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Can a Clinical Continuing Education Course Change Behavior in Dental Hygiene Practice?

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Can a clinical continuing education course impact practitioner provision of care in everyday practice? National recommendations call for continuing education that is closely linked to practitioner learning at the point of care and for outcome assessment that measures the effectiveness of learning activities on the learner's practice behavior. Educational research has shown that interactive learning with clinical participation and the opportunity to practice is one of the most effective educational interventions. This study used an interactive educational intervention during a 3-day clinical course designed for dental hygienists. A follow-up survey was sent to determine whether the knowledge and skills that were taught in the course were applied subsequently to patients in practice. Sixty-one of 97 surveys were returned for a 63% response rate. Descriptive data including frequencies, means, medians, and standard deviations were obtained for all survey items. The majority of respondents reported moderate to high gains in knowledge and skills as well as application to patients in practice. The majority also identified continuing education as the primary source of information used when making changes in practice.

Keywords: Outcome assessment, evidence-based clinical practice, effectiveness of continuing education, quality improvement, continuing professional development, diffusion of knowledge

Introduction

Continuing competency continues to be a concern for practitioners, educators, and regulatory agencies alike. One important measure of continuing competency is the application of current clinical evidence in practice. Continuing education courses are a common vehicle for the dissemination of clinical evidence to practitioners. Specifically, clinical continuing education courses are well suited to provide an opportunity to practice new skills on patients as they may be applied subsequently in practice. This study was conducted to see whether a specific clinical continuing education course that included an interactive element could change dental hygiene practice, and thereby contribute to bridging the gap between emerging research, technology, and professional practice.

Review of Literature

In April of 2000, 9 organizations committed to continuing professional development of physicians sponsored a continuing medical education summit on practices, opportunities, and priorities for the new millennium. One of the key issues identified

from the summit was that research including outcome assessments should be used to shape continuing professional development.¹ Measuring the long-term effects of continuing education on professional practice is an important piece of outcome assessment and is directly related to this issue.

Today, there is general agreement in the medical and dental community that practitioners need to make changes in practice based on the currently available scientific evidence in order to improve client outcomes. However, practitioners have difficulty accessing, interpreting, and applying current evidence.² In addition, evidence-based practice relies not just on the dissemination of the evidence but also on the readiness of practitioners to integrate the changes into everyday practice. Barriers to applying evidence in practice include practitioner factors such as clinical uncertainty and adherence to obsolete knowledge, practice factors such as time and organization, and educational factors such as outdated or inappropriate continuing education.³

Educational research has demonstrated that health care professionals use different educational strategies during their stages of readiness to change. Garcia⁴ has described the following 5 stages of learning and change in physicians: 1) priming/preparation, where the professional is dissatisfied with the current knowledge or skill; 2) focusing, where the professional is aware of new ideas or methods; 3) follow-up, where the professional is actively seeking new information or skills; 4) making change, where the professional implements the change; and 5) solidifying change, where the professional is seeking support for the change and is trying to convince others. Although continuing education as a learning method was found to be most effective during the follow-up phase, it was also used during the preparation and solidifying phases of change. Garcia also reported that change motivators were significant because they precede and effect change regardless of the quality of the educational experience.

However, it should be noted that change in practice cannot be expected from all health care professionals who are attending continuing education courses because not all practitioners are attending either with the intent or the readiness to change, ie, priming, focusing, and confirmation stages of learning either precede or follow change. In addition, there can be considerable variation in the time taken to make changes. Davis reported an average of 15 to 22 months for physicians to implement changes in practice, and that even when provided with sound information, clinicians can take 15 years to substantially change the way they practice.⁵ No literature was found relating to dental hygienist changes.

Although continuing professional education is a common vehicle for dissemination of scientific knowledge⁶, not all educational interventions are equally effective in promoting change. Numerous researchers in continuing medical education⁷⁻¹³ have conducted studies that rate educational interventions based on their effectiveness in promoting change. Bero et al⁷ found educational outreach visits as particularly effective in changing prescribing habits among physicians. An outreach visit consisted of a follow-up visit by a facilitator in the work setting to see if different prescribing patterns were implemented in practice. Tu and Davis⁸ stated that change was more likely if specific behavior was targeted rather than giving general guidelines or multiple recommendations.

Grimshaw et al⁹ found the most effective single educational interventions to be: 1) interactive sessions, where professionals engage in clinical participation and have opportunity to practice; 2) educational outreach visits, where an educator serves as a resource in the practice setting; 3) reminders, via mail, phone, or computer; 4) opinion leaders, where influential peers disseminate current information; and 5) patient-mediated interventions, where patients are given current information to discuss with practitioners. An example of a patient-mediated intervention would be to disseminate information on the dangers of smoking directly to patients with instructions to discuss this information with their health care providers.

Khan and Coomarasamy¹³ found that interactive workshops improved education and patient outcomes where didactic teaching alone increased knowledge but not skills, attitudes, and behaviors in practice. In general, interactive educational interventions were found to be effective in promoting changes in physicians.⁷⁻¹³ In a systematic review, O'Brien et al¹⁴ conducted a comparison of 32 studies of randomized trials or well-designed quasi-experimental studies in continuing medical education for their effects on professional practice and health care outcomes (N = 2995). These authors also concluded that interactive workshops resulted in moderately large changes in professional practice of physicians but that didactic sessions alone were unlikely to change professional practice.

In a narrative review of 16 syntheses across the health professions, Robertson, Umble, and Cervero¹⁵ reported that although continuing education has been demonstrated to improve knowledge, skills, attitudes, behaviors, and patient health outcomes, that a specific continuing education program cannot be fully understood unless the context of the health professionals practice is considered. These authors described learning as a social activity that takes place on 3 levels: 1) patient-professional interaction; 2) organizational systems and processes that comprise the practice; and 3) social, political, and economic systems that frame the practice.

Several studies have also documented positive outcomes following continuing professional education in nursing.¹⁶⁻¹⁸ Wilkinson et al¹⁶ reported that communication skills following a 3-day continuing education program were improved from precourse to postcourse, and also at 6 weeks following the course. Williams et al¹⁷ found improvements in knowledge and attitudes toward HIV/AIDS patients following a 5-day lecture/discussion workshop. Edwards et al¹⁸ measured change in knowledge and attitudes of nurses toward childhood fever management. They reported that peer group discussion helped draw attention to the importance of the topic and helped sustain the knowledge and attitude changes following the program.

Heaven, Clegg, and Maguire¹⁹ reported increased communication skills among nurses following a 3-day training program. However, they concluded that despite effective learning and motivation to change, improvements in communication skills of nurses were not automatically transferred back into the workplace, and were not maintained or generalized in a clinically meaningful way unless some kind of intervention was offered. They demonstrated that clinical supervision as an intervention strategy in the practice setting improved the integration of the skills gained from the communication training into nurses' everyday practice.

Alternatively, several authors²⁰⁻²² reported that commitment to change statements predicted subsequent changes in practice. The commitment to change process was described as: 1) asking practitioners during the course what changes they intended to make in practice based on the material covered; 2) following up in practice to find out whether the intended change was made; and 3) finding out what prevented the change if the intended change was not made.

Lockeyer et al²³ reported encouraging changes in practice following reflection exercises combined with case-based discussion, needs assessment, and commitment to change exercises. They described reflection as the engine that shifts surface learning to deep learning, understanding, and change in practice. Schön²⁴ has described the process of reflection-in-action as thinking critically on the main problem, reframing it, and working out consequences and implications to new elements.

In a recent study of occupational therapists, Lowe et al reported interactive learning activities grounded in evidence-based dental medicine. In 2007, the American Dental Hygienists' Association (ADHA) published *Standards for Clinical Dental Hygiene Practice*. Professional responsibilities outlined in this document include: "commitment to lifelong learning to maintain competence in an evolving healthcare system."²⁷

Although there have been several studies in medicine and nursing, few studies have been conducted in dentistry and dental hygiene that demonstrate positive outcomes from continuing education courses that were applied subsequently in the practice setting. In one such study, Grembowski and associates²⁸ reported greater rates of fluoride varnish and sealant application in dental offices after a single didactic educational intervention when compared to a control group. However, the changes were not statistically significant. Asadoorian and Locker²⁹ surveyed 1750 Canadian dental hygienists and compared dental hygienists who were under a traditional mandatory continuing education system (control group), with dental hygienists who were under a system where individual needs assessment and goals in continuing education were pre-identified (experimental group). They found no differences in the total number of continuing education activities between the groups. However, they reported that dental hygienists in the experimental group were more likely to select continuing education courses that yielded greater change opportunities that were relevant to their practice and learning needs.

Several investigators have shown positive changes in practice after multiple educational interventions among dentists.³⁰⁻³² Using a randomized controlled study design and multiple educational interventions, Best and Messer³⁰ in 2003 reported

increased knowledge in oral health care, ethics, legal aspects, and infection control of dentists in Australia. Brown and Spencer³¹ reported improved recording of periodontal information in patient records of dentists in Australia following multiple educational interventions using a record audit and a comparison group. Bader et al³² also noted improved notation of periodontal conditions by dentists in North Carolina following multiple educational interventions using a record audit and a control group. However, all of these dental studies included a continuing education experience together with other educational strategies. Although encouraging, more studies are needed to evaluate the relative effectiveness of educational interventions including single intervention strategies for promoting change in dental and dental hygiene practice.

Based on a review of the literature, interactive clinical participation with opportunity to practice was selected as the educational intervention for this study because research has shown that interactive education is one of the most effective single intervention strategies in promoting changes in professional practice.⁷⁻¹⁴ The purpose of this study was to determine what knowledge and skills participants thought they acquired in a continuing education course, if this knowledge and these skills were subsequently applied to patient care, and what were their most important sources of information when making changes to their dental hygiene practice.

Methods

The study group was comprised of 97 dental hygienists who completed a 3-day lecture and clinical continuing education course on nonsurgical periodontal therapies at a dental school in the upper Midwest region of the United States. In order to increase the sample size, participants who participated in the course during a 5-year period were included in the study.

An author designed and pretested the survey and it, along with a cover letter, was sent to the 97 participants. The cover letter provided information on informed consent and consent was assumed upon receipt of the completed survey. The surveys were coded and blinded to ensure anonymity. The questionnaires were mailed 6 months following the last course of the 5-year period. A reminder post card was sent 6 weeks after the initial survey was sent. Sixty-one dental hygienists completed the survey yielding a 63% response rate.

Survey questions were designed to: 1) identify demographic information about the course participants; 2) determine self-reported knowledge and skills attained during the course; and 3) determine self-reported outcomes of the course applied later to patients in the practice setting. The knowledge and skill items that were selected for the survey were those that were taught in the course and the items that we selected specifically for their ratings of "skill improvement" and "performance with patients" were those skills that they had practiced on patients during the 3-day course (periodontal probing and charting, hand instrumentation, and ultrasonic instrumentation).

Descriptive statistics that included frequencies, means, medians, and standard deviations were used to analyze all the data. In addition, correlation analyses were performed on the following variables: 1) number of continuing education hours completed per year in relation to the number of years in practice; 2) number of continuing education hours completed per year in relation to the rating of skill improvement on patients in practice; and 3) whether the employer paid for the continuing education course in relation to the rating of skill improvement on patients in practice.

Results

Demographic Data

Thirty-eight percent of the respondents were members of their professional association with 3% holding leadership positions. Forty-one percent participated in volunteer community service activities. The average number of continuing education credits reported by the study participants was 16 hours per year (SD = 11). Continuing education was mandatory for relicensure for 75% of the study participants. The group averaged 9.5 years since attaining their dental hygiene degree (SD = 9.4).

The course participants averaged 32.5 hours of practice per week (SD = 4.6). The group averaged 6.4 years of full-time clinical practice (SD = 6.2) and 7.8 years of part-time clinical practice (SD = 9.7). Seven of 61 dental hygienists reported from 1 to 7 years during which they did not practice dental hygiene. The group averaged 5.1 years of practice in their primary practice setting (SD = 5.3).

Most (80%) of the study participants were employed in one practice, 9% in 2 practices, and 2% in 3 or more practices. The majority (92%) were employed in a general practice, 3% in a periodontal practice, 1% in a pediatric practice, 1% in a public health setting, and 1% were not currently employed. Fifty-eight percent worked for a solo practitioner, 40% worked in a group practice, and 2% practiced in a community practice setting. Eighty-eight percent of the respective employers paid the tuition for course participants.

Changes in Knowledge

The course participants were asked to rate the amount of knowledge acquired during the course on the subjects of root morphology, instrument sharpening, patient assessment, hand instrumentation, ultrasonic instrumentation, new periodontal products available for office and home use, and integration into practice (ie, dental insurance and case studies). In addition, they were asked to assess any skill improvement in periodontal probing and charting, hand instrumentation, and ultrasonic instrumentation. The rating scale was from 1 to 5 with 1 as no change, 2 as low, 3 as medium, 4 as high, and 5 as very high gains in knowledge or skill.

Median scores were reported because they provided the most representative picture of the overall group responses and the measurement scales were ordinal. The median scores for the following variables on acquisition of knowledge were: root morphology- 3; instrument sharpening- 4; patient assessment- 3; hand instrumentation- 4; ultrasonic instrumentation- 4; new periodontal products- 4; and integration into practice- 3. The median scores for the following variables on skill improvement were: instrument sharpening- 3; periodontal probing and charting- 3; hand instrumentation- 4; and ultrasonic instrumentation- 4.

Changes in Practice

The course participants were also asked to assess how their treatment of patients in practice had improved as a result of the 3-day periodontal nonsurgical therapies course. Changes regarding patient probing and charting skills were selected because they were emphasized during the course and because it was deemed important to identify the location and depth of periodontal pockets in order to provide proficient hand and ultrasonic instrumentation. Most study participants rated gains in skills to be medium or high (See Table I). Written comments included: "I was already performing periodontal probing and charting prior to the course" and "my dentist does all the charting."

Table I- Post-course patient probing and charting skills
(self-assessment of gains in skills)

Level	Frequency	Proportion
1 No change	11	19%
2 Low	7	12%
3 Medium	17	29%
4 High	18	31%
5 Very High	5	9%

N = 58

The course participants were also asked to assess their postcourse hand and ultrasonic instrumentation skills. Most respondents indicated high levels of gains in skills for both. Results are summarized in Tables II and III. Written comments for postcourse hand and ultrasonic instrumentation skills included: "I was already doing these procedures" and "I was not working after the course."

Those who indicated no postcourse changes in practice gave the following reasons: 1) not working enough to implement changes; 2) inadequate feedback; and 3) inadequate time per patient in practice.

Course participants were also asked "what is your primary source of information when you wish to make a change in clinical practice?" Their choices for responses were: 1) continuing education courses; 2) dentists; 3) other dental hygienists; 4) journal articles; 5) sales representatives; and 6) other (please identify). The results are reported in Table IV.

Table IV- Primary source of information used when making changes in practice

Source	Frequency	Proportion
Continuing Education Courses	39	75%
Dentists	3	6%
Other Dental Hygienists	9	17%
Professional Journals	1	2%
Sales Representative	0	0%
Other	0	0%

N = 52

The selection of correlational tests was determined by the type of data, ordinal or continuous, and the small sample size. Because of the variability in the number of continuing education hours reported by the group (SD= 11), the statistical tests that involved comparisons to continuing education hours were computed both for all respondents and for respondents under 35 hours. The results that follow are only for the group of respondents under 35 hours, which excludes the 2 outliers with very high hours who could have disproportionately influenced the results. However, in all cases, no relationships were found.

No significant relationships were shown between the number of continuing education hours completed by the course participants and the number of hours practiced per week, as indicated by linear regression analysis (slope estimate = -0.04; $p = .68$). There were no relationships demonstrated between the number of continuing education hours completed per year and the self-reported improvements in skills with patients in practice for this particular continuing education program. One-way ANOVA tests were conducted to analyze the relationships between the number of continuing education hours completed and: 1) periodontal probing and charting ratings (F ratio = .5192; $p = .722$); 2) hand instrumentation ratings (F Ratio = 1.9816; $p = .1116$); and 3) ultrasonic instrumentation ratings (F ratio = 1.2269; $p = .3133$) (Tables II and III). There were no relationships found between whether the employer paid and self-reported improvements in skills with patients in practice. Pearson chi square tests were used to assess the relationships among whether the dentist paid for the course and: 1) periodontal probing and charting ratings (chi square = 1.238; $p = .5385$); 2) hand instrumentation ratings (chi square = 2.152; $p = .3409$), and; 3) ultrasonic instrumentation ratings (chi square = 2.045; $p = .3596$).

Table II- Post-course hand instrumentation skills
(self-assessment of gain in skills)

Level	Frequency	Proportion
1 No change	3	5%
2 Low	8	14%
3 Medium	18	31%
4 High	23	40%
5 Very High	6	10%

N = 58

Table III- Post-course ultrasonic instrumentation skills
(self-assessment of gain in skills)

Level	Frequency	Proportion
1 No change	6	10%
2 Low	2	3%
3 Medium	14	24%
4 High	26	45%
5 Very High	10	17%

N = 58

In general, the results of the study indicated that participants felt they increased their knowledge and skills on all items at medium to very high levels, and applied these skills to their practice of dental hygiene. Over 90% of the participants indicated that they received new professional information from continuing education courses and/or other dental hygienists.

Discussion

To document whether continuing education can serve as an effective bridge between research and practice, as recommended by the continuing medical education summit,¹ the ADA,²⁶ and others, outcome assessment of changes in health care practice is needed. Schön²⁴ described professional schools as ideally positioned to bridge the gap between research and practice. He stated that professional schools have a dual orientation: on the one hand to provide discipline-related fundamental research as part of their university role, and on the other hand to provide applied research as part of their responsibility to the practicing community.

The applied research study reported here showed self-reported outcome gains in knowledge acquired for all of the subject areas covered during the continuing education course as well as for all the clinical techniques taught during the course. In addition, the group reported high utilization of the information and skills in everyday practice.

The median rating score of 4, indicating high change, was reported for both hand and ultrasonic instrumentation. This was true both in their ratings of skill improvement and in their ratings of improved performance with patients as a result of the course. In other words, the respondents believed that their skills in hand and ultrasonic instrumentation were highly improved and that the improved skills were transferred to patient performance in practice. Because there is some evidence that intent to change is related to actual change this finding is encouraging.⁴

It was postulated that a greater number of continuing education hours may be related to their practice experience, ie, less experience and greater need for continuing education, or to their self-assessment of skill improvement, ie, more continuing education hours and more skill improvement attained and reported. We also believed that if their employers had paid for the course there may be greater support for implementing and refining the subsequent skills in practice. In essence, we wanted to see if certain factors may be related to transfer of skills into the practice setting.

We expected to find some association between level of continuing education participation and practice experience, with possibly the less experienced seeking more continuing education courses. However, the lack of relationship demonstrated in this study may indicate that the dental hygienists who took the course and responded to the survey were more proficient at selecting a specific course based on their needs rather than just attending a large number of courses. This would support findings from Asadoorian and Locker²⁹ who reported that dental hygienists in Canada who had preidentified their learning needs and goals were more efficient in selecting their continuing education courses.

Although participants in this study were primarily from states with mandatory continuing education they averaged 16 hours of continuing education credit per year. On average, they worked 32.5 hours/week, mostly for general practitioners. The minority were members of their professional association (38%) and participated in volunteer community service activities (41%).

The lack of relationship between the number of continuing education credits taken and the ratings of clinical skill improvement may not be surprising since there is a diversity of continuing education courses available for credit, many of which may not relate directly to clinical skills. However, we expected to see a relationship between the employers' payment, which demonstrated their support for the course, and their ratings of clinical skill improvement. Especially because some literature suggests that management support is key to the successful transfer of skills to professional practice.^{15,19,25}

On the other hand, the lack of relationship between payment for the course by the dentist and ratings of skill improvement may be a reflection of the practice mode of dental hygienists. Within the time constraints of the overall appointment, dental hygienists may have a fairly wide range of choices in how to spend appointment time. In other words, improving one's level of probing, hand, and ultrasonic skills may not require additional support to implement since these procedures are already inherent in the dental hygiene appointment. However, management support may be needed if new equipment or additional patient time is required in order to implement the new or improved skills.

We have identified 5 main limitations of the study that reduce the capacity to generalize from the results. First, the study utilized self-assessment and self-report, which is subject to individual bias and may reflect perceptual changes rather than observed changes. Second, the sample was comprised of a 5-year period of course participants. Individuals who participated

during the first years of the course simply may not have remembered the effects of the course on their skill level and performance with patients. In addition, they may have taken several interactive courses in the interim that may have had an impact on their knowledge and skills. Third, the results of studies reviewed may not be generalized to the results of this study as the subjects in the studies reviewed were generally physicians who have different educational and health care systems as well as barriers to change. Fourth, the study did not include a control group. If we had also surveyed a control group of dental hygienists who had not taken the 3-day periodontal course, or had completed the lecture but not the hands-on component, the comparative results would be more meaningful. And fifth, there might be some question as to the reliability and the validity of the questionnaire instrument itself.

Nonetheless, it was encouraging to find that 75% of the study respondents use continuing education as their primary source of information when making changes to practice. If this were true of the general population of dental hygienists, continuing education as a methodology would be well positioned to bridge the gap between research and practice. It was also encouraging that no one identified sales representatives as a primary source of information.

There are 2 major perspectives to keep in mind when addressing continuing education and its potential to change professional practice. First, how can we improve individual courses and thereby effect individual practitioners? In essence, this would be changing the world one person at a time. And second, how can we design a quality assurance system that is meaningful for practitioners and the public across a practitioner's career span? This study was aimed at the first perspective.

However, regulatory agencies together with the health professions are charged with the perspective of quality assurance. Recently 16 major stakeholder organizations in continuing medical education met as a conjoint committee in order to propose changes to the existing continuing medical education system with the goal of improving the quality and effectiveness of continuing medical education, thereby supporting the profession and improving health care quality.³³ Their recommendations reach beyond individual courses to defining core curricula and core competencies for maintaining currency. They have called for the development of general competencies for all physicians as well as specialty competencies, and they have defined stages of learning from novice through mastery for each competency.

The American Dental Hygienists' Association (ADHA) has taken similar steps in formulating guidelines for clinical dental hygiene practice.²⁷ These guidelines lay at the foundation for dental hygiene practice and as such could be the basis for developing a core curriculum and core competencies for maintaining currency in the practice of dental hygiene across a career span. Thus, a core curriculum would be the framework for developing a continuing education curriculum that mirrors the core competencies.

However, even if a core continuing education curriculum in dental hygiene practice was developed and adopted by relevant agencies, the actual transfer of new information and skills to professionals in practice would still rest on the continuing educational system. In other words, we would still be left with how to develop, implement, and evaluate effective individual courses within the core competency framework.

Looking to the future, these authors believe the following strategies have great potential to effect change in professional practice through continuing education. First, interactive educational programs have great potential to affect professional practice, and identifying learning needs and goals prior to the course is more likely to effect practice.²⁹ Second, it is recommended that reflection and commitment to change exercises be utilized.²⁰⁻²⁵ Asking participants to reflect on what they have learned, anticipating problems with implementation in practice, and discussing the issues during the course, would be a fairly easy strategy to implement in any continuing education course. Finally, asking practitioners what they intend to change in practice and to follow up with them at a later date about whether they implemented the changes and if not, why, would also provide important information for continuing education developers and professional regulators.

In addition, it may be significant to include a focus on the practice setting following the continuing education activity since clinical supervision in practice¹⁹ and peer group discussion outside of the classroom¹⁸ have been shown to increase and sustain integration of knowledge, attitudes and skills into professional practice. In addition, Robertson et al¹⁵ described continuing education as a social activity that includes not only the organizational systems that comprise the practice but also external systems that frame the practice. They reported that changes in professional practice could only be understood within the larger context of organizational and societal support.

Additional research needs to be conducted to measure the impact of continuing education on professional dental hygiene practice. It is important to determine if the findings from research on physicians and other health care providers hold true for dental hygienists and what are the specific learning needs and barriers to change in dental hygiene practice. Studies addressing these suggestions relate to the ADHA Research Agenda.

There may be benefits gained from evaluating the effects of reflection and commitment to change as educational strategies utilized during continuing education courses. Multiple intervention studies such as continuing education together with clinical supervision, peer group discussion, or other post-course interventions may be most elucidating in promoting changes to professional practice. Finally, study designs utilizing precourse and postcourse comparisons or ideally control group comparison would be extremely beneficial in extending our understanding of actual changes in professional practice as a result of a continuing education experience.

Conclusion

In conclusion, results of the study reported here showed that the majority of respondents self-reported moderate to very high gains in professional practice for improvements in probing and charting skills as well as for hand and ultrasonic instrumentation skills following a continuing education course that included lecture and interactive experiences. The majority of respondents also reported that continuing education was the primary source of information that they used when making changes in practice. These findings together demonstrate that this group of dental hygienists perceived continuing education as an important vehicle for facilitating change to practice. Although course participants self-reported clinical gains that were applied in professional practice, their perceptions cannot be treated as behavioral evidence.

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Notes

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