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Ethics Instruction in the Dental Hygiene Curriculum

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Purpose. Dental hygiene ethics is an essential component of the dental hygiene curriculum. The accreditation standards for dental hygiene education state that graduates must be competent in applying ethical concepts to the provision and/or support of oral health care services.[1] Although the standards for entry into the profession of dental hygiene emphasize the importance of ethical reasoning, there is little published research specific to ethics instruction in dental hygiene programs. The purpose of this study was to assess how ethics is taught in the dental hygiene curriculum.

Methods. A 17-item survey was designed and distributed to 261 accredited dental hygiene programs in the United States for a response rate of 56% (N=147). The survey requested that participants provide information on teaching and evaluation methodologies, didactic and clinical hours of instruction, individuals responsible for providing instruction, and the degree of emphasis placed on ethics and integration of ethical reasoning within the dental hygiene curriculum.

Results. Results of the survey reflect that dental hygiene programs devote a mean of 20.[2] hours to teaching dental hygiene ethics in the didactic component of the curriculum. With regard to the clinical component of the curriculum, 63% of respondents indicated that 10 or less hours are devoted to ethics instruction. These results show an increase in didactic hours of instruction from previous studies where the mean hours of instruction ranged from 7 to 11.7 hours.[2] Results showed 64% of respondents offered a separate course in ethics; however, 82% of programs surveyed indicated that ethics was incorporated into one or more dental hygiene courses with 98% utilizing dental hygiene faculty to provide instruction. Most programs utilized a variety of instructional methods to teach ethics with the majority employing class discussion and lecture (99% and 97% respectively). The type of institution-technical college, community college, four-year university with a dental school, and four-year university without a dental school-had little influence on the degree of emphasis placed on teaching ethics. Although the number of hours devoted to ethics instruction has increased, 43% of respondents indicated that they would like to see more emphasis placed on ethics in the program with which they are affiliated.

Conclusion. This study reveals that programs have taken measures to employ a variety of teaching strategies to ensure that students are competent in applying ethical concepts in the provision of oral health care. However, programs continue to rely primarily on traditional methods of instruction and evaluation such as lecture, discussion, quizzes, and written assignments. Inferential analysis focusing on the influence of the type of institution, showed that in general, the type of institution has little influence on the level of emphasis placed on teaching ethics in dental hygiene curricula. It is recommended that dental hygiene programs continue to implement and evaluate instructional methods that simulate real life experiences and emphasize ethical concepts that promote comprehensive oral health care. Future studies should investigate the effectiveness of ethics instruction within dental hygiene curricula.

Keywords: Ethic instruction, curriculum assessment, dental hygiene education, professional responsibility, code of ethics

Introduction

As professionals, dental hygienists have responsibilities to their clients, employers, and the profession. It is essential that dental hygienists be prepared to make decisions based on ethical reasoning, and for dental hygiene programs to prepare them for this responsibility. How then are dental hygiene programs preparing graduates to practice ethically and make ethical decisions? The purpose of this study was to assess how ethics is being taught in accredited dental hygiene programs. The researchers are hopeful that educators will utilize this information to assist them in program assessment and planning

Review of Literature

"Competencies for Entry into the Profession of Dental Hygiene" identifies the skills that are expected of a dental hygienist upon entering the profession.[3] These competencies are divided into five domains: core competencies, health promotion and disease prevention, community involvement, patient/client care, and professional growth and development. Dental hygiene programs are responsible for ensuring that graduates demonstrate competency in all of the domains, beginning with the core competencies, which provide the foundation for all the roles of the dental hygienist. Defined within the core competencies are the ethics, values, skills, and knowledge that are integral to all aspects of the profession.[3]

The accreditation standards for dental hygiene education programs state that "[g]raduates must be competent in applying ethical, legal, and regulatory concepts to the provision and/or support of oral health care services."[1] The agency that accredits dental hygiene educational programs, the American Dental Association's (ADA) Commission on Dental Accreditation (CODA), has identified several general guidelines for programs to demonstrate evidence of compliance in meeting this standard including: written course documentation in ethics, ethical reasoning and professionalism, evaluation mechanisms designed to monitor knowledge of performance, and outcomes assessment mechanisms.[1]

Although the standards for entry into the profession of dental hygiene emphasize the importance of ethical reasoning, there is little published research specific to the instruction of ethics in dental hygiene programs. A 1982 study on ethics instruction in dental hygiene programs found that although ethics was a component of the curriculum, the hours of instruction and teaching methods varied considerably among programs.[2]

In a series of studies conducted on the status of dental ethics instruction, results suggest an increased emphasis in providing ethics instruction in dental schools. A 1998 survey of dental schools showed that the number of programs offering at least one course in dental ethics went from 79% in 1986 to 91% in 1998.[4] However, it was revealed that even though there was an increase in ethics instruction, the total number of credit hours devoted to ethics remained relatively low in comparison to the overall curriculum.[4]

Current literature questions the effectiveness of ethics instruction in dental curricula. It has been suggested that teaching ethics is different from teaching a student to make ethical decisions as an individual. Some educators believe that one's personal ethics stem from an introspective standpoint in order to change one's behavior or beliefs and in order for a professional to practice ethically.[5] Perhaps this is consistent with the notion that ethics education and practicing ethics, as an individual/professional, are not necessarily congruent. Research has indicated that practicing dental hygienists felt that their ethical beliefs were developed outside of their educational experience, yet they noted that role models contributed to their ethical developments.[5,6]

One concern with regard to teaching ethics is who, based on qualifications, should be responsible for providing the instruction. Historically in dental hygiene and dental programs, dental hygiene or dental faculty have taught ethics courses.[2,6] In a 1982 study by Jong and Heine,[2] 50% of dental hygiene faculty surveyed indicated that they did not possess adequate knowledge of moral philosophy to select readings or to bring out important theories to deal with moral dilemmas. Although

it would be ideal to have a dental health care professional with a Ph.D. in philosophy teach the ethics course, this is not a realistic expectation. A more practical approach to ethics instruction would be team-teaching so that colleagues could rely on each other's area of specialty to supplement the knowledge that they do not have.[6]

How successful dental hygiene programs have been in providing students with ethics instruction can be assessed by looking at how dental hygienists deal with ethical dilemmas that they encounter in practice. In a study by Gaston et al,[7] practicing dental hygienists were surveyed to determine the types of ethical problems they encountered and the type of instruction they received in ethical theory. Eighty-six percent of dental hygienists reported that they had formal instruction in ethical theory, with 56% receiving this instruction in a separate course, rather than as part of another course. The majority of respondents, 61%, reported that the instruction they received had been lecture only; 38% reported having discussion/demonstration instruction. Most of the responding dental hygienists reported that they encountered ethical problems that they did not feel prepared to address. From this study, the researchers concluded that there should be a review of the curriculum with regard to ethics instruction to better prepare dental hygienists for addressing ethical problems.[7]

An exploratory study conducted by Christie et al8 indicated that the majority of faculty value the importance of developing student competence in ethical reasoning and professional responsibility, but find it difficult to evaluate competence in this domain. The researchers concluded that faculty need training in assessment of ethical reasoning and the utilization of diverse methods of practical evaluation tools such as test cases, case presentations, research projects, and portfolios to assess students' level of competence in regards to ethics.[8] Critical thinking has been advocated as an approach to ethics education in the clinical learning environment. Performance assessments such as authentic evaluation can be utilized to provide students with experiences that mimic real life situations including cases and standardized patients.[9,10]

Methods

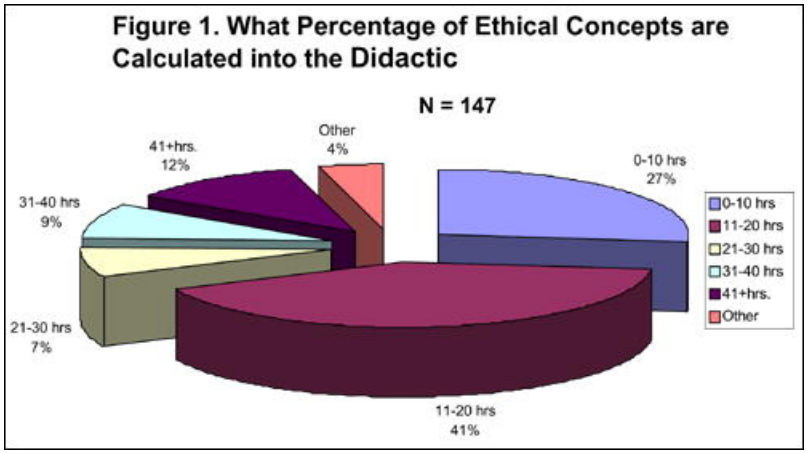
A survey was designed to gather data on instructional methodologies and the degree of emphasis placed on ethical reasoning and professional responsibility within dental hygiene programs. The survey requested that participants respond to questions regarding their teaching methodologies in ethics, and how many hours of instruction in dental hygiene ethics, both didactic and clinical hours, they included in their curriculum. The 17-item survey consisted of both closed-ended questions and open-ended questions, as well as a section where participants were asked to evaluate the degree of emphasis placed on ethics within the dental hygiene curriculum, from a didactic and clinical perspective, based on the ADHA Code of Ethics for Dental Hygienists.[11] The survey was distributed to faculty within the department and revisions were made to improve the clarity of survey items in relation to the rating scale used to assess the level of emphasis placed on ethics. A five-point Likert rating scale was used with (5) indicating a very high level of emphasis and (1) indicating a very low level of emphasis. The survey, a cover letter and a self-addressed, postage paid envelope were mailed to program directors of 261 accredited dental hygiene programs in the United States. Both the surveys and the return envelopes were coded to identify non-respondents for a follow-up mailing. Participants were informed that responses to the survey would be confidential and that surveys were numbered to monitor responses and provide follow-up mailings if necessary. The program directors were given four weeks to complete the survey. One hundred and forty-seven responses were received, resulting in a 56% response rate. Some surveys had incomplete information and were not appropriate for statistical analysis. As a result, some of the analyses that follow include less than 147 cases. In addition, individuals completing the survey included multiple responses for items that required a single response, resulting in percentages totaling more than 100%. Although the surveys were mailed to directors, it is not known if the directors themselves completed the survey instrument, or if it was given to faculty to complete. The results of the survey were quantified and an Excel database was utilized to obtain descriptive statistics. The researchers used the same database in inferential analysis using SPSS version 12.

Results

Descriptive Findings

When asked how ethical concepts are incorporated in the curriculum, the researchers received multiple responses. Of the respondents, 64% indicated that ethics was taught in a separate course, 22% indicated it was incorporated into a dental hygiene course, 60% indicated that ethics was incorporated into several dental hygiene courses, and 7% indicated "other," noting that ethics was incorporated throughout the curriculum and modeled by faculty.

The amount of hours devoted to teaching ethics in the didactic portion of the curriculum varied with 41% devoting 11-20 hours of instruction and 27% devoting 0-10 hours. A mean of 20.2 hours of didactic instruction is devoted to ethics (Figure 1).

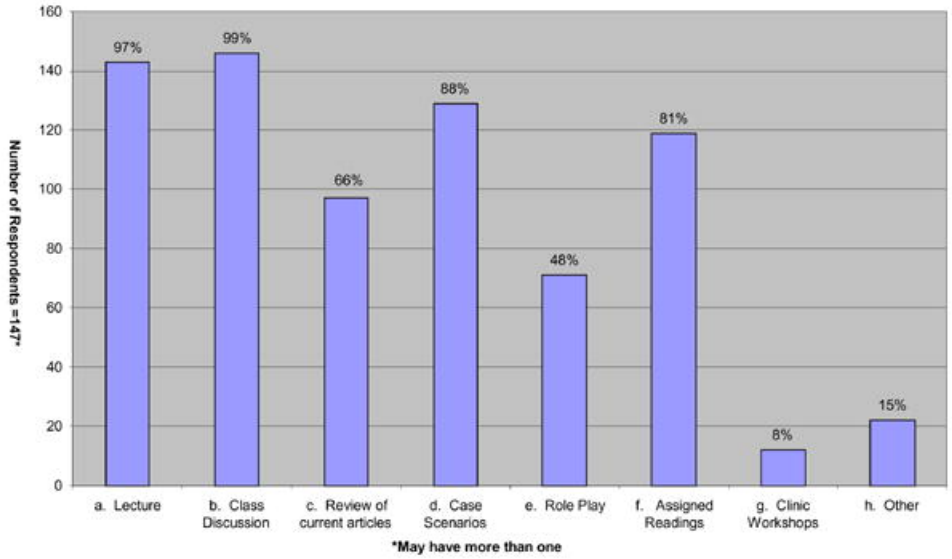


With regard to the clinical component of the curriculum, 63% of respondents indicated that 10 or less clinical hours are devoted to ethics instruction, 11% offer 11-20 hours, 5% offer 21-30 hours, 4% offer 31-40 hours, and 17% offer 41 or more hours of instruction in the clinical component (n=81 or 55% of respondents). Those that did not respond indicated it was difficult to calculate the hours devoted to instruction in the clinic setting.

Multiple responses were received from participants when asked who is responsible for teaching ethics. Ninety-eight percent use dental hygiene faculty to provide instruction, 3% use philosophy faculty, while 5% use dentists, lawyers, and guests speakers.

Results indicated that the majority of programs employ multiple strategies for providing ethics instruction. Lecture, class discussion, and case scenarios were the most frequently used methods. Other methods include: debates, student portfolios, written assignments, online discussion boards, and guest lecturers. Figure 2 provides percentages of the methods of instruction used to teach ethics.

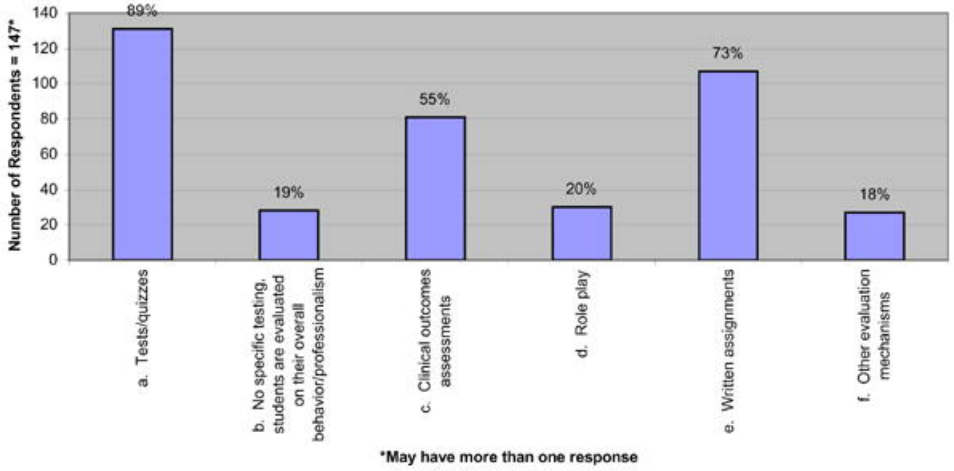
Figure 2. Methods of Instruction



Programs utilize a variety of reading resources for ethics assignments. Of the respondents, 94% use the American Dental Hygienists' Association Code of Ethics for Dental Hygienist as a resource, 73% use current literature, 61% use textbooks that are required for other dental hygiene classes, and 63% require a separate textbook on dental hygiene ethics. Other reading resources include state practice acts, videos, state board newsletters, and online resources.

Evaluation systems also vary with the responding programs; 89% of respondents use tests/quizzes and 73% use written assignments to evaluate students on ethical concepts. Of the responding programs, 19% reported that no specific testing was employed. Rather, students are evaluated on their overall behavior/professionalism (Figure 3).

Figure 3. Methods of Student Evaluation

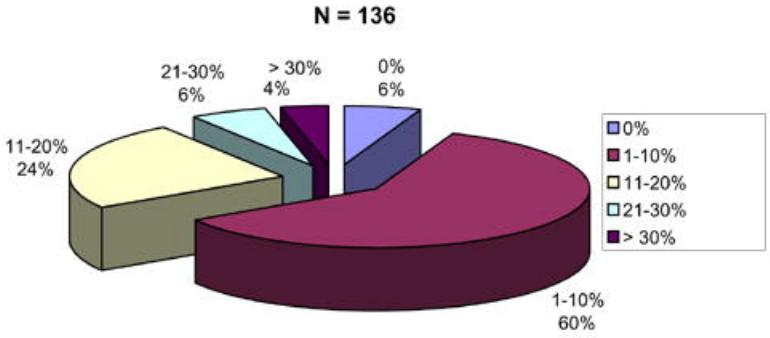


Ninety-two percent of programs surveyed evaluate the students' use of ethical concepts in the clinical setting. Three percent indicated they do not evaluate students in the clinical setting, while others noted they do not provide specific evaluation and/or only address issues if breached.

Survey results show that 60% of the respondents calculate ethical concepts into the students' clinical grade with a weight of 1-10%, 24% calculate ethical concepts into the students' clinical grade with a weight of 11-20%, 6% calculate ethical concepts into the students' clinical grade with a weight of 21-30%, 4% calculate ethical concepts into the students' clinical

grade with a weight of greater than 30%, and 6% do not calculate the use of ethical concepts in to students' grade at all. Figure 4 shows what percentage of ethical concepts is calculated into the students' clinic grade.

Figure 4. What Percentage of Ethical Concepts are Calculated into the Students Clinic Grade



When asked, "would you like to see more emphasis placed on ethics in the program that you are affiliated with," 43% responded yes, 50% responded no, and 7% did not respond. Reasons cited for responding no included, they were satisfied wih the current level of emphasis, or there is no room in the curriculum.

The survey results, with regard to the level of emphasis that should be placed on teaching ethics in the dental hygiene curriculum, indicated that 72% of respondents felt a very high level should be placed on teaching ethics, 25% a high level, 3% an intermediate level, and no respondents indicated a low or very low level.

When respondents were asked the most appropriate strategy for incorporating ethics into the dental hygiene curriculum, multiple responses were reported. Eighty percent of respondents indicated that ethics should be incorporated throughout the dental hygiene curriculum, fifty percent responded that a separate course on ethics should be offered, and ten percent recommended ethics be incorporated into a dental hygiene course. With regard to the level of emphasis placed on ethical concepts in the didactic and clinical component, results showed the majority of respondents place very high emphasis on all areas of ethical reasoning and professional responsibility, except scientific investigation/research and autonomy. (Table I) (Table II).

Table I. Level of Emphasis Placed on Teaching Core Values and Standards of Professional Responsibility in the Didactic Component of the Curriculum N=147

	Very low	Low	Intermediate	High	Very High
Ethical decision making	1%	0%	5%	23%	71%
Ethical behavior	1%	0%	1%	18%	80%
Professional responsibility to client	1%	0%	1%	18%	80%
Professional responsibility to colleagues	1%	0%	11%	33%	55%
Professional responsibility to employees/employers	1%	1%	12%	33%	53%
Professional responsibility to the profession	1%	0%	10%	32%	57%
Professional responsibility to the community/society	1%	0%	9%	38%	52%
Professional responsibility to scientific investigation/research	6%	11%	27%	28%	28%
Autonomy ("self-governance")	1%	10%	14%	31%	44%
Nonmaleficence ("do no harm")	1%	0%	6%	25%	68%
Beneficence ("do good")	1%	0%	5%	29%	65%
Justice ("fairness")	1%	0%	6%	29%	64%
Veracity ("truthfulness")	1%	0%	2%	22%	75%

Table II. Level of Emphasis Placed on Teaching Core Values and Standards of Professional Responsibility in the Clinical Component of the Curriculum N=147

	Very low	Low	Intermediate	High	Very High
Ethical decision making	1%	1%	5%	22%	71%
Ethical behavior	1%	0%	2%	11%	86%
Professional responsibility to client	1%	0%	2%	9%	88%
Professional responsibility to colleagues	1%	1%	11%	26%	61%
Professional responsibility to employees/employers	2%	4%	15%	27%	52%
Professional responsibility to the profession	1%	1%	15%	24%	59%
Professional responsibility to the community/society	2%	1%	14%	29%	54%
Professional responsibility to scientific investigation/research	9%	11%	24%	32%	24%
Autonomy ("self-governance")	4%	7%	18%	25%	46%
Nonmaleficence ("do no harm")	1%	1%	9%	15%	74%
Beneficence ("do good")	1%	1%	9%	20%	69%
Justice ("fairness")	1%	1%	10%	20%	68%
Veracity ("truthfulness")	1%	1%	5%	16%	77%

Inferential Findings

One hypothesis possibly explaining the varying emphasis placed on teaching ethics is the differences between the different types of institutions and the degrees they offer. For this study, the researchers classified the types of institutions as technical college, community or junior college, four-year university with a dental school, or four-year university without a dental school. Each respondent was asked to name the highest degree offered at his or her institution, from among a choice of a certificate, associate degree, baccalaureate degree, or master's degree. It may be that the varying levels of degrees and/or the type of institution may play a role in determining the level of emphasis placed on teaching ethics in didactic or clinical areas.

In this sample, the majority of degrees offered as the institution's highest degree in dental hygiene is the associate degree with 103. Most of those degrees were offered by community or junior colleges (84). This contingency analysis also revealed a chi-square value of 122.055, significant at the .001 level, which indicates a significant association between the type of institution and the degree offered. The strength of this relationship is moderate with a lambda of .427, a Cramer's V of .530, and a contingency coefficient of .676.

Differences in the Type of Institution

The researchers first looked at the ethics-related questions of the survey and the variances of those responses depending on the type of institution. For this part of the analysis, the researchers created two, scaled variables that aggregated and averaged the questions regarding ethics and professional responsibility in the didactic component of a program. In order to maximize the knowledge gleaned from the data, the authors created two, new scaled variables in the same way for the questions regarding ethics and professional responsibility in the clinical areas of the programs. The authors created these variables by scaling together the 14 questions of the instrument in each substantive area: didactic ethics, didactic professional responsibility, clinical ethics, and clinical professional responsibility. In each case, the responses to the 14 questions were averaged together to give a single score. These scores appear in Table III. These four, scaled variables provide insight into the overall emphasis of each respondent in the areas mentioned above. The levels of the scale are 1. very low; 2. low; 3. middle; 4. high; and 5. very high, corresponding to the original questions from which the scaled questions derive. The measures in the table below are the means from the scaled variables, which reflect the nuances created by the scales and give greater understanding to the subtle differences between the institutional types.

Table III.

Type of Institution	Didactic Ethics Emphasis	Didactic Professional Responsibility Emphasis	Clinical Ethics Emphasis	Clinical Professional Responsibility Emphasis
Technical College	4.70	4.31	4.81	4.26
Community or Junior College	4.71	4.32	4.74	4.33
Four Year University with Dental School	4.78	4.52	4.52	4.51
Four Year University without Dental School	4.58	4.39	4.66	4.39

Clearly there is less emphasis on professional responsibility than ethics in all institutions. However, the emphasis in all four areas is very similar with only very slight differences.

Next, the researchers looked for differences in the continuous measures of the study such as the clock hours devoted to didactic and clinical teaching of ethics and the percent of grades derived from demonstrated knowledge of ethical concepts. Table IV shows the findings of that analysis.

Table IV.

Type of Institution	Didactic Clock Hours	Clinical Clock Hours	Percent of Grade from Ethical Concepts
All Respondents	Mean 20.20 Standard Dev. 14.27	Mean 50.59 Standard Dev. 124.71	Mean 2.38 Standard Dev. .85
Technical College	Mean 15.53 Standard Dev. 12.12	Mean 17.3 Standard Dev. 19.54	Mean 2.31 Standard Dev. .630
Community or Junior College	Mean 20.87 Standard Dev. 14.95	Mean 63.25 Standard Dev. 147.63	Mean 2.51 Standard Dev. .88
Four Year University with Dental School	Mean 18.94 Standard Dev. 12.64	Mean 23.88 Standard Dev. 58.04	Mean 2.0 Standard Dev. .555
Four Year University without Dental School	Mean 21.72 Standard Dev. 14.12	Mean 36.18 Standard Dev. 76.93	Mean 2.17 Standard Dev. .94

In this analysis, technical colleges seem to devote a noticeably lower number of hours to teaching ethics in both the didactic and clinical areas. All other means seem rather similar, especially considering the sometimes large standard deviations.

The researchers used an analysis of variance (ANOVA) analysis using the type of institution as the factor and all of the variables in Table V to see if the variance among the types of institutions was greater than the variance among the institutions of the same type. No significant findings resulted in an ANOVA using the type of institution and the scaled variables on the teaching of didactic ethics or professional responsibility.

Table V.

Highest Degree Offered	Didactic Ethics Emphasis	Didactic Professional Responsibility Emphasis	Clinical Ethics Emphasis	Clinical Professional Responsibility Emphasis
Pre-baccalaureate (n=105)	4.72	4.36	4.76	4.35
Baccalaureate (n=33)	4.68	4.42	4.65	4.41

A chi-square analysis was the next step in the analysis of the influence of the type of institution on the emphasis on ethics in teaching. The only statistically significant variable associated with the type of institution was the variable asking whether they used written assignments. That association resulted in a chi-square number of 9.097, significant at the .029 level. Further analysis showed that the association was rather weak, with a non-significant lambda, a contingency coefficient of .241, and a Cramer's V of .249.

Overall, the type of institution seems to have little influence on the level of emphasis in teaching ethics in dental hygiene curricula. Therefore, little may be empirically attributed to the type of institution insofar as instruction in ethics is concerned.

Differences in the Highest Degrees Offered

Dental Hygiene programs offer one of four degrees as their highest, academic degree. Beginning with a certificate, most programs also offer either an associate degree, baccalaureate degree, or a master's degree in dental hygiene. The researchers considered the influence such differences in degree offerings might have on the level of emphasis in teaching ethics in each program. Consequently, they performed the following statistical tests to look for that influence. Because of a threat to validity created by disparity in the numbers of respondents in each degree category, the authors combined the certificate and associate programs into a single group entitled "pre-baccalaureate." Because of the low number of respondents who offered master level programs (6), the authors dropped them from further analysis. For the following analysis, the researchers used the scaled, aggregated variables and looked at the means of each of those variables, and divided them into groups based on the highest degree offered by a program. The results follow in Table V.

Interestingly, this analysis shows the inverse emphases between pre-baccalaureate and baccalaureate programs. On average, pre-baccalaureate programs place a higher emphasis on didactic ethics and clinical ethics. In contrast, baccalaureate programs generally place a higher emphasis on professional responsibility and clinical professional responsibility.

In the next phase of analysis, the researchers looked for effects of various levels of degrees regarding the continuous variables available from the survey. The results of that analysis are in Table VI.

Table VI .

Type of Degree Offered	Didactic Clock Hours	Clinical Clock Hours	Percent of Grade from Ethical Concepts
Pre-baccalaureate (n=105)	Mean: 20.87 Standard Dev: 15.46	Mean: 55.19 Standard Dev: 137.7	Mean: 2.45 Standard Dev: .85
Baccalaureate (n=33)	Mean: 18.97 Standard Dev: 11.1	Mean: 46.33 Standard Dev: 77.18	Mean: 2.29 Standard Dev: .783

Overall, baccalaureate degree programs devote fewer clock hours to both didactic and clinical ethics emphases. In addition, a lower percentage of students' grades in baccalaureate degree programs derive from ethical concepts.

To test this finding further, the researchers performed a t test analysis comparing baccalaureate and pre-baccalaureate programs in terms of differences in clock hours dedicated to teaching ethics in the didactic area, clock hours dedicated to teaching ethics in the clinical component, and percent of grade derived from ethical concepts. The t test analysis did not show significant relationships. Likewise, when the researchers analyzed the scaled variables for ethics and professional responsibility using a t test analysis, there were no significant relationships.

In a further effort to understand the influence of the highest degree offered (pre-baccalaureate or baccalaureate) on the curriculum aspects regarding ethics, the researchers used chi-square analysis to examine the effects on some of the discrete variables of the study. From this analysis, four significant associations emerged.

Whether or not the respondents used required chapters from texts for other classes showed a statistically significant relationship with a chi-square of 6.937, significant at the .008 level. The phi for this two-by-two table was .223, showing a weak relationship.

Use of "other" evaluation mechanisms to evaluate students' ethics understanding also showed a significant association with a chi-square of 4.45, significant at the .035 level. The phi of this two-by-two table was .179, again showing a weak relationship

The type of institution showed a significant association with the pre-baccalaureate or baccalaureate programs with a chi-square of 82.098, significant at the .0000 level. The Cramer's V for this four-by-two table was .769, showing, as would be expected, a strong association,

The final association that proved significant was the number of students per graduating class. Grouped into 11-15, 16-20, 21-30, 21-30, 31-40, or 41+, analysis revealed a chi-square of 20.755, significant at the .0000 level. The gamma for this association was .643, showing a strong relationship.

Chi-square analysis of all other discrete variables with the pre-baccalaureate and baccalaureate distinction discovered no other statistically significant associations.

Taken as a whole, it seems that the differences between pre-baccalaureate and baccalaureate programs are not very notable. Further research into differences in all the different degree levels, including graduate, might provide more insight into the differences in teaching ethics that may exist.

Discussion

Although the research indicates that the mean hours of ethics instruction has increased, 43% of respondents indicated they would like more emphasis placed on ethics within their institution. A previous study regarding ethics instruction conducted in 1982 indicated that 72% of instructors felt that there was enough emphasis placed on ethics in the curriculum.[2] Further research is needed to determine why a greater percentage of respondents would like to see more emphasis placed on ethics instruction in this study versus the previous study in spite of the increase in mean hours of instruction that has occurred over the 20+ year period. Perhaps the continued desire for greater emphasis on ethics instruction is relative to the intricacy of dental health and overall health, societal changes, and generational differences.

In a study by Gaston et al,[7] the researchers found that dental hygienists reported that they were not prepared to handle ethical problems that they encountered in the private sector.[7] The researchers found that 63% of respondents devoted 10 or less hours of instruction in the clinical component of the curriculum, with the majority of evaluation being written assessments. The mean percentage of students' clinic grades deriving from ethics was approximately 2%. These findings support previous research in which students did not feel prepared to handle ethical dilemmas after graduating, and the need to increase authentic instruction and evaluation such as engaged real-life learning, role-playing, workshops, and case studies. Educators must consider not only the quantity of instruction, but also the quality. Shifting to authentic methods of instruction and evaluation may better prepare students for situations they encounter, and ensure student competence in handling these dilemmas. In an article by Metcalf et al,[12] gaming is being used to assist nursing students with ethics, ethical dilemmas, and decision making. Metcalf et al[12] concluded that the utilization of games when teaching ethics made for a nonthreatening environment that allowed students to understand the value of ethics in their chosen profession and to "learn to live their ethics."[12] However, making this shift may present some challenges. A study by Christie et al[8] indicated that faculty found objectively evaluating student competency, with regard to ethics in the clinical setting, a difficult task.[8]

The research indicates that the majority of individuals teaching ethics in the dental hygiene curriculum are dental hygiene faculty. As the literature review indicates, team-teaching ethics may allow colleagues to incorporate their areas of expertise into the ethics curriculum. One method of achieving this would be to collaborate with faculty from other disciplines such as philosophy or psychology. When reviewing how ethics instruction is incorporated within different degree and certificate programs, the analysis of the data showed that there was no significant difference. However, the number of programs offering a separate course in ethics has more than doubled from 31.3%2 to 64% since 1982, which may account for the increase in mean hours of instruction.

An area of interest with regard to the level of emphasis placed on teaching core values and professional responsibility was that the majority of respondents placed a very high level of emphasis in all areas except scientific investigation/research and autonomy. Clearly, scientific investigation/research is a valuable aspect in the advancement of the dental hygiene profession and for the dental hygienist to critically evaluate research to determine the efficacy of new theories, interventions, and technology in order to provide care that is based on scientifc evidence.[11] Autonomy is important in dental hygiene treatment to ensure patients' rights with regard to treatment and treatment options. In addition, it assures the hygienist's right to refuse to provide care that does not meet recognized standards.[13]

The researchers note the following limitations with the study. The survey instrument was self designed and had no established validity or reliability. Respondents indicated it was difficult to compute the number of clock hours devoted to ethics instruction in the clinical component of the curriculum. Respondents did not respond to all items in the survey. Respondents selected more than one response for questions that were intended for a single response. Additionally, although the researchers included questions on who is responsible for teaching ethics, they did not ask respondents to indicate their opinion as to who should teach ethics within the dental hygiene curriculum.

Conclusion

Ethics is an integral component of dental hygiene education as well as the profession; however, this study revealed that a low proportion of students' clinic grade derives from ethical concepts. Findings also showed that although there is variance from program to program, there is no consistent explanation for such variance based on the type of institution offering the program or the highest degree offered by the program.

It is clear that dental hygiene programs have taken steps to employ a variety of teaching strategies to assist students in developing the skills needed to apply ethical concepts in the provision of oral health care. However, the effectiveness of instruction should be assessed. This is evident by the number of respondents who indicated a desire to see a greater emphais on ethics instruction despite the increase in mean hours. Future studies should investigate the effectiveness of ethics instruction within the dental hygiene curriculum and how ethics instruction in other allied health disciplines could be applied to dental hygiene. Such efforts can only enhance the quality of education students receive and in turn the quality of care provided to patients.

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Notes

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