents indicating "yes," 6%(n=10) "no," and 45% (n=80) "unsure." When asked to provide an example of how writing a DHDx has led to higher quality, responses included: better communication with patient/importance of explaining treatment to patient; more thorough patient individualized treatment planning/treatment plan refers back to DHDx; student more focused on patient needs/problems; clearer informed consent; better documentation; and, better understanding for clinician/ increased critical thinking.

Student Challenges with the Dental Hygiene Diagnosis

Faculty respondents were questioned whether students had difficulties in determining the DHDx. Responses were mixed with nearly half, (49%, n=84) answering "yes", 47% (n=84) answering "no," and 4% "unsure." When asked to

explain the "yes" responses, most commented initial challenges with the DHDx, but indicated that students gain confidence with experience; the level of critical thinking required for the DHDx is challenging; American Dental Association and American Academy of Periodontology case types and classifications can be confusing; difficulty with the care plan/treatment plan associated with the DHDx; learning to put it all together; and, faculty are unsure how to formulate a DHDx.

Mixed responses were noted regarding whether formulating a DHDx statement was confusing for students with a little more than half of respondents, 53% (n=96), indicating "yes," 38% (n=69) stating "no," and 9% (n=16) were "unsure." Reasons for selecting "yes" responses included: initially the DHDx can be confusing until more practice and experience is obtained; differentiating between dental and DHDx, confusion with the term "diagnosis" or fear of using the word "diagnosis"; difficulty with the actual writing of the DHDx statement; difficulty with the terminology; and lack of faculty calibration or deficient teaching skills on DHDx. Lastly, respondents were asked if a standardized list of dental hygiene diagnostic terms would be helpful when teaching the DHDx to students. A majority, 91% (n=162), of the respondents to this item indicated "yes" while 1% (n=2) stated "no," and 8% (n=14) were "unsure."

Respondent Comments Regarding Dental Hygiene Diagnosis

The final survey item provided participants an opportunity to provide additional comments regarding DHDx and their teaching experiences with this topic. Responses were numerous and too voluminous to report within the limitations of this paper. However, in general, respondents felt the topic was political and controversial; faculty calibration was needed regarding DHDx, and that the ADPIED model was easier to implement than other theoretical models. Three comments highlighting the spirit of the responses are represented.

> *"I redesigned the curriculum to include a very heavy component in regards to the DHDx. This really helped our students develop a "provider" mentality as well as understand the need for comprehensive and individualized patient care. We will continue the new changes next year as a result."*

> *"It was/is a challenge to get clinical faculty on board with the DHDx terms. Faculty calibration is needed constantly on this topic."*

> *"Until dentists accept this concept, it is hard to teach it. Our state is very "backwards" and dentists want to and DO control hygienists. They believe all diagnoses are THEIR area of expertise alone (my opinion)."*

Discussion

The purpose of this study was to investigate how the DHDx is incorporated into current entry-level dental hygiene curriculum. Programs are primarily teaching the DHDx in the first year of education. The study results showed that dental hygiene programs teach students to write an individualized DHDx for each patient. Some programs indicated that the written DHDx has led to higher quality patient care because of improved communication, increased focus on patient needs, clearer informed consent, and better documentation. These outcomes support the purpose of the ADHA Standards for Clinical Dental Hygiene Practice[1] which serve to facilitate comprehensive patient-centered care.

Additionally, dental hygiene programs teach the difference between a dental diagnosis and a DHDx. Although programs differentiate between these types of diagnoses, one pattern of responses emerged from this study. Some respondents indicated a degree of fear or hesitation in using the term "diagnosis." While it is clear that a DHDx is not the same as a dental diagnosis or any other diagnosis, clarification is needed regarding what diagnosis is, and how each profession's diagnosis relates to their scope of practice. Dental hygiene students need to be taught to confidently develop a DHDx without political or territorial implications. Dentists also need to be educated regarding these distinctions.

The concept of arriving at a diagnosis is an intellectual and clinical exercise involving critical thinking, problem-solving, and deductive reasoning. Historically, Gurenlian described this diagnostic reasoning process for health professions.[16] In medicine, physicians use observation and examination of the patient, generation of diagnostic hypotheses concerning clinical data, laboratory tests to further evaluate clinical problems, and use of cues to verify hypotheses when formulating diagnoses. Nursing diagnoses consist of direct observation of patient behaviors, history and examination, information collection, interpretation, clustering and naming the cluster.

The dental model involves identifying symptoms of dental disease using history taking related to the chief complaint, physical and radiographic examination of the patient, creating a working diagnosis, and using laboratory tests to help determine a definitive diagnosis. Gurenlian proposed a diagnostic decision making process for dental hygiene that included an initial review of data gathering, hypothesis formulation or working diagnoses, inquiry strategy to run additional tests as needed, problem synthesis in which all facts are summarized, diagnostic decision in which the diagnosis is determined.[16] Learning from the process, the final step, includes analyzing how the decision

was made and the accuracy of the diagnosis in order to gain expertise in diagnostic decision making.[16]

Discussions regarding the evolution of diagnostic decision making process and teaching methodologies on this topic in the health professions are limited.[19] It is understandable that there is confusion regarding diagnosis if the concept for formulating a diagnosis is not well articulated in schools. Dental hygiene students need to appreciate the "how" and "what" of diagnosis in order to understand the distinctions between a DHDx and other types of diagnoses. Other health professions operate within their own concept of a diagnosis. Paramedics are taught to assess and treat patients on the scene of an emergency, which is referred to as a field diagnosis.[20] Nurses formulate a nursing diagnosis in regards to the human response to actual or potential health problems and life processes.[2] A medical diagnosis focuses on specific diseases or medical conditions. A dental diagnosis refers to dental diseases or conditions. A DHDX includes health behaviors and attitudes in addition to the oral health care needs that dental hygienists are educationally prepared and licensed to treat. There are multiple examples in the literature demonstrating that these DHDx are within the dental hygiene scope of practice.[12,21]

Germane to this discussion is that many of the diagnostic terms cross disciplines and have applicability among various health professions with each profession applying their expertise to specific health problems within their scope of practice. Therefore, a DHDx is not a dental diagnosis. Dental hygienists are not performing treatment specific to the practice of a licensed dentist, however, a dental hygienist cannot execute appropriate patient-centered dental hygiene care without formulating the DHDx that the care addresses. For example, a DHDx may include the word "caries." While the dental hygienist is not licensed to perform advanced restorative procedures to treat caries, preventive and restorative care that is within the dental hygiene scope of practice includes oral health education, caries risk assessment, fluoride treatments, sealants, and minimally invasive procedures. Similarly, nurses and physicians share the diagnostic term "caries" and may perform a caries risk assessment and apply fluoride varnish.[22] Each individual health care provider is performing functions that ultimately contribute to a positive health outcome. Appreciating these concepts makes it easier to recognize value how terminology for various states of disease can be utilized across the various health care professions and that diagnostic terms are not owned by a health care discipline. Therefore, dental hygienists should not fear utilizing a DHDx.

Although dental hygiene programs are teaching DHDx, there appears to be wide variation in exactly what is taught. Respondents expressed concerns about faculty calibration regarding standardization of terms, presentation of information to patients, and evaluation of the utilization of the DHDx. In addition, study respondents focused the DHDx in regards to periodontal issues versus a more comprehensive diagnosis for patients. The ADHA Standards for Clinical Dental Hygiene Practice indicate that multiple dental hygiene diagnoses may be appropriate for each patient.[1] If students are taught to only focus on periodontal diseases in the DHDx, they are not considering the entire oral cavity or the whole person. This is a self-limiting practice that does not represent comprehensive care, however it may be related to the political concerns about diagnosis and/or misunderstandings of what constitutes a DHDx. This limitation on diagnosis may also be impacted by CODA standards focusing on periodontal classifications of patients, treatment of patients with various levels of periodontal disease, and the deletion of DHDx from the accreditation standards. Accreditation hearings are currently ongoing regarding updating CODA Standard 2-13 to include the DHDx. If approved, this standard may provide dental hygiene educators the impetus or sense of authority, to teach students a more comprehensive DHDx.

Limitations of this study include the lack of a previously validated survey instrument. However, content validity was established and opportunities for comments were offered throughout the survey. Respondents used this option and shared many comments. Furthermore, inferential statistics were not employed due to the small size of respondents from baccalaureate programs and the type of responses received.

This study serves a starting point for understanding the meaning of a DHDx and how it is implemented in dental hygiene education programs. Further research is warranted to assess the knowledge, attitudes and behaviors of dental hygiene students as well as practicing clinicians regarding the DHDx. Examining how models of the DHDx are taught and utilized for curriculum development, as referenced in the ADHA White Paper, should be included in future qualitative and quantitative studies.[10]

Conclusion

An exploratory study assessed the extent to which DHDx is taught in entry-level dental hygiene programs. Findings confirm that the DHDx is an integral component of dental hygiene education, however there is a need for standardization and faculty calibration on the concepts and terminology related to the DHDx. Results of this study support the addition of the DHDx to the CODA accreditation standards.

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